

Negotiating zoonoses

**Dealings with infectious diseases shared by humans and
livestock in the Netherlands (1898-2001)**

Colofon

This research has been funded by the Faculty of Veterinary Medicine of Utrecht University, the Julius Center of the University Medical Center Utrecht, the Ministry of Economic Affairs, and the Ministry of Health, Welfare and Sport of the Netherlands.

The printing was supported financially by the Julius Center of the University Medical Center Utrecht.

Graphic design and printing: Gildeprint

ISBN 978-90-393-6839-8

Cover illustration: The logo of the Royal Netherlands Veterinary Association (*Koninklijke Nederlandse Maatschappij voor Diergeneeskunde*) during the 1960s. The Latin motto ‘hominum animaliumque saluti’ means ‘to the benefit of man and animal’ in English (and ‘tot heil van mens en dier’ in Dutch).

Negotiating zoonoses

Dealings with infectious diseases shared by humans and livestock in the Netherlands (1898-2001)

Onderhandelen over zoönosen

De omgang met door mens en vee gedeelde infectieziekten in Nederland
(1898-2001)

(met een samenvatting in het Nederlands)

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit Utrecht op gezag van de
rector magnificus, prof. dr. G.J. van der Zwaan, ingevolge het besluit van het
college voor promoties in het openbaar te verdedigen op donderdag 21 september 2017
des middags te 12.45 uur

door

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geboren op 26 oktober 1987
te Tilburg

Promotoren: Prof. dr. F.G. Huisman
Prof. dr. P.A. Koolmees

To my parents and my brother

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Introduction

In 2007, the Netherlands experienced an unusually large outbreak of Q fever among its human population, most of the cases occurring in the province of Noord-Brabant. By 2009, a total of 3,522 human cases had been registered by the public health authorities, making this Q fever outbreak the largest known worldwide.¹ Until today, 74 patients died and a significant number of patients developed chronic Q fever or Q fever-related severe fatigue.² Among the non-human population of Noord-Brabant – its livestock – the disease had taken hold somewhat earlier. Agricultural authorities had found *Coxiella burnetii*, the Q fever bacterium, causing abortion storms among dairy goats some years before the increase in human cases was noticed.³ The expanding intensive dairy goat industry concentrated in the southern parts of the Netherlands combined with high human population density was an ideal environment for *C. burnetii* to spread through the air. Afterwards, Dutch agricultural and public health authorities, and the responsible Ministers of Agriculture and Public Health were severely criticised for their response to the outbreak. Public debate and evaluation reports considered this response to

1 See for a thrilling account: David Quammen, *Spillover: Animal Infections and the Next Human Pandemic* (New York 2013) 223-234. Rijksinstituut voor Volksgezondheid en Milieu (hereafter RIVM), ‘Q-koorts’ (December 28, 2016), http://www.rivm.nl/Onderwerpen/Q/Q_koorts (January 23, 2017).

2 Ibidem.

3 G. van Dijk et al., *Van verwerping tot verheffing: Q-koortsbeleid in Nederland 2005-2010* (Den Haag 2010) 34-35.

be slow, badly coordinated, lacking a precautionary principle perspective and inconsiderate towards sufferers of Q fever.⁴ What went wrong?

This question has inspired widespread interest in zoonoses (infectious diseases shared by humans and animals), and in the international ‘One Health’ movement in the Netherlands.⁵ ‘One Health’ is defined and used in various ways, which partly explains the popularity of the concept – it can be used for a variety of needs.⁶ In most definitions, *interdisciplinary collaboration* between human medicine, animal medicine and environmental sciences is put centre stage.⁷ In the Netherlands, current discussions of zoonoses and One Health primarily stress the need for better collaboration between human medicine and veterinary medicine, accompanied by the (implicit) assumption that such collaboration has been non-existent or ill-founded in the past.⁸ It is generally seen as the central point of attention in improving responses to zoonotic outbreaks like Q fever.⁹

But is this focus on interdisciplinary relations sufficient to understand and evaluate responses to livestock-associated zoonoses like Q fever? It seems rather limited in its scope of stakeholders, to say the least. After all, indignation about Dutch responses to Q fever was not primarily directed at the medical disciplines, but at the public health and agricultural authorities and the power relations between them. Moreover, dairy goat farms – private companies – were the source of the outbreak, so not just *public* parties influenced negotiations on how to respond.

Therefore, this book studies the broader domains of public health and agriculture in relation to one another in responses to zoonotic outbreaks. Its central questions focus on the

4 See for evaluation reports: Van Dijk et al., *Van verwerping*; N. van der Bijl et al. (de Nationale ombudsman), *'Het spijt mij': Over Q-koorts en de menselijke maat* (Den Haag 2012); Emily Govers, Petra van Dorst and Lina Oomen (de Nationale ombudsman), *Q-koorts, een kwestie van erkenning: Een onderzoek naar de lessen die de overheid uit de Q-koorts epidemie heeft getrokken* (Den Haag 2017). In 2015, Q fever patients started legal proceedings against the Dutch state, and they started another lawsuit against individual goat farmers. On January 25, 2017 the The Hague Court judged that the state has not responded unlawfully to the Q fever outbreak. The patients appealed, and the case is still before the court.

5 For instance, as a response to Q fever, the zoonoses network *Brabants Kennisnetwerk Zoönosen* was founded in 2009, followed by a similar regional initiative *Kennisnetwerk Zoönosen Midden-Nederland* in 2013. The RIVM launched: RIVM, ‘One Health portal’, www.onehealth.nl (January 23, 2017).

6 Angela Cassidy, ‘One Health? Advocating (Inter)disciplinarity at the Interfaces of Animal Health, Human Health and the Environment’, in: S. Frickel, M. Albert and B. Prainsack (eds.), *Investigating Interdisciplinary Research: Theory and Practice across Disciplines* (New Brunswick 2016) 213-235.

7 Cassidy, ‘One Health?’.

8 See for instance: M. van Vijfeijken, ‘Eén jaar Kennisnetwerk Zoönosen Midden-Nederland’, *Tijdschrift voor Diergeneeskunde* (hereafter *TvD*) 139:5 (2014) 48-49.

9 See for instance: *Verslag der Handelingen van de Tweede Kamer der Staten Generaal* (hereafter *Handelingen Tweede Kamer*) 2015-2016, Bijlage, 28286 Dierenwelzijn / 25295 Infectieziektenbestrijding, nr. 844, Brief van de Minister van Volksgezondheid, Welzijn en Sport (hereafter VWS) E.I. Schippers (October 13, 2015).

power relations between these parties from a historical perspective. How did the domains of public health and agriculture negotiate control over livestock-associated zoonoses in the Netherlands during the twentieth century? Who decided what responses would look like? What can we say about the roles of and relations between the disciplines of veterinary and human medicine and their apparent lack of collaboration in this broader historical context? And finally, what conclusions can be drawn from this historical perspective for future dealings with livestock-associated zoonoses?

Why study such present-day issues from a historical perspective? To historians, the first intended audience of this study, this question is primarily answered by what it adds to related historical scholarship, which I will address later in this introduction. But such an academic justification might be less appealing to my second intended audience, the people dealing with present-day and future livestock-associated zoonoses. I want to give four general reasons why this history is important to contemporary policy makers and experts also. In the first place, although this book does not solve present-day problems, it does provide important insights into why they exist in the first place. Studying the past of contemporary issues helps to understand how and why they occur. Secondly, historical distance and access to archival material allows the historian to critically and independently study the motives, interests and aims behind actions and policies. This book will, for example, look at the popular One Health claim that a lack of medical-veterinary collaboration is at the centre of zoonotic problems. Thirdly, historical investigation helps to question the seemingly self-evident nature of the present-day situation. If historical events had been different, the outcome could have been different. In other words, understanding why things have happened in a particular way, also stimulates seeing possible alternatives. Fourthly, the historical perspective enables studying seemingly ‘technical’ issues like zoonoses as social rather than just biological phenomena. As many zoonoses experts I have spoken to know very well, ‘science’ is not alone in deciding how a society responds to a zoonotic outbreak.

Of course, zoonoses are not impressed by national borders and have caused disease throughout human (pre-)history.¹⁰ Nevertheless, I have good reasons to limit this book to one nation state, the Netherlands, and to one century, the twentieth. Although infectious diseases are often considered to pose identical biological problems everywhere on earth, we know that responses to them have differed profoundly in different contexts.¹¹ Put differently: a global study of historical responses to livestock-associated zoonoses would need to include every single national context. As this book does not study zoonoses as biological, but rather as social phenomena, it makes sense to focus on just one nation. But why such a tiny nation, the Netherlands? Tiny as it may be, the Netherlands is the second global exporter of agricultural

¹⁰ Classic works on this theme are: Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport 1972); William H. McNeill, *Plagues and Peoples* (New York 1976).

¹¹ See for instance: Peter Baldwin, *Contagion and the state in Europe, 1830-1930* (Cambridge 1999) 10-15.

produce after the USA.¹² The country has a very high agricultural production, and its intensive livestock sector developed to previously unknown high numbers during the second half of the twentieth century (Figures 1 and 2).¹³ Combined with high human population density livestock-associated zoonoses pose a significant risk, which is clearly illustrated by the exceptionally large outbreak of Q fever.¹⁴ A study of the Dutch case therefore provides a sharp view on the matter. The fact that the Netherlands is a major exporter of agricultural produce also means that Dutch zoonoses policies are of concern to its many trading partners.

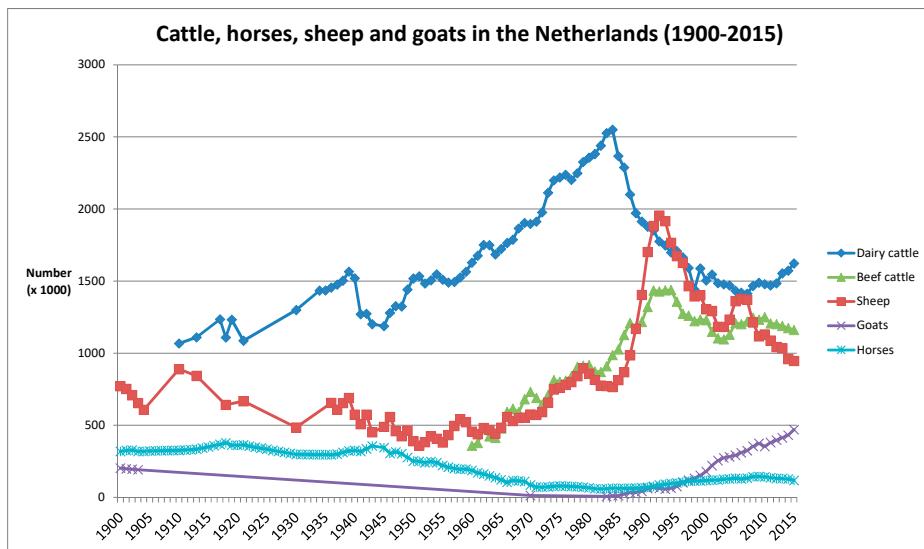


Figure 1 Cattle, horses, sheep and goats in the Netherlands (1900-2015). Source: CBS, StatLine ‘Landbouw; vanaf 1851’ (Den Haag, Heerlen June 15, 2016), <https://www.cbs.nl/nl-nl/cijfers> (March 27, 2017).

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- 12 Centraal Bureau voor de Statistiek (hereafter CBS), ‘Nederland tweede landbouwexporteur ter wereld’ (June 6, 2016), <https://www.cbs.nl/nl-nl/nieuws/2016/23/nederland-tweede-landbouwexporteur-ter-wereld> (February 9, 2017).
- 13 See also: Jan Bieleman, *Boeren in Nederland: Geschiedenis van de landbouw 1500-2000* (Amsterdam 2008) 515, 523-528, 541, table 4.11.
- 14 I deliberately use the word ‘risk’ here. Sociologist Joanna Swabe points out: ‘while disease *risks* may today be far greater than ever before, the danger of humans *actually* contracting diseases from contact with animals or the consumption of animal produce is in fact relatively small’. Joanna Swabe, *Animals, disease and human society: Human-animal relations and the rise of veterinary medicine* (London, New York 1999) 143. See also: Steve Hinchcliffe et al., *Pathological Lives: Diseases, Space and Biopolitics* (Chichester, Malden MA 2017).

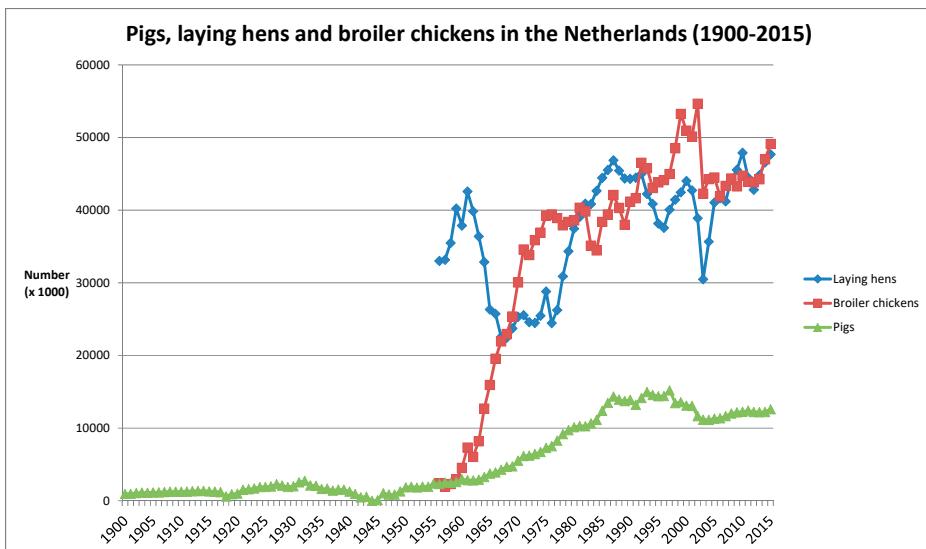


Figure 2 Pigs, laying hens and broiler chickens in the Netherlands (1900-2015). CBS, StatLine ‘Landbouw; vanaf 1851’ (Den Haag, Heerlen June 15, 2016), <https://www.cbs.nl/nl-nl/cijfers> (March 27, 2017).

The choice for the twentieth century as a time frame is inspired by several unprecedented developments in this century. The first one is the expansion of the state apparatus to deal with ever more aspects of social life – including public health and livestock production. Secondly, livestock production was intensified on a massive scale, particularly during the second half of the twentieth century. Lastly, the nineteenth century processes of industrialisation, globalisation and modernisation resulted in more complex trade relations.

In order to be able to span the entire twentieth century in a single study, I will focus on four prominent examples of livestock-associated zoonoses. Together, they define the structure of this book: bovine tuberculosis (bovine TB, 1898-1956), influenza (1918-1957), salmonellosis (1951-1978) and bovine spongiform encephalopathy – better known as BSE or ‘mad cow disease’ (1988-2001). The main aim here is not to study the particular history of these specific diseases. In this sense, this book deviates from other histories of disease. The four cases serve as concrete examples to study case-transcending developments, particularly regarding negotiations on control over zoonoses between the domains of agriculture and public health.

I have two general justifications for using these particular zoonoses within particular time frames as case studies.¹⁵ The first is that historical actors themselves considered them significant (social) problems in their time. These zoonoses posed new challenges to Dutch

15 I give particular reasons for choosing the time frames of the case studies at the end of this introduction and at the start of every chapter.

society, be it that they were ‘new’ in different ways. Salmonellosis and BSE were (partly) caused by previously unknown disease agents. Bovine TB was known in 1898, but the question what role the state had in dealing with this problem was new. Influenza was also a disease that had been encountered before 1918, but the major scientific developments in the study of the influenza *virus* were new.

The second justification is that these zoonoses confronted historical actors with major scientific uncertainties and controversies on how to define the disease and on how to respond to it. In times of uncertainty and controversy, power and / or authority claims can be made anew, and disputes over distribution of power takes place. Finally, dispute settlement or ‘closure’ takes place.¹⁶ I do not intend this closure to be a definitive end point, but a temporary relatively stable outcome of negotiations between the domains and disciplines involved. Thus, controversies over zoonoses provide an excellent opportunity to study who wanted and who gained authority over the disease’s definition and its possible control.¹⁷

But before I can start with the story of livestock-associated zoonoses in the Netherlands, I need to put it in the context of related historical scholarship (historiography), define key terms and concepts, justify my sources, and present the structure of this book in the remainder of this introduction.

Historiography

For a long time, zoonoses have hardly been included in historical analysis. General histories of the Netherlands do not address this topic at all, related to a general lack of attention for public health and (veterinary) medicine among historians.¹⁸ By contrast, the oldest body of literature on the history of zoonoses is written by champions of One Health, often veterinarians by

16 Sergio Sismondo, *An Introduction to Science and Technology Studies* (Chichester U.K., Malden MA 2010) 130.

17 Scientific controversy is an often-used analytical angle chosen by scholars studying science in its social context. This is not to deny the existence of non-controversy boundary work and authority disputes: Olga Amsterdamska, ‘Demarcating Epidemiology’, *Science, Technology & Human Values* 30:1 (2005) 17-51, 20.

18 See for instance: D.P. Blok *et al.* (eds.), *Algemene geschiedenis der Nederlanden* 12-15 (Haarlem 1977-1983); J.J. Woltjer, *Recent verleden: de geschiedenis van Nederland in de twintigste eeuw* (Amsterdam 1992); Jan L. van Zanden, *The economic history of the Netherlands 1914-1995: A small open economy in the ‘long’ twentieth century* (London, New York 1998); Piet de Rooy, *A Tiny Spot on the Earth: The Political Culture of the Netherlands in the Nineteenth and Twentieth Century* (Amsterdam 2015). For a recent attempt to remedy this blind spot, see: Frank Huisman, Joris Vandendriessche and Kaat Wils (eds.), ‘Blurring Boundaries: Towards a Medical History of the Twentieth Century’, theme issue, *BMGN-Low Countries Historical Review* (hereafter *BMGN-LCHR*) 132:1 (2017) 1-169.

training.¹⁹ Dutch veterinarians interested in the history of their discipline have also published on prominent veterinarians and successes regarding control of zoonoses.²⁰ These publications are meant to strengthen the current One Health movement and the position of veterinary medicine. Therefore, historians Bresalier, Woods and Cassidy have warned that most histories of One Health are written from current perspectives and motives, and fail to pay considerate attention to past contexts and developments, which are often very different from present ones.²¹

Rather, this book stems from the growing international tendency among historians of human medicine and veterinary medicine to combine the two,²² linked to the growing interest of historians in non-human animals.²³ In the tradition of histories of diseases,²⁴ several historians have studied zoonotic diseases, like Susan D. Jones' ecological and global perspective on anthrax, Anne Hardy's network perspective on *Salmonella* and Keir Waddington's study of

19 Well known is Calvin W. Schwabe's work: *Veterinary Medicine and Human Health* (Baltimore 1964, 1969, 1984), and *Cattle, Priests and Progress in Medicine* (Minneapolis 1978).

20 For instance: Ingrid J.R. Visser, 'De betekenis van Poels en De Jong voor de ontwikkeling van de veterinaire bacteriologie', *Geschiedenis der Geneeskunde* 8 (2002) 219-229; Frans van Knapen, 'Jacob van der Hoeden: Dierenarts-microbioloog en bruggenbouwer', *Argos: Bulletin van het Veterinair Historisch Genootschap* (hereafter *Argos*) 42 (2010) 44-49; Frans van Knapen, "Vreeselijksten geesel van het menschdom": Erkenning van bovine tuberculose als zoonose en bestrijding daarvan in Nederland', *Argos* 48 (2013) 274-283.

21 Michael Bresalier, Angela Cassidy and Abigail Woods, 'One Health in History', in: J. Zinsstag et al. (eds.), *One Health: The Theory and Practice of Integrated Health Approaches* (Boston, MA 2015) 1-15.

22 Examples include: Lise Wilkinson, *Animals and Disease: An Introduction to the History of Comparative Medicine* (Cambridge 1992); Roy Porter, 'Man, Animals and Medicine at the Time of the Founding of the Royal Veterinary College', in: A. R. Michell (ed.), *History of the Healing Professions: Parallels between Veterinary and Medical History* (Wallingford 1993) 19-30; Anne Hardy, 'Animals, Disease and Man: Making Connections', *Perspectives in Biology and Medicine* 46 (2003) 200-215; T. Schlich, E. Mykhalovsky and M. Rock, 'Animals in Surgery – Surgery in Animals: Nature and Culture in Animal-human Relationship and Modern Surgery', *History and Philosophy of the Life Sciences* 31 (2009) 321-354; Louise Hill Curth, *The Care of Brute Beasts: A Social and Cultural Study of Veterinary Medicine in Early Modern England* (Leiden 2010); Robert G.W. Kirk and Michael Worboys, 'Medicine and Species: One Medicine, One History', in: Mark Jackson (ed.), *The Oxford Handbook of the History of Medicine* (Oxford 2011) 561-577; Bresalier, Cassidy and Woods, 'One Health'; Tatsuya Mitsuda, 'Entangled Histories: German Veterinary Medicine, c. 1770-1900', *Medical History* 61:1 (2017) 25-47; A. Cassidy, R.M. Mason Dentinger, K. Schoefert and A. Woods, 'Animal Roles and Traces in the History of Medicine', in: Amanda Rees (ed.), 'Animal Agents: the Non-Human in the History of Science', *BjHS Themes* 2 (forthcoming in 2017).

23 See for instance: Harriet Ritvo, 'History and Animal Studies', *Society & Animals* (2002) 403-406; Leen Van Molle, 'Inleiding: een geschiedenis van mensen en (andere) dieren', theme issue, *Tijdschrift voor Geschiedenis* 125 (2012) 464-475; David Gary Shaw, 'A Way with Animals', in: 'Does History Need Animals?', theme issue, *History and Theory* 52:4 (2013) 1-12.

24 See for instance the *Biographies of Disease* series of Oxford University Press and John Hopkins University Press. An example from the history of veterinary medicine is: Abigail Woods, *A Manufactured Plague: The History of Foot-and-Mouth Disease in Britain* (London 2004).

bovine TB.²⁵ While this study does not provide a similar disease ‘biography’, it is inspired by these approaches to put disease at the centre of historical analysis. In the Netherlands, the small sub-disciplines of history of public health and (veterinary) medicine have paid some attention to zoonoses.²⁶ Dutch historians of public health and food have paid attention to efforts to control the quality of food, including food of animal origin.²⁷ Most noteworthy in this regard is historian of veterinary medicine Peter Koolmees’ work on the role of veterinarians in food quality and zoonoses control.²⁸ He has challenged the predominantly *human medical* outlook on the history of public health in the Netherlands²⁹ by including veterinary medicine and I continue this perspective here. Historians of (veterinary) medicine have also studied specific zoonoses in the Netherlands more or less extensively, bovine TB in particular.³⁰ I am indebted

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- 25 Susan D. Jones, *Death in a Small Package: A Short History of Anthrax* (Baltimore 2010); Anne Hardy, *Salmonella Infections, Networks of Knowledge, and Public Health in Britain, 1880-1975* (Oxford 2015); Keir Waddington, *The Bovine Scourge: Meat, Tuberculosis and Public Health, 1850-1914* (Woodbridge 2006).
- 26 Peter Verhoef, ‘Strenge wetenschappelijkheid en praktische zin’: Een eeuw Nederlands centraal veterinaire instituut 1904-2004 I (Rotterdam 2005); C. Offringa, *Van Gildestein naar Uithof: 150 jaar diergeneeskundig onderwijs in Utrecht I, 's Rijksveearsenijschool (1821-1918), Veeartsenijkundige Hoogeschool (1918-1925)* (Utrecht 1971); C. Offringa (ed.), *Van Gildestein naar Uithof: 150 jaar diergeneeskundig onderwijs in Utrecht II, Faculteit der veeartsenijkunde (1925-1956), Faculteit der diergeneeskunde (1956-1971)* (Utrecht 1981); H. van Zon, *Tachtig jaar RIVM* (Assen 1990); Peter Koolmees, *Tussen mens, dier en samenleving: Korte geschiedenis van de Koninklijke Nederlandse Maatschappij voor Diergeneeskunde* (1862-2012) (s.l. [2012]).
- 27 See for instance: A. de Knecht-van Eekelen, *Naar een rationele zuigelingenvoeding: voedingsleer en kindergeneeskunde in Nederland (1840-1914)* (s.l. 1984) 166-212; J. Bieleman and A.H. van Otterloo (eds.), *Techiek in Nederland in de twintigste eeuw III, Landbouw Voeding* (Zutphen 2000) 235-374.
- 28 See in particular: P.A. Koolmees, *Symbolen van openbare hygiëne: gemeentelijke slachthuizen in Nederland 1795-1940* (Rotterdam 1997); P.A. Koolmees, ‘Veterinary inspection and food hygiene in the twentieth century’, in: David F. Smith and Jim Phillips (eds.), *Food, Science, Policy and Regulation in the Twentieth Century: International and Comparative Perspectives* (London, New York 2000) 53-68. And also: Peter A. Koolmees, ‘From Stable to Table: The Development of the Meat Industry in the Netherlands, 1850-1990’, in: Yves Segers, Jan Bieleman and Erik Buyst (eds.), *Exploring the Food Chain: Food Production and Food Processing in Western Europe, 1850-1980* (Turnhout 2009) 117-137; Peter A. Koolmees, ‘Epizootic Diseases in the Netherlands, 1713-2000: Veterinary Science, Agricultural Policy, and Public Response’, in: Karen Brown and Daniel Gilfoyle (eds.), *Healing the Herds: Disease, Livestock Economies, and the Globalization of Veterinary Medicine* (Athens Ohio 2010).
- 29 See for example: E.S. Houwaart, *De hygiënisten: Artsen, staat & volksgesondheid in Nederland 1840-1890* (Groningen 1991); R.B.M. Rigter, *Met raad en daad: De geschiedenis van de Gezondheidsraad 1902-1985* (Rotterdam 1992).
- 30 Peter Koolmees, ‘Veterinary Medicine in the Netherlands in the Post-war Period, 1945-1960’, in: Johann Schäffer (ed.), *Tiermedizin in der Nachkriegszeit* (Giessen 2000) 103-113 (on bovine TB); Peter Koolmees, ‘Bovine Brucellosis and Post-War Dutch Veterinary Medicine’, in: J. Schäffer (ed.), *Geschichte der Gynäkologie und Andrologie der Haustiere* (Giessen 2008). Regional studies on Friesland: Bartje Abbo-Tilstra, *Om de sünens fan it Frysk folk: Tuberculose en haar bestrijding bij bevolking en veestapel in Fryslân, 1890-1940* (Leeuwarden 2002); Minie Baron, ‘Hondsrolheid in Friesland: Circa 1700 - Circa 1990’, *De vrije Fries: mengelingen uitgegeven door het Provinciaal Friesch Genootschap ter beoefening der Friesche Geschied-, Oudheid- en Taalkunde* 93 (2013) 123-162.

to this work, but this book is new in its societal, geographical and chronological scope in Dutch historiography.

The theme of livestock-associated zoonoses also makes the history of agriculture relevant to this study. While livestock diseases have sometimes been addressed in Dutch historiography of agriculture, zoonoses have not. The field predominantly has an economic focus.³¹ Questions on how agriculture related to environmental and public health issues in general have not often been addressed either.³² Nevertheless, international historiography of public health and the environment reveal clashes between economic and public health interests.³³ How does this dynamic play out in the case of livestock-associated zoonoses in the Netherlands? Studies by historians on agricultural organisations and the large role of the state in steering agriculture during the twentieth century are of great value to my question how the domains of public health and agriculture related to one another in dealings with zoonoses.³⁴

This book is indebted to two other historiographical traditions: history of science and political history. To start with the first one: it is no coincidence that veterinary and medical experts are put so central in present-day analyses of zoonotic issues. The expansion of the state into ever more parts of social life co-occurred with its transformation into an ‘expert society’: experts obtained central positions in informing, creating and managing government policies on an ever larger scale during the twentieth century. Scientific experts did not just inform and influence policies, but were simultaneously influenced by and depended on their social, political and cultural contexts. Historians and sociologists of science have used theatre

31 See volumes from the series *Historia Agriculturae* (1953-present) published by the *Nederlands Agronomisch Historisch Instituut* (Dutch Agronomic Historical Institute) in Groningen and Wageningen, the *Afdeling Agrarische Geschiedenis Bijdragen* (1958-2003) published by the department of agricultural history in Wageningen, Bernard Slicher van Bath, *De agrarische geschiedenis van West-Europa 500-1850* (Utrecht, Antwerpen 1980 [1960]) and Bieleman, *Boeren*.

32 Notwithstanding some exceptions, like: J.L. van Zanden and S. W. Verstegen, *Groene geschiedenis van Nederland* (Utrecht 1993); Erwin H. Karel and Yves Segers (eds.), ‘Landbouw & Milieu’, *Jaarboek voor Ecologische Geschiedenis* (Gent 2014); Erwin H. Karel, *Boeren tussen markt en maatschappij: Essays over de effecten van de modernisering van het boerenbestaan in Nederland (1945-2012)* (Wageningen 2013).

33 See for instance: Hardy, *Salmonella*, chapter 2; Allan M. Brandt, *The Cigarette Century: The Rise, Fall, and Deadly Persistence of the Product that Defined America* (New York 2009); Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (London 2010); Claas Kirchelle, ‘Toxic confusion: the dilemma of antibiotic regulation in West German food production (1951-1990)’, *Endeavour* 40 (2016) 114-127.

34 See for instance: D.A. Piers, *Wisselend getij: geschiedenis van het Koninklijk Nederlands Landbouw-Comité over de periode 1934 tot en met 1959* (‘s Gravenhage 1959); Mari Smits, *Boeren met beleid: honderd jaar Katholieke Nederlandse Boeren- en Tuindersbond 1896-1996* (Nijmegen 1996); R. van der Woude, ‘Het boerenbolwerk’, in: P. van der Kooij et al., *De actualiteit van de agrarische geschiedenis* (Groningen, Wageningen 2000) 49-63; R.E. van der Woude, *Op goede gronden: Geschiedenis van de Christelijke Boeren- en Tuindersbond (1918-1995)* (Hilversum 2001); E.J. Krajenbrink, *Het Landbouwschap: ‘zelfgedragen verantwoordelijkheid’ in de land- en tuinbouw 1945-2001* (Nieuwerkerk a/d IJssel 2005); Bieleman, *Boeren*, 296-314.

metaphors to analyse this rise of expertise in modern societies. For example, the book *Scientists' Expertise as Performance*, edited by Joris Vandendriessche, Evert Peeters and Kaat Wils, puts the metaphor of theatrical performance central in its historical perspective on the modern expert society.³⁵ This metaphor draws attention to the fact that despite the undeniable rise of experts, their authority was not self-evident, but the result of complex relations between increasingly professionalising and specialising scientists, expanding state power and changing society. In a study of the societal impact of the Health Council (*Gezondheidsraad*), an important twentieth-century scientific advisory organ for the Dutch government in matters of public health, sociologists of science Wiebe Bijker, Roland Bal and Ruud Hendriks have used the metaphors 'front stage' and 'back stage' to distinguish between the 'neutral' expertise such an expert body presents to the outside world and the controversies over varying knowledge claims and political views fought out inside.³⁶ In short, existing history of science and science and technology studies scholarship shows that it is impossible to study experts without paying attention to their wider societal and political contexts.³⁷

Furthermore, this book is indebted to two interlinked themes within political history: the relation between private and public arrangements in society and the debate on 'pillarisation'. Do governments or private parties own particular social problems? Or is it a mixture of the two, for instance when the state facilitates private initiative with funding? Important in this context is Dutch neo-corporatism, 'neo' in comparison to the medieval corporatist guilds. As historian Piet de Rooy writes on the interwar period: 'a "neo-corporatist" culture emerged, whereby organised private enterprise arranged as many aspects of socio-economic life as possible, under the eye of the state.'³⁸ As the most striking example of this, De Rooy discusses twentieth-century Dutch agriculture. Private parties had an important say in policy decisions, most clearly formalised in the neo-corporatist structure of public-private 'statutory industrial organisations' (*publiekrechtelijke bedrijfsorganisaties, PBOs*) after the Second World War, in which business got formal policy-making responsibilities. Again, this structure was especially successful in the agricultural sector. Agricultural *PBOs*, the Agricultural Board (*Landbouwschap*) in particular, became central powers in agricultural policies from the 1950s onwards, through their close association with the Ministry of Agriculture and the parliamentary

35 Joris Vandendriessche, Evert Peeters and Kaat Wils, 'Introduction: Performing Expertise', in: Joris Vandendriessche, Evert Peeters and Kaat Wils (eds.), *Scientists' Expertise as Performance: between State and Society, 1860-1960* (London 2015) 1-13.

36 Wiebe E. Bijker, Roland Bal and Ruud Hendriks, *The Paradox of Scientific Authority: The Role of Scientific Advice in Democracies* (Cambridge, MA 2009).

37 See also, e.g.: Frans van Lunteren, Bert Theunissen and Rienk Vermij (eds.), *De opmars van deskundigen: souffleurs van de samenleving* (Amsterdam 2002); Mark B. Brown, *Science in Democracy: Expertise, Institutions, and Representation* (Cambridge Massachusetts, London 2009); Sheila Jasanoff, *Science and Public Reason* (Oxon, New York 2012).

38 De Rooy, *A Tiny Spot*, 187.

agricultural committee – termed the ‘green front’.³⁹ The idea that public health self-evidently acquired a strong position in state administration during the twentieth century cannot be backed with historical evidence.⁴⁰ In the Netherlands in particular, decentralised and private health care organisations continued to be important throughout the twentieth century.⁴¹ How these public-private dimensions influenced responses to livestock-associated diseases is a theme throughout this study.

Closely related is the historiographical debate on the ‘pillarisation’ (*verzuiling*) of Dutch civil society. According to this theory, ‘pillars’ consisting of organisations with a certain ideological-religious outlook (Protestant, Catholic, social democratic and – although resisting such compartmentalisation – liberal) organised every aspect of life, like politics, business, labour, education, health care and media during a large part of the twentieth century. According to the pillarisation model developed by political scientist Arend Lijphart in the late 1960s, lower social strata of the pillars did not meet, while the elites of the pillars ensured the functioning of democracy in such a deeply divided nation through ‘pacification politics’ aimed at reaching consensus. Consensus thinking and relative stability with confessional parties at the centre of political power is often emphasised in Dutch political histories.⁴² However, political historians have extensively criticised the pillarisation theory based on empirical historical research, and some have even suggested to drop the concept entirely.⁴³ Nevertheless, the pillarised ideological organisation (*verzuilheid*) of large parts of civil society during much of the twentieth century cannot be denied.⁴⁴ Important for this book is the fact that agricultural and health care organisations were often organised along ideological lines. A subquestion of this book will therefore be to what extent debates on and responses to livestock-associated zoonoses were pillarised.

This book also intends to add to existing political history by writing a comparative history of the policy domains of agriculture and public health in dealing with livestock-associated zoonoses. This is important, because both political historians and historians of agriculture have

39 Krajnenbrink, *Het Landbouwschap*, 13; De Rooy, *A Tiny Spot*, 185–228.

40 Dorothy Porter, ‘Introduction’, in: Dorothy Porter (ed.), *The History of Public Health and the Modern State* (Amsterdam, Atlanta GA 1994) 1–44, 13; Harry Oosterhuis and Frank Huisman, ‘The Politics of Health and Citizenship: Historical and Contemporary Perspectives’, in: Frank Huisman and Harry Oosterhuis (eds.), *Health and Citizenship: Political Cultures of Health in Modern Europe* (London 2014) 1–40, 5–6.

41 Kees Jan van Klaveren, *Het onafhankelijkheids syndroom: Een cultuurgeschiedenis van het naoorlogse Nederlandse zorgstelsel* (Amsterdam 2016).

42 Remieg Aerts et al., *Land van kleine gebaren: Een politieke geschiedenis van Nederland 1780–1990* (Nijmegen 1999); Friso Wielenga, *Nederland in de twintigste eeuw* (Amsterdam 2009).

43 Piet de Rooy, ‘Zes studies over verzuiling’, *BMGN-LCHR* 110 (1995) 380–392; Peter van Dam, *Staat van verzuiling: Over een Nederlandse mythe* (Amsterdam 2011).

44 See: De Rooy, *A Tiny Spot*, 185–228.

neglected the political history of agriculture in general.⁴⁵ Moreover, separate policy domains for agriculture and public health were shaped during the twentieth century. Very different from nineteenth-century liberal politics, the state got an important role in these domains. Historians have studied the specific policy domains in isolation.⁴⁶ For my aims here, it is necessary to study them in relation to one another. As we will see in more detail, state intervention in agriculture occurred relatively early by Dutch standards, especially when compared with public health. A historical analysis of relations between public health and agriculture will also provide deeper insight into why social scientists find current Dutch food safety policies to be ‘technocratic’ and ‘rationalist’, different from those in other European countries.⁴⁷

Definitions

Today, the term ‘zoonosis’ is used in English to refer to ‘a disease communicated from one kind of animal to another or to a human being; usually restricted to diseases transmitted naturally to man from animals.’⁴⁸ The word is a medical or veterinary term that came into use in the nineteenth century, initially in German medicine (*Zoonose*).⁴⁹ The Dutch etymological dictionary places the first occurrence of the Dutch word *zoönose* in the period 1901-1925.⁵⁰

45 P.J. van Cruyningen, *Boeren aan de macht? Boerenemancipatie en machtsverhoudingen op het Gelderse platteland, 1880-1930* (Hilversum 2010) 13-15.

46 See for instance: Ido de Haan and Jan Willem Duyvendak, *In het hart van de verzorgingsstaat: het Ministerie van Maatschappelijk Werk en zijn opvolgers (CRM, WVC, VWS), 1952-2002* (Zutphen 2002); Erwin H. Karel, *De maakbare boer: streekverbetering als instrument van het Nederlandse landbouwbeleid 1953-1970* (Groningen 2005); Johan van Merriënboer, *Mansholt: Een biografie* (Amsterdam 2008); Bieleman, *Boeren, 296-314, 461-481*; Van Klaveren, *Het onafhankelijkheidssyndroom*. Sjoerd Keulen, *Monumenten van Beleid: De wisselwerking tussen Nederlands rijksoverheidsbeleid, sociale wetenschappen en politieke cultuur, 1945-2002* (Hilversum 2014) does study several policy domains, but not in relation to one another.

47 Peter Oosterveer, ‘Reinventing Risk Politics: Reflexive Modernity and the European BSE Crisis’, *Journal of Environmental Policy and Planning* 4 (2002) 215-229, 225; Katharina T. Paul, ‘Dutch Food Safety Policy: From “Politics in the Stable” to Stable Politics’, *Science as Culture* 20:2 (2011) 209-228.

48 ‘zoo-, comb. form’, *Oxford English Dictionary Online* (June 2016), <http://www.oed.com/view/Entry/233010?redirectedFrom=zoonosis> (August 23, 2016).

49 Cassidy, ‘One Health?’, 227 states that zoonosis is a mid-twentieth century concept. Although its popularity had indeed increased significantly by 1950, it is older. Schwabe initially attributed the ‘inception’ of the word zoonoses to Rudolf Virchow: Schwabe, Veterinary Medicine, 196-197. For Virchow on zoonoses, see: Rudolf Virchow, ‘Infectionen durch contagiose Thiergifte (Zoonosen)’, in: Rudolf Virchow (ed.), *Handbuch der speciellen Pathologie und Therapie* 2 (Erlangen 1855) 337-420, accessed through Google Books.

50 P.A.F. van Veen and N. van der Sijs, *Van Dale Etymologisch woordenboek* (Utrecht 1997), ‘zoönose’, via: Nicoline van der Sijs (compiler), ‘Etymologiebank’ (2010), <http://etymologiebank.nl/> (February 17, 2017).

But before that, Dutch veterinarians used the word, as Dutch veterinary medicine was predominantly Germany-oriented.⁵¹

However, this book does not provide an extensive history of historical actors' use of the word zoonosis and how its meaning changed over time. Unless stated otherwise, I use the word zoonosis in the sense of an analytical category, meaning a concept used as a lens or window on the past, in my case to demarcate my research scope. In this analytical sense, I define a zoonosis as an infectious disease that can be transmitted from animals to humans or vice versa. By using this definition, I do not want to claim that *historical actors* always defined the word like this throughout the twentieth century.

Nevertheless, my analytic definition of zoonosis is heavily informed by actors' categories in several ways. Animals and human beings are a constant element in both nineteenth and twentieth century definitions of the word, although their reciprocal relation in disease exchange is not. Historians of science and medicine could protest that my use of 'infectious' to define zoonoses is problematic. It was not self-evident that particular diseases (like TB) *were* infectious around 1900, despite the rapid rise of bacteriology in that period.⁵² I will pay attention to this in chapter 1. Still, I think that my use of 'infectious' to define zoonotic diseases is historically justified. The perspective of historical actors engaged with zoonoses – sometimes using this word themselves – was predominantly the perspective of bacteriology and later microbiology. A Dutch encyclopedia from 1908 defined *zoönosen* as: 'infectious diseases that can be transmitted from animals to humankind'.⁵³ This is not too remarkable: in order to be concerned about diseases spreading from animals to humans, one needs to believe that such communication can occur. In this sense, zoonoses were as infectious around 1900 as they are now. However, this does not mean that everyone believed in them, as we will see.

The domains of public health and agriculture also need defining. I use the word 'domain' metaphorically to mean a thematically defined scope of knowledge, interests and professional activities shared by several groups of actors.⁵⁴ The domain of agriculture consists of groups of

51 For instance, see for the use of *zoönosen* as a generally known veterinary term: A. van Heusden, 'Zuid-Afrikaansche zoönosen', *Tijdschrift voor Veeartsenijkunde* (hereafter *TvV*) 22 (1895) 251-253.

52 See for instance: M. van Daal and A. de Knecht-van Eekelen, 'Over aetiologie en therapie van tuberculose: Het debat in Nederland (1900-1910)', *Gewina* 15 (1992) 211-233.

53 I have translated this from the Dutch: 'infectieziekten welke van dieren op den mensch kunnen overgaan.' J. Kramer, *Vivat's geillustreerde encyclopedie* 10 (Amsterdam [1908]) 8077, via http://dbnl.org/tekst/kram036viva10_01/ (February 17, 2017).

54 Other scholars have used thematically defined metaphorical domains as objects of study. For instance, Martine Veldhuizen studies thematically defined medieval textual domains in her PhD thesis *De ongetemde tong: Opvattingen over zondige, onverlogen en misdadige woorden in het Middelnederlands (1300-1550)* (Hilversum 2014).

actors – ‘social worlds’⁵⁵ – like farmers, agricultural organisations, feed companies, agricultural authorities, veterinarians and agricultural scientists engaged in agricultural activities. The domain of public health consists of similar social worlds in the field of public health, like public health authorities, hygienists, medical doctors, public health veterinarians and patient groups. Social worlds are not uniform and change over time. For instance, groups of farmers can best be categorised by region and religious background during the first half of the twentieth century and by professional specialisation during the century’s second half.⁵⁶ Also, interests and perspectives of different social worlds in the domains often differed and competed. In the case of a controversy on a zoonosis, however, the social worlds often identified with the larger thematically defined domains.

Moreover, three groups are present only indirectly in my story, through the eyes of other groups: the micro-organisms causing zoonoses and their (potential) victims: ‘the public’ and animals (in this case livestock).⁵⁷ First, ‘the public’ is a group very different from the examples of social worlds given above. It is far more diverse, far less organised and never directly, actively involved in negotiations with other social worlds. The public is conceived, verbally constructed and sometimes represented as a group by other social worlds. In this indirect way, it will be present in this book. Second, micro-organisms and livestock play an important part also, but it is a very passive part. They are physically present and/or verbally constructed in many agricultural and public health social worlds, but they do not influence the course of social negotiations on their fates.⁵⁸

Like the domains of public health and agriculture, the disciplines of veterinary medicine and human medicine accommodate complex worlds. This book questions the uniformity of the discipline of veterinary medicine in particular. This is not to say that human medicine was

55 I have used the social worlds framework to define the domains of public health and agriculture. My domains are collectives of thematically linked ‘social worlds’, and can also be understood as large and diverse social worlds in themselves. Social worlds can form an ‘arena’ around a particular controversial issue of mutual interest, like a zoonosis. See on the social worlds framework: Karin Garretty, ‘Social Worlds, Actor-Networks and Controversy: The Case of Cholesterol, Dietary Fat and Heart Disease’, *Social Studies of Science* 27 (1997) 727-773; Adele E. Clarke and Susan Leigh Star, ‘The Social Worlds Framework: A Theory/Methods Package’, in: Edward J. Hackett, Olga Amsterdamska and Michael E. Lynch (eds.), *The Handbook of Science and Technology Studies* (Cambridge, MA 2007) 113-137.

56 Bieleman, *Boeren*.

57 Called ‘implicated actants/actors’ in the social worlds framework. Clarke and Star, ‘The Social Worlds’, 119.

58 As distinct from their role in biological events like infecting, getting ill and dying. Thus, non-human animals/organisms are not considered as collective actants/actors in this book, as is increasingly done in science and technology studies and animal studies. This is not to deny non-human organisms any agency, but to acknowledge that they were given very different power positions in human social processes than, say, organised farmers. See on non-human agency in history for example: Bruno Latour, *The Pasteurization of France* (Cambridge Massachusetts, London 1988); Jones, *Death*; Van Molle, ‘Inleiding’; Shaw, ‘A way’; Garry Marvin and Susan McHugh (eds.), *Routledge Handbook of Human-Animal Studies* (London, New York 2014).

more uniform: rather the opposite as it was a many times larger discipline.⁵⁹ My preoccupation with veterinary medicine is a result of the greater historical importance of zoonoses for the veterinary identity. As we will see, distinguishing between veterinary subdisciplines, like livestock medicine, veterinary public health and companion animal medicine, often makes more sense than talking about veterinary medicine in general. Despite their complexities, identifying general disciplines of veterinary medicine and human medicine continues to be meaningful, primarily because historical actors strongly identified with them. This was especially the case regarding zoonoses, which overlapped with both disciplines' claims of expertise.

Having defined the worlds encountering zoonoses, we now need to look into *how* these worlds perceived them. Currently, livestock-associated zoonoses are generally regarded as problems for which the state is responsible – remember how public criticism of the recent Dutch Q fever outbreak is directed at government authorities. In other words, livestock-associated zoonoses are considered to be public rather than private problems. This perspective is not self-evident. As we will see, the question whether specific livestock-associated zoonoses should be considered as public or private problems was asked throughout the twentieth century. One of my tasks is to show how and why livestock-associated zoonoses came to be seen as public problems. To do this, I use concepts developed by three sociologists: Abram de Swaan's 'collectivizing process', Joseph R. Gusfield's concepts of 'public problem' and 'problem ownership' and Thomas Gieryn's concept of 'boundary work'.

With his theory of the 'collectivizing process', Abram de Swaan provides a historical explanation for the rise of 'collective, nation-wide and compulsory arrangements to cope with deficiencies and adversities' to individual citizens.⁶⁰ Rephrased in the theme of this book, De Swaan provides an answer to the question how and why the Dutch came to develop national, collective and compulsory zoonotic disease control policies. The rise of such collective arrangements is not self-evident, as zoonotic diseases in the first place harm *individuals*. Why would the collective pay for these individual harms? De Swaan's collectivizing process provides an explanation for this apparent 'dilemma of collective action', also known as the 'free riders problem'. De Swaan reasons that once a society's elite realised that the sufferings of the poor carried external effects that also threatened themselves, the rich, they were more likely to start collective measures against these threats. Central in this theory are thus two concepts: the economic concept of 'externalities' or external effects and the concept of 'chains of human interdependence' developed by historical sociologist Norbert Elias.⁶¹ The effects livestock-

59 To give an impression of the difference in scale: the Netherlands accommodated only one veterinary faculty compared to eight medical faculties throughout the twentieth century. See on the diversity of human medicine: Alice Juch, *De medisch specialisten in de Nederlandse gezondheidszorg: Hun manifestatie en consolidatie, 1890-1941* (Rotterdam 1997).

60 Abram de Swaan, *In Care of the State: Health Care, Education and Welfare in Europe and the USA in the Modern Era* (Cambridge 1988) 2.

61 Ibidem.

associated zoonoses have on public health can well be seen as external effects of livestock production. This also broadens De Swaan's scope: chains of interdependence are not restricted to humans. However, a disadvantage is that De Swaan pictures the threats posed to citizens as more or less self-evident.

By contrast, Joseph R. Gusfield argues that these threats should be studied as historically constructed 'public problems'. He prefers the concept 'public problem' over 'social problem', to stress that social problems do not self-evidently have public status and to distinguish public from private. How is it that an issue (like a zoonosis) comes to be seen as a public problem? And who gets responsibility for it: who has the power to define a problem and to decide what is to be done about it? Thus, public problems arise within what Gusfield calls 'an arena of conflict'. Members of society who 'own' problems, have 'the authority to name that condition a "problem"' and 'suggest what might be done about it'.⁶² This involves making *political* choices between different possibilities – also when a problem owner is a scientific expert. Ownership leads 'to the exclusion of others'.⁶³ Parties interested in avoiding responsibility for a problem, are involved in what Gusfield calls 'disowning' public problems.⁶⁴

Sociologist of science Thomas Gieryn's concept of 'boundary-work' is useful for the demarcation processes between social worlds on who gets authority over a problem and who does not. Gieryn originally used boundary-work to study the relations between science and non-science.⁶⁵ In this book, similar boundary-work occurs between different scientific disciplines, or between the domains of public health and agriculture. Instead of the often used notion of 'competence dispute', I use 'boundary-work over problem ownership', as I need concepts that encompass more than just a claim of expertise. Although (claimed) expertise is very important in negotiations of problem ownership, it is not the only thing that settles a successful problem owner. Struggles over problem ownership are central in my analysis of both the relations between the domains of public health and agriculture, and the disciplines of veterinary medicine and human medicine in constructing livestock-associated zoonoses as problems.

62 Joseph R. Gusfield, 'Constructing the Ownership of Social Problems: Fun and Profit in the Welfare State', *Social Problems* 36 (1989) 431-441, 433.

63 Ibidem.

64 Joseph R. Gusfield, *The Culture of Public Problems: Drinking-Driving and the Symbolic Order* (Chicago 1981) chapter 1.

65 Thomas F. Gieryn, 'Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists', *American Sociological Review* 48 (1983) 781-795.

Sources

Doing justice to all the social worlds involved with zoonoses for an entire century is an ambitious task. Due to the scope of the project, I did not include all relevant source material. Nevertheless, I have selected the most relevant materials, looking for places where different views on livestock-associated zoonoses from different social worlds came together. Most useful in this regard have been the archives of special committees on specific zoonoses installed by agricultural and public health authorities, preserved in the National Archives. Examples are the 1898 State Committee on the Control of Tuberculosis among Cattle (*Staatscommissie inzake de bestrijding der tuberculose onder het vee*) and the Health Council salmonellosis committees of 1959-1962 and 1972-1978.

Around these committee papers as starting point, additional archival sources have been selected. Regarding agricultural and public health authorities respectively, the archives of the Veterinary Service (*Veeartsenijkundige Dienst*) of the Ministry of Agriculture and the Veterinary State Inspectorate of Public Health (*Veterinair Staatstoezicht op de Volksgezondheid*) have been particularly useful. These institutions were officially made responsible for zoonoses control policies during the twentieth century and provide a rich collection of archival papers on zoonoses, produced by veterinary and other social worlds from the domains of public health and agriculture. However, not all relevant archival documents on the recent BSE case have been transferred to the National Archives and thus are not yet available for historical research.⁶⁶

Regarding farmers I have focused on agricultural organisations. As a consequence, I pay little attention to deviating views among individual farmers – which did very likely exist. Sources from agricultural organisations can also be found in the National Archives, as Dutch agricultural authorities closely consulted farmers' organisations from the late nineteenth century onwards. Different committees and the archives of the Veterinary Service have been useful entrances here. Additionally, I have used agricultural journals and periodicals, and minutes and year reports from agricultural organisations. The archives of the agricultural *PBOs*, the Agricultural Board and Feed Board (*Produktschap voor Veevoeder*) in particular, deserve a special mention in this regard. Despite some archival difficulties,⁶⁷ *PBO*-documents provide a very valuable insight in internal debates of organised agriculture from the 1950s until 2014, when all *PBOs* were discontinued. I have used year reports and other *PBO* publications when archival documents were not (yet) available, for the BSE case in particular.

⁶⁶ The archives of the Ministry of Agriculture provide documents on BSE control until 1995: Nationaal Archief Den Haag (hereafter NA), 2.11.51 Veterinaire Dienst 1971-1995 (hereafter VD 1971-1995), inv. nr. 513, Bovine Spongiform Encephalopathie (BSE) 1990-1994. Archives of the Ministry of Public Health have not been made available yet.

⁶⁷ The *PBO* archives are often incomplete. 'Lost' material can in several cases be found in a different archive, like that of the Veterinary Service (*Veeartsenijkundige Dienst*).

As veterinary and medical experts were major social worlds striving for problem ownership of zoonoses, I use Dutch scientific, medical, veterinary and microbiological journals, monographs and periodicals to study their perspective on zoonoses. I include international scientific literature only where it is necessary to understand national developments.

Not everything I am interested in can be studied using written material. Sensitive topics are not always directly addressed in published material in particular, like the images the domains of agriculture and public health or veterinarians and physicians have of each other. Oral history is of major help here. As half my study deals with a recent enough period, I have interviewed several individuals who were involved in salmonellosis and BSE/vCJD research and/or policies. Especially in the case of BSE, the interviews have also helped to compensate for the lack of available archival material. My selection of interviewees does not have the pretension to be exhaustive or statistically representative. The goal of the interviews was not to interview everyone important or obtain a complete picture, but to get a sense of meaning-giving and identity among groups of people working with zoonoses. Practical considerations like knowledge of individuals involved, availability of contact information, willingness of individuals to participate and the time consuming nature of processing interviews have influenced the selection of interviewees. This has resulted in an ‘expert-biased’ selection: everyone I have interviewed was either veterinary or medically trained. Interviewing representatives of other social worlds, organised agriculture in particular, will likely add interesting new perspectives.

As said, I study ‘the public’ only indirectly in the sources produced by other social worlds. Nevertheless, I have used newspapers, other journalistic media, the periodicals of the Consumers Union (*Consumentenbond*) and parliamentary debates to obtain an impression of ‘public debate’ on zoonotic problems.⁶⁸

A note on my reproduction of sources is necessary. I quote historical figures in my own English translation of their original, mostly Dutch, words. I do this in order to make this study accessible to readers who cannot read Dutch. Providing the Dutch original for every translated quotation would take too much space, but getting some sense of the language used is important to historians. Therefore, I provide a list of the Dutch original of the longer, indented quotations at the end of this study.

68 For newspapers, I have used the digital newspaper databases of the Koninklijke Bibliotheek in The Hague, ‘Delpher’, <http://www.delpher.nl/nl/kranten> (February 17, 2017) for historical newspapers, and of LexisNexis, ‘Academic’ (2017), <http://academic.lexisnexis.nl/> (February 17, 2017) for contemporary newspapers. For parliamentary papers, I have used: Koninklijke Bibliotheek and Tweede Kamer der Staten-Generaal, ‘Staten-Generaal Digitaal: parlementaire documenten uit de periode 1814 tot 1995’, <http://www.statengeneraaldigitaal.nl> (February 17, 2017) and Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, ‘Overheid.nl: De wegwijzer naar informatie en diensten van alle overheden’, <https://www.overheid.nl> (February 17, 2017).

Structure

Every chapter zooms in on a case study: a particular zoonosis in its particular time period. Every case starts with the occurrence of a ‘new’ zoonotic problem, or a new perspective on an old zoonotic problem. The end point of a case is ‘closure’ of the debate or controversy, when it is clear who owns the controversial problem, decides what will be done and shapes actual policy measures in the domains of agriculture and/or public health. Every chapter is structured thematically: the first two sections focus on the agricultural and public health domains’ perception of the disease, the third section analyses the relations between these domains, and the fourth section discusses control measures taken or not taken.

Chapter 1 deals with bovine TB (1898-1956). Historical actors considered this to be the major livestock-associated zoonosis during the first half of the twentieth century.⁶⁹ The chapter starts in 1898, when the government started to intervene with bovine TB and constructed the policy domains of agriculture and public health. In many ways, the worlds of agriculture and public health took shape in the early twentieth century. The chapter takes 1956 as end date, as this was the last year of the large-scale state-organised bovine TB eradication programme. This transformed the disease fully into a public rather than a private problem. Hence, the more general change from the liberal *laissez-faire* to the more interventionist attitude of the state is clearly visible in this chapter, although the underlying engine of this change is different from what many readers will expect. The period 1898-1928 saw most controversy over bovine TB, and these ‘unstable’ years are therefore the focus of chapter 1. Most primary sources consulted stem from this period. The period 1928-1956 is included to address the transformation of bovine TB into a public problem.

The devastating worldwide ‘Spanish’ influenza pandemic of 1918-1919 probably claimed more victims than the First World War and left the medical profession and the new heroic ‘bacteria hunters’ powerless.⁷⁰ Chapter 2 on animal influenza (1918-1957) takes this major pandemic as starting point. The fear of another pandemic boosted influenza ‘virus’ research. Major research topics became the nature of the influenza disease agent, the production of a vaccine and whether human and animal influenzas were related. This was especially the case in the United Kingdom (UK) and the United States of America (USA), and on a smaller scale in the Netherlands. The chapter takes another global influenza pandemic, of 1957, as endpoint. This pandemic was accompanied with particular global interest in the relation between human and animal influenzas. While the chapter overlaps chronologically with the chapter on bovine TB, it differs in focus. Very different from bovine TB, the state was hardly concerned about (animal) influenza. Chapter 2 studies why this was the case, how it affected the outlook on

69 Waddington, *The Bovine Scourge*, 3-10.

70 Howard Philips and David Killingray, ‘Introduction’, in: Howard Philips and David Killingray (eds.), *The Spanish Influenza Pandemic of 1918-1919: New Perspectives* (London, New York 2003) 1-25, 3-4.

influenza as a potential zoonosis, and how it affected the relations between the domains of agriculture and public health, and the disciplines of human medicine and veterinary medicine.

Chapter 3 deals with a specific form of food infection: salmonellosis (1951-1978). After the Second World War, livestock keeping was greatly intensified and the consumption of products of animal origin, especially meat, saw a significant increase. Public health experts linked these changes to the growing problem of food infections, salmonellosis in particular. They also gave these relatively minor infections more attention as they increasingly controlled graver ones through the widespread availability of antibiotics and vaccines. In the case of livestock-associated salmonellosis, not so much its disease agent as its ‘primary source’ and how to deal with it was occasion for controversy. This controversy became prominent in the mid-1950s and continued to be a subject of fierce debate between the public health and agricultural domains for several decades. The chapter pays most attention to the first years of the controversy (1951-1968), when the question of who owned the salmonellosis problem saw closure. The salmonellosis case is set in the context of the welfare state with expanding public tasks. However, it also shows how private tasks were expanded as a consequence of the founding of the statutory industrial PBO bodies in the 1950s, which gave organised private agricultural interests significant influence. The problem definition of salmonellosis saw a shift in the 1970s with important implications for the controversy. Hence, the chapter takes the second Health Council advice to the government on the salmonellosis controversy, of 1978, as an endpoint. In a political sense, the late 1970s saw a major shift in the attitude of the state towards public services in the context of the oil crisis and the rise of neoliberal political leanings.

Chapter 4 deals with bovine spongiform encephalopathy (BSE, 1988-2001), better known as ‘mad-cow disease’, or *gekke-koeienziekte* in Dutch. BSE emerged as a deadly nervous disease among cows in the United Kingdom in the mid-1980s and concerns about the possibility of spread to humans via meat products and other routes quickly developed into a major European geopolitical problem with high media coverage. The human variant of BSE became known as (new) variant Creutzfeldt Jakob Disease ((n)vCJD) in the mid-1990s. The disease agent of BSE was gradually determined to be an infectious protein, called prion, hence part of an entire new class of infectious disease agents. The BSE case takes place in the political context of neoliberalism, in which the execution of state policies was increasingly privatised. The BSE case also takes place in a prominent European context, in which free trade and globalisation were important. The chapter starts in 1988, when BSE was for the first time discussed in Dutch sources. It ends in 2001, when the European Union drastically interfered in existing Dutch BSE policies.

The conclusion provides answers to the research questions on negotiations over problem ownership between the domains of public health and agriculture, and the disciplines of veterinary medicine and human medicine. Using insights from the four cases, it provides a long-term evaluation of dealings with livestock-associated zoonoses in the Netherlands and returns to the present-day One Health problems this introduction started with. But before we

can return to our own time, we need to travel back to the late nineteenth century, to see how bovine TB upset the minds of public health professionals and cattle farmers alike.

1

Creating the format for zoonotic disease control: bovine tuberculosis (1898-1956)

Bovine tuberculosis (bovine TB) was the zoonosis that attracted most attention around 1900. It was defined as a problem in need of a government response before such consensus was reached on human TB: the Dutch State Committee on bovine TB of 1898 (the year in which this chapter starts) preceded the State Committee on human TB with two decades. This occurred in the context of growing state interference in different aspects of society, after the *laissez-faire* period of a liberal, small government during the second half of the nineteenth century. Both the domains of public health and agriculture defined bovine TB as a problem from their particular perspectives. Simultaneously, the exact nature of bovine TB *as zoonosis* was subject to debate, especially until the 1930s. The chapter takes 1956 as end date, when bovine TB was eradicated from Dutch livestock by means of a large-scale national eradication programme.

1. Bovine tuberculosis as a public health problem

At the end of the nineteenth century, TB was the most significant cause of death of the Dutch adult population. In 1901, 194 out of every 100,000 people died of the disease.¹ Although

1 J. van der Lee, ‘De sterfte aan tuberculose 1901-1950’, in: L.C. Kersbergen (ed.), *Gedenkboek uitgegeven ter gelegenheid van het vijftig-jarig bestaan van de Nederlandse Centrale Vereniging tot Bestrijding der Tuberculose* (‘s-Gravenhage 1953) 192-202, 192.

mortality figures had been gradually decreasing since the early 1870s,² TB was still referred to as ‘the number one enemy of the people’ at the turn of the century.³ The poor in particular suffered from the disease⁴ and it was therefore closely linked to social-economic inequality referred to as the ‘social issue’ (*sociale kwestie*) in the Netherlands. While TB control had been largely a matter of poor relief and charity organised by churches during the nineteenth century, it was increasingly regarded as a public problem around 1900.⁵ A large number of private societies started to step in and formed a network under the Dutch Central Society for Tuberculosis Control (*Nederlandsche Centrale Vereeniging tot bestrijding der tuberculose, NCV*), established in 1903.⁶ The Great War circumstances of 1914-1918 led to a considerable temporary increase in deaths of TB, like was the case in other countries: from 140 of every 100,000 citizens in 1914 to 203 of every 100,000 in 1918.⁷

Bovine TB had been associated with human TB for several decades, especially through veterinary work in meat inspection. In the Netherlands, bovine TB was known as ‘pearl disease’ (*parelziekte*) because of the characteristic shining globules in affected parts of meat. Veterinarians worked in a long tradition of seeing this ‘pearl disease’ as a contagious disease which could be transmitted to humans via contaminated meat, causing TB. Tubercular milk soon became another concern, even more difficult to control as contaminated parts could not be removed from milk, as was possible in the case of meat.⁸ With Robert Koch’s discovery of the *Myobacterium tuberculosis* in 1882, this perspective was translated in bacteriological terms.⁹

Because of these concerns, ‘hygienists of the second generation’ or ‘radical hygienists’ added TB and bovine TB to their public health reform agenda during the latter decades of the nineteenth century in the Netherlands.¹⁰ The ‘hygienists’ (*hygiënisten* in Dutch) were the

2 Ibidem, 193 (graph 1).

3 Van Daal and De Knecht-van Eekelen, ‘Over aetiologie’, 211.

4 Christopher Hamlin, ‘Public Health’, in: Mark Jackson (ed.), *The Oxford Handbook of the History of Medicine* (Oxford 2011) 411-428, 424.

5 A. Juch, ‘Het “nut” van sanatoria: het tuberculosevraagstuk in Nederland rond 1900’, *Tijdschrift voor Geschiedenis* 107 (1994) 214-238.

6 The organisation started under the name *Nederlandsch Centraal Comité tot bestrijding der tuberculose*, but ‘Committee’ was changed into ‘Society’ in 1907. Abbo-Tilstra, *Om de sùnens*, 65-68.

7 Nelleke Bakker, ‘Fresh air and good food: children and the anti-tuberculosis campaign in the Netherlands c. 1900-1940’, *History of Education* 39 (2010) 343-361, 348.

8 Susan D. Jones, ‘Mapping a Zoonotic Disease: Anglo-American Efforts to Control Bovine Tuberculosis Before World War I’, *Osiris* 19 (2004) 133-148; Waddington, *The Bovine Scourge*. See for another important milk disease of the nineteenth century: Jacob Steere-Williams, ‘The Perfect Food and the Filth Disease: Milk, Typhoid Fever, and the Science of State Medicine in Victorian Britain, 1850-1900 (PhD thesis, University of Minnesota 2011).

9 Koolmees, *Symbolen*, 124-128; Waddington, *The Bovine Scourge*, chapters 2 and 3; Mitsuda, ‘Entangled Histories’, 42-46.

10 Houwaart, *De hygiënisten*, 293-294; Rigter, *Met raad*, 30.

European continental equivalent of the British nineteenth-century public health reformers called ‘sanitarians’.¹¹ Like the first generation of hygienists, the radical hygienists were concerned about the public health effects of growing social-economic inequality. And like the first generation, the radical hygienists argued for extension of medical-hygienist facilities, like sewerage, waste removal and clean drinking water. In two ways, the radical hygienists differed from their predecessors. Firstly, from the 1880s onwards, radical hygienists found a solid base for hygienist reforms in the newly developed theory of bacteriology, while the first generation of hygienists had opposed contagionism and supported the miasma theory. Secondly, radical hygienists argued the national government should take the lead in hygienist reforms, the primary reason why their reforms were ‘radical’ in comparison to the *laissez-faire* liberal tradition of the second half of the nineteenth century. While the first generation of hygienists had established the Medical State Inspectorate (*Geneeskundig Staatstoezicht*) in 1865, state interference with hygienist facilities was given a low profile and was largely located at the municipal level. The radical hygienists argued for a reorganisation of the Medical State Inspectorate in order to make the state more influential in matters of public health and to advance public health services.¹²

A central figure among radical hygienists and an important voice in putting bovine TB on the Dutch public health agenda was physician Wilhelmus Pieter Ruysch (1847-1920). He was official at the Medical State Inspectorate, and worked from 1887 until 1901 as medical advisor at the Ministry of Internal Affairs (*Ministerie van Binnenlandsche Zaken*). He was the driving force behind the radical-hygienist platform Dutch Congress for Public Health Control (*Nederlandsch Congres voor Openbare Gezondheidsregeling*), founded in 1895. This Congress was also called ‘Ruysch’ Congress¹³ and published the Journal for Social Hygiene (*Tijdschrift voor Sociale Hygiëne*). Ruysch’ Congress functioned as ‘hygienist advance parliament’ in the preparation of hygienist legislation, like the Health Act (*Gezondheidswet*) of 1901.¹⁴ In this, Ruysch closely collaborated with the hygienist Minister of Internal Affairs Goeman Borgesius in the progressive-liberal government of 1897-1901. Ruysch warned for the dangers of bovine TB spread via milk and meat in several capacities,¹⁵ and the Congress for Public Health Control

11 Christopher Hamlin, *Public Health and Social Justice in the Age of Chadwick: Britain, 1800-1854* (Cambridge 1998).

12 Houwaart, *De hygiënisten*, 242-296; Rigter, *Met raad*, 28-31.

13 Rigter, *Met raad*, 36.

14 Ibidem, 31.

15 Abbo-Tilstra, *Om de súmens*, 50-51; NA, 2.11.37.10 Staatscommissie ter bestrijding der tuberculose onder het vee 1898-1902 (hereafter Staatscie rundertbc), inventarisnummer (hereafter inv. nr.) 3, Correspondentie 1898-1902, W.P. Ruysch, ‘Verslag aangaande het IVde congres voor tuberculose, gehouden te Parijs 1898’ (November 1898).

also discussed bovine TB regularly.¹⁶ In short, hygienists defined bovine TB as a problem related to human health during the second half of the nineteenth century. They called for state interference in the control of the livestock disease and in meat and milk inspection.

How important bovine TB was in the broader context of human TB control, was still a matter of debate. In 1898, American Theobald Smith argued a different type of TB bacterium than 'Koch's' 1882 *Mycobacterium tuberculosis* was associated with bovine TB: *Mycobacterium tuberculosis bovis*.¹⁷ This conclusion was based on his finding that cows developed more serious TB from infection by TB bacteria isolated from cows than those isolated from humans. For Dutch veterinarians who were convinced that human and bovine TB were identical diseases these findings were an important incentive to start their own experiments.¹⁸ Veterinarian Dirk Aart de Jong for instance disagreed with Smith based on extensive experiments (1899-1901) with TB bacteria isolated from both cattle and humans in different animal species. He argued that all mammalian TB was aetiologically identical: TB bacteria isolated from humans and cattle differed in virulence, but not in identity.¹⁹

The uncertainty about the exact relation between the bovine and human types of TB bacteria fully attracted the attention of the international research community in 1901. It was shocked to hear its hero Robert Koch present a radical change of view on the relation between these two types at the International Tuberculosis Congress in London. Koch argued that human and bovine TB bacteria could not cross-infect, making public health measures against bovine TB-contaminated meat and milk redundant. In the Netherlands as much as elsewhere, this argument sparked years of debate on how the bacteria associated with human and bovine TB related to one another.²⁰

But this debate quickly moved away from Koch's thesis that *no* cross-infection could occur. International scientists convinced of the importance of bovine TB for public health quickly distanced themselves from Koch's thesis, despite the messenger's fame. A British Royal Commission of 1901-1911 was installed 'to prove Koch wrong', and concluded that bovine TB

16 See: *Tijdschrift voor Sociale Hygiëne: Orgaan van het Nederlandsch Congres voor Openbare Gezondheidsregeling* (hereafter *TvSH*) 3-6 (1901-1904) *passim*.

17 Koolmees, *Symbolen*, 126; Jones, 'Mapping', 135.

18 M.H.J.P. Thomassen, 'Over de identiteit der rundtuberculose bij mensch en rund', *TvV* 28 (1901) 547-558.

19 D.A. de Jong Jzn., *De eenheid der zoogdierertuberculose: verslag van vergelijkende onderzoeken naar de werking van tuberkelbacillen, afkomstig van het rund en van den mensch, bij runderen en bij andere dieren, aan den Minister van Waterstaat, Handel en Nijverheid* (Leiden 1902).

20 For the Netherlands, see: Offringa, *Van Gildestein* I, 237; Van Daal and De Knecht-van Eekelen, 'Over aetiologie'; Koolmees, *Symbolen*, 124-129; Abbo-Tilstra, *Om de sùnens*, 56. For international reactions, see: Jones, 'Mapping'; Waddington, *The Bovine Scourge*, chapters 7 and 10; C. Gradmann, *Laboratory Disease: Robert Koch's Medical Bacteriology* (Baltimore 2009) 82-90, 110-113; Tatsuya Mitsuda, Turning Animals into Meat: Veterinary Negotiations of "Disgust" in Late Imperial Germany (History of Science Seminar at King's College, London March 19, 2014).

was a danger to humans.²¹ American and British scientists and public health officials ‘were keen to refute Koch’, and started mapping TB in cattle and people to prove a connection.²² In the Netherlands, hygienists reacted similarly.²³ For example, veterinarian M.H.J.P. Thomassen and physician W. Nolen criticised Koch’s argument as official representatives of the Dutch government during the 1901 conference.²⁴ Although veterinarian De Jong admitted that refuting ‘the great TB researcher’ Koch himself had shortly made him hesitate, he nevertheless quickly informed the Dutch government about his opposite conclusions.²⁵ The Central Health Council (*Centrale Gezondheidsraad*), installed through the 1901 Health Act as both directing the State Inspectorate and advising the government on hygienist matters, argued in its 1904 advice on TB for measures against bovine TB, including national inspection of both milk and meat.²⁶

The particular debate on the relation between bovine and human TB was part of a larger debate on the nature and causes of TB in Dutch medical circles during the first decade of the twentieth century. Historians of medicine M. van Daal and A. de Knecht-van Eekelen have analysed this debate by distinguishing three groups.²⁷ Firstly, Koch’s critic, the medical professor Abraham Pieter Fokker and his supporters denied the contagiousness of TB altogether and thought hereditary disposition caused TB. Secondly, supporters of Koch thought only human TB bacteria caused TB in people. Thirdly, veterinarians Thomassen, De Jong and their supporters claimed both the human and bovine types of bacteria caused human TB. Well before Koch’s 1901 statements, De Jong directed his argument that animal TB was a danger to public health at Fokker, who denied such a – bacteria-based – link.²⁸ Linked to the debate on the cause of TB and to its association with poverty, the best way to control TB was also subject of debate. One group, including the Central Society for Tuberculosis Control *NCV*, argued for ‘direct control’ by eradicating TB bacteria and isolating TB patients, while another group argued for ‘indirect control’ of TB by improving social circumstances.²⁹

While it is analytically convenient to distinguish such groups, it needs to be stressed that in reality the perspectives were often more complex. Fokker died in 1906 and his purely

21 Waddington, *The Bovine Scourge*, 113.

22 Jones, ‘Mapping’, 133.

23 Offringa, *Van Gildestein I*, 176-177; Koolmees, *Symbolen*, 126; Abbo-Tilstra, *Om de sùnens*, 56.

24 NA, Staatscie runderbcr, inv. nr. 3, Correspondentie, M.H.J.P. Thomassen, ‘Verslag aangaande het tuberculose congres, gehouden te Londen van 22-26 juli (veterinair gedeelte)’, *Staatscourant* 270 (November 17-18, 1901); W. Nolen, ‘Het Congres over tuberculose te Londen’, *TvSH* 3 (1901) 233-256; Thomassen, ‘Over de identiteit’, 558.

25 De Jong Jzn., *De eenheid*, epilogue I.

26 Van Daal and De Knecht-van Eekelen, ‘Over aetiologie’, 231; Rigter, *Met raad*.

27 Van Daal and De Knecht-van Eekelen, ‘Over aetiologie’.

28 De Jong Jzn., *De eenheid*, chapter 1.

29 Van Daal and De Knecht-van Eekelen, ‘Over aetiologie’, 225; Rigter, *Met raad*, 83-84; Abbo-Tilstra, *Om de sùnens*, 78-83.

hereditary understanding of TB quickly lost popularity.³⁰ But ideas about hereditary disposition also informed the ideas of hygienists who did think bacteria were involved. According to many, ‘germ’ and ‘soil’ could not so easily be separated.³¹ The debate on the exact relation between bovine and human TB (and TB in other species) was more complex than a simple dichotomy between supporters and critics of Koch suggests.

Although Koch was generally not followed in his argument that bovine TB posed *no* danger to public health, TB controllers increasingly thought bovine TB of secondary importance in the larger context of the human TB problem. The NCVTB Society textbook considered human-to-human infection most dangerous in its 1913 and 1926 editions.³² In 1922, TB experts concluded ‘that the danger to humans of the type [of TB bacterium] adapted to humans is larger than that of the bovine type’.³³ In several publications on TB of children (the main consumers of cow milk in this period³⁴), paediatricians also argued that a relatively small percentage of human TB patients was infected via a cow and had generally milder forms of TB.³⁵

The minor position of bovine TB in the problem definition of human TB controllers was occasion for fierce indignation among veterinarians.³⁶ To understand this anger in its right context, a closer look at veterinary medicine and its relation with medicine and the hygienist movement is needed. In this period, Dutch veterinarians started to aspire academic ‘elevation’ of their discipline according to historian Cees Offringa.³⁷ During the 1890s, the State Veterinary School (*Rijksveearartsenijschool*) did not have higher education status. Academic status was a sign that veterinary medicine belonged to the sciences and veterinarians saw modern bacteriology

30 Van Daal and De Knecht-van Eekelen, ‘Over aetiologie’, 220.

31 See: Michael Worboys, *Spreading Germs: Disease Theories and Medical Practice in Britain, 1865-1900* (Cambridge 2000) and on bovine TB in particular: Jones, ‘Mapping’.

32 C. Dekker, R. de Josselin de Jong and C. Nolen, *Leerboek der tuberculosebestrijding* ('s-Gravenhage 1913) 72-73; R. Josselin de Jong et al., *Leerboek der tuberculosebestrijding* ('s-Gravenhage 1926) 72-73.

33 W. Roëll and M.R. Heynsius van den Berg et al., *Verslag van de Staatscommissie ingesteld bij Koninklijk Besluit van 3 juli 1918 no. 25 tot voorlichting over wettelijke maatregelen tot bestrijding van de tuberculose en over de beste wijze van bestrijding dier ziekte* ('s-Gravenhage 1922) 15.

34 Consumption milk was considered to be a drink for children and the ill until circa the mid-twentieth century. De Knecht-van Eekelen, *Naar een rationele zuigelingenvoeding*; A.P. de Knecht-van Eekelen and A. Albert de la Bruhèze, ‘De witte motor’, in: Bieleman and Van Otterloo (eds.), *Techniek III*, 311-321.

35 Nederlandse Vereeniging voor Paediatrie, *De doelbewuste bestrijding der tuberculose als volksziekte, met de bestrijding der kindertuberculose als noodzakelijk uitgangspunt* (Leiden 1918) 6-7; G. Scheltema and D. van Dorp-Beucker Andreae, Nota, in: Roëll and Heynsius van den Berg et al., *Verslag*, 155-163, 158, 162.

36 D.A. de Jong, ‘Menschen- en rundertuberculose in Nederlandsch-Indië en het tuberculosevraagstuk in de tropen’, *Tijdschrift voor Vergelijkende Geneeskunde, Gezondheidsleer en Parasitaire en Infectieuze Dierziekten* (hereafter *Tijdschrift voor Vergelijkende Geneeskunde*) 1 (1915) 251-258, 252-253; H.A. Zwijnenburg, ‘De ontbrekende schakel in het huidige systeem der humane tuberculosebestrijding’, *TvD* 46 (1919) 367-373.

37 Offringa, *Van Gildenstein I*, 215-289.

as an important means to achieve such scientific recognition.³⁸ Veterinarian Jan Poels for instance identified himself as ‘bacteriologist’ rather than veterinarian in the member lists of the Congress for Public Health Control.³⁹ Around 1900, prominent veterinarians started to argue for the general, more-scientific-sounding title ‘animal doctor’ (*dierenarts*) rather than ‘livestock doctor’ (*veearts*) with its agricultural connotations. To this end, the Association for the Advancement of Veterinary Medicine in the Netherlands (*Maatschappij ter Bevordering der Veeartsenijkunde in Nederland, MVN*) changed the ‘veterinary medicine’ in its name and in the title of its journal into ‘animal medicine’ and became *Maatschappij voor Diergeneeskunde (MvD)* in 1916. Dutch veterinarians shared their academic aspirations with veterinarians throughout continental Europe.⁴⁰

Associating veterinary medicine with human medicine and public health was part of veterinary elevation attempts.⁴¹ Medicine had after all a secured place at universities and aspired the ‘higher’ cause of human rather than animal health. Veterinarians with prominent positions in the veterinary community worked in the field of bacteriology and comparative medicine on diseases shared by humans and animals, not just because of their interest in the content of those fields, but also to elevate the discipline of veterinary medicine closer to human medicine. In 1900 for instance, the chairman of the *MVN* Thomassen argued that while veterinary medicine was valuable for agricultural interests, its value lay ‘primarily’ in the field of human health and hygiene, because of veterinarians’ ‘weighty contribution’ to meat and milk inspection and their responsibility for ‘a more effective control of zoonoses’.⁴² Hence, the perspective on bovine TB as a *public health* problem was of particular importance to some veterinarians. That this outlook was not always shared by physicians was often interpreted as a frustrating sign that veterinary medicine was not taken seriously, like De Jong’s spiteful comment illustrates: ‘Did

³⁸ Offringa, *Van Gildestein I*, 217-219; Anne Hardy, ‘Professional Advantage and Public Health: British Veterinarians and State Veterinary Services, 1865-1939’, *Twentieth Century British History* 14 (2003) 1-23, 9; José Manuel Gutiérrez García, ‘Laboratory medicine and the identity change of veterinary medicine in Spain at the turn of the twentieth century’, *Dynamis* 30 (2010) 239-260; Floor Haalboom, “Spanish” flu and army horses: what historians and biologists can learn from a history of animals with flu during the 1918-1919 influenza pandemic’, *Studium: Tijdschrift voor Wetenschaps- en Universiteitsgeschiedenis / Revue d’Histoire des Sciences et des Universités* (hereafter *Studium*) 7 (2014) 124-139.

³⁹ Member lists *Congres voor Openbare Gezondheidsregeling*, for instance: ‘Bestuur en leden van het Nederlandsch Congres voor Openbare Gezondheidsregeling’, *TvSH* 2 (1900) 181-193.

⁴⁰ Offringa, *Van Gildestein I*, 167-168, 249.

⁴¹ Koolmees, *Symbolen*, 105-109; Koolmees, *Tussen mens*, 60-61. See on the British, US and German situations: Anne Hardy, ‘Pioneers in the Victorian provinces: veterinarians, public health and the urban animal economy’, *Urban History* 29 (2002) 372-387; Susan D. Jones, *Valuing Animals: Veterinarians and Their Patients in Modern America* (Baltimore 2003) 63-90; Waddington, *The Bovine Scourge*, 39-40; Bresalier, Cassidy and Woods, ‘One Health’, 6; Mitsuda, ‘Entangled Histories’.

⁴² M.H.J.P. Thomassen and D. van der Sluijs, ‘Notulen van de 40^e Algemeene Vergadering der Maatschappij ter bevordering der Veeartsenijkunde in Nederland, gehouden te Utrecht op 21 en 22 september 1900 [...]', *TvV* 29 (1902) 221-235, 234.

[Fokker] perhaps, despite his extensive knowledge of the literature, overlook the *veterinary* sources too much?⁴³ Throughout the twentieth century, veterinarians showed signs of an inferiority complex in relation to medicine.

The careers of three prominent veterinarians - Thomassen, Poels and De Jong - can serve as illustration of the importance of bovine TB for the academic emancipation of veterinary medicine.⁴⁴ They all occupied important positions within the veterinary community and emphasised the importance of combining medical and veterinary perspectives on human and animal pathology, and bacteriology. De Jong was the founder of the Dutch journal of comparative medicine.⁴⁵ All three devoted a large part of their careers to bovine TB, and this expertise was valued in particular within the hygienist and TB control community. All three also gained academic recognition by medical faculties.⁴⁶ De Jong was the first veterinarian who became professor at a Dutch medical faculty, in 1908.⁴⁷ His inaugural lecture was called 'The relation between human and animal medicine' and dealt extensively with TB.⁴⁸ Poels was the second veterinarian to obtain a medical professorship in 1911. Such developments were welcomed as recognition of the scientific value of veterinary medicine as equal to medicine within the veterinary community.⁴⁹ De Jong and Poels in particular figure prominently in the veterinary argument on the value of veterinary medicine for public health, until this day.⁵⁰

Radical hygienists generally welcomed these veterinarians interested in the value of veterinary medicine for public health, as multidisciplinarity was an important component of the radical hygienist agenda. The radical hygienists wanted to bring together both medical and non-medical professions like architects, engineers, jurists, pharmacists, teachers, veterinarians, officials and administrators. With the Health Act of 1901, this ideal of multidisciplinarity in public health was embedded in the newly established authorities: members of the Central

43 De Jong Jzn., *De eenheid*, 111. Emphasis in the original.

44 Offringa, *Van Gildestein* I, 176-179, 193-195, 235-240; Abbo-Tilstra, *Om de sūnens*, 56, 65; Verhoef, 'Strenge wetenschappelijkhed' I, 31-33; Dalila Wallé et al., *Leiden medical professors 1575-1940* (Leiden 2007) 249-255; Koolmees, *Tussen mens*, 50-51.

45 *Tijdschrift voor Vergelijkende Geneeskunde* 1-11 (1914-1925).

46 In 1905, Thomassen and Poels obtained honorary doctoral degrees in medicine: Thomassen at Groningen University and Poels at Leiden University. Offringa, *Van Gildestein* I, 193-195; Wallé et al., *Leiden medical professors*, 253-255.

47 Starting with an extraordinary professorship at the Leiden medical faculty in 1908, De Jong became full professor in 1920. Wallé et al., *Leiden medical professors*, 250.

48 D.A. de Jong, *Het verband tusschen geneeskunde van den mensch en van de dieren* (Leiden 1908).

49 See for instance: Ed., 'Professor dr. D.A. de Jong', *TvV* 35 (1908) 450-451; Ed., 'Professor Dr. J. Poels', *TvV* 38 (1911) 429; 'Huldiging van Professor Dr. J. Poels', *TvV* 38 (1911) 571-572.

50 For instance, the *MvD* founded the *Prof. D.A. de Jong Stichting* (foundation) for the promotion of comparative medicine in 1929. Contemporary examples: Visser, 'De betekenis'; Irène Boor-van der Putten, 'De ontvangst van de ideeën van Pasteur door diergeneeskundig Nederland', *Argos* 42 (2010) 53-63, 61-62; Van Knapen, "Vreeselijksten geesel".

Health Council had different disciplinary backgrounds and the name of the 1865 Medical State Inspectorate (*Geneeskundig Staatstoezicht*) was changed into the State Inspectorate of Public Health (*Staatstoezicht op de Volksgezondheid*).

But the hygienist ideal of multidisciplinarity also led to conflicts over public health problem ownership. As Rigter shows in his history of the Health Council (*Gezondheidsraad*), the medical community reacted very critically to the hygienists' proposals to institutionalise multidisciplinarity via the Health Act of 1901. Many physicians felt hygienist concerns were primarily *medical* responsibilities. A majority of hygienists of the multidisciplinary Congress for Public Health Control and parliament did not go along with this argument. Founder and parliamentary member of the conservative, Reformed 'anti-revolutionary' party (*Antirevolutionaire Partij, ARP*) Abraham Kuyper used the occasion to ventilate his dislike of the medical profession. Kuyper's attitude was not a good sign for those physicians who argued for medical prominence in the hygienist movement, as he would become prime minister after the liberals' election defeat in 1901 and would be responsible for implementing the new Health Act.⁵¹

The involvement of veterinarians in the radical hygienist movement has not been studied extensively.⁵² Koolmees discusses veterinarians as one of several professions that got access to the hygienist movement during the second half of the nineteenth century.⁵³ A closer look into member lists of the Public Health Congress during the early years of its existence, shows that a small number were veterinarians: 3 to 5% of individual members were veterinarians, including Thomassen, De Jong and Poels discussed above.⁵⁴ Prominent hygienists like Ruysch actively supported the position of veterinarians in the hygienist movement and the elevation of their discipline.⁵⁵ Also concerning TB control, Ruysch pointed at 'the great connection between the application of hygiene in the fields of medicine and veterinary medicine' and the need

51 Rigter, *Met raad*, 31-46.

52 Neither Houwaart nor Rigter explicitly address the question what role veterinarians had within the hygienist movement. They only mention veterinarians as members of municipal Health Committees, together with a varied group of other professions. Houwaart points at the role of veterinarians in local food inspection committees. Houwaart, *De hygiénisten*, 287; Rigter, *Met raad*, 55.

53 Koolmees, *Symbolen*, 105-106, 110-111.

54 The ratio between veterinary members and the total of individual congress members (not including societies and municipal health committees) was: 9 out of 260 (1898), 11 out of 281 (1899), 10 out of 281 (1900), 11 out of 268 (1901), 13 (1903), 18 out of 370 (1906), 16 out of 357 (1908) and 14 out of 343 (1909). Based on the lists of members of the *Nederlands Congres voor Openbare Gezondheidsregeling: TvSH* 1 (1899) 5-16, 275-287; *TvSH* 2 (1900) 181-193; *TvSH* 3 (1901) 203-215; *TvSH* 5 (1903) 3-15; *TvSH* 8 (1906) 1-16 [at end of volume]; *TvSH* 10 (1908) 1-16.

55 'Verslag van het 5^e Congres voor Openbare Gezondheidsregeling', *TvSH* 2 (1900) 255-316; Ed., 'Veeartsenkunde en hygiëne', *TvSH* 9 (1907) 259; J.G. Sleeswijk, 'Dr. W.P. Ruysch 1847-1920', *TvSH* 22 (1920) 156-175, 172.

to incorporate both disciplines in the Congress for Public Health Control.⁵⁶ The Veterinary Association *MVN* made Ruysch an honorary member in 1892.⁵⁷

But the hygienist Congress proved to appreciate veterinary involvement to a certain extent only. Both Thomassen and Poels stood as candidates for the position of chairman of the Congress, and both lost these elections.⁵⁸ Indeed, attempts to elevate veterinary medicine socially and scientifically were initially not very successful. Kuyper refused to give the Dutch Veterinary School higher education status with his revision of the Higher Education Act of 1905. He thought the veterinary pursuit to be granted status equal to human medicine unjust because of their *agricultural* tasks and possibly also because of the veterinary school's liberal atmosphere. Parliament also refused to change veterinarians' Dutch title from 'livestock doctor' to 'animal doctor'.⁵⁹

The hygienist aim of national food inspection became reality during the post-Great War round of social legislation. This led to conflicts over problem ownership and boundary work between veterinarians, physicians and chemists directly linked to bovine TB, which was thought to spread to people primarily via contaminated meat and milk. Veterinarians were successful in claiming the leading positions in upcoming municipal slaughterhouses during the second half of the nineteenth century, and became officially in charge of national meat inspection in 1919.⁶⁰ Veterinarians and physicians were trying to obtain institutionalised positions in milk inspection during the early decades of the twentieth century also.⁶¹ However, chemists were successful in this case. Chemical adulteration of milk had been an important nineteenth century problem and the Commodities Act (*Warenwet*) of 1919 consolidated chemists' nineteenth century positions as heads of general (compared to meat) inspection services, now at a national

56 'Verslag van de werkzaamheden', *TvSH* 1 (1899) 20-79, 22-23. See also: NA, Staatscire rundertbc, inv. nr. 3, Correspondentie, Ruysch, 'Verslag [...] IVde congres voor tuberculose' (November 1898).

57 Sleeswijk, 'Dr. W.P. Ruysch', 172.

58 'Verslag van het 11^e Congres voor Openbare Gezondheidsregeling (14 en 15 september 1906)', *TvSH* 8 (1906) 370-394 and 488-498, 394-395 and 496; 'Verslag van het 13^e Congres voor Openbare Gezondheidsregeling [...] 11-12 september 1908', *TvSH* 10 (1908) 393-433, 398. Thomassen lost the election from engineer A.D.P.V. van Löben Sels (with 50 against 81 votes) and Poels from physician dr. Ch. H. Ali Cohen (with 26 against 100 votes). Poels did become an extraordinary member of the Central Health Council.

59 Offringa, *Van Gildestein* I, 248-251, 311-312, 316; C. Offringa, 'Ars Veterinaria: ambacht, professie, beroep: Sociologische theorie en historische praktijk', *Tijdschrift voor Geschiedenis* 96 (1983) 407-432, 430; Verhoef, 'Strenge wetenschappelijkheid' I, 57.

60 Koolmees, *Symbolen*.

61 C.F. van Oyen, 'De melkwinning en melkcontrole onder leiding van Dr. R. Stenhouse Williams, te Reading: verslag van een onderzoek ter plaatse', *TvD* 51 (1924) 364-373, 373; M.D. Horst et al., 'Melkbesluit', *Nederlandsch Tijdschrift voor Geneeskunde* (hereafter *NTvG*) 70 (1926) 492-500; Offringa, *Van Gildestein* I, 242; Verhoef, 'Strenge wetenschappelijkheid' I, 81-82.

rather than local level. Chemists and pharmacists populated the 1920s Commodities Act milk commission, while physicians and veterinarians were a minority.⁶²

Nevertheless, the veterinary pursuit of academic recognition was more successful after the First World War.⁶³ The State Veterinary School received higher education status in 1918, when it became the *Veeartsenijkundige Hoogeschool*, or Veterinary College. And in 1925, the school finally became the sixth faculty of the Utrecht University. The academic elevation was mainly granted because of government budget cutbacks and therefore was received with mixed feelings at the veterinary school itself.⁶⁴ But it was championed within the veterinary community as ‘the complete equalisation of our science with that of other faculties’.⁶⁵ Veterinary state positions in meat inspection meant an important step in the elevation of veterinary medicine.⁶⁶ In this sense the position of Dutch veterinary medicine was more like that in Germany, where veterinarians secured strong state positions in meat (and – different from the Netherlands – milk) inspection, than in the United Kingdom, where veterinarians did not establish such state positions and veterinary practice was dominant.⁶⁷ Dutch veterinary medicine did not just owe the Veterinary State Inspectorate of Public Health to meat inspection, but also the veterinary department of the Central Laboratory for Public Health (*Centraal Laboratorium voor de Volksgezondheid*, the later *RIV(M)*) of 1922. This department was heralded as a ‘fortunate combination [...] of the human and veterinary medicine’.⁶⁸ Veterinarians gained higher positions among hygienists as well, for instance as board members of the hygienist Congress, positions Thomassen and Poels had not obtained during the 1900s.⁶⁹

However, human TB controllers did not consider veterinary expertise of vital importance, especially since they generally regarded bovine TB as an issue of secondary importance. Also, the new national food inspection acts and the possibility of milk pasteurisation reduced the dangers of infection via food. Veterinary expertise was often absent in expert committees on

⁶² NA, 2.15.37 Algemeen Rijksarchief, Afdeling Volksgezondheid 1902-1950 (hereafter VGH), inv. nr. 493, Stukken betreffende de instelling en benoeming van de Commissie ingevolge artikel 17 van de Warenwet 1920-1950, Koninklijk besluit (July 30, 1920), N. Schoorl and J.D. Filippo to Minister Arbeid (November 12, 1920 and December 14, 1920), Koninklijk besluit (January 12, 1921), Koninklijk besluit (January 31, 1922).

⁶³ Offringa, *Van Gildestein I*, 291-344; Offringa, ‘Ars Veterinaria’, 429-430.

⁶⁴ Offringa, *Van Gildestein I*, 330-344; C. Offringa, ‘De Hoogeschool wordt faculteit: inpassen en aanpassen (1925-1930)’, in: Offringa (ed.), *Van Gildestein II*, 3-25.

⁶⁵ ‘De faculteit der veeartsenijkunde der Rijks-Universiteit te Utrecht’, *TvD* 52 (1925) 898.

⁶⁶ Offringa, *Van Gildestein I*, 312.

⁶⁷ Mitsuda, ‘Entangled Histories’.

⁶⁸ Van Zon, *Tachtig jaar*, 76.

⁶⁹ W.P. Ruysch, ‘Dr. H. Markus’, *TvSH* 21 (1919) 58; ‘Verslag van het 24^{ste} Nederlandsche Congres voor Openbare Gezondheidsregeling’, *TvSH* 21 (1919) 230-245, 232; ‘Verslag van het 30^{ste} Nederlandsch Congres voor Openbare Gezondheidsregeling’, *TvSH* 27 (1925) 301-320, 302.

TB.⁷⁰ Only when Poels and De Jong started to visit meetings of the TB Society *NCV*, did bovine TB appear on the agenda.⁷¹ Hence, veterinarians expressed indignation about the ‘separated ways’ of veterinarians and physicians, ‘in particular in the fight against tuberculosis’.⁷² De Jong was the only veterinary member of the 1918-1922 State Committee on TB Control (*Staatscommissie inzake de bestrijding van de tuberculose*) and he was invited to join it relatively late.⁷³ In this company, De Jong was exceptional in denying a ‘fundamental, constant difference’ between TB bacteria in humans, other mammals and birds, and in arguing that all human and animal sources of infection should be included in TB control.⁷⁴ Sometimes, the disinterest in the veterinary argument went together with contempt for and distrust of veterinary medicine, related to tensions between public health and agricultural interests. Physician Wortman pointed out that the work of veterinarians in TB control was far easier than that of physicians: ‘They slaughter the sick cattle.’⁷⁵ Some years later, physician E.C. van Leersum implicitly dismissed his veterinary colleagues H.M. Kroon and C.F. van Oijen as equals when he complained he was ‘the only representative of medicine and dietetics’ invited to a meeting on hygienic milk production, while others (including Kroon and Van Oijen) were representing ‘the milk trade’.⁷⁶ The veterinary inferiority complex was not just imaginary and the social dominance of medicine meant veterinarians’ perspective on bovine TB was not decisive.

A clash within the 1918-1922 State Committee on TB Control can serve as a prime example of the sensitivities. Despite its eventual conclusion that bovine TB was of secondary importance, animal TB was a recurring theme in almost every meeting of the State Committee’s subcommittee for the direct control of TB, primarily due to the disagreements between two members with an

70 See for instance: ‘Rapport van den Centraal Gezondheidsraad inzake de tuberculosebestrijding’, *Tuberculose* 13 (1917) 89-92; ‘Commissie inzake onderzoek naar de Tuberculose-bestrijding’, *Tuberculose* 14 (1918) 181.

71 W.J. van Gorkom, ‘Verslag van de Vergadering door het Dagelijksch Bestuur van de Nederlandsche Centrale Vereeniging tot bestrijding der tuberculose’, *Tuberculose* 5 (1909) attachment 1-45, 1-2.

72 Zwijnenburg, ‘De ontbrekende schakel’, 368.

73 De Jong was not present at the early preparatory meetings in 1918. NA, 2.27.14 Staatscommissie inzake de bestrijding der tuberculose 1917-1920 (hereafter Staatscje tbc), inv. nr. 1, Stukken betreffende het in- en samenstellen en ontbinden van de Staatscommissie tbc (KB 25 d.d. 3 juli 1918) 1917-1923, Notulen (April 26, 1918 and June 7, 1918); Ibidem, inv. nr. 7, Notulen van de vergaderingen van de Staatscommissie tbc 1918-1922 (July 23, 1918).

74 D.A. de Jong, ‘Tuberkelbacillen van mensch en dier’, in: Roëll and Heynsius van den Berg et al., *Verslag* 207-216, 213.

75 J.L.C. Wortman, ‘Tuberculose-bestrijding in Nederland’, *Algemeen Handelsblad* (January 17, 1918) 6.

76 NA, 2.15.33 Gezondheidsraad 1920-1956 (hereafter GR 1920-1956), inv. nr. 436, Stukken betreffende het adviseren aan de minister inzake hygiënische melkwinning 1925-1929, Van Leersum to Jitta (November 8, 1927).

appetite for conflict:⁷⁷ social physician Louis Heijermans and veterinarian Dirk Aart de Jong.⁷⁸ Their argument is representative for the strongest disagreements between proponents of direct or indirect control of TB, and for medical and veterinary ownership disputes of TB. Heijermans had two major reasons for vehemently opposing De Jong's ideas on the dangers of animal TB for human beings. Firstly, he thought the improvement of social circumstances vital in solving the TB problem, while he saw De Jong as the ultimate proponent of 'direct' control which was one-sidedly aimed at eliminating bacteria. Secondly, Heijermans thought measures against coughing cows and birds proposed by De Jong ridiculous while such high numbers of poor people were suffering from TB. Rather, control of animal TB should be 'very simple', focussing on food inspection.⁷⁹ But for De Jong, proper control of human TB could not do without paying attention to animal TB.⁸⁰ Eventually, the State Committee followed Heijerman's argument in the sense that it refrained from an extensive plan for the control of bovine TB apart from meat and milk inspection 'considering the [predominantly medical] composition of the Committee'.⁸¹ It expected agricultural authorities to supervise living tubercular livestock. In other words, the Committee declared itself incompetent to advise on control policies for bovine/animal rather than human TB. Dirk Aart de Jong distanced himself from this position on animal TB with an indignant minority report.⁸² The veterinary call for taking veterinary expertise seriously in matters of public health was answered to a certain extent only.

New opportunities for veterinarians arose during the 1930s, when human TB researchers and controllers once again started to pay attention to bovine TB as a serious public health problem. Research distinguishing between the human and bovine type of the TB bacterium became easier because of innovations in bacteriological techniques.⁸³ Also, the steady decline of TB among people made livestock sources of infection relatively more important.⁸⁴ As one physician put it: 'the "relative mildness" of the bovine bacil [is] regularly more "relative" than "mild"'.⁸⁵ Summing up the evidence in a lecture for TB physicians, medical bacteriologist

77 Offringa, *Van Gildestein I*, 236; F.N. Sickenga, *Korte Geschiedenis van de Tuberculosebestrijding in Nederland 1900-1960* (Den Haag 1980) 105-114.

78 NA, Staatscbe tbc, inv. nr. 33, Notulen van de Subcommissie voor de directe bestrijding 1918-1920.

79 Ibidem, Conclusie van den heer L. Heyermans (February 1919) 109.

80 Ibidem, Voorstel van den Heer D.A. de Jong (February 1919) 105-108.

81 Röell and Heynsius van den Berg et al., *Verslag van de Staatscommissie*, 50.

82 De Jong, 'Tuberkelbacillen', 207-216.

83 A.Ch. Ruyts, 'Veranderlijkheid van tuberkelbacillen van het bovine type', *Antonie van Leeuwenhoek: Nederlandsch Tijdschrift voor Hygiëne, Microbiologie en Serologie* (hereafter *Antonie van Leeuwenhoek*) 4 (1937) 179-186; Abbo-Tilstra, *Om de sùnens*, 295-298.

84 J. van der Hoeden and M.F. de Raadt, 'Interhumane besmetting met het bovine type van den tuberkelbacil', *NTvG* 84 (1940) 4390-4397, 4391.

85 G.J. Huët, 'Geeft het bovine type van den tuberkelbacil bij den mensch een zelfstandig ziektebeeld?', *NTvG* 83 (1939) 2744-2749, 2745.

Anna Charlotte Ruys showed that this was especially true for all forms of TB in children. She found that 9% of lung TB in children was attributable to the bovine type in both city and countryside, while 43% of other forms of TB in children was attributable to the bovine type in the countryside, against 21% in the major cities. Also among adults, 6% of lung TB cases in the countryside could be attributed to the bovine type, against 20-22% of other forms of TB in city and countryside.⁸⁶ Ruys distinguished between the major Dutch cities and the countryside, because pasteurisation of milk was occurring frequently in large cities, while it was not as a rule in the countryside, and because direct contact between cows and children was more likely in rural areas. The findings inspired renewed calls for stricter control of bovine TB, like through national milk pasteurisation and inspection of livestock.⁸⁷

The veterinary community welcomed these developments as long-awaited-for medical recognition of the central value of veterinary medicine for public health.⁸⁸ During the 75 year jubilee of the Veterinary Association *MvD* in 1937, its chairman used the occasion to argue that veterinarians like Dirk Aart de Jong had been warning for the public health dangers of bovine TB for a long time, while the ‘medical side paid little attention to this back then’.⁸⁹ Veterinarian Jacob van der Hoeden presented his findings on the prevalence of bovine TB among hospitalised TB patients during the celebrations. He worked as bacteriologist at the Academic Hospital in Utrecht under medical professor A.A. Hijnmans van den Bergh and would write the first textbook on zoonoses during the Second World War.⁹⁰ The necessity of medical-veterinary collaboration continued to be a popular theme in veterinary circles and the fight against bovine TB provided an excellent occasion.⁹¹ But bovine TB did not just attract attention as a public health problem, as we will see in the next section.

86 A.Ch. Ruys, ‘Tuberculose veroorzaakt door den runderbacterielbacil bij den mensch in Nederland’, *NTvG* 83 (1939) 1001-1007, 1003. The figures were based on bacteriological research of 1807 cases in total.

87 Abbo-Tilstra, *Om de stinens*, 295-299; Jacob van der Hoeden, *De zoonosen: Infectieziekten der dieren die op den mensch kunnen overgaan en de ziekten die daardoor bij dezen worden teweeggebracht* (Leiden 1946) 1-49.

88 J.A. Beijers, ‘Bovine tuberculose’, in: L.C. Kersbergen (ed.), *Gedenkboek uitgegeven ter gelegenheid van het vijftig-jarig bestaan van de Nederlandse Centrale Vereniging tot Bestrijding der Tuberculose* (‘s-Gravenhage 1953) 167-184, 167.

89 J. van der Hoeden, ‘Tuberculose van dierlijken oorsprong bij den mensch’, *TvD* 64 (1937) 1351-1365, 1363.

90 See also: Koolmees, *Tussen mens*, 76-81.

91 Nederlandsche Maatschappij tot Bevordering der Geneeskunst, ‘Samenwerking van artsen en dierenartsen’, *Medisch Contact* 1:18 (1946) 416.

2. Bovine tuberculosis as an agricultural problem

In existing historiography, historians have primarily studied how veterinary and medical scientists turned bovine TB into a *public health* problem.⁹² Historians have paid less attention to the agricultural domain, apart from the role of veterinarians. In his introduction to his history of bovine TB in Great Britain, historian Keir Waddington has stated that 'No attempt was made to define bovine TB as an animal health or agricultural issue'.⁹³

However, measures against bovine TB in important competing countries and foreign markets like Great Britain *did* turn bovine TB into an urgent economic problem for the Dutch agricultural sector. In 1895, Great Britain prohibited the import of living livestock as an official sanitary measure against foot-and-mouth disease and bovine TB, but also for unofficial protectionist reasons. Denmark (a major competing country for Dutch agriculture) included TB control in the Cattle Disease Act in 1893 and Belgium introduced drastic obligatory control measures in 1896. As the Belgium government paid large amounts to compensate for slaughtered animals,⁹⁴ it had already amended these strict measures in 1897. But the measures continued to have a considerable impact on Dutch export of dairy cattle and turned bovine TB into a topic of profound interest for the Dutch agricultural sector and the government during the 1890s.⁹⁵

For Frisian cattle breeders, bovine TB posed an additional export problem. As shown by historian Bert Theunissen, the world-wide high reputation of the productive Frisian cow breed declined rapidly around 1900 because of TB. The Frisian emphasis on high milk production in their breed was thought to deteriorate the constitution of the cows. At stake was 'the reputation of the frisian livestock'.⁹⁶ Frisian breeders and farmers, the Frisian Cattle Herd Book (*Friesch Rundvee Stamboek*) in particular, were therefore particularly concerned about bovine TB.⁹⁷

Bovine TB concerns had large impact, because livestock keeping was dominant in Dutch agriculture as a whole. The number of Dutch cattle rose from about 1,6 million in 1880 to 2,4 million in 1930 and the number of pigs increased even more dramatically during the same

⁹² See for instance: Koolmees, *Symbolen*, 124-129; Jones, 'Mapping'; Waddington, *The Bovine Scourge*.

⁹³ Waddington, *The Bovine Scourge*, 4.

⁹⁴ In 1896 only, the costs were f 346,300 guilders / 721,584 francs. NA, Staatscie runderdbc, inv. nr. 3, Correspondentie, Verslag der Staatscommissie inzake de bestrijding der tuberculose onder het vee [June 1899] 27.

⁹⁵ NA, Staatscie runderdbc, inv. nr. 3, Correspondentie, Staatscie runderdbc, Verslag [June 1899] 18-45; Offringa, *Van Gildestein* I, 170; Koolmees, *Symbolen*, 127; Abbo-Tilstra, *Om de súnen*, 58; Waddington, *The Bovine Scourge*, 177-178; Bieleman, *Boeren*, 376. American control measures had less impact on the Dutch market, but are illustrative of the atmosphere: Jones, *Valuing*, 63-90.

⁹⁶ According to the *Friesch Rundvee Stamboek* in: NA, 2.19.120 (Koninklijk) Nederlands Landbouwcomité 1884-1953 (hereafter (K)NLC), inv. nr. 6, Stukken betreffende tuberculose onder het rundvee ca. 1900-1914, Secretaris NLC, 'Excerpten Tuberculose' [1896].

⁹⁷ Bert Theunissen, 'Breeding Without Mendelism: Theory and Practice of Dairy Cattle Breeding in the Netherlands 1900-1950', *Journal of the History of Biology* 41 (2008) 637-676.

period: from 0,4 million to 2 million (Figures 1 and 2).⁹⁸ In the second half of the nineteenth century, the export of livestock commodities from the Netherlands grew considerably as a result. Traditionally, the Netherlands had been a major exporter of dairy, but increasingly living livestock was traded as well. Great Britain was a major importer of Dutch cattle for slaughter, France and Belgium were major importers of Dutch dairy cattle, and Germany and the United States were major importers of Dutch breeding cattle.⁹⁹

During the late nineteenth century, farmers increasingly joined forces in agricultural organisations and cooperatives, as a reaction to the forces of globalisation and the resulting agricultural crisis.¹⁰⁰ The later Director-General of Agriculture C.J. Sickesz had a major role in the founding of the Dutch Agricultural Committee (*Nederlands Landbouw Comité, NLC*) in 1884, which aimed to be a federative organisation for the many existing regional agricultural organisations (Sickesz was chairman of one of these himself). Tensions between different philosophies of life within the predominantly liberal and elite Agricultural Committee would eventually result in three ‘central agricultural organisations’ of liberal, protestant and catholic signature representing Dutch agriculture in the period of pillarisation.¹⁰¹ To guard the quality of livestock breeding, elite cattle herd books were founded in the last decades of the nineteenth century, like the Dutch Cattle Herd Book (*Nederlandsch Rundvee Stamboek*, 1874) and the Frisian Cattle Herd Book (1879).¹⁰²

At local levels, farmers also joined forces in dairy cooperatives and cooperative insurances. Such new cooperatives changed the structure of farmers’ business and meant farmers were increasingly dependent on one another for the quality of their products.¹⁰³ Farmers joined cooperative insurances to be able to bear the losses of rejected meat in cities where meat inspection occurred.¹⁰⁴ Milk from different farms was collected and sold by cooperatives, which

98 See for the specific figures: R.J. van der Bie and J.P. Smits, *Tweehonderd Jaar Statistiek in Tijdsreeksen, 1800-1999* (Voorburg, Heerlen 2001) 32.

99 Bieleman, *Boeren*, 375-377.

100 De Rooy, *A Tiny Spot*, 197-199.

101 Bieleman, *Boeren*, 306-308. The large agricultural organisations were: the liberal (Royal) Dutch Agricultural Committee (*(Koninklijk) Nederlands Landbouwcomité*), the Catholic Dutch Farmers Federation (*Katholieke Nederlandse Boeren- en Tuindersbond*) and the protestant Christian Farmers Federation (*Christelijke Boeren- en Tuindersbond*). See on the diversity of smaller agricultural organisations in the province Gelderland: Van Cruyningen, *Boeren*.

102 Bieleman, *Boeren*, 379-380.

103 Ibidem, 403 and 407.

104 In 1903, 714 cooperative cattle insurances existed which insured cows of 60,919 farmers, and 36 cooperative pig insurances insured pigs of 2,669 pig keepers. NA, (K)NLC, inv. nr. 6, Stukken rundertbc, Th. Verheggen et al., ‘Rapport van de Commissie voor de Vee- en Vleeskeuring in verband met Veeverzekering’ (January 26, 1907) 8.

meant that milk of varying quality was mixed. Quality control of both natural resources and end products became possible, and was propagated by agricultural organisations.¹⁰⁵

Simultaneously, the collective organisation of agriculture also affected relations between the state and agriculture.¹⁰⁶ In the wake of the worldwide agricultural crisis of 1878-1895, the Dutch state increasingly interfered with agriculture. Historian of agriculture Bieleman points at ‘a true avalanche of government measures from the middle of the years 1880’.¹⁰⁷ The government officially recognised the Dutch Agricultural Committee *NLC* as agricultural representative in 1893 and it gained substantial influence on agricultural policies. Minister Goeman Boergesius’ installation of a separate agricultural department at the Ministry of Internal Affairs in 1898 was part of the same development. This agricultural department would obtain an increasing independent position. Its close collaboration with the Agricultural Committee *NLC* meant that, according to historian Piet de Rooy, ‘Agriculture was the first sector in the economy in which a formal, structural system of consultation was created between the government and “organized business”’.¹⁰⁸

The position of veterinary medicine was closely linked to the developments in agricultural policy. Swabe has analysed the increasing institutionalisation and the expanding role of veterinary authorities from the late nineteenth century onwards as the ‘veterinary regime’.¹⁰⁹ Veterinarians were civil servants officially entrusted with livestock disease control as part of the Veterinary State Inspectorate (*Veeartsenijkundig Staatstoezicht*) since 1870. Before 1898, agricultural education and the Veterinary State Inspectorate had been part of the Ministry of Internal Affairs, while agriculture was the responsibility of the Ministry of Trade and Industries (*Waterstaat, Handel en Nijverheid*). In 1898, all agricultural interests were put under the responsibility of the agricultural department of Internal Affairs, including policies concerning veterinary medicine and livestock diseases.¹¹⁰ From 1898 onwards, the Director-General of agriculture directed the State Veterinary School, until it got academic status in 1925.¹¹¹

Veterinarians had much to gain by serving agricultural interests. Most veterinarians worked as private practitioners in agriculture, a position which historian C. Offringa has called ‘precarious’, as veterinarians had major difficulties in securing farmers’ trust.¹¹² He

105 Offringa, *Van Gildestein I*, 159-166, 232-234; J. Bieleman, ‘Het melkveehouderijbedrijf’, in: Bieleman and Van Otterloo (eds.), *Techniek III*, 99-100; Abbo-Tilstra, *Om de sùnens*, 141-142; Theunissen, ‘Breeding’, 643-644.

106 Offringa, *Van Gildestein I*, 166-167; Bieleman, *Boeren*, 296-314; De Rooy, *A Tiny Spot*, 185-228.

107 Bieleman, *Boeren*, 312.

108 De Rooy, *A Tiny Spot*, 199.

109 Swabe, *Animals*.

110 A. Ferf, ‘Verslag der handelingen, van het *Nederlandsch Landbouw-Comité*, over het jaar 1901’, *Verslag van de handelingen van het Nederlands Landbouw Comité* (1901) 1-34, 28.

111 Offringa, *Van Gildestein I*, 245-248.

112 Offringa, *Van Gildestein I*, 245. See also: Mishra, ‘An introduction’, 1.

has pointed at organised infectious disease control supervised by district veterinarians of the Veterinary State Inspectorate as the main way to strengthen this position.¹¹³ Since the acts regulating livestock disease control (*Veeartsenijkundig Staatstoezicht* and *Veeartsenijkundige Politie*) of 1870, the district veterinarians were responsible for official responses to infectious diseases among livestock, like cattle plague and foot-and-mouth disease. The 1898 agricultural department also became responsible for these veterinary tasks and the Veterinary Association *MVN* appointed the new Director-General of Agriculture as honorary member in 1899.¹¹⁴ So although late nineteenth century rhetoric of many elite veterinarians stressed the importance of veterinary medicine for human health, veterinary medicine was primarily an *agricultural* affair at this time.

In the context of export problems and growing state interference in the agricultural domain, agricultural organisations started to criticise the absence of government regulations against bovine TB during the 1890s. In 1896, the Dutch Agricultural Committee had asked all provincial Dutch agricultural organisations for their opinion on the problem of bovine TB and what role the government should play in its control. The organisations agreed that ‘vigorous action by the Government [was] urgently necessary’.¹¹⁵ Ideas about *how* the government should interfere differed considerably between and within the agricultural organisations: suggestions ranged from support of private initiatives (which were started in Friesland primarily because of the problems with the Frisian cattle breed) to compulsory measures like mandatory isolation of infected animals and national meat inspection.¹¹⁶ While newly founded agricultural unions representing smallholders increasingly called for protectionist measures, the influential Agricultural Committee *NLC* reasoned in line with its perspective of ‘gentlemen’ farmers.¹¹⁷ It preferred state support of private initiatives above enforced state measures, which it thought ‘undesirable being too drastic and too imperative, at least for the time being’.¹¹⁸ This argument was even linked to the ‘disposition towards freedom, inspiring the Dutch people’.¹¹⁹

Only a few months after the founding of the agricultural department in 1898, the new Director-General of Agriculture installed the State Committee on the Control of Tuberculosis among Cattle to prepare legislation on the control of bovine TB. This was not the first committee devoted to bovine TB,¹²⁰ but it was the first one to prepare actual state policies on

113 Offringa, *Van Gildestein* I, 114, 169.

114 W.C. Schimmel, ‘Mr. C.J. Sickesz’, *TvV* 31 (1904) 249-250.

115 NA, (K)NLC, inv. nr. 6, Stukken rundertbc, ‘Klad rapport tuberculose’ (November 1896) 3.

116 NA, (K)NLC, inv. nr. 6, Stukken rundertbc, ‘Excerpten tuberculose’ [1896] and ‘Klad rapport tuberculose’ (November 1896).

117 De Rooy, *A Tiny Spot*, 199-200.

118 NA, (K)NLC, inv. nr. 6, Stukken rundertbc, ‘Klad rapport tuberculose’ (November 1896) 6.

119 Ibidem.

120 Abbo-Tilstra, *Om de sùnens*, 51.

the disease. The installation of the State Committee was primarily a response to agricultural concerns about bovine TB as an export problem, contrary to Offringa's claim that it was installed to address hygienist public health concerns.¹²¹ Members came predominantly from the agricultural domain: the Agricultural Committee *NLC* sent its chairman H.F. Bultman and the chairman of the Frisian Agricultural Society and secretary of the Frisian Cattle Herd Book D. van Konijnenburg. The two veterinary members had strong ties with agriculture as well: the notoriously autocratic director of the State Veterinary School A.W.H.W. Wirtz became secretary,¹²² and deputy district veterinarian and teacher at the Agricultural School in Wageningen H.C. Reimers became a general member. Moreover, the new Director-General of Agriculture was advisory member. The State Committee *did* combine the hygienist and agricultural perspectives on bovine TB as a public health and an export problem. Hygienist Ruysch became chairman and in his welcome address to the Committee, Sickesz argued that control of bovine TB was needed to 'considerably increase the value of the livestock, to remove major barriers to livestock trade because of the disease and also to serve the interest of public health'.¹²³ Later, the relation between the agricultural and public health perspectives within the State Committee will be discussed in more detail. For now, the State Committee's archives will be used to study how the agricultural domain wanted to solve the bovine TB problem. Of course, these views do not represent the views of Dutch agriculture in general, but primarily those of often liberal, elite farmers and veterinarians who shaped agricultural policy.

A promising veterinary technique in the control of bovine TB was a new application of Koch's failed medicine against TB: tuberculin. Danish professor Bernhard Bang developed 'tuberculination' as a new diagnostic method to detect subclinical TB (invisible TB) among cattle in the mid-1890s. Bang's approach became known as the bovine TB control 'system Bang'. Cows were injected with tuberculin and those suffering from TB sub-clinically showed a reaction which could be recorded by temperature measures during a strict time pad, which did make it a time-intensive procedure. The method promised to enable cows with subclinical infections to be detected and isolated or slaughtered.¹²⁴ The strict Belgium measures introduced in the 1890s were based on this system. Belgium subjected all imported cattle to the tuberculin test and reacting animals were marked with a 'T' and sent back to the exporting country or slaughtered.

In 1896, many agricultural organisations had argued for state support and research of tuberculin testing and the Agricultural Committee advised the Minister of Internal Affairs to make tuberculin testing free for farmers.¹²⁵ The Holland Agricultural Society (*Hollandsche*

121 Offringa, *Van Gildestein* I, 237.

122 On Wirtz bad reputation as school director, see: Offringa, *Van Gildestein* I, 179-181.

123 NA, Staatscie rundertbc, inv. nr. 2, Notulen van commissievergaderingen 1898-1901 (May 27, 1898) 1.

124 Waddington, *The Bovine Scourge*, 176.

125 NA, (K)NLC, inv. nr. 6, Stukken rundertbc, 'Excerpten tuberculose' [1896] and 'Klad rapport tuberculose' (November 1896).

Maatschappij van Landbouw) put tuberculin on its budget to allow farmers to detect TB among their cattle, and Director-General of Agriculture Sickesz called tuberculin ‘the new prospect’ in 1898.¹²⁶ The agricultural members of the State Committee Bultman and Van Konijnenburg were very enthusiastic proponents of tuberculin testing as a means to study the spread of TB among their cattle.¹²⁷

Who should get authority over bovine TB control, tuberculin testing in particular, was an issue of disagreement between veterinarians and farmers, closely linked to the agricultural preference for state support of private initiatives rather than state enforcement. Veterinarians worried about abuse of tuberculin for economic interests: farmers could use tuberculin to detect tubercular cows and bring them to the market without warning buyers for the hidden flaws. This would work as ‘a very effective means to spread’ bovine TB rather than counter it.¹²⁸ Therefore, they thought restrictions on the buying, selling and transport of tuberculin necessary, and argued that only *experts* should be allowed access to the diagnostic. Moreover, veterinarians argued control should be in the hands of district veterinarians. Both veterinary members of the State Committee had close links with the district veterinarians. Reimers worked as replacement district veterinarian. According to veterinarian Wester in his history of Dutch veterinary medicine, Wirtz was ‘the de facto head of the Veterinary State Inspectorate’, in the sense that Wirtz regularly met with the district veterinarians, directed them and wrote their year reports.¹²⁹ Farmers, however, were very critical about such a central, supervising role for district veterinarians. Bultman pointed at livestock farmers’ ‘strong aversion’ to district veterinarians and Van Konijnenburg agreed with him ‘with regard to the distaste, district veterinarians’ official action can induce’.¹³⁰ This aversion to district veterinarians among farmers had everything to do with their position as civil servants. Because of their ‘bureaucratic name’ (*ambtsnaam*) and link to the government,¹³¹ Bultman and Van Konijnenburg continuously opposed their supervision of bovine TB control. They argued farmers should have the possibility of private use of tuberculin without having to comply to conditions imposed by the state.¹³²

In 1901, agricultural circles subjected the reliability of the tuberculin test to heavy criticism – comparable to what happened in other countries like Germany and the USA.¹³³ Ironically, the criticism was the result of attempts of the Frisian Cattle Herd Book to increase

126 NA, Staatscire runderdbc, inv. nr. 2, Notulen (May 27, 1898) 2.

127 Ibidem, 5-6.

128 Ibidem, (July 4, 1898) 9.

129 J. Wester, *Geschiedenis der Veeartsenijkunde* (Utrecht 1939) 210.

130 NA, Staatscire runderdbc, inv. nr. 2, Notulen (July 4, 1898) 5.

131 Ibidem, (March 7, 1899) 1

132 See for instance: NA, Staatscire runderdbc, inv. nr. 2, Notulen (February 24, 1899) 7-9.

133 Jones, *Valuing*, 69-71; Mitsuda, ‘Entangled Histories’, 45.

trust of farmers in tuberculin testing via a large-scale test between 1898 and 1901.¹³⁴ As many farmers distrusted the initial results, chief investigator I.G.J. van den Bosch decided to tuberculinize all reacting animals again one year after the initial injections, which produced the opposite results he had expected. Only 40% of the 104 initially reacting cows reacted again. The retuberculation turned out to fuel existing doubts and distrust among farmers on whether tuberculin truly showed subclinical TB infections. The regional press covered the issue.¹³⁵ Veterinarians received the Frisian tuberculinization controversy with indignation and questioned the quality of the tuberculinization experiment.¹³⁶ They related the worrying findings to chief investigator Van den Bosch, who was an agricultural engineer and not a veterinarian. Therefore, his results could not be trusted.¹³⁷

This issue also led to trouble in the State Committee.¹³⁸ Agricultural member Van Konijnenburg in particular lost his faith in tuberculin as a result of his own Frisian Cattle Herd Book test and with that in all state measures based on tuberculin testing. He and some other members of the agricultural organisation *NLC* argued that control measures should be limited to clinically tubercular cattle only.¹³⁹ Ruytsch, Wirtz and Reimers seriously disagreed with this loss of trust in tuberculin. This was subject of long debate. Eventually the State Committee (except Van Konijnenburg who was absent in the last meeting) agreed to advise the government that general trust in the tuberculin test was not damaged and that new experiments (as proposed by Van den Bosch and supported by Committee member Reimers) would only fuel suspicions.¹⁴⁰ It was decided that *retuberculation* was better left out of any advice to the government, to the relief of the Frisian Cattle Herd Book, while tuberculinization in itself continued to be an important diagnostic means.¹⁴¹

New export problems occurred because of British sanitary measures against diseased meat – which was at this point largely defined as tubercular meat.¹⁴² In March 1902, the London Chamber of Commerce warned the Dutch government, agricultural organisations and meat traders that the British government prepared stricter sanitary measures against import

¹³⁴ NA, Staatscie rundertbc, inv. nr. 2, Notulen (August 17, 1898) 10 and (February 18, 1901).

¹³⁵ ‘Tuberculose onder het vee’, *Leeuwarder Courant* (January 17, 1901) 2; ‘Inenting met tuberculine’, *Leeuwarder Courant* (January 28, 1901) 1.

¹³⁶ ‘Inenting met tuberculine’, *Leeuwarder Courant* (January 28, 1901); D. van der Sluijs, ‘Notulen der buitengewone 41^{ste} Algemeene vergadering [...] den 20sten April 1901’, *TvV* 29 (1902) 267-278.

¹³⁷ Van der Sluijs, ‘Notulen’, 271.

¹³⁸ NA, Staatscie rundertbc, inv. nr. 2, Notulen (February 8, 1901) and (February 18, 1901).

¹³⁹ Ibidem, (February 8, 1901) 3; Ferf, ‘Verslag’, 14.

¹⁴⁰ NA, Staatscie rundertbc, inv. nr. 2, Notulen (February 18, 1901) 20.

¹⁴¹ ‘Friesch Rundvee-Stamboek’, *Leeuwarder Courant* (July 24, 1901) 1. See also: Jones, *Valuing*, 71-72.

¹⁴² Waddington, *The Bovine Scourge*, 131-152.

of ‘tubercular and other meat with germs’.¹⁴³ Protestant-confessional parliament member Van Asch van Wijck warned in parliament that the London Public Health department had found Dutch meat to be full of germs, which meant ‘that there is *something rotten* in our meat export in the literal sense of the word and that our trade and cattle breeding are in grave danger’.¹⁴⁴ And Britain was not the only state introducing sanitary measures. As the total value of meat export amounted to 27 million guilders in 1901,¹⁴⁵ the stakes were high. Thus, Van Asch van Wijck joined Dutch agricultural organisations in calling for state measures against the *export* of diseased meat. This was especially important for improving the position of the grassroots supporters of Van Wijck’s confessional party ARP: ‘do not forget the smallholder’!¹⁴⁶

Economic considerations continued to be important in the following decades. During the 1920s, the effects of bovine TB on livestock productivity and health were discussed as another economic concern, added to the negative impact on export. Veterinarians assessed the economic damage of bovine TB to be 4 to 5 million guilders per year.¹⁴⁷ The boards of the three agricultural organisations worked together in arguing for state support of voluntary bovine TB control.¹⁴⁸ Thus, the agricultural organisations considered the disease as an agricultural-technical issue and not an issue of pillarised, ideological differences, like for instance agricultural education.¹⁴⁹ Concerns about milk hygiene were an economic incentive for dairy associations to stimulate control of bovine TB: the collection of milk of many farmers meant the quality of the bulk was affected by individual parties. In 1953, veterinarian J.A. Beijers wrote the contribution on bovine TB for the fiftieth-anniversary memorial volume of the Dutch Central Society for Tuberculosis Control. To readers primarily interested in bovine TB as a public health problem, he stressed ‘the very great economic importance involved in the control’.¹⁵⁰ Economic export considerations played a central role in the agricultural problem definition of bovine TB. *Economic* rather than health chains of interdependence played a major role here. How the domains of public health and agriculture related to one another regarding their different perspectives on bovine TB, is the subject of the next section.

143 *Handelingen Tweede Kamer* 1901-1902 (April 29, 1902) 1163.

144 *Ibidem*, 1164.

145 *Ibidem*.

146 *Ibidem*, 1165.

147 L. de Blieck and J.A. Beijers, ‘Rapport Tuberculose-Commissie’, *TvD* 52 (1925) 135-146, 135-136; Abbo-Tilstra, *Om de súnen*, 324.

148 See for instance: ‘Bestrijding van de rundvee-tuberculose’, *Nieuw Rotterdamsche Courant* (May 9, 1925) 2; ‘Bestrijding van veeziekten’, *Limburger Koerier: provinciaal dagblad* (July 25, 1927) 4; ‘Bestrijding tuberculose onder het rundvee’, *De Graafschap-Bode* (February 13, 1935) 1.

149 Van der Woude, *Op goede gronden*. See also, on the early 1900s: Van Cruyningen, *Boeren*, 117-118.

150 Beijers, ‘Bovine tuberculose’, 183-184.

3. Institutional separation between public health and agriculture

In 1898, the dividing line between the policy domains of public health and agriculture was still sketchy. This was closely related to the relatively small scale of the liberal government, even at the end of the 1897-1901 period of government ‘of social justice’.¹⁵¹ The late nineteenth-century Ministry of Internal Affairs combined a wide variety of activities, including the production of and compliance with public health and agricultural legislation. Historian Offringa has described it as ‘a true jack-of-all-trades’.¹⁵² Livestock and human disease control had been given the same organisational shape in the Medical and Veterinary Police (*Medische* and *Veeartsenijkundige Politie*). Hygienist Ruysch had been chief of both these human and livestock disease control authorities in 1884-1888 and was advisor in medical *and* veterinary matters to the Ministry of Internal Affairs from 1887 until 1901.

Moreover, the hygienist movement included members from the agricultural domain. The group of hygienist veterinarians included two to three of the total of eight district veterinarians who officially worked under the Director-General of Agriculture Sickesz from 1898 onwards.¹⁵³ The Veterinary State Inspectorate Act obliged district veterinarians to report ‘livestock diseases dangerous to humans’ not only to the Minister responsible for agriculture, but also to the Medical State Inspectorate, from 1901 onwards called State Inspectorate of Public Health.¹⁵⁴ Moreover, Sickesz himself was not only a prominent figure in the agricultural domain, but also became a member of Ruysch’ hygienist Dutch Congress for Public Health Control in 1899, like his Minister Goeman Borgesius.¹⁵⁵

In this context, the public health and economic problem definitions of bovine TB were addressed as an entangled whole. Ruysch for instance defended the agricultural sector against Belgian bovine TB control measures on behalf of the Dutch government.¹⁵⁶ Some provincial agricultural organisations referred to both public health and trade interests as an incentive to start bovine TB control policies. The regional agricultural organisation *Limburgse Maatschappij*

¹⁵¹ Henk te Velde, ‘Van grondwet tot grondwet: Oefenen met parlement, partij en schaalvergroting 1848-1917’, in: Aerts et al., *Land*, 97-175, 155, 158.

¹⁵² Offringa, *Van Gildestein* I, 166.

¹⁵³ Also, one to two of 36 deputy district veterinarians in total were *Nederlands Congres voor Openbare Gezondheidsregeling* members. See member lists in: *TvSH* 1 (1899) 5-16, 275-287; *TvSH* 2 (1900) 181-193; *TvSH* 3 (1901) 203-215; *TvSH* 8 (1906) 1-16 [at end of volume]; *TvSH* 10 (1908) 1-16; *TvSH* 11 (1909) 1-16. And on district veterinarians: Verhoef, ‘*Strenge wetenschappelijkheid*’ I, 23.

¹⁵⁴ J.G. Stenfert Kroese, *Wetten betreffende: veeartsenijkundig staatsbezicht en de veeartsenijkundige politie; uitoefening der veeartsenijkunst; onderwijs in de veeartsenijkunde en van de voorwaarden tot verkrijging van het diploma tot veearts; [...] bijzondere bepalingen ter bevordering van de bestrijding van de tuberculose onder het rundvee [...] (Zwolle 1909) 17.*

¹⁵⁵ See also: Rigter, *Met raad*, 33-36; Verhoef, ‘*Strenge wetenschappelijkheid*’ I, 22-24.

¹⁵⁶ NA, Staatscie rundertbc, inv. nr. 3, Correspondentie, Ruysch, ‘*Verslag [...] IVde congres voor tuberculose*’ (November 1898) 28.

voor Landbouw for instance thought state bovine TB policies desirable ‘both from the foreign trade and human sanitary point of view’.¹⁵⁷

As has already been discussed, Sickesz also referred to both trade and hygienist considerations when he installed the State Committee. The dual perspective on bovine TB as public health and economic problem was also reflected in the choice of members.¹⁵⁸ Hygienist Ruysch became chairman and stressed the ‘great public interest’ of public health he thought central to bovine TB control.¹⁵⁹ But the agricultural domain was more heavily represented within the State Committee. Director-General Sickesz ensured that Ruysch invited agricultural representatives recommended by the agricultural organisation Dutch Agricultural Committee and that he himself became an advisory member. Veterinary members Wirtz and Reimers were not involved in the Congress for Public Health Control at all. Veterinarian D.A. de Jong severely criticised the composition of the Bovine Tuberculosis State Committee within the Veterinary Association *MVN* from his hygienist perspective.¹⁶⁰

As a result, when concrete economic interests clashed with those of public health, the State Committee tended to prioritise the first and drew boundaries between public health and agriculture after all. Ruysch was a lonely figure in his arguments for state measures against contaminated milk for the sake of public health. He had already defended such measures in an earlier advisory committee on bovine TB between 1896 and 1898, of which Wirtz and Ruysch’ boss A.F. baron van Lynden, the head (*referendaris*) of the Medical Police department, had been members as well. They had opposed Ruysch’ public health measures as ‘more properly dealt with in an act to protect man from TB, than in an act to control the livestock disease.’¹⁶¹ In the 1898-1901 State Committee, a similar disagreement arose: Ruysch argued measures to improve milk hygiene, like pasteurisation, should be part of bovine TB control, while Bultman, Van Konijnenburg and Wirtz opposed this perspective because of practical difficulties for dairy producers, while Reimers was sensitive to both positions.¹⁶² Van Konijnenburg argued that mandatory pasteurisation ‘would be equal to a ban on cheese making’, which Bultman

157 NA, (K)NLC, inv. nr. 6, Stukken rundertbc, ‘Excerpten tuberculose’ [1896].

158 NA, Staatscie rundertbc, inv. nr. 1, Correspondentie van de adviseur van de medische en veterinaire politie over de instelling van de commissie 1896-1898.

159 NA, Staatscie rundertbc, inv. nr. 2, Notulen (May 27, 1898) 3.

160 M.H.J.P. Thomassen and D. van der Sluijs, ‘Notulen der 38^{ste} Algemeene Vergadering der Maatschappij ter bevordering der Veeartsenkunde in Nederland [...] 24^{sten} September 1898 [...], *TvV*26 (1899) 456-474, 467-468; M.H.J.P. Thomassen and D. van der Sluijs, ‘Notulen van de 39^{ste} Algemeene vergadering der Maatschappij ter bevordering der Veeartsenkunde in Nederland, [...] 23^{sten} September 1899 [...] (Vervolg), *TvV*28 (1901) 354-376, 358-359.

161 NA, Staatscie rundertbc, inv. nr. 3, Correspondentie, W. Ruysch, A.W.H. Wirtz and A.F. van Lynden, ‘Bericht op schrijven van 29 December 1896, nr. 4440, afd. M[edische] P[olitie], betreffende bestrijding der tuberculose van het vee’ (February 11, 1897) 20-21.

162 See for instance: NA, Staatscie rundertbc, inv. nr. 2, Notulen (March 20, 1899) and (April 28, 1899).

illustrated by serving the Committee bad cheese made from pasteurised milk.¹⁶³ The majority of the State Committee was more inclined to problematise the spread of TB among pigs via their feeds of contaminated rest products of dairy factories, as this was an agricultural rather than a public health problem.¹⁶⁴ In the final proposal, only facultative measures regarding milk hygiene were proposed: dairies which produced only pasteurised milk or took measures to ensure their milk came from TB-free, veterinary inspected cows were allowed to use a government mark designating this superior quality. As it was in farmers' own interest not to use infected rest products of dairy factories as pig fodder, the State Committee expected farmers to base their choice on such marks. Moreover, the State Committee decided not to link an argument for national meat inspection to its proposal of bovine TB measures, as it thought absence of coercion central to farmers' cooperation.¹⁶⁵

The State Committee generally succeeded to encompass the different views among its members in its final advice.¹⁶⁶ It was a delicate combination of state interference and leaving room for private initiatives and freedom of enterprise farmers' thought so important. It gave tuberculination a central role, argued for tuberculin production, trade and use under state supervision, and ensured the possibility of free tuberculination to support farmers' initiative. To counter the immediate risk of infection of clinically ill cattle, both farmers and veterinarians should be obliged to report these animals to be slaughtered. Tuberculination of cattle was stimulated by several measures, for instance providing marks for healthy and reacting cows. Compensation for all costs was offered by the state, except when farmers chose not to meet state conditions. After the Frisian tuberculination turmoil, the State Committee continued to support tuberculination, but did advise the government that *retuberculination* was better left out of any regulations.¹⁶⁷ Stimulating, rather than enforcing better milk hygiene was proposed via government marks for hygienically produced milk and butter. Thus, the State Committee proposed a middle way between state regulation and stimulation and support of private initiatives, inclining to the latter to ensure agricultural cooperation.

Simultaneously, the political culture of *laissez-faire* liberalism of limited government intervention in social life changed. The progressive-liberal cabinet Pierson-Goeman Borgesius (1897-1901)

163 Ibidem, (April 28, 1899) 2.

164 Ibidem, inv. nr. 3, Correspondentie, Staatscire rundertbc, Verslag [June 1899] 5.

165 Ibidem, inv. nr. 2, Notulen (February 23, 1899); *Handelingen Tweede Kamer* 1900-1901, Bijlagen, 112 Bepalingen tot bestrijding van de tuberculose onder het rundvee, nr. 8, Ontwerp van Wet, 56; Ibidem, nr. 9, Memorie van Toelichting, 59.

166 Although Wirtz did not subscribe to the advice, largely due to his disagreements with the marking of non-reacting cattle as healthy.

167 NA, Staatscire rundertbc, inv. nr. 2, Notulen (February 8, 1901) and (February 18, 1901); Ibidem, inv. nr. 3, Correspondentie, Minister van Binnenlandsche Zaken to Vereeniging 'het Friesche Rundveestamboek' (April 2, 1901).

was the last cabinet based on a liberal parliamentary majority, in which the progressive liberal party *Liberale Unie* was the biggest party. Thus, this cabinet's policy meant a turning point towards state intervention in many aspects of social life. The Pierson cabinet introduced several important social landmark-acts, like compulsory education, the Industrial Injuries Act (*Ongevallenwet*), Housing Act (*Woningwet*) and the Health Act, which I have already discussed in section 1. This intervention was modest in comparison with other countries and with the later twentieth century welfare state, but it did mean a considerable shift away from the liberal minimal state of earlier decades.¹⁶⁸

General suffrage resulted in a significant growth of confessional political parties (the protestant *ARP*, protestant 'Christian-historical' parties and the Catholics).¹⁶⁹ The confessionals expanded social legislation, although moderately in comparison with other European countries. The largest wave of confessional social legislation occurred after the Great War. While this war caused havoc in Europe, it left the neutral Netherlands relatively unharmed, but was followed by rapid political and social change. 1917 had seen a major change of the constitution, introducing universal suffrage for men, again resulting in major gains for the confessional protestant and catholic parties, and continuing the loss of the liberals who had been so powerful during the nineteenth century. Despite the disappointing gains of the Dutch social democrats, their leader Pieter Jelles Troelstra declared revolution in November 1918. This did not result in actual revolution and damaged the trustworthiness of the Dutch social democratic party (*Sociaal-Democratische Arbeiderspartij, SDAP*) in the eyes of the powerful confessional parties for decades to come, but it did prompt the confessional government to make haste with new legislation concerning the social issue.¹⁷⁰

The confessional dominance in Dutch politics meant that in the expansion of social legislation private initiatives were preferred over state arrangements. This was the result of Kuyper's protestant doctrine of 'sphere sovereignty' (*souvereiniteit in eigen kring*): circles and organisations on every aspect of social life (like families, religious groups, industrial and philanthropic organisations) should function independently as much as possible. State *coercion* was undesirable, although the state could play a role in promoting, organising and supporting private initiatives. Thus, on this issue, the *ARP* often agreed with their political arch-enemy of (conservative) liberals in political practice. In 1901, for instance, the confessional parties also owed their election victory to conservative liberal voters, as a response to the progressive-liberals' 1897-1901 social legislation programme. The conservative signature of the 1901-1905 Kuyper government, importantly in response to the 1903 railways strike, meant Kuyper 'lost

168 Rigter, *Met raad*, 31-32; Van Zanden, *The economic history*, 53-58; Te Velde, 'Van grondwet'.

169 Piet de Rooy, 'Een zoekende tijd: De ongemakkelijke democratie 1913-1949', in: Aerts et al., *Land*, 177-262, 201, 205-208.

170 Te Velde, 'Van grondwet'; De Rooy, 'Een zoekende tijd'.

his social face' in historian Henk te Velde's words.¹⁷¹ Catholics did not principally oppose state coercion, but also preferred regional authorities and private organisations to govern wherever possible, via their 'subsidiarity principle'.¹⁷²

The expansion of the state meant it 'was [...] also more interwoven with all sorts of interests'.¹⁷³ The importance of agriculture for the Dutch economy was an important reason why the government interfered earlier and on a larger scale in the domain of agriculture than in that of public health. This was also a result of the 'natural' electorate of the confessional parties who gained the right to vote: the many small Dutch farmers.¹⁷⁴ This group was more in favour of state support than the elite farmers who supported liberal politics and had been more influential during the nineteenth century. Compared to its willingness to intervene in the agricultural domain during the 1900s, the government exercised more restraint to intervene with public health.¹⁷⁵ Rigter and Rigter have even called public health policy 'a Cinderella' in Dutch politics until the 1970s, using TB as their major example.¹⁷⁶

Illustrative of the difference in state intervention in agriculture and public health is their appearance in the names of ministries.¹⁷⁷ 'Agriculture' got its own ministerial department in 1898, led by Director-General Sickesz. In 1905, the liberal minority cabinet De Meester turned this into the larger Directorate of Agriculture (*Directie van den Landbouw*) at the Ministry of Agriculture, Trade and Industry (*Ministerie van Landbouw, Nijverheid en Handel*). Agriculture got a separate ministry in the crisis year 1935, which existed almost uninterruptedly until its merging with Economic Affairs in 2010.¹⁷⁸ Far slower, the policy domain of public health was institutionally expanded.¹⁷⁹ A department of public health and poor relief was founded at the Ministry of Internal Affairs in 1910 (compared to the 1898 agricultural department), public health got a separate directorate in 1953 (compared to the 1905 agricultural directorate) and

171 Te Velde, 'Van grondwet', 158.

172 Van Zanden, *The economic history*, 58-59; Te Velde, 'Van grondwet', 125-126; De Rooy, 'Een zoekende tijd', 202-203 ; De Rooy, *A Tiny Spot*, 121-124.

173 De Rooy, 'Een zoekende tijd', 180.

174 Van Zanden, *The economic history*, 58-59 (quote); Van Cruyningen, *Boeren*, 285-287.

175 Rigter, *Met raad*, 25-108; Van Klaveren, *Het onafhankelijkheids syndroom*, 30-31.

176 H. Rigter and R.B.M. Rigter, 'Volksgezondheid: een Assepoester in de Nederlandse politiek: een analyse toegespist op de sociaal-democratie', *Gewina* 16 (1993) 1-17.

177 Bieleman, *Boeren*, 312; Parlementair Documentatiecentrum Leiden University, 'Kabinetten per tijdvak' (sa), http://www.parlement.com/id/vhnnmt7jmhzl/kabinetten_per_tijdvak (February 17, 2017).

178 *Ministerie van Landbouw en Visscherij* (1935), *Ministerie van Economische Zaken, Landbouw en Innovatie* (2010). At the moment, this ministry is called *Ministerie van Economische Zaken* solely.

179 Harro Maat, *Science Cultivating Practice: A History of Agricultural Science in the Netherlands and its Colonies, 1863-1986* (Dordrecht 2001) 49; De Haan and Duyvendak, *In het hart*, 208-209.

a separate ministry in 1971 (compared to the 1935 agricultural ministry).¹⁸⁰ In short: state interference with livestock health was larger than state interference with public health during the first half of the twentieth century, closely related to the concrete economic interests of the large agricultural sector in Dutch society.

This had major consequences for how the policy domains of public health and agriculture related to one another: they were institutionally separated during the early decades of the twentieth century. Ruysch was used to the combination of human and livestock disease control at one government department and this was still visible in the 1898-1901 bovine TB State Committee. But this became a thing of the past. Ruysch' Medical Police department had been responsible and had paid for the control of livestock diseases until the founding of the agricultural department in 1898.¹⁸¹ During the early 1900s, agriculture was moved even further away from public health to a separate ministry, taking livestock disease control and veterinary medicine with it. Hermanus Johannes Lovink succeeded Sickesz as Director-General of Agriculture and, unlike Sickesz, he was not a member of the Congress for Public Health Control. In 1906, Lovink installed a separate Veterinary Service (*Veeartsenijkundige Dienst*) for livestock disease control. The government also expanded agricultural research and education.¹⁸² While the State Serum Institute (*Rijksseruminrichting, RSI*) for the control of infectious livestock diseases was founded in 1904, the Central Laboratory for the benefit of the State Inspectorate of Public Health was founded five years later. The Central Laboratory did not provide sera and vaccines, while the *RSI* provided free sera and vaccines to farmers and veterinarians. Spronck's private medical serological institute (*Bacterio-Therapeutisch Instituut*) was only turned into a state institute (*Rijks-Serologisch Instituut*) in 1919, with a far smaller budget than the *RSI* for livestock.¹⁸³ In 1934, the Central Laboratory and the Serological Institute were merged into the State Institute for Public Health (*Rijksinstituut voor de Volksgezondheid, RIV*). In the same period, another *agricultural* veterinary research institute was founded: the State Veterinary Research Institute (*Staatsveeartsenijkundig Onderzoekingsinstituut, SVOI*). As a result of this institutional separation, the two problem definitions of bovine TB were also increasingly separately addressed.

On the one hand, hygienists applauded state interference with livestock health which, they were convinced, would benefit public health indirectly.¹⁸⁴ They thought the *RSI* especially

180 *Afdeling voor Volksgezondheid en Armenzorg* (1910), *Ministerie van Sociale Zaken en Volksgezondheid* (1951), *Ministerie van Volksgezondheid en Milieuhygiëne* (1971).

181 *Handelingen Tweede Kamer* 1907-1908, Bijlage B, 2 Staatsbegroting voor het dienstjaar 1908, nr. 1, 'Overzicht van de Staatsuitgaven over de diensten 1887 tot en met 1906', hoofdstuk X Landbouw.

182 Verhoef, 'Strenge wetenschappelijkheid' I, 22-23; Offringa, *Van Gildestein* I, 248; Maat, *Science*, 46-53.

183 Van Zon, *Tachtig jaar*, 92; Verhoef, 'Strenge wetenschappelijkheid' I, 43-47.

184 Ed., 'Drinkwateronderzoek', *TvSH* 10 (1908) 103-104.

exemplary for a public health institute that did not exist yet.¹⁸⁵ On the other hand, hygienists also worried about the growing dominance of agricultural rather than public health authorities over a large variety of subjects of sanitary importance, like disease control and food and drinking water quality, but also labour inspection. Hygienists repeatedly expressed annoyance about the apparent priorities:¹⁸⁶

The most peculiar is certainly – not to use the word annoying yet – that the same government that is so carefully refraining from doing something specific for ill citizens, is far more favourably disposed towards the livestock.¹⁸⁷

This was how the chairman of the Congress for Public Health Control pointed at these livestock - public health discrepancies in state policy in his opening speech of the Congress of 1908.

Ruysch' enthusiasm for veterinary elevation and veterinary involvement in the hygienist movement discussed in section 1 can be explained by these developments as well. In the same years in which the hygienist Congress succeeded in expanding state attention for public health, veterinary affairs were moved out of the hygienist sphere of influence.¹⁸⁸ This problem made the inclusion of veterinarians in the hygienist movement even more important, as veterinary medicine provided an entrance into the domain of agriculture. For instance, the editors of the Journal for Social Hygiene (Ruysch, Goeman Borgesius and Pijnappel) argued that medicine and veterinary medicine 'and their application belong to one department, after all' in 1907.¹⁸⁹ For the hygienist agenda, veterinary medicine was an important field of expertise via which problem ownership over major parts of the agricultural policy domain could be claimed. To make this work, the veterinary ties with the agricultural domain needed to be untied, while those with public health and medicine needed to be tightened.

But the majority of veterinarians working in agriculture was not so interested in public health as some elite veterinarian-hygienists would have liked. In 1899, for instance, Dirk Aart de Jong strongly argued for veterinary involvement in the new hygienist State Inspectorate of Public Health, to claim veterinary positions in the new public health authorities. He urged the Veterinary Association *MVN* to put the new Health Act on its agenda and to ensure that 'the

¹⁸⁵ Ed., 'Rijkslaboratorium voor bestrijding van veeziekten', *TvSH* 8 (1906) 501-502; Ed., 'Melkonderzoek', *TvSH* 10 (1908) 27-28.

¹⁸⁶ W.P. Ruysch, 'Sera en bacteriën-cultures', *TvSH* 9 (1907) 105-107; Ed., 'Onderzoek geheimmiddelen', *TvSH* 9 (1907) 136. With hindsight, A. Querido expressed similar thoughts on the prevalence of economic interests: A. Querido, *Een eeuw staatstoezicht op de volksgezondheid* ('s-Gravenhage 1965) 237.

¹⁸⁷ 'Verslag [...] 13^e Congres', 345.

¹⁸⁸ Sleeswijk, 'Dr. W.P. Ruysch', 172; Offringa, *Van Gildenstein* I, 245-248. Wester wrongly noted (in 1939) that Ruysch still was the head of the Veterinary State Inspectorate in 1909. Wester, *Geschiedenis*, 383.

¹⁸⁹ Ed., 'Veeartsenkunde en hygiëne', 259.

veterinary interests' in issues of public health were taken seriously.¹⁹⁰ Although chairman of the *MVN* and fellow-hygienist Thomassen promised De Jong this would happen, the *MVN* quickly revealed its priorities. It did not further discuss the Health Act during its meetings and the two veterinarians present at the hygienist Congress of 1900 did not participate in the debate on the relative positions of medicine and other professions in the State Inspectorate of Public Health.¹⁹¹ The *MVN*'s veterinary journal rarely announced Public Health Congress meetings and only published reports when veterinary issues were discussed.¹⁹² Moreover, compared to the number of *MVN* members, very few veterinarians were members of the Congress for Public Health Control, although these members were elite veterinarians.¹⁹³ Regarding TB, the veterinary community hardly paid attention to the Central Society for (human) Tuberculosis Control.¹⁹⁴ Public health was simply not at the forefront of most veterinarians' minds.¹⁹⁵ Rather than finding all veterinarians being public health crusaders, a distinct group of public health veterinarians developed, which I will study in more detail in chapter 2. Simultaneously, leading veterinarians continuously advocated and applauded collaboration between the 'medical' and 'veterinary' worlds.¹⁹⁶

As a consequence, veterinary interest representatives had to perform a balancing act between addressing bovine TB as a public health *and* an economic problem, an unfortunate combination for those veterinarians aspiring social and academic elevation of veterinary medicine via public health.¹⁹⁷ An example is veterinarian Reimers' position in the 1898-1901 bovine TB State Committee's debate on the hygienist wish of milk hygiene. Although Reimers often did support Ruysch' proposals to benefit public health via regulating milk hygiene 'in principle', he repeatedly compromised these ideals in order not to upset 'the agricultural element'.¹⁹⁸ During a *MVN* discussion about bovine TB control policies in 1901, Dirk

190 'Kort verslag van het verhandelde op de 39^{ste} Algemeene vergadering [...] 23^{sten} September 1899', *TvV* 27 (1900) 58-62, 61.

191 *TvV* 27-29 (1900-1902); 'Verslag [...] 5^e Congres'.

192 A.A. Overbeek, 'Het twintigste Nederlandsch Congres voor Openbare Gezondheidsregeling (Gezondheidscongres)', *TvV* 42 (1915) 703-708; C.F. van Oyen, 'Gezondheidscongres 1923', *TvD* 50 (1923) 15-20.

193 Compare Koolmees, *Tussen mens*, 41 and 109 to p. 41 of this chapter.

194 *TvV* / *TvD* 30-50 (1903-1923). For an exception, see: H. Markus, 'De Nederlandsche Centrale Vereeniging tot bestrijding der tuberculose', *TvV* 37 (1910) 80-81. Markus worked at the RSI on the bovine tuberculosis control programme and was Poels' son in law. Verhoef, 'Strenge wetenschappelijkheid' I, 44, 49-51.

195 See also: Van der Hoeden, 'Tuberculose', 1360.

196 See for instance: 'Notulen van de Bizondere Algemeene Vergadering [...] 15 November 1924', *TvD* 52 (1925) 111-134.

197 See also: Jones, *Valuing*, 73-74.

198 NA, Staatscje runderbtc, inv. nr. 3, Correspondentie, H.C. Reimers to W.P. Ruysch (March 31, 1899) and Reimers to Ruysch (May 18, 1899).

Aart de Jong had to be assured that ‘agricultural interests can be discussed too’ before he addressed those interests.¹⁹⁹ In his 1902 publication on the unity of mammalian TB, De Jong left out these economic considerations and purely addressed public health interests.²⁰⁰ Other veterinarians limited themselves to the agricultural perspective on the bovine TB problem. Agricultural journalist and veterinarian A. van Leeuwen for instance discussed bovine TB solely as an economic export problem, affecting ‘the health of our livestock and its reputation abroad’.²⁰¹ Although a *MvD* committee on bovine TB of 1924-1925 stated that bovine TB was both an economic and a public health problem, it simultaneously followed the agricultural preference for voluntary rather than enforced control.²⁰² In a critical response, De Jong argued that private initiative on its own was insufficient to counter the public health problem and that some coercion was necessary.²⁰³ But this was a rare perspective in the discussion.

With the wave of social legislation introduced after the First World War, an important task division was added to the institutional separation of the domains of public health and agriculture for decades to come. The government extended its public health activities, including TB control, by reforming the Health Act and introducing legislation on national food inspection: the Meat Inspection Act (*Vleeschkeuringswet*, 1919) and Commodities Act (*Warenwet*, 1919).²⁰⁴ The link between the ‘social issue’ and public health was strengthened by the move of the department of public health from the Ministry of Internal Affairs to the Ministry of Labour (*Arbeid*) in 1918. The new agricultural Livestock Act (*Veewet*) of 1920 reorganised livestock disease control and the agricultural Veterinary State Inspectorate. These Acts meant responsibilities of the public health and agricultural departments were now definitely split between products of animal origin (problem owner: public health authorities) and living livestock (problem owner: agricultural authorities).

Veterinarians got institutionalised roles in policy responses directed at living livestock in the agricultural domain and in policy responses directed at products in the domain of public health.²⁰⁵ For the observance of the Meat Inspection Act, the Veterinary State Inspectorate of Public Health was installed as part of the new State Inspectorate of Public Health. Veterinarian H.C.L.E. Berger became the first Chief Veterinary Officer of Public Health (*Veterinaire Hoofdinspecteur van de Volksgezondheid*) and thus a member of the new Health Council, which

199 Van der Sluijs, ‘Notulen der buitengewone 41^{ste} Algemeene vergadering’, 277.

200 De Jong, *De eenheid*.

201 A. van Leeuwen, ‘De tuberculose-wet’, *TvV* 29 (1902) 211-214, 212.

202 De Blieck and Beijers, ‘Rapport’, 136-137.

203 ‘Notulen van de Bizondere Algemeene Vergadering’, 130.

204 Rigter, *Met raad*, 65-72; Peter, *Symbolen*, 161-194.

205 Rigter, *Met raad*, 111-112; Koolmees, *Symbolen*, 202-203; W. Edel, ‘Diergeneeskunde en Volksgezondheid ofwel Veterinaire Volksgezondheid’, *TvD* 128 (2003) 618-626.

was turned into an advisory institution solely in 1919.²⁰⁶ With the Livestock Act, the agricultural Veterinary Service continued to be responsible for the control of livestock diseases.²⁰⁷ In 1925, these veterinary sections were merged by a personal union, for the same budget reasons which turned the Veterinary College into the Veterinary Faculty: the Veterinary Chief Inspector of Public Health and the director of the Veterinary Service of agriculture became one person, H.C.L.E. Berger. All his personnel officially worked for two ministries. In the following years, this union would be an important platform for exchange between public health and agriculture about zoonoses policies, as we will see in chapters 3 and 4 in particular.

Nevertheless, the infrastructures for dealings with public health and agriculture remained separate and the difference in state interference with the two domains also saw a continuation in the following decades. The reorganisation of the State Inspectorate of Public Health during the 1920s increased state interference with public health. But this interference was still small compared to the later welfare state, which arose relatively late in the Netherlands compared to other European countries. Private initiative continued to play a significant role in Dutch health care at large during the 1930s.²⁰⁸

The agricultural domain on the other hand saw an enormous increase of protectionist (rather than promotional) state intervention during the 1930s, as part of the response to the Great Depression which had a devastating impact on the agricultural sector. While the confessional government was very reluctant to intervene in the general economy (it was the last worldwide to abandon the golden standard in 1936), it started unprecedented interventionist policies in the agricultural domain as a response to growing resistance among farmers in political farmers' unions. Existing agricultural policy was expanded to full-blown protectionism in this period, brought about by a coalition of the central agricultural organisations (including the confessional ones, whose older argument for protectionism was now acted upon), agricultural specialists and government officials. The agricultural domain got its separate Ministry of Agriculture and Fisheries in 1935. This was the start of 'the green front': the representation of agricultural interests through close collaboration between parliament, agricultural organisations and the agricultural ministry.²⁰⁹ During the 1950s, this green front would become even stronger in the system of public and private statutory industrial organisations

206 Rigter, *Met raad*.

207 Thus, the Veterinary Service (*Veeartsenijkundige Dienst*) was responsible for the agricultural Veterinary State Inspectorate (*Veeartsenijkundig Staatstoezicht*) – a different organisation from the Veterinary State Inspectorate of Public Health (*Veterinair Staatstoezicht op de Volksgezondheid*).

208 Van Zanden, *The economic history*, 51-71; Robert Vonk, 'Een taak voor de staat? De Duitse bezetting en de invoering van de verplichte ziekenfondsverzekering in Nederland, 1939-1949', *BMGN-LCHR* 127:3 (2012) 3-28; Harry Oosterhuis, 'Mental Health and Civic Virtue: Psychiatry, Self-Development and Citizenship in the Netherlands, 1870-2005', in: Huisman and Oosterhuis (eds.), *Health*, 155-172, 170.

209 Smits, *Boeren*, 99; Van Zanden, *The economic history*, 58-62; Van Cruyningen, *Boeren*, 292; De Rooy, *A Tiny Spot*, 197-205. Agricultural research was also expanded: Maat, *Science*, 67-74.

(*publiekrechtelijke bedrijfsorganisaties, PBOs*), discussed more extensively in chapter 3.²¹⁰ The creation of the separate policy domains of public health and agriculture and the profound difference in state intervention in those fields had important implications for dealings with bovine TB in its two problem definitions, discussed in the next section.

4. Eradicating bovine tuberculosis

Existing literature has claimed that the advice the Bovine TB State Committee presented in 1899 was directly translated into the Bovine Tuberculosis Bill (*Rundertuberculosewet*) of 1900,²¹¹ but this was not the case. The Committee's advice was adjusted and extended by the hygienists of Goeman Borgesius' Ministry, especially Ruysch and the new Director-General of Agriculture Sickesz.²¹² They paid attention to bovine TB as both a public health and economic problem, and aimed to introduce control measures under stricter state regulation than agricultural representatives had wished for. When presenting the Bill to parliament, Goeman Borgesius still argued that it aimed for a middle way between total state control and control via private initiatives, but also argued that 'different movements' in the State Committee itself forced the government to choose its own direction.²¹³ In general, the proposed Bovine Tuberculosis Bill of 1900 was more in line with hygienists' wishes than the proposal of the State Committee²¹⁴ and hygienists generally discussed it as a significant achievement.²¹⁵

However, the Bovine Tuberculosis Bill met with fierce resistance from agricultural organisations because of its departure from agricultural wishes. The agricultural members of the State Committee, Van Konijnenburg and Bultman, felt the Bill paid insufficient attention to the wishes of agricultural 'men of practice',²¹⁶ and differed in too many ways from the State Committee advice. The Dutch Agricultural Committee appointed a group of representatives,

210 Krajnenbrink, *Het Landbouwschap*.

211 Offringa, *Van Gildestein I*, 237; Koolmees, *Symbolen*, 127; Abbo-Tilstra, *Om de sùnens*, 55.

212 NA, Staatscie rundertbc, inv. nr. 3, Correspondentie, C.J. Sickesz to Staatscie rundertbc (September 7, 1899), Ruysch to Sickesz (November 12, 1899), Sickesz to Ruysch (March 10, 1900); 'Verslag van het 9^e Congres voor Openbare Gezondheidsregeling', *TvSH* 6 (1904) 267-280, 273.

213 *Handelingen Tweede Kamer* 1900-1901, Bijlagen, 112 Bepalingen tot bestrijding van de tuberculose onder het rundvee, nr. 3, Memorie van Toelichting, 7.

214 Ibidem; Ibidem, nr. 2, Ontwerp van Wet; Ibidem, nr. 8, Ontwerp van Wet; Ibidem, nr. 9, Memorie van Toelichting; NA, Staatscie rundertbc, inv. nr. 2, Notulen (February 8, 1901) and (February 18, 1901).

215 'Verslag van de werkzaamheden', *TvSH* 3 (1901) 216-350, 226, 306, 314-336; *Handelingen Tweede Kamer* 1901-1902 (September 20, 1901); W.P. Ruysch, 'Aan onze lezers Heil!', *TvSH* 4 (1902) 1-4; Van der Sluijs, 'Notulen der buitengewone 41^{ste} Algemeene vergadering'; W.P. Ruysch, 'Aan onze lezers Heil!', *TvSH* 6 (1904) 1-5.

216 NA, (K)NLC, inv. nr. 6, Stukken rundertbc, H.F. Bultman et al., 'Rapport over het ontwerp van wet: Bepalingen tot bestrijding van de tuberculose onder het rundvee' (February 6, [1901]) 1.

including Bultman and Van Konijnenburg themselves, to voice criticism on the Bill. They argued the state was given too much power via the Bill, which was costly and ‘deeply encroached on corporate freedom’.²¹⁷ Therefore, the Dutch Agricultural Committee advised parliament not to accept it.

The new confessional government led by leader of the protestant party *ARP* Abraham Kuyper followed agricultural opposition to state-enforced measures and withdrew the Bill in September 1901, shortly after Koch’s controversial statements at the 1901 Tuberculosis Congress.²¹⁸ Like the Agricultural Committee, confessional Minister of Agriculture De Marez Oyens was especially unwilling to introduce *compulsory* control measures,²¹⁹ because of agricultural opposition to ‘measures that do not always take the real conditions of agriculture into consideration’ and because of scientific uncertainty.²²⁰ However, the first reason was more important than the latter.²²¹ De Marez Oyens pointed out the need to direct control measures at the ‘*most important sources of infection*’ – cattle with ‘open’ lung TB.²²² Thus, Fokker’s perspective that TB was non-infectious was not influential here. And Koch’s denial of a link between human and bovine TB provided an opportunistic excuse for avoiding compulsory public health measures: De Marez Oyens did refer to Koch’s statements when he refused to reintroduce the Bovine Tuberculosis Bill in 1901, but only a few weeks later he put Koch’s argument in the British counter-perspective.²²³

But bovine TB as an agricultural export problem *was* a ‘determining factor’ for the government to found the State Serum Institute *RSI* and to introduce a large *voluntary* bovine TB control programme in 1904.²²⁴ The programme has been called ‘Poels’ or ‘Poels-Lovink’, after the director of the *RSI*, veterinarian Jan Poels, who was responsible for the immense task of executing the programme, and the second Director-General of Agriculture, H.J. Lovink, responsible for the design. Thus, bovine TB played a central role in the expanding

217 Ferf, ‘Verslag’, 14.

218 *Handelingen Tweede Kamer* 1901-1902, Bijlagen, 36 [etc.] Brief, houdende intrekking van ingediende wetsontwerpen (Nos. 8, 18, 112, 170 der zitting 1900-1901).

219 Wester, *Geschiedenis*, 408.

220 *Handelingen Tweede Kamer* 1903-1904, Bijlagen, 2 IX Staatsbegroting voor het dienstjaar 1904 (Departement van Waterstaat, Handel en Nijverheid), nr. 2, Memorie van Toelichting, 27.

221 Despite claims to the contrary in the literature, like: J.F. Frik, ‘Bestrijding der rundertuberculose in Nederland’, *Argos* 27 (2002) 322-325, 322.

222 *Handelingen Tweede Kamer* 1903-1904, Bijlagen, 2 IX Staatsbegroting voor het dienstjaar 1904 (Departement van Waterstaat, Handel en Nijverheid), nr. 2, Memorie van Toelichting, 27.

223 Ibidem 1901-1902, Bijlage A, 2 IX Staatsbegroting voor het dienstjaar 1902 (Departement van Waterstaat, Handel en Nijverheid), nr. 25, Memorie van Antwoord (December 4, 1901) 39; *Handelingen Eerste Kamer* 1901-1902 (April 29, 1902) 1166.

224 Wester, *Geschiedenis*, 408-412; Offringa, *Van Gildestein* I, 238; Abbo-Tilstra, *Om de sūnens*, 55-57; Verhoef, ‘*Strenge wetenschappelijkhed*’ I, 40 (quote), 80-81.

state involvement with agriculture: the *RSI* became ‘the pivot of infectious livestock disease control’²²⁵ and one of the three bureaus of the new State Veterinary Service (1906) was entirely devoted to bovine TB control. Moreover, in the period 1905-1909 more than three quarters of the livestock disease control budget went to bovine TB.²²⁶

Exactly following agricultural wishes for financial state support of private initiatives with little coercion, livestock keepers could join the programme voluntarily. As a response to the Frisian tuberculination controversy, the programme was based on a control system developed by the German veterinarian Robert von Ostertag – ‘the founding father of modern systems of meat inspection’ according to historian Tatsuya Mitsuda.²²⁷ Ostertag’s system aimed at eliminating animals with ‘open TB’ which could be diagnosed clinically, rather than Bang’s tuberculination system. No demands were put on tuberculin production, although the *RSI* did become a producer and provider of tuberculin, and used it as a way to double-check whether suspected cows really suffered from TB.²²⁸ The Poels programme was therefore very different from the 1900 concept Bovine Tuberculosis Bill.

The confessional aversion to state coercion did not necessarily extend to aversion of financial state support to meet agricultural interests. The state expenses on the Poels programme quickly rose tremendously as a result of its low participation threshold and the full compensation the government offered for the slaughtering of affected animals (Figure 1.1).²²⁹ In this period, the government took over ca. 27,000 cattle in total.²³⁰ Had Minister J.Ch. de Marez Oyens initially estimated costs of *f* 25,000 for bovine TB control in both 1904 and 1905,²³¹ these costs quickly rose to several hundreds of thousands guilders per year. The government spent the

225 Offringa, *Van Gildestein* I, 234.

226 Figure 1.1; *Handelingen Tweede Kamer* 1907-1908, Bijlage A, 2 Staatsbegroting voor het dienstjaar 1908, nr. 1, Nota betreffende den toestand van 's Lands financiën, Bijlage F, Hoofdstuk X; *Ibidem* 1910-1911, Bijlage A, 2 X Staatsbegroting voor het dienstjaar 1911 (Departement van Landbouw, Nijverheid en Handel), nr. 9, Memorie van Antwoord, 23.

227 Mitsuda, ‘Entangled Histories’, 40.

228 J. Haagsma, ‘Tuberculose en tuberculine’, in: Peter Verhoef (ed.), ‘*Strenge wetenschappelijkheid en praktische zin*: Een eeuw Nederlands centraal veterinaire instituut 1904-2004 II, Jaap M. van Leeuwen and Peter W. de Leeuw (eds.), *Capita selecta* (Rotterdam 2005) 225-233.

229 Sources on the exact costs for the six years in which the system operated differ somewhat. Offringa calls the system an ‘expensive failure’, and gives total costs of *f* 2,303,833, the same figure Wester provides in his history of veterinary medicine, and the Minister of Agriculture Talma provided just before the Poels system was abandoned. *Handelingen Tweede Kamer* 1910-1911, Bijlagen, 155 Wijziging en aanvulling van het Xde hoofdstuk der Staatsbegroting voor het dienstjaar 1909, nr. 6, Memorie van Antwoord; Wester, *Geschiedenis*, 412; Offringa, *Van Gildestein* I, 238. Abbo-Tilstra gives some random, unreliable figures, as she bases them on later, non-government publications: Abbo-Tilstra, *Om de súnen*, 203.

230 Verhoef, ‘*Strenge wetenschappelijkheid*’ I, 81.

231 *Handelingen Tweede Kamer* 1904-1905, Bijlage A, 2 IX Staatsbegroting voor het dienstjaar 1905 (Departement van Waterstaat, Handel en Nijverheid), nr. 2, Memorie van Toelichting, 13.

record sum of more than a million guilders on 8,000 tubercular cattle in 1908.²³² Thus, there is no historical evidence for Van Daal and De Knecht-van Eekelen's claim that the state refused to pay for bovine TB control because of Koch's 1901 statements.²³³

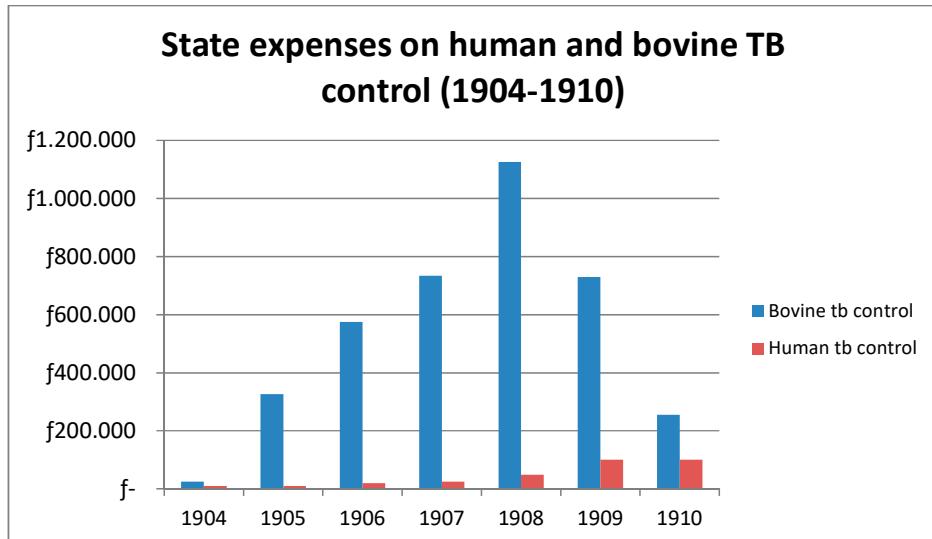


Figure 1.1 State expenses on human and bovine TB control in the Netherlands (1904-1910).²³⁴

The generous willingness of the confessional and liberal governments of 1901-1913 to organise and support bovine TB control stood in sharp contrast to its reservations concerning state support and policy design of human TB control (Figure 1.1), in the context of the institutional separation of public health and agricultural policy discussed in section 3. Despite the hygienists'

232 *Handelingen Tweede Kamer* 1910-1911, Bijlage A, 2 X Staatsbegroting voor het dienstjaar 1911 (Departement van Landbouw, Nijverheid en Handel), nr. 9, Memorie van Antwoord, 23; Verhoef, 'Strenge wetenschappelijkheid' I, 81.

233 Van Daal and De Knecht-van Eekelen, 'Over aetiologie', 231.

234 Sources: *Handelingen Tweede Kamer* 1903-1904, Bijlage, 2 IX Staatsbegroting voor het dienstjaar 1904 (Departement van Waterstaat, Handel en Nijverheid), nr. 2, Memorie van Toelichting, 27-28; *Ibidem* 1904-1905, Bijlage A, 2V Staatsbegroting voor het dienstjaar 1905 (Departement van Binnenlandsche Zaken), nr. 1, Ontwerp van Wet, 3; *Ibidem* 1910-1911, Bijlagen, 155 Wijziging en aanvulling van het Xde hoofdstuk der Staatsbegroting voor het dienstjaar 1909, nr. 6, Memorie van Antwoord, 9; *Ibidem* 1906-1907, Bijlage, 94 Verhoging en wijziging van hoofdstuk V der Staatsbegroting voor het dienstjaar 1906, nr. 2, Ontwerp van wet; *Ibidem*, Bijlage, 94 Verhoging en wijziging van hoofdstuk V der Staatsbegroting voor het dienstjaar 1906, nr. 3, Memorie van Toelichting, 2; *Ibidem*, Bijlage A, 2 V Staatsbegroting voor het dienstjaar 1907 (Departement van Binnenlandsche Zaken), nr. 1, Ontwerp van Wet, 3; 'Tuberculosebestrijding', *TvSH* 10 (1908) 330-331; 'Tuberculosebestrijding bij mensch en dier', *Tuberculose* 14 (1918) 178-179; Sickenga, *Korte Geschiedenis*, 46; Rigter, *Met raad*, 83.

and Central Tuberculosis Society's attempts to get more funding, the Kuyper government estimated only f 10,000 as support in 1904, which was only gradually raised in the following years.²³⁵ Because of this reluctance, the private (and medically orientated) Tuberculosis Society steered human TB control during the first decades of the twentieth century. It hardly paid attention to the policies developed against bovine TB at the agricultural department, involved few veterinarians and hardly mentioned bovine TB at all.²³⁶

Thus, human and bovine TB control policies were increasingly seen as belonging to institutionally separated policy domains and became examples of the stark differences in state interference in agriculture and public health. Government subsidies for bovine TB control and for TB control among humans related to one another in what hygienist and social democrat Schaper called a 'disproportion' in parliament in 1905.²³⁷ Abbo-Tilstra has argued that the human TB controllers used these comparisons to criticise the state expenses on the Poels control programme.²³⁸ However, in the rare instances the Central TB Society *NCV* paid attention to the bovine problem, it discussed the agricultural programme positively during the years it was in operation.²³⁹ Its chairman, for instance, was grateful 'that we have Dr. Poels to care for us [...], also thanks to the strong support of the Director [sic] of Agriculture, whom everybody will praise accordingly'.²⁴⁰ Indeed, the community of hygienists initially drew attention to the budget differences not so much to lower the budget for bovine TB control, but to get 'equally important financial state support' for human TB control.²⁴¹

Agricultural policy on meat inspection also preceded public health policy because of export interests. After all, the export problems farmers faced also included the fear of British measures against tubercular and otherwise infected meat. As a response, the confessional Kuyper government introduced facultative inspection of export meat in 1902 and the liberal minority government De Meester turned this into compulsory inspection of export meat in 1907.²⁴² Here, state coercion in response to external market factors was no matter of principle political debate. And again, hygienists referred to these steps as an example of how the state

235 Van Daal and De Knecht-van Eekelen, 'Over aetiologie', 230; Rigter, *Met raad*, 83.

236 *Tuberculose* 1-7 (1905-1911).

237 *Handelingen Tweede Kamer* 1905-1906 (December 16, 1905) 745.

238 Abbo-Tilstra, *Om de sùnens*, 203.

239 *Tuberculose* 1-7 (1905-1911).

240 Van Gorkom, 'Verslag', 44.

241 W.P. Ruysch, 'De openbare gezondheid en de troonrede', *TvSH* 8 (1906) 361-363, 363. See also: W.P. Ruysch, 'Bestrijding der tuberculose onder het rundvee', *TvSH* 6 (1904) 321-324; W.P. Ruysch, 'Den lezer heil!', *TvSH* 8 (1906) 1-8, 6; 'Aan de vrouwen van Nederland!', *Tuberculose* 7 (1911) 33-37, 36.

242 Koolmees, *Symbolen*, 174-175. The Bovine Tuberculosis State Committee supported this policy: NA, Staatscire runderbc, inv. nr. 3, Correspondentie, A.W.H. Wirtz to Staatscommissie members (April 25, 1902).

should relate to public health.²⁴³ But it was a source of frustration also, as compulsory national meat inspection for the sake of public health was not introduced until 1919.²⁴⁴ ‘How can meat condemned by a Dutch veterinarian for abroad, be approved for the inland?’²⁴⁵ Ruysch rhetorically asked on the implications of the 1907 export meat inspection legislation. Export meat inspection regulations continued to occupy an exceptional position in the product-livestock task division which developed later between the domains of public health and agriculture. Also after the Meat Inspection Act of 1919, export meat inspection continued to be located at the agricultural department, regulated via the Livestock Act.

This was a source of disagreement during the 1920s. To hygienists’ annoyance, agricultural organisations asked meat inspection and parts of commodities inspection to be moved from the State Inspectorate of Public Health to the agricultural department. In the same period, the Health Council asked the Minister of Labour to move export meat inspection to the Veterinary State Inspectorate of Public Health.²⁴⁶ The personal union of public health and agricultural veterinary authorities in 1925 was occasion for mutual distrust on whether agricultural or public health interests would inform its actions.²⁴⁷ Legally, responsibilities for national and export meat inspection remained strictly separated.²⁴⁸

Expanding costs were an important occasion for criticism of the Poels programme in parliament from the start.²⁴⁹ During its final years, veterinarians started to criticise the effectivity in large numbers as well, as the incidence of bovine TB turned out to have risen despite the programme. They started to argue for a less permissive control programme,²⁵⁰ but this argument was not followed. The bovine TB control policies of the following decades were cheaper, but were comparable in following agricultural preferences for facultative control. Agricultural minister Talma intervened in 1909 by introducing new conditions for joining the control programme. Most importantly, only organised cattle breeders (*veefokkers*) could now participate while ordinary farmers, especially smallholders,

243 Ed., ‘Facultatieve vleeskeuring’, *TvSH* 5 (1903) 87.

244 Offringa, *Van Gildestein* I, 236-240; Koolmees, *Symbolen*, 124-128.

245 W.P. Ruysch, ‘Een blijde boodschap’, *TvSH* 8 (1906) 49-50.

246 N.M. Josephus Jitta and H. Aldershoff, ‘De Vleeschkeuring’, *TvSH* 26 (1924) 29-32.

247 R.H. Veenstra, ‘De fusie van beide Veterinaire Inspecties’, *TvD* 25 (1924) 1096-1102; A. Vrijburg, ‘Samensmelting van de Veterinaire Inspecties’, *TvD* 25 (1924) 1117.

248 Koolmees, *Symbolen*, 202-203.

249 *Handelingen Tweede Kamer* 1905-1906 (December 19, 1905) 825-828; *Ibidem* 1909-1910 (December 8, 1909) 778; *Handelingen Eerste Kamer* 1910-1911, Bijlage, 155 Ontwerp van wet tot wijziging en aanvulling van het Xde hoofdstuk der Staatsbegroting voor het dienstjaar 1909 (Tweede Kamer), Eindverslag der commissie van rapporteurs, 148.

250 Ed., ‘Tuberculose bij Rundvee’, *TvSH* 12 (1910) 192; K.R. Kuipers, ‘De Vereeniging van Praktizeerende veeartsen in Z-Holland’, *TvV* 37 (1910) 874-875; A.F. Muller, ‘De strijd tegen de rundertuberculose in verband met de in Nederland gevolgde methode’, *TvV* 38 (1911) 47-66.

could no longer.²⁵¹ This was in line with the concerns about the decline of TB resistance of highly productive milking cattle breeds (like the Frisian). In 1911, conditions were made even stricter. Elite cattle breeders were made responsible for a larger part of the costs in this programme, cattle reacting to tuberculin had to be marked, and state compensation offered for slaughtering of tubercular animals was lowered.²⁵² As a consequence, participation lowered considerably, and state expenses were drastically brought down as well (Figure 1.2).

Dissatisfaction with the new state control conditions (the low compensation fees in particular) prompted Frisian farmers to organise their own bovine TB control, because of their concerns about the TB status of their famous breed.²⁵³ In 1913, the Frisian Cattle Herd Book started to offer free tuberculinisation to its members – doubts on the Bang tuberculinisation system had at this point been overcome by the development of new techniques²⁵⁴ and the system was too valuable for assessing potential economic damage at an early stage to livestock keepers. The Frisian Cattle Herd Book and the Federation of Cooperative Dairy Factories (*Bond van Coöperatieve Zuivelfabrieken*) founded the Frisian Livestock Health Service (*Gezondheidsdienst voor Vee*) in 1919 to privately organise control of bovine TB among Frisian cattle. The Frisian initiatives quickly led to indignation in the rest of country, as Frisian cattle breeders sold off their cattle reacting to tuberculin to other areas, mainly Northern Holland. Veterinarians working for the agricultural state authorities were especially indignant about the private taking-over of their tasks and accused the Frisian Livestock Health Service of catering Frisian rather than national agricultural interests.²⁵⁵

The confessional governments of the interwar period continued to prefer private organisation of social life. This meant that agricultural authorities continued to see voluntary bovine TB control as the only viable option, supported by the Veterinary Association *MvD*

251 *Handelingen Tweede Kamer* 1909-1910, 2 X Staatsbegroting voor het dienstjaar 1910 (Departement van Landbouw, Nijverheid en Handel), nr. 10, Memorie van Antwoord, 18-19; *Handelingen Eerste Kamer* 1910-1911 (December 29, 1910) 128-229.

252 *Handelingen Tweede Kamer* 1910-1911, 2 X Staatsbegroting voor het dienstjaar 1911 (Departement van Landbouw, Nijverheid en Handel), nr. 9, Memorie van Antwoord, 22-23; W.B. van den Burg, ‘The Control of Tuberculosis’, in: Ministry of Agriculture and Fisheries Veterinary Service, *Veterinary work in the Netherlands* [The Hague 1971] 112-123, 114; Abbo-Tilstra, *Om de sùnens*, 204-205.

253 Abbo-Tilstra, *Om de sùnens*, 201-205, 269-272.

254 Beijers, ‘Bovine tuberculosis’, 175.

255 E. van Welderen Rengers, ‘Tuberculose-bestrijding onder het rundvee’, *De Veldbode* 20 (1922) 11; J.H. Picard, ‘Tuberculose-bestrijding’, *De Veldbode* 20 (1922) 23-24; E. van Welderen Rengers, ‘Tuberculose-bestrijding’, *De Veldbode* 20 (1922) 87; J.H. Picard, ‘Tuberculose-bestrijding’, *De Veldbode* 20 (1922) 135; K. de Vink, ‘Tuberculose-bestrijding’, *De Veldbode* 20 (1922) 220-221; E. van Welderen Rengers, ‘Het tuberculose-vraagstuk’, *De Veldbode* 20 (1922) 314.

and agricultural organisations.²⁵⁶ Private initiative preferably countered the disadvantage spread of Frisian ‘reacting animals’ as well: buyers should demand non-reaction guarantees during the sale. Inspired by the Frisian example, another voluntary bovine TB state control programme introduced in 1928 aimed at organised private initiatives to control bovine TB. Cattle breed societies and cooperative dairy factories became eligible to small subsidies if they included conditions in their statutes for TB control as prescribed by the state, like marking of animals reacting to yearly tuberculin tests.²⁵⁷ Provincial associations for bovine TB control (often initiatives of dairy associations) and the Dairy Industry and Milk Hygiene Association (*Vereniging voor Zuivelindustrie en Melkhygiëne, VVZM*) now had two types of member societies: those complying with the state demands for TB control and receiving subsidies and those not complying, receiving nothing.²⁵⁸ In Friesland in particular, the private control programmes were relatively successful. In 1937, 61% of cattle farms investigated by the Frisian Livestock Health Service was TB-free.²⁵⁹ Farmers in the rest of the country participated less: in 1940, 20% of their cattle herds complied to the state programme, while in Friesland 50% of herds was covered by the Frisian Livestock Health Service TB control system.²⁶⁰

The dynamics between private and state initiative in the public health domain were more or less the opposite (Figure 1.2). During the 1900s and 1910s, human TB control relied on private initiatives. During the 1920s on the other hand, the government raised expenses on human TB control and became more involved in the organisation of TB control and in what was called ‘indirect’ or ‘social’ TB control in relation to the ‘social issue’.

The radical hygienists had discussed agricultural policies as shining examples of how the government needed to relate to public health interests during the 1900s, but during the 1910s irritation grew among hygienists and human TB controllers about the lack of similar progress in public health policies.²⁶¹ Assuming that the state still paid more for bovine TB control than for human TB control, the director of the Amsterdam Municipal Medical and Health Service (*Gemeentelijke Geneeskundige en Gezondheidsdienst, GG&GD*) argued for instance in 1917: ‘It

256 ‘Notulen van de Bizondere Algemeene Vergadering’, De Blieck and Beijers, ‘Rapport’; H.C.L.E. Berger, ‘De ontwikkelingsgang van overheidsmaatregelen in Nederland tegen besmettelijke veeziekten’, *TvD* 58 (1931) 86-105, 97-98; C. Offringa, ‘De depressiejaren 1930-1939’, in: Offringa (ed.), *Van Gildestein II*, 27-90, 37-39; J. Hofman, ‘Het succes van de tuberculosebestrijding bij rundvee in Nederland, in het bijzonder in de periode na 1945’, *Argos* 14 (1996) 143-152.

257 f0.50 for each tested animal and f25 for each slaughtered animal with open TB.

258 Van den Burg, ‘The Control’, 115-116.

259 Abbo-Tilstra, *Om de sùnens*, 325.

260 Van den Burg, ‘The Control’, 117.

261 Abbo-Tilstra, *Om de sùnens*, 203.

is a wrong principle, to rank the economy of cattle higher than the economy of mankind.²⁶² The Minister of Agriculture corrected his mistake by sending the figures on bovine TB control expenses to the Central Society for Tuberculosis Control, which showed a steep decline. In 1917, less than f 5,000 was spent on bovine TB control, while the budget for human TB control had risen from f 100,000 in 1910 to f 200,000 in 1917 (Figure 1.2).

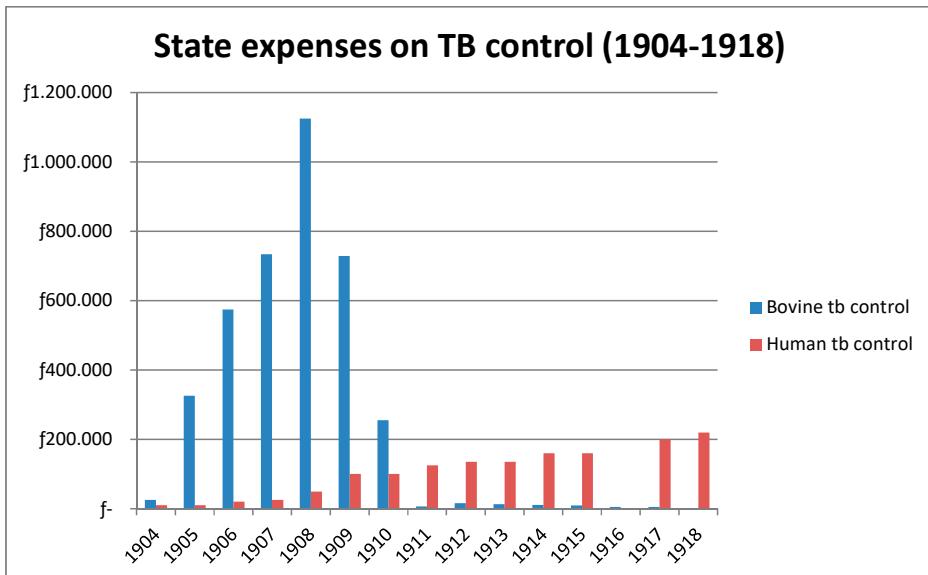


Figure 1.2 State expenses on human and bovine TB control in the Netherlands (1904-1918). Empty spaces in 1916 and 1918 are the result of incomplete data and do not signify zero expenses.²⁶³

Indeed, state intervention in TB control was part of the wave of social legislation after the First World War. Twenty years after the 1898-1901 Bovine TB State Committee, changes in government policy on human TB control were prepared by an expert State Committee on

262 ‘Vergadering van de Nederlandsche Centrale Vereeniging tot bestrijding der tuberculose’, *Tuberculose* 14 (1918) 14-46, 22.

263 For sources on the years 1904-1910: see Figure 1.1 (footnote 234). For 1911-1918: ‘De rijkssubsidies voor 1911’, *Tuberculose* (1911) 125-128; *Handelingen Tweede Kamer* 1911-1912, Bijlage, 2 V Staatsbegroting voor het dienstjaar 1912 (Departement van Binnenlandsche Zaken), nr. 2, Bijlage E van de Memorie van Toelichting, 49; Ibidem 1912-1913, Bijlage, 2 V Staatsbegroting voor het dienstjaar 1913 (Departement van Binnenlandsche Zaken), nr. 21, Gewijzigd ontwerp van wet, 98; Ibidem 1913-1914, Bijlage, 2 V Staatsbegroting voor het dienstjaar 1914 (Departement van Binnenlandsche Zaken), nr. 17, Gewijzigd ontwerp van wet, 82; Ibidem 1914-1915, Bijlage, 2 V, Staatsbegroting voor het dienstjaar 1915 (Departement van Binnenlandsche Zaken), nr. 18, ‘Nader gewijzigd ontwerp van wet’, 54; ‘Tuberculosebestrijding bij mensch’; Rigter, *Met raad*, 83.

Tuberculosis Control (1918-1922).²⁶⁴ The new state interference with human TB control was a mixture of intensified government support of existing private initiatives and government organisation and nationalisation of these initiatives.²⁶⁵ The State Inspectorate of Public Health provided seven Inspectorates of Public Health, including an Inspectorate of Public Health on Tuberculosis Control (*Inspectie van de Volksgezondheid voor de Tuberculosebestrijding*), which took over the supervision of the use of subsidies for private initiatives from the private Tuberculosis Control Society. All locally and privately organised TB societies came together in provincial TB control institutes, supervised by the Inspectorate. The Inspectorate also realised a national network of TB prevention clinics between 1922 and 1931, after the example of such clinics founded by local private TB societies in large cities from 1903 onwards.²⁶⁶ The measures seemed to work, as the number of deaths from TB fell from 147 to 74 of every 100,000 citizens between 1920 and 1930.²⁶⁷

The livestock-products division of agricultural and public health responsibilities also shaped TB control policies. Public health authorities obtained ownership of bovine TB as far as food hygiene was concerned. In the general perspective on bovine TB as of secondary importance to public health this was generally thought sufficient. In the Tuberculosis Society text book on TB control, De Josselin de Jong mentioned the importance of TB control among living livestock and added: ‘How this is done, does not need to be discussed in more detail here.’²⁶⁸ This was the domain of agriculture. He went on discussing measures against contaminated products of animal origin, which *did* belong to the realm of public health. The Veterinary Public Health Inspectorate and the food inspection services became responsible for national food hygiene and thus for the public health task in bovine TB control. The personal union of the Veterinary Public Health Inspectorate and the Veterinary Service was the only link between control tasks regarding bovine TB control in products (public health) and livestock (agriculture). For instance, the agricultural veterinary authorities used public health meat inspection data on the incidence of bovine TB among Dutch herds to monitor the progress of private control initiatives.²⁶⁹

But the product-livestock distinction was of course also artificial. Indeed, it was still subject of debate in the early 1920s. The contents of a ‘milk decree’ under the new Commodities

264 Roëll and Heynsius van den Berg et al., *Verslag*.

265 Querido, *Een eeuw*, 168-169; Van Daal and De Knecht-van Eekelen, ‘Over aetiologie’, 231; Abbo-Tilstra, *Om de sùnens*, 209-210, 220; Bakker, ‘Fresh air’, 351-352.

266 Alice Juch shows that in the debate on whether sanatoria (traditionally for higher classes) or consultation bureaus (for poorer classes) would be best in dealing with tuberculosis, the consultation bureaus won on economic arguments. Juch, ‘Het “nut”’.

267 Bakker, ‘Fresh air’, 352-353.

268 Dekker, De Josselin de Jong and Nolen, *Leerboek*, 72; De Josselin de Jong et al., *Leerboek*, 72.

269 Berger, ‘De ontwikkelingsgang’, 103-104; Abbo-Tilstra, *Om de sùnens*, 324-325.

Act became subject of fierce debate between hygienists and farmers.²⁷⁰ The Minister of Agriculture ensured representatives of the large agricultural societies were involved in the milk decree negotiations, against the hygienist conviction that milk hygiene was a subject ‘of pure hygienic character’.²⁷¹ The ‘most difficult subject of the entire milk decree’²⁷² was whether or not supervision of livestock health should be included via public health-inspired standards of stable hygiene, considered to be central in preventing both livestock and milk from getting contaminated. The representative of the – at this point – ‘Royal’ Agricultural Committee (*KNLC*) argued the state could not ‘put the entire agriculture business under supervision’.²⁷³ Rather, responsibility for milk hygiene should be put in the hands of consumers: heating the milk at home before use was the only ‘absolute guarantee’ against infection.²⁷⁴ As a result of this agricultural opposition, the final milk decree of 1925 contained little of the original hygienist demands on stable hygiene, and was called a ‘sad history’ and a ‘disappointment for hygienists’.²⁷⁵ Indeed, consumers were made responsible for hygienic handling of products.²⁷⁶ Hygienists shifted their regulation attempts to private initiatives producing clean milk in so-called ‘model farms’, although no important consumer demand for more hygienically produced milk existed in the Netherlands.²⁷⁷ And indeed, food inspection services turned out to be ill-equipped to trace every infection of milk with TB bacteria in the 1930s.²⁷⁸

270 Compare similar discussions in the UK: Jim Philips and Michael French, ‘State Regulation and the Hazards of Milk, 1900–1939’, *Social History of Medicine* 12 (1999) 371–388.

271 NA, VGH, inv. nr. 329, Stukken betreffende de totstandkoming van het KB 23-06-1925 (no. 256) tot toepassing van de artikelen 14 en 15 van de Warenwet op melk (melkbesluit) 1921-1926, Warenwetcommissie to Directeur-Generaal (hereafter DG) Volksgesondheid Lietaert Peerbolte (September 16, 1921) 1.

272 NA, VGH, inv. nr. 329, Stukken melkbesluit, melkcommissie to Minister Arbeid, Handel en Nijverheid Aalberse (May 29, 192[3]) 3.

273 NA, 2.11.06 Directie van de Landbouw: Zuivelaangelegenheden 1898-1947, inv. nr. 8, Melkkwesties, Melkbesluit, Notulen (March 6, 1925) 2.

274 NA, VGH, inv. nr. 329, Stukken melkbesluit, H. Ruijter, ‘Rapport over het ontwerp-melkbesluit’ (July 22, 1922) 10-11, 25.

275 NA, GR 1920-1956, inv. nr. 436, Stukken hygiënische melkwinning, Notulen (March 21, 1925) 7, J.D. Filippo to N.M. Josephus Jitta (February 12, 1925). See also: Horst et al., ‘Melkbesluit’, 493; H.A. Vermeulen and J.J.F. Dhont, ‘Het Concept-melkbesluit’, *TvD* 52 (1925) 187.

276 A.H. van Otterloo, ‘Prelude op de consumptiemaatschappij in voor- en tegenspoed 1920-1960’, in: Bieleman and Van Otterloo (eds.), *Techniek* III, 263-279, 267.

277 De Knecht-van Eekelen, *Naar een rationele zuigelingenvoeding*, 198-204; Floor Haalboom, ‘Scientists in cowsheds: disputes over hygienic milk production in the Netherlands, 1918-1928’, in: Eric Jorink, Ilja Nieuwland and Huib Zuidervaart (eds.), *Locations of Knowledge in a Dutch Context* (Leiden, Boston forthcoming).

278 Abbo-Tilstra, *Om de sùnens*, 324.

Thus, public health authorities failed to acquire ownership of the agricultural bovine TB problem, and continued to argue for stricter hygiene regulations.²⁷⁹ Abbo-Tilstra's study of TB control in Friesland does not explicitly address the separate agricultural and public health organisation of bovine and human TB control, nor explains it.²⁸⁰ Instead, she artificially tries to link the two. She argues that the 1904 Poels programme introduced by the Kuyper government was based on a continuation of hygienists' public health perspective.²⁸¹ This was not the case. Rather, the Poels programme was introduced because of agricultural considerations, and its voluntary set-up deviated fundamentally from hygienist preferences. The only link between the 1904 programme and the radical hygienist public health agenda was the personal involvement of Poels and some other hygienist veterinarians.²⁸² The new State Inspectorate of Public Health was not involved at all. As a veterinary hygienist and supporter of strict bovine TB control in the interests of public health, De Jong seriously disagreed with the Poels programme.²⁸³ The Ministry of Agriculture reprimanded him for voicing this opinion in public, by his own account, and his ideas would never influence the agricultural bovine TB control policies.²⁸⁴ Abbo-Tilstra also uses the little attention the 1918-1922 State Committee on TB Control paid to bovine TB as evidence for a link between TB control in the agricultural and public health domains in this period.²⁸⁵ However, rather the opposite is the case: Dirk Aart de Jong's argument to include animal TB in human TB control policy was not taken over by the State Committee – apart from the nationally organised meat and food inspection, which the government had already realised. The predominant medical feeling was that bovine TB control 'should remain an economic-veterinary matter'.²⁸⁶ The worlds of bovine and human TB control were far more separate than Abbo-Tilstra acknowledges and this was done deliberately to meet the different interests and perspectives of the public health and agricultural domains.

This puts the veterinary indignation about the separate ways of human and bovine TB control discussed in section 1 in a new perspective. During the celebrations of the *MvD*'s 75 year jubilee, its chairman used the occasion to argue that veterinarians like Dirk Aart de Jong had based bovine TB control programmes on the public health dangers of bovine TB for decades, while 'the medical side paid little attention to this then'.²⁸⁷ He selectively forgot

279 Van der Hoeden, *De zoönosen*, 44-49.

280 Abbo-Tilstra, *Om de sūnens*.

281 Ibidem, 56-57, 342.

282 See for Poels' defence of the agricultural set-up of his programme: Van Gorkom, 'Verslag', 18.

283 Offringa, *Van Gildestein I*, 236-240.

284 D.A. de Jong, 'Belangrijke zaken in de toekomst: I. Tuberculose-bestrijding', *TvD* 38 (1911) 4-7; 'Notulen van de Bizondere Algemeene Vergadering'.

285 Abbo-Tilstra, *Om de sūnens*, 268-269.

286 A 1931 medical citation in: Van der Hoeden, *De zoönosen*, 40.

287 Van der Hoeden, 'Tuberculose', 1363.

that hygienists like physician W.P. Ruysch *had* been occupied with the danger of bovine TB for public health, that De Jong's ideas on bovine TB control did not inform government policies at all, that prominent veterinarians in hindsight applauded the rejection of the 'fiasco' 1900 hygienist Bovine Tuberculosis Bill²⁸⁸ and that the existing voluntary bovine TB control programmes were primarily based on agricultural considerations.²⁸⁹ That human and bovine TB control policies were divided by deliberate, institutionalised task divisions between the domains of public health and agriculture, both incorporating veterinary expertise, is a larger context not taken into account in medical-veterinary collaboration rhetoric which continues to this day – often attributing a heroic role to Dirk Aart de Jong.²⁹⁰ The veterinary balancing act between public health and agricultural ownership claims explains this.

As private initiatives in the agricultural sector lowered bovine TB incidence,²⁹¹ the stakes to extend control of bovine TB to *all* herds became higher and compulsory control carefully re-entered discussions in agricultural circles.²⁹² The interventionist and protectionist agricultural policies of the depression years helped to make this possible. The three central agricultural organisations and dairy associations started to collaborate to improve the quality of dairy.²⁹³ The Consumption Milk Centre (*Consumptie Melk Centrale*) was a public-private organ made responsible for the execution of crisis policies regarding milk in the densely populated western Netherlands. In 1938, it demanded all its milk suppliers to join TB control programmes, stimulated by premiums paid for by consumers, referred to as 'veiled coercive measures'.²⁹⁴ In the late 1930s, agricultural associations, the *MvD* and the Veterinary Service made plans to expand bovine TB control via the founding of Animal Health Services (*Gezondheidsdiensten voor Dieren*) after the Frisian example in every province, with the Animal Health Council (*Gezondheidsraad voor Dieren*) as umbrella organisation.²⁹⁵ In the context of veterinary

288 Wester, *Geschiedenis*, 408.

289 Beijers did acknowledge the economic incentives for bovine tuberculosis control in: Beijers, 'Bovine tuberculose', 183-184.

290 J.A.J.M. Kirch, "t Klinkt gek, maar ook het dier maakt U nóg gezonder", *TvD* 78 (1953) 852-855, 852; Beijers, 'Bovine tuberculose', 167; Frik, 'Bestrijding', 322; Van Knapen, "Vreeselijksten geesel", 274, 279.

291 Infection figures throughout the Netherlands differed considerably as a result of differences in participation in voluntary control programmes. See: Van der Hoeden, *De zoönosen*, 42-43; Hofman, 'Het succes', 145-146.

292 See for instance: J.A. Beijers and A. van Heusden, 'Rapport tuberculose-commissie', *TvD* 66 (1939) 1014-1026; Van der Hoeden, *De Zoönosen*, 42-43.

293 Piers, *Wisselend getij*, 101-102.

294 Van der Hoeden, *De zoönosen*, 42.

295 Beijers, 'Bovine tuberculose', 172-173; Van den Burg, 'The Control', 117-118; Frik, 'Bestrijding', 323-324; Van Knapen, "Vreeselijksten geesel", 282.

elevation attempts, the resemblance in name to the medical/public health Health Council is no coincidence.

Moreover, the Second World War was an important factor in the shift to compulsory TB control. The role of the German occupation in enforcing TB control regulations is comparable to its role in the debate on compulsory health insurance, milk pasteurisation and animal rendering regulations.²⁹⁶ Historian Robert Vonk argues that compulsory health insurance introduced in 1941 was both a German and a Dutch product.²⁹⁷ The German occupation played a similar role in circumventing the conflicts of interests in Dutch civil society and enforcing compulsory bovine TB control, milk pasteurisation and animal rendering regulations. At the same time Dutch society continued and welcomed these measures after the war. The German occupation government introduced a bovine TB decree in 1943. This introduced conditions for the founding of state-recognised Animal Health Services in every province and laid down a levy of $f\ 0,05$ per 100 kg of milk for the control of cattle disease, paid from the Agricultural Depression Fund. It also gave the Minister of Agriculture the power to enforce bovine TB control in particular areas. After the war, the decree was annulled because of the occupation, but parliament quickly passed it again.²⁹⁸

The central agricultural organisations continued to have a large say in how control was organised, and the provincial Animal Health Services were ‘organisations of and for farmers’.²⁹⁹ The Agricultural Foundation (*Stichting voor de Landbouw*) consisting of the three central agricultural organisations (and thus the predecessor of the PBO Agricultural Board)³⁰⁰ founded them. The Services got a budget paid from the milk levies accumulated into a considerable sum since 1943. The composition of their boards was typical of the ‘green front’: members were representatives of agricultural organisations, Veterinary Service officials and the director was always a veterinarian. To facilitate ‘fruitful’ exchange between public veterinary institutes and the corporate Animal Health Services, a veterinary department of the *Landbouworganisatie TNO* was founded, the agricultural branch of the organisation Applied Scientific Research (*Toegespast-Natuurwetenschappelijk Onderzoek, TNO*).³⁰¹ TNO facilitated ‘applied’ research for industry and the government. The coordinating organ of the Animal Health Services became the Animal Health Committee (*Gezondheidscommissie voor Dieren*), managed by the Services’ board members and leading veterinarians in the agricultural domain. Support of private

296 See for these examples: Juch, ‘Het “nut”, 225; Koolmees, *Symbolen*, 224; Vonk, ‘Een taak’; Oosterhuis and Huisman, ‘The Politics’, 33; Van Klaveren, *Het onafhankelijkheidssyndroom*, 34-38.

297 Vonk, ‘Een taak’.

298 *Verslag van den directeur van den Veeartsenijkundigen Dienst omtrent de werkzaamheden van den Veeartsenijkundigen Dienst en den gezondheidstoestand van den veestapel* (hereafter: *Verslag VD*) 1943, 11; Beijers, ‘Bovine tuberculose’, 173-174; Van den Burg, ‘The Control’, 117-118.

299 Hofman, ‘Het succes’, 146.

300 Krajenbrink, *Het Landbouwschap*, chapter 2.

301 ‘Afdeling Diergeneskunde van de Landbouworganisatie T.N.O.’, *TvD* 78 (1953) 95.

initiative initially continued to be preferred over state coercion. The Animal Health Committee introduced a national certification system which provided TB certificates to participating farmers. As an increasing number of farmers took part in the control scheme, the certificates quickly started to affect prices, and helped to encourage farmers to participate. The Agricultural Board (*Landbouwschap*) became responsible for the financing (via levies) of the Animal Health Services and their Committee in 1956.³⁰² In the 1960s, the Agricultural Board and the Animal Health Services would develop a system to identify and register cattle, using one ear mark and sketches, in order to facilitate control of diseases like bovine TB.³⁰³

American post-war reconstruction support was another important factor in removing financial obstacles to compulsory bovine TB control policies for the Dutch government and the agricultural sector.³⁰⁴ And again, economic considerations were important. For instance, the demand for TB-free milk from the American army stationed in Germany was an important incentive for the Dutch province of Drenthe to start its large-scale control campaign in 1949.³⁰⁵ The American Marshall Aid funds provided the Dutch Ministry of Agriculture with half of the financial means to make compulsory control possible. On this condition, organised agriculture agreed to produce the other half of the money. Government officials and agricultural representatives together designed a National Five-Year Plan for the eradication of bovine TB, financed by a savings levy of f0.25 per 100 kg milk imposed for five years ('*boerenkwartjes*')³⁰⁶ and made up by fifty million guilders from the Marshal Aid funds. The money was collected in a national fund used to compensate farmers for the slaughter of reacting animals. As Friesland had already been TB-free when the plan started, Frisian farmers were promised premiums. Other farmers were promised to get their levies back if they succeeded in making their herds TB-free before a certain deadline. This deadline depended on the percentage of reacting cattle in herds, ranging from spring 1952 to spring 1956. When the plan started, more than 15% of Dutch cattle was still infected with TB – a percentage which had been considerably larger in the preceding years.³⁰⁷ While 'very certainly economic motives count' to introduce this major programme – indeed, they were decisive –, measures to protect public health no longer clashed with measures to protect the export position.³⁰⁸ Even the corporate Animal Health Services at this point advocated compulsory bovine TB control on the grounds of public health protection.

302 Beijers, 'Bovine tuberculose', 173-174; Van den Burg, 'The Control', 117-119; Swabe, *Animals*, 144-145; C. Offringa, '1945-1971: De veterinaire wereld en de samenleving', in: Offringa (ed.), *Van Gildestein II*, 177-212, 188-193; Krajnenbrink, *Het Landbouwschap*, 111.

303 Hofman, 'Het succes', 147.

304 Offringa, '1945-1971', 191-192; Koolmees, 'Veterinary Medicine', 108-110.

305 Hofman, 'Het succes', 148.

306 Ibidem.

307 Van den Burg, 'The Control', 119-121.

308 Kirch, 't Klinkt gek', 852.

The new political reality of Catholic-social democrat coalitions from 1945-1958 was another factor to enable the definitive break with half a century of facultative policies aimed at stimulating private initiatives. In 1952, social democrat minister of agriculture Sicco Mansholt introduced the Bovine Tuberculosis Eradication Act (*Wet bestrijding tuberculose onder het rundvee*) to force every farmer to comply to the new control system. Control of bovine TB progressed quickly throughout the country from 1951 to 1956, when the last area in Holland was declared TB-free. The Animal Health Services primarily used the remains of the fund (circa 75% of it had been used) to pay for the slaughter of so-called ‘setbacks’, caused by latent TB infection giving no response to tuberculin. An after-care programme of tuberculin testing and reporting was started after the five year programme, to make sure no new tubercular cows would become sources of infection. This programme was gradually cut back to tests every three years. Human beings with TB became a relatively large threat to clean herds. As the director of the Gelderland Animal Health Service pointed out: ‘If the cattle population is to be kept tuberculosis-free, it is essential that tuberculosis is eradicated from the human population too’.³⁰⁹

Summary

Bovine tuberculosis was defined as both a public health and an agricultural export problem in the late nineteenth century. Late-nineteenth century radical hygienists argued for more state intervention in matters of public health and defined bovine TB as an important public health problem in need of state policies. Bovine TB as public health problem provided veterinarians with an important ground to claim ownership of public health. This was important in their attempts to elevate their discipline socially and obtain academic recognition like human medicine. Simultaneously, a debate arose on the exact role of bovine TB in the human TB problem. Although Koch’s 1901 statement that bovine TB posed no danger to public health was immediately refuted by many researchers, including medically and veterinary trained Dutch hygienists, a debate on the exact relation between bovine and human TB bacteria did arise. Medically orientated TB controllers came to see bovine TB as a problem of secondary importance to public health, to the annoyance of veterinarians who saw their ownership claim on public health lose importance. When bovine TB attracted new interest as an important public health problem in need of control during the 1930s, veterinarians received this as final recognition of the importance of veterinary medicine to public health.

Bovine TB was also defined as an agricultural export problem. As surrounding export countries like Belgium and Great Britain started to introduce control measures, TB infection of Dutch cattle became a problem affecting farmers’ income. The reputation of the famous

309 Van den Burg, ‘The Control’, 121-122.

Frisian cattle breed as sensitive to TB posed an important problem to Frisian farmers in particular. Agricultural organisations started to voluntarily organise control and called for state intervention. The official liberal Agricultural Committee translated this in a call for state support of private initiatives and against compulsory control measures. The confessional agricultural organisations later supported this argument. Thus, the pillarised agricultural organisations did not seriously disagree on this issue, and pillarisation did not influence the Dutch history of bovine TB control – in line with historians' argument that the 'extent of pillarisation of the Dutch countryside should not be overestimated.'³¹⁰

In the context of nineteenth-century liberal *laissez-faire* politics, agricultural, medical and veterinary authorities were small and combined at the Ministry of Internal Affairs in the late nineteenth century. The 1898-1901 State Committee on bovine TB control discussed the disease as both a public health and an economic problem. But while radical hygienists did their best to extend state intervention in matters of public health, confessional governments did this earlier and more extensive in the agricultural than in the public health domain. As a result, agricultural authorities became responsible for the control of livestock diseases. During the 1930s, differences in state intervention between public health and agriculture became even larger, when the government intervened in the agricultural domain without precedent because of the economic depression. This period saw the rise of the 'green front': organised agriculture, agricultural authorities and parliament together decided the direction of agricultural policies.

When national meat and food inspection was introduced in the wave of social legislation after the First World War, an influential task division between agricultural and public health authorities was established: agricultural authorities continued to be responsible for disease control in living livestock, and public health authorities became responsible for products of animal origin. This task division would be decisive for the relation between the domains of agriculture and public health regarding livestock-associated zoonoses and other public health problems throughout the twentieth century. It was of course also an artificial boundary between the domains of agriculture and public health: it did not do justice to the chains of interdependence between livestock, their products and the consumers of those products, and would be subject of criticism when public health and agricultural interests clashed. Veterinarians obtained an intermediary role via the agricultural veterinary authorities responsible for livestock disease control and the Veterinary State Inspectorate of Public Health responsible for meat inspection. This intermediary role also meant that veterinarians had to perform a balancing act in reconciling sometimes competing agricultural and public health interests.

All this meant that in actual policy measures, the agricultural domain was more successful in claiming problem ownership of bovine TB than the public health domain. Control measures were initially organised, institutionalised and financed by agricultural authorities, where veterinarians acquired leading roles as *agricultural* officials, despite the rhetorical importance

310 Van Cruyningen, *Boeren*, 290.

of public health in their elevation process. Following agricultural and confessional preferences, support of voluntary private control initiatives were put central and compulsory policies like the progressive-liberal hygienist Bovine Tuberculosis Bill of 1900 were deliberately avoided. During the 1900s, confessional and liberal governments spent a lot of money on voluntary bovine TB control, while they were reluctant to support human TB control. State support of human TB was only started to a significant degree as part of the post-First World War social legislation. Public health authorities acquired ‘secondary problem ownership’ of bovine TB via national food inspection in the same period. Bovine TB did not play any other significant role in human TB control policies, because of the livestock-products task division between agriculture and public health, and because physicians generally considered bovine TB to be of secondary importance at this point.

The 1920s and 1930s saw a continuation of low-key state support for agricultural private initiatives to control bovine TB after the Frisian example. During the 1930s, public health experts thought bovine TB to be more important, but public health authorities had little power to do something apart from calling for measures like compulsory milk pasteurisation. Veterinarians championed the medical shift as recognition of their long and hard work in the interest of public health. This view did not capture the fact that bovine TB policies had been carried out by the agricultural department for economic reasons. The progress in privately organised bovine TB control meant that organised agriculture was increasingly in favor of forcing *all* cattle keepers to join. Moreover, the expansion of state intervention in the agricultural sector (in close collaboration with agricultural organisations) provided good circumstances during the 1930s. Finally, the Second World War functioned as an important engine of change: the German occupation could overrule the conflicts of Dutch civil society and the American support via the Marshall fund overcame important financial barriers. Moreover, state intervention was applauded in the new political reality of the expanding welfare state.

The case of bovine TB does not just illustrate how a zoonotic disease was negotiated and dealt with during the first half of the twentieth century. It was also a disease central in the creation of institutional task divisions between public health and agriculture, importantly the task division between products and living animals. This worked pretty well with bovine TB itself, because of the biological characteristics of the disease: TB developed slowly and humans were primarily infected with bovine TB via milk and meat. With new zoonotic problems appearing in later years, the products-livestock task division would turn out to be more problematic.

2

Engaging in comparative medicine in a divided world: influenza (1918-1957)

The devastating ‘Spanish’ influenza pandemic of 1918-1919 is the starting point of this chapter. Concerns about another pandemic of this magnitude inspired influenza research by a new scientific discipline: virology. This occurred in particular in the US and the UK, but influenza research attracted the attention of microbiologists in the Netherlands also, in particular from the 1930s onwards. One research question was how different influenza viruses infecting human and animal populations related to one another. We will see how the disciplines of medicine and veterinary medicine, and the domains of public health and agriculture related to one another in their approach to this question. Historians have not studied the reception of Richard Shope’s work on the swine influenza virus in agricultural circles before. This chapter will do this for the Netherlands in a period of intensification of pig keeping (Figure 2). The chapter takes 1957 as endpoint, when the world was confronted with another major ‘Asian’ influenza pandemic, which inspired a new approach to the question how human and animal influenzas related to one another. Chronologically, this chapter overlaps with the previous chapter on the case of bovine tuberculosis. It provides a different perspective on dealings with livestock-associated zoonoses, as state authorities hardly concerned themselves with influenza. This chapter studies how this affected relations between the domains of agriculture and public health. Simultaneously, the disciplines of medicine and veterinary medicine collaborated extensively in influenza research, inspired by the popular culture of ‘comparative medicine’ which compared human and animal diseases.

1. Influenza research and comparative medicine: public health

While many infectious diseases were starting to become ‘manageable’ through the successes of bacteriology, the sudden virulent influenza pandemic of 1918-1919 killed many and left the medical profession powerless.¹ In 1892, Richard Pfeiffer had proposed a bacillus ('Pfeiffer's bacillus') to be responsible for influenza, in line with the bacteriological paradigm of the time. A major problem in influenza research was the difficulty to meet Koch's postulates – rules to establish which germ was responsible for a certain infectious disease. The 1918-1919 pandemic was a major incentive for influenza research: researchers primarily sought to find out how deadly influenza pandemics could be explained and prevented. Many scientific studies on influenza appeared, proposing Pfeiffer's bacillus, a ‘filterable virus’ or other causes to be responsible. According to Helvoort, influenza research at this time was in a state of ‘total confusion’,² and John M. Eyler and Michael Bresalier have sketched similar pictures.³ In the 1920s and 1930s, influenza research was important in the development of virus research and virology. According to Eyler, the influenza virus was the mostly studied virus infecting human beings between 1935 and the early 1960s.⁴

Historians have shown that linkages between human and animal medicine were an important part of influenza research. American influenza researcher Richard E. Shope of the Rockefeller Institute's Department of Animal Pathology at Princeton presented his isolation of the swine influenza virus to the influenza research community in 1931 and this virus was linked to the British identification of the human influenza virus in 1933.⁵ Influenza historian Michael Bresalier in particular has addressed the theme of medical and veterinary collaboration in influenza research, partly in collaboration with Michael Worboys. They have shown that the virus research programme at the British National Institute for Medical Research during the 1920s combined medical and veterinary work on human and animal diseases, and used especially dog distemper as a model disease for influenza.⁶ Historian Frédéric Vagneron

1 See on the historiography of the ‘Spanish’ influenza pandemic of 1918-1919: Howard Phillips, ‘The Recent Wave of “Spanish” Flu Historiography’, *Social History of Medicine* 27 (2014) 789-808.

2 A.A.F.J. van Helvoort, *Research styles in virus studies in the twentieth century: controversies and the formation of consensus* (s.l. 1993) 62.

3 John M. Eyler, ‘The Fog of Research: Influenza Vaccine Trials during the 1918-19 Pandemic’, *Journal of the History of Medicine and Allied Sciences* 64 (2009) 401-428; Michael Bresalier, “A Most Protean Disease”: Aligning Medical Knowledge of Modern Influenza, 1890-1914’, *Medical History* 56 (2012) 481-510; Michael Bresalier, ‘Uses of a Pandemic: Forging the Identities of Influenza and Virus Research in Interwar Britain’, *Social History of Medicine* 25 (2012) 400-424.

4 J.M. Eyler, ‘De Kruif’s Boast: Vaccine Trials and the Construction of a Virus’, *Bulletin of the History of Medicine* 80 (2006) 409-438, 413.

5 Helvoort, *Research styles*, 65-66; Eyler, ‘De Kruif’s Boast’, 409-410; Bresalier, ‘Uses’, 418-419.

6 Bresalier, ‘Uses’, 414-419; Michael Bresalier and Michael Worboys, “Saving the lives of our dogs”: the development of canine distemper vaccine in interwar Britain’, *The British Journal for the History of Science* 47 (2013) 305-334.

has analysed the role of the United Nations World Health Organisation (WHO) in the development of the concept of animal reservoirs in relation to influenza.⁷ Other historians of medicine discuss influenza as an important disease in the history of central concepts which linked human infectious diseases to animal ones, like animal reservoirs and disease ecology, but they hardly explore when and how influenza got these meanings.⁸

At least from the second half of the nineteenth century onwards, outbreaks of influenza among both people and animals were noted, although the exact relation between such ‘different influenzas’⁹ remained unclear.¹⁰ Also in the Netherlands, observations of horses, dogs, cats and chickens with influenza were linked to the curious variability of influenza.¹¹ In some instances, animal influenza was aetiologically related to the problem of human influenza. Significantly, the official Health Council report on the influenza pandemic speculated about an aetiological link between ‘human and animal influenza’, going back to the work by German medical professor August Hirsch (1817-1894).¹² Also, the military problem of horse influenza was linked to the human disease and in this context military horse veterinarian Emile Bemelmans joined the in every other respect predominantly *medical influenza* debate.¹³

Although the Medical State Inspectorate of Public Health kept record of influenza mortality, the 1918-1919 influenza pandemic did not change the fact that the Dutch state was very reserved to get involved in and pay for influenza research – different from TB as discussed

7 Frédéric Vagneron, ‘Surveiller et s’unir? Le rôle de l’OMS dans les premières mobilisations internationales autour d’un réservoir animal de la grippe’, *Revue d’anthropologie des connaissances* 9:2 (2015) 139-162.

8 A.P. Waterson and Lise Wilkinson, *An Introduction to the History of Virology* (Cambridge, New York 1978) 135-138; W.I.B. Beveridge, ‘Unravelling the Ecology of Influenza A Virus’, *History and Philosophy of the Life Sciences* 15 (1993) 23-32; Hardy, ‘Animals’, 207-209; Warwick Anderson, ‘Natural Histories of Infectious Disease: Ecological Vision in Twentieth-Century Biomedical Science’, *Osiris* 19 (2004) 39-61; Eyer, ‘De Kruijf’s Boast’, 436-437. J.A. Mendelsohn does address earlier ecological understandings of epidemics within bacteriology with a special role for influenza pandemics, without addressing the issue of animal influenza explicitly: J.A. Mendelsohn, ‘From Eradication to Equilibrium: How Epidemics became Complex after World War I’, in: C. Lawrence and G. Weisz (eds.), *Greater than the Parts: Holism in Biomedicine, 1920-1950* (Oxford 1998) 303-334.

9 While Michael Bresalier does not explicitly use this phrase for understandings of animal influenza (but for the way different people perceived different manifestations of influenza among people in the late nineteenth century), it is suitable to capture the understanding of influenza among different animal populations as well. Bresalier, “A Most Protean Disease”, 482.

10 Vagneron, ‘Surveiller’, 145.

11 P.H. Kramer, ‘De “Spaansche griep”’, *Nieuw Rotterdamsche Courant* (August 14, 1918) 2; ‘Griep bij honden’, *Vox medicorum* 19 (1919) 54; ‘Influenza in horses and in man’, *NTvG* 63 (1919) 1963.

12 A.A.J. Quanjer, *De griep in Nederland in 1918 tot 1920* ([s Gravenhage] 1921) 47-48.

13 Haalboom, “Spanish” flu’.

in chapter 1.¹⁴ The Central Laboratory for Public Health, turned into the State Institute for Public Health (*RIV*) in 1934, had for instance little capacity for the study of viruses until the 1950s.¹⁵ This was a very different situation from the British context where the National Institute for Medical Research worked on influenza and other virus diseases.¹⁶

This situation meant that in the Netherlands, influenza research largely depended on private initiatives of individual researchers and civil organisations, in line with the general organisation of health care during the interbellum. In the wake of the British and American developments in influenza virus research, the newly founded private Institute for Preventive Medicine (*Instituut voor Praeventieve Geneeskunde, IPG*) became the centre for Dutch influenza research in the early 1930s. Its small community of scientists conducted influenza research at the institute's 'virus laboratory'.¹⁷ As the government declined requests for state support, the *IPG*'s early years were characterised by financial difficulties. Some structural funding was received from the Prophylaxis Fund (*Prophylaxefonds*), a neo-corporate organisation established in the wake of new social legislation on health care insurance. Employers mandatorily contributed to the Fund, and representatives of employers and employees were members of the board. Until 1939, the Prophylaxis Fund subsidised the *IPG* with a relatively small amount. As a result, the *IPG* worked with a very small budget for influenza research in the crisis years.¹⁸

Nevertheless, influenza research was modelled after the British and American examples of exciting new virological experiments.¹⁹ Historian Bresalier shows how British research yielded the ferret as the new influenza laboratory animal during the 1920s, and thus provided a solution to 'the greatest difficulty' in influenza research: the lack of a suitable laboratory animal.²⁰ The British team collaborated with Richard Shope in the US on developing influenza virus research methods and researching the relations between different strains of influenza viruses like human and swine influenza. In the early 1930s, Patrick Laidlaw's team infected ferrets with filtered throat-washings (which lacked any bacteria) of human influenza patients,

14 The data were collected by the *Centraal Bureau voor de Statistiek (CBS)*. See on both the collection of data and the reserved attitude of the Dutch state regarding influenza for instance: 'Verslag van den Hoofdinspecteur van de Volksgezondheid, belast met de leiding van het Geneeskundig Staatstoezicht op de Volksgezondheid met uitzondering van dat op de kinderhygiëne en de tuberculosebestrijding, over het jaar 1922', *Verslagen en Mededeelingen van de Volksgezondheid* (hereafter *VMV*) 1923, 657-760, 686-688.

15 R. Gispel, 'Het aandeel van Nederland in de vooruitgang der geneeskundige wetenschap van 1900 tot 1950: microbiologie', *NTvG* 95 (1951) 830-839; Van Zon, *Tachtig jaar*, 244.

16 Michael Bresalier, 'Neutralizing Flu: "Immunological Devices" and the Making of a Virus Disease', in: Kenton Kroker, Jennifer Keelan and Pauline Mazumdar (eds.), *Crafting Immunity: Working Histories of Clinical Immunology* (Aldershot, Burlington VT 2008) 107-144; Bresalier, 'Uses'.

17 *Mededeelingen uit het Instituut voor Praeventieve Geneeskunde* (hereafter *MIPG*) 1934-1944.

18 'Instituut voor Praeventieve Geneeskunde, gevestigd te Leiden: Studiefonds voor grieponderzoek', *Geneeskundige Gids* 11 (1933) 212; René Rigter, 'De integratie van preventieve geneeskunde in de gezondheidszorg in Nederland (1890-1940)', *Gewina* 19 (1996) 313-327.

19 Eyler, 'De Kruif's Boast'; Bresalier, 'Neutralizing Flu'; Bresalier, 'Uses', 414-419.

20 Bresalier, 'Uses', 413.

concluding that only the presence of the filterable influenza virus was a necessary condition for inducing influenza. Serological methods were used to map different strains of the influenza virus (designated with letters and numbers), for instance between strains causing epidemic and pandemic influenza. The *IPG* built on the American-British methods, be it on a much smaller scale because of the financial difficulties. *IPG* director Jacob Pieter Bijl for instance repeated the British experiments with ferrets using throat washings of Dutch influenza patients in 1935.²¹

In 1939, the *IPG* was put entirely under the directorate of the Prophylaxis Fund.²² This meant that the *IPG* had to outsource many research activities and that it could no longer establish its own research agenda. The focus of the *IPG* was more narrowly limited to occupational diseases and industrial medicine, and influenza continued to be of central interest as a major cause of sickness absence among employees.²³ The *IPG* outsourced influenza research activities to the academic laboratory of Jacob Mulder.²⁴ Within the medical and microbiological community, Mulder became *the* Dutch influenza expert, working on influenza until his death in 1965.²⁵ In his work, the threat of another influenza pandemic of 1918-1919 magnitude loomed large, while ‘medical science is powerless to do anything about it at the moment’.²⁶ The *IPG* continued to function as a centre for the fragmented Dutch studies of influenza with the founding of its ‘influenza study group’ in 1942.²⁷ The major goals of this study group were: isolation of virus strains, producing a vaccine against influenza and research the secondary complications in the lungs. With the study group, the cooperation between several researchers working on influenza, which had already occurred during the 1930s, got a more regular and programmatic basis.

The interwar period saw growing interest internationally in the field of comparative medicine, comparing diseases in man and different animal species.²⁸ In the Netherlands, this was taken

21 J.P. Bijl and J. Domisse, ‘Over besmetting van fretten met het gorgelwater van grieppatiënten’, *Antonie van Leeuwenhoek* 3 (1936) 165-169.

22 Rigter, ‘De integratie’, 324-325.

23 J.P. Bijl, *Een kwart eeuw Nederlands Instituut voor Praeventieve Geneeskunde* (Leiden 1954) 28.

24 J.P. Bijl, ‘Jaarverslag van het Instituut voor Praeventieve Geneeskunde’, *MIPG* 1938-1939, 3-15, 7; A.J.Ch. Haex, ‘In memoriam Prof. J. Mulder’, *NTvG* 109 (1965) 2161-2163.

25 Christoph J. Schweikardt, *Die Bedeutung von Professor Jacob Mulder (1901-1965) für die Entwicklung der Innern Medizin der Universität Leiden 1945-1965* (Leiden 1997) 39-42. Mulder became the only Dutch member of the WHO expert committee on influenza during the 1950s. The director of the World Influenza Centre C.H. Andrewes regularly referred to the work of Mulder’s team in publications.

26 J. Mulder, ‘De huidige stand van het influenza-vraagstuk: overzicht van het Engelsche onderzoek over het filtrabele influenzavirus’, *NTvG* 82 (1938) 3576-3582, 3576.

27 J.P. Bijl, ‘Verslag van den Directeur omrent de werkzaamheden van het Instituut voor Praeventieve Geneeskunde gedurende het jaar 1942’, *Instituut voor Praeventieve Geneeskunde gevestigd te Leiden: Verslag over het jaar* (hereafter *IPG Verslag*) 1942, 8-19, 14.

28 Bresalier, Cassidy and Woods, ‘One Health’, 7-8.

up with particular enthusiasm by the Central Laboratory for Public Health,²⁹ where for instance the later *IPG* director Bijl worked as head of the bacteriological department during the 1920s. Members of the Netherlands Society for Microbiology (*Nederlandsche Vereeniging voor Microbiologie*) had both medical and veterinary backgrounds, and regularly discussed zoonoses like salmonellosis, psittacosis and bovine TB.³⁰

Veterinary ownership of public health via zoonoses continued to play an important role in veterinary identity in relation to human medicine during the interwar period.³¹ It is no coincidence that a famous Dutch novel from 1936 on the life of a practising veterinarian equips its hero with a private bacteriological laboratory and quotes him saying: ‘We are further in bacteriology than the average physician, you know!’³² The medical recognition of veterinary medicine that accompanied the interest in comparative medicine and zoonoses was highly appreciated in the veterinary community. The Prof. dr. D.A. de Jong Foundation (*Stichting*) for the promotion of comparative medicine founded in 1929 was an initiative of the Veterinary Association *MvD* and proudly referred to the financial support offered by the Dutch Medical Association (*Nederlandsche Maatschappij tot bevordering der Geneeskunst, NMG*).³³ The Foundation was run by a mixed veterinary and medical board.³⁴ The Society for Microbiology was another sponsor and the major medical, veterinary and microbiological journals reviewed the Foundation’s annual reports.³⁵

In this context, the *IPG* functioned as an important centre for comparative medicine and zoonoses.³⁶ Although the *IPG* offered almost no salary during the 1930s, it did offer veterinary researchers a good start in their research career. *IPG* veterinarians like Albert van der Schaaf and Jacobus Dirk Verlinde combined their research projects with veterinary practices to make a living.³⁷ The *IPG* also maintained good relations with the wider veterinary community. The

29 Van Zon, *Tachtig jaar*, 76.

30 *Antonie van Leeuwenhoek* 1-7 (1934-1941).

31 For instance: A. Klarenbeek, ‘Samenwerking tusschen arts van mensch en dier’, *NTvG* 66 (1922) 721-725; L. de Blieck, ‘De beteekenis der zoönosen voor de menschelijke pathologie’, *NTvG* 73 (1929) 3988-3996; J.A. Beijers, *Het verband tusschen de ziekten van den mensch en die van onze huisdieren* (Haarlem 1931); J. Wester, ‘Petrus Camper en de geneeskunde der dieren’, *NTvG* 83 (1939) 2138-2140.

32 A. Roothaert, *Doctor Vlimmen* (Utrecht 1978 [1936]) 172.

33 J.J.F. Dhont et al., ‘Huldiging ter nagedachtenis van Prof. dr. D.A. de Jong’, *TvD* 56 (1929) 718-720.

34 J.J.F. Dhont and H.J. van Nederveen, ‘Statuten der Professor Doctor D.A. de Jong-Stichting’, *TvD* 56 (1929) 767-769.

35 *Antonie van Leeuwenhoek* 1-5 (1934-1938); *Geneeskundige Gids* 11-18 (1933-1940); *NTvG* 74-90 (1930-1946); *TvD* 56-67 (1929-1940). Passim. On the sponsoring, see for instance: H.J. van Nederveen, ‘Verslag van de Vergadering der Nederlandse Vereeniging voor Microbiologie’, *Antonie van Leeuwenhoek* 2 (1935) 112-121.

36 See for instance: J.A. Beijers, ‘Boekbespreking: *De zoönosen: Infectieziekten der dieren die op den mensch kunnen overgaan en de ziekten die daardoor bij dezen worden teweeggebracht*. Door Dr. J. van der Hoeden’, *TvD* 71 (1946) 737-738; Bijl, *Een kwart eeuw*, 57.

37 Bijl, *Een kwart eeuw*, 15-16.

bonds between the Veterinary Faculty in Utrecht and the *IPG* were strong: cooperation in research occurred regularly and the *IPG* considered a move to Utrecht in the late 1930s in order to be closer to the Faculty.³⁸ From 1936 onwards, the *IPG* paid extensive attention to zoonoses in courses for (general) physicians, given by veterinarians like Jacob van der Hoeden, who worked as a bacteriologist at a medical hospital.³⁹ Van der Hoeden would write the first Dutch textbook on zoonoses during the Second World War and the *IPG* publisher would publish it.⁴⁰

A significant promotion event for *IPG* veterinarian Verlinde was discussed as ‘of very large significance for the standing of veterinary science’ in the veterinary journal.⁴¹ In 1947, Verlinde was appointed extraordinary professor in microbiology at the Medical Faculty of Leiden, a function he combined with his work as head of the *IPG* microbiological department. He was the third veterinarian to obtain a professorship at a Dutch *medical* faculty (chapter 1). Verlinde’s words of thanks after his inaugural lecture are illuminating for his ‘comparative’ position: he thanked his ‘teachers’ Bijl (director of the *IPG*) and Levinus de Blieck (his supervisor at the Veterinary Faculty), the *IPG* in general, the Leiden Medical Faculty and the Utrecht Veterinary Faculty.⁴² His words addressed to the Medical Faculty are especially revealing:

At present You have been willing to accept the third [veterinary-bacteriologist] in Your midst [...].[V.A.] Moore’s words: ‘There is but one medicine. If there are differences they exist in the species attacked’, are more and more confirmed by the facts. That You have proposed I would hold this chair, demonstrates that this opinion is also shared by You.⁴³

Veterinarians striving for a more prominent public health position seized the possible relevance of animal influenza for human influenza as an opportunity. In an overview paper on zoonoses in the Netherlands Journal for Medicine (*Nederlandsch Tijdschrift voor Geneeskunde, NTvG*) in 1929, veterinary professor in parasitic and infectious diseases De Blieck had already argued that the study of influenza and ‘clinically similar animal diseases’ was important. He referred to

38 MIPG 1940; Bijl, *Een kwart eeuw*, 33-34.

39 MIPG 1936-1939.

40 Van der Hoeden, *De zoönosen*.

41 W.A. de Haan, ‘Inaugurale oratie Prof. Dr. J.D. Verlinde’, *TvD* 72 (1947) 754.

42 J.D. Verlinde, *De specifieke preventie van virusziekten van de mens* (Leiden 1947) 18-20.

43 Ibidem, 19-20. See for the same citation of V.A. Moore: Van der Hoeden, *De zoönosen*, xv. Veranus Alva Moore (1859-1931) was trained as a medical doctor at Columbia College, USA. From 1908-1929 he was professor of Comparative and Veterinary Pathology, Bacteriology and Meat Inspection and Dean of the Veterinary College at Cornell University, and professor of Medical Bacteriology at Cornell University Medical College. American Society for Microbiology, ‘Moore, Veranus Alva’ (sa), <http://www.asm.org/index.php/component/content/article/71-membership/archives/862-moore-veranus-alva> (January 31, 2017).

the British comparative work on dog distemper and human influenza as an example.⁴⁴ The *IPG* as centre of comparative medicine started to pay more structural attention to animal influenza during the 1930s. Veterinarians took part in the influenza studies conducted at the institute, and veterinary professors De Blieck and Beijers, and *IPG* veterinarians Verlinde and Johan Winsser joined the *IPG* influenza study group. Winsser obtained his medical degree in 1946 and argued for an important role for veterinarians in virology.⁴⁵

Despite the collaboration rhetoric, the culture of comparative medicine did not mean that boundary work between the veterinary and medical disciplines disappeared. Rather, such boundary work had a tendency to become more intense where veterinarians and physicians met. The veterinary claim of expertise over ‘medical affairs’ was contested. In 1933, the medical journal published severe medical criticism of the appointment of ‘non-medical bacteriologists’, like veterinarian-bacteriologist Van der Hoeden at Rotterdam municipal hospitals and of ‘again a very competent, but medically-non-qualified [veterinary] bacteriologist’ involved in Rotterdam quarantine work.⁴⁶ That *IPG* veterinarian Verlinde became medical professor in Leiden was also far from self-evident: his name appears relatively late in the papers on the appointment. The Faculty preferred physician K.C. Winkler, who worked at H.W. Julius’ Hygienic Laboratory (*Hygiënisch Laboratorium*) in Utrecht. Only after Winkler had declined the position because he thought the Leiden laboratories insufficient compared to those in Utrecht, the Faculty suggested the appointment of Verlinde as extraordinary rather than ordinary professor in microbiology. The curators in Leiden agreed with this nomination, primarily because it would ensure close bonds with the *IPG* and access to its laboratories, as a solution for the lack of laboratories at the Leiden Medical Faculty.⁴⁷

On the other hand, many veterinarians distrusted the merits of intermingling veterinary medicine with medicine. I illustrate this friction with two discussions about high positions at the Utrecht Veterinary Faculty. Both discussions involved *IPG* veterinarians and related to influenza research. First, the Faculty considered both Verlinde and Winsser – carrying the

44 De Blieck, ‘De beteekenis’, 3995-3996. See on the British comparative work: Bresalier and Worboys, “Saving”.

45 Bijl, ‘Verslag’, *IPG Verslag* 1942, 14; C.A. van Dorssen, ‘In memoriam Prof. dr. J. Winsser’, *TvD* 105 (1980) 65-66; J. Winsser, ‘Inleiding tot de discussie’, in: J. van der Hoeden et al., *De betekenis van de dierziekten voor de volksgezondheid* (Leiden 1948) 78-82, 80.

46 J. Kuiper, ‘De voordracht voor de betrekking van bacterioloog aan de gemeentelijke ziekenhuizen te Rotterdam’, *NTvG* 77 (1933) 2351-2352.

47 Universiteitsbibliotheek Leiden, Bijzondere Collecties (hereafter UBL BC), AFA EA Archieven van de Faculteiten Universiteit Leiden: Faculteit der Geneeskunde 1847-1958 (hereafter AFA EA), inv. nr. 5, Notulen Facultetsvergaderingen; UBL BC, AC3 Archief van Curatoren 1878-1953 (hereafter AC3), inv. nr. 1549, Agenda’s en conclusies van vergaderingen 1946-1950 (June 7 and July 22, 1946).

allure of the medical *IPG* – as candidates for the vacant chair⁴⁸ of small domestic animal medicine in 1948. Verlinde preferred the chair at the Leiden Medical Faculty. He declined the offer, and advised to appoint Winsser instead. Despite Winsser's popularity among several faculty members and the university curators, the Veterinary Faculty did not go along with this. According to Boor-van der Putten a major reason why Winsser was deemed unfit for the position was his *medical* degree on top of his veterinary one. The Faculty feared this would make his allegiance to 'the norms of the veterinary faculty' uncertain.⁴⁹

Second, a similar discussion arose on the honorary degree awarded by the Utrecht Veterinary Faculty to American influenza hotshot Richard Shope in 1951.⁵⁰ While this event in itself illustrates the rhetorical value of the relation between human and animal influenza for the elevation of veterinary medicine, it was preceded by a heated discussion among the professors of the Faculty, as Shope was trained in medicine rather than in veterinary medicine.⁵¹ Indeed, he was the first non-veterinarian to obtain a veterinary honorary doctoral degree in Utrecht.

The veterinary professors were divided in two groups. De Blieck's former student and successor Jacob Jansen proposed and defended the nomination of Shope. Jansen pointed at Shope's work and international fame on the study of viral animal diseases, in particular his discovery of the swine influenza and the resulting 'many important comparative studies on the human and the swine influenza virus'.⁵² The professors who agreed with Jansen preferred a candidate who was *not* a veterinarian, 'because it would improve the prestige of the Faculty'.⁵³ The other group preferred a veterinarian, as the nomination of a non-veterinarian suggested a 'testimonium paupertatis' (proof of indigence) of veterinary researchers.⁵⁴ It took several rounds of recommendation letters and meetings to decide the issue. The outcome was that *both* a veterinarian (Swedish professor A. Hjärre) and a physician (Shope) got their veterinary

48 I.M. Boor-van der Putten, *75 jaar geneeskunde van gezelschapsdieren in Nederland: 1911-1986* (Utrecht 1986) 102; S.N. Temming, 'De faculteit der veeteartsenijkunde tijdens de bezetting 1940-1945', in: Offringa (ed.), *Van Gildestein II*, 93-174, 160-161; C. Offringa, 'De faculteit in de jaren 1945-1971', in: Offringa (ed.), *Van Gildestein II*, 215-266, 217-219.

49 Boor-van der Putten, *75 jaar*, 117. See also: Dorssen, 'In memoriam'; S.R. Numans, R.L. Schuursma and A.H.H.M. Mathijzen, *Herinneringen van de oud-hoogleraren Beijers, Ten Thije en Seekles* (Utrecht 1999) 25-26, 49-50, 66.

50 J. Jansen, 'Richard Shope: Doctor honoris causa Medicinae Veterinariae', *TvD* 76 (1951) 209; Richard E. Shope, 'The provocation of masked swine influenza virus by infection with human influenza virus', *TvD* 76 (1951) 414-420.

51 Het Utrechts Archief (hereafter HUA), 270 Rijksuniversiteit Utrecht faculteit Diergeneeskunde 1925-1961 (hereafter 270 FD), inv. nr. 137, Stukken betreffende de toekenning van eredoctoraten 1950-1960.

52 HUA, FD, inv. nr. 137, Stukken eredoctoraten, J. Jansen to the Faculteit der Veeartsenijkunde (October 30, 1950) 1.

53 HUA, FD, inv. nr. 137, Stukken eredoctoraten, C.F. van Oijen, 'Samenvatting der besprekingen in de commissie voor het verlenen van een eredoctoraat' (November 9, 1950) 1.

54 Ibidem.

honorary degrees (Figure 2.1).⁵⁵ The message was thus two-fold: the bond with a physician who researched influenza from the perspective of ‘one medicine’ elevated Dutch veterinary medicine,⁵⁶ and the honouring of a disciplinary colleague underlined its existing scientific quality.



Figure 2.1 Honorary doctoral degree celebration, Utrecht University, March 16, 1951. Prince Bernhard congratulates veterinarian A. Hjärre with his honorary degree of the Veterinary Faculty, and is about to congratulate physician and influenza researcher R.E. Shope with his. ‘Ere-promotie’, *TvD* 76 (1951) 421.

Having sketched the institutional and disciplinary backgrounds of Dutch influenza researchers, it is now time to look in more detail at their study of human and animal influenzas. The starting point of the IPG as Dutch influenza research centre was German bacteriologist Gerhard Elkeles’ voluntary work in 1934, after his flight from Nazi Germany. As Elkeles studied the susceptibility of Dutch piglets to influenza virus, this research immediately involved a comparative perspective on human and swine influenza.⁵⁷ Elkeles was not convinced of the British ‘ferret solution’ to the problem of a suitable laboratory animal in influenza research. One year earlier, Laidlaw’s team had unsuccessfully tried to infect piglets with human influenza virus, inspired by Shope’s

55 ‘Ere-promotie van de medicus R. Shope (Rahway, New Jersey, U.S.A.) en de dierenarts Prof. dr. A. Hjärre (Stockholm)’, *TvD* 76 (1951) 421-423.

56 As Jansen pointed out in his laudation of Shope. ‘Ere-promotie’, 422.

57 Gerhard Elkeles, ‘Experimentelle Untersuchungen zur Aetiologie der Influenza’, *MIPG* 1934, 60-79.

publications on swine influenza.⁵⁸ Elkeles made another, more successful attempt at the *IPG* laboratory, although he also noted that Dutch pigs seemed to be particularly resistant against influenza infection in the laboratory. The international influenza research community received Elkeles' findings as evidence for a link between the human and swine strains of influenza and as a possible explanation for the 1918-1919 pandemic.⁵⁹ His findings also reached a wide audience of Dutch public health experts and officials via the *IPG* network.⁶⁰

The possible relations between human and animal influenzas received considerable attention during the 1930s in the Netherlands.⁶¹ Several *IPG* veterinarians translated this in their own research projects.⁶² In 1937, the Chief Medical Officer of Public Health noted in his report of influenza that he was very interested in '[t]he curious results of the research of visible and non-visible germs in influenza of humans, pigs, ferrets and mice and of their possible mutual influence'.⁶³ In 1938, the D.A. de Jong Foundation for the promotion of comparative medicine started funding comparative studies of human and swine influenza. In 1938, upcoming Dutch influenza researcher Jacob Mulder obtained a scholarship fund from the foundation to do a comparative research of human influenza and influenza of pigs.⁶⁴ It also funded De Blieck's research on influenza of piglets in 1939 and 1940.⁶⁵ In the late 1930s, De

58 P.P. Laidlaw, 'Epidemic Influenza: a Virus Disease', *The Lancet* 225 (1935) 1118-1124, 1123.

59 These considerations are not discussed in detail here, but can be found in: Laidlaw, 'Epidemic Influenza', 1123; R.E. Shope and T. Francis, 'The Susceptibility of Swine to the Virus of Human Influenza', *Journal of Experimental Medicine* 64 (1936) 791-801; Richard E. Shope, 'The Epidemiology of the Origin and Perpetuation of a New Disease', *Perspectives in Biology and Medicine* 7 (1964) 263-278.

60 E. Sluiter, 'Praeventieve Geneeskunde Dag', *NTvG* 78 (1934) 5176.

61 See for instance: E. Sluiter, 'Verwantschap van influenza en hondenziekte', *NTvG* 78 (1934) 4127; E. Bemelmans, 'Experiments proposed to solve definitely the influenza-problem', *Antonie van Leeuwenhoek* 2 (1935) 85-105; J.J. van Loghem, 'De aetiologie der influenza's', *NTvG* 81 (1937) 3368-3369.

62 A.T. van der Schaaf, 'Over een serum tegen hondenziekte', *MIPG* 1934, 33-44, 35; A.T. van der Schaaf, 'Over verwantschap van het griep-virus en het virus van Carré (hondenziekhevirus)', *TvD* 62 (1935) 635-637; J.D. Verlinde, 'Jaarverslag van de Afdeeling voor Bacteriologie en Experimentele Pathologie', *Instituut voor Praeventieve Geneeskunde* 1941, 19-25, 21. Verlinde also did some work on local human influenza virus: J.P. Bijl, 'Beknopt verslag van de werkzaamheden van het Instituut voor Praeventieve Geneeskunde gedurende het jaar 1936', *MIPG* 1936, 3-11, 6; J.P. Bijl, 'Beknopt verslag van de werkzaamheden van het Instituut voor Praeventieve Geneeskunde gedurende het jaar 1937', *MIPG* 1937, 3-9, 5.

63 R.N.M. Eijkel, 'Verslag over het Jaar 1935 van den Geneeskundig Hoofdinspecteur van de Volksgezondheid', *VMV* 1937, 553-712, 693.

64 E. Sluiter, 'De verrichtingen en de toestand van de professor dr. D.A. de Jong-stichting in 1938', *NTvG* 83 (1939) 2792.

65 E. Sluiter, 'De werkzaamheden der Professor Dr. D.A. de Jong-Stichting in 1939', *NTvG* 84 (1940) 2073; E. Sluiter, 'Jaarverslag 1940 der professor Dr. D.A. de Jong-Stichting', *NTvG* 85 (1941) 2558-2559; Ed., 'Influenza bij biggen: Een nog onopgehelderd probleem', *De Nieuwe Veldbode* (hereafter *DNV*) 7:32 (1940) 25.

Blieck and Mulder cooperated regularly in their ‘research of human and animal influenza’, as the first put it.⁶⁶

The projects on swine influenza were not very successful. Mulder never executed his plan to study the relation between human and swine influenza as it ‘could not be performed because of practical reasons’.⁶⁷ Verlinde only received research material of pigs suffering from swine fever and none of pigs with influenza, and he silently abandoned his comparative study.⁶⁸ De Blieck encountered severe problems in his research of influenza of piglets during war times: piglets were very expensive test animals, and there was a lack of ferrets. It was uncertain whether ferrets could be infected with ‘piglet flu’ anyway, and De Blieck found mice were no good alternative.⁶⁹

Simultaneously, understandings of how influenza viruses moved among human and animal populations changed. In the international discussions on the influenza virus, swine influenza came to be seen as a disease derived from human influenza.⁷⁰ In his review paper of 1938 on the ‘state of influenza research’, Mulder omitted Shope’s study of swine influenza, as Patrick Laidlaw had told him that he had abandoned his earlier idea that Shope’s swine influenza virus had caused the 1918 pandemic.⁷¹ IPG physician and influenza researcher Jeanne van den Hoven van Genderen contemplated relations between swine and human influenza in an overview paper on influenza vaccination in 1941. The interpretation that humans who seemed to carry antibodies against swine influenza had indeed been infected with swine influenza during the 1918-1919 pandemic was ‘not well tenable’.⁷² Veterinarians Van der Hoeden and Verlinde discussed influenza as an ‘anthroponosis’, or an infection that jumped from people to animals in the first place.⁷³ While there seemed to be a relation between human influenza and influenza of pigs, the ‘epidemiological significance for the spread of flu among people’ was questionable.⁷⁴ Pigs seemed not so relevant after all for the riddle of human influenza

66 HUA, 59 Rijksuniversiteit Utrecht College van Curatoren, inv. nr. 2179, Stukken betreffende het Instituut voor Parasitaire- en Infectieziekten 1925-1946, L. de Blieck aan het College van Curatoren (March 4 1940).

67 Sluiter, ‘De verrichtingen’. As no archives of the Prof. Dr. D.A. de Jong Foundation have been preserved, these practical reasons remain obscure.

68 Verlinde, ‘Jaarverslag’, 21.

69 L. de Blieck, ‘Viruspneumonie bij muizen’, *Handelingen van het XXVII Nederlandsch Natuur- en Geneeskundig Congres* (Haarlem 1941) 219-223.

70 Eyler, ‘De Kruif’s Boast’, 436-437.

71 Mulder, ‘De huidige stand’, 3579-3580.

72 Jeanne van den Hoven van Genderen, ‘Over het vraagstuk van de vaccinatie tegen influenza’, *Maandschrift voor Kindergeneeskunde* 10 (1941) 462-486, 467.

73 Van der Hoeden, *De zoonosiden*, xii, 405, 420-422; Verlinde, *De specifieke preventie*, 9-11; J.D. Verlinde, ‘Virusziekten bij dieren die op de mens kunnen overgaan’, in: Van der Hoeden et al., *De betekenis*, 13-23.

74 Van der Hoeden, *De zoonosiden*, 420-422 (quote); C.F. van Oijen and K. Reitsma, *Vlees en Vleeskeuring* (Amsterdam 1950) 236-237.

pandemics, and this might have played a role in Mulder's quick abandonment of his plans to study pigs. The question on the relation between influenza of humans and animals did not disappear (closely related to influenza's variability studied with serological techniques),⁷⁵ but was turned into a theoretical aside.⁷⁶ Simultaneously however, influenza did attract interest at pig farms.

2. Influenza of pigs: agriculture

Historians have not yet studied how the research of influenza at medical institutes related to veterinary work on swine influenza in the domain of agriculture. Including this agricultural context of influenza research is the major contribution of this chapter to existing historiography. In 1918, veterinarian J.S. Koen linked a disease among pigs to the human influenza pandemic, and called it swine influenza or 'hog flu'.⁷⁷ Shope built on this veterinary work in agriculture for his research of the swine influenza (virus).⁷⁸

The pig keeping sector received Shope's findings on the swine influenza virus with interest, as it struggled with the phenomenon of unknown pig diseases and piglet death. Abigail Woods argues that changes in the keeping of livestock to increase production efficiency resulted in a rise of 'non-specific' endemic diseases among livestock herds.⁷⁹ During the late 1920s, Dutch piglets increasingly died of mysterious diseases referred to as 'breeding diseases' (*opfokziekten*).⁸⁰ The Veterinary Service of the Ministry of Agriculture reported these and other infectious pig diseases as a continuous and little-known problem.⁸¹ Veterinarians generally held a poisonous combination of changes in the pig trade (especially increasing transport of pigs), weak disease resistance and micro-organisms responsible. Bacteria caught in bacteriologists' filters could be made visible for research, but, wrote one veterinarian in 1930, 'what do we know about the invisible, the filterable'?⁸² The State Serum Institute (*RSI*, put under the directorate of the Veterinary Service in 1925) pointed at an unknown infectious lung disease among young pigs

75 See for instance: Winsser, 'Inleiding', 81.

76 See for instance: J.D. Verlinde, 'Virussen', in: A. Charlotte Ruys (ed.), *Leerboek der microbiologie en immunologie* (Utrecht 1953) 552-638, 597-598.

77 Vagneron, 'Surveiller', 146.

78 Shope acknowledged a group of 'veterinarians of eastern Iowa': Richard E. Shope, 'Swine Influenza: I. Experimental Transmission and Pathology', *The Journal of Experimental Medicine* 54 (1931) 349-359, 349.

79 Abigail Woods, 'Is Prevention Better than Cure? The Rise and Fall of Veterinary Preventive Medicine, c. 1950-1980', *Social History of Medicine* 26 (2013) 113-131, 119.

80 E.g.: Ed., 'De nieuwste inzichten op het gebied van de veeartsenkunde III de ziekten van jonge biggen, de zoogenaamde opfokziekten', *De Veldbode* 29:1455 (1930) 310.

81 *Verslag VD* 1930-1958.

82 *Verslag VD* 1930, 88-89.

called ‘enzootic pneumonia’ of piglets or ‘enzootic piglet death’ in the year reports from 1925 onwards.⁸³ The institute distributed sera and mixed vaccines to cure and prevent the illness, with mixed results.

The Dutch pig sector was not just concerned about disease in this period. In the second half of the 1920s, worldwide overproduction of agricultural products had a profound impact on prices. The Wallstreet crash of 1929 caused the most severe fall. Countries which functioned as important export markets for Dutch farmers reacted with protection measures and devaluation of their currency. For pig keepers in particular, these events had major consequences. Germany and Britain hindered the import of Dutch (fresh) pork in the second half of the 1920s. The devaluation of the British pound and consequently the Danish crown seriously impacted Dutch bacon trade. The conservative Dutch government did not want to devalue the Dutch guilder. Instead, it intervened with production and prices of agricultural products via the Agricultural Crisis Act (*Landbouwcrisiswet*), which costed roughly one fourth to one fifth of the state’s budget.⁸⁴ Food prices rose considerably as a result. The existing agricultural state infrastructure was expanded with a separate Ministry of Agriculture and Fisheries (*Ministerie van Landbouw en Visscherij*) in 1935. The aim was to limit production and to improve the quality of Dutch agricultural products.⁸⁵ Via the Crisis Pig Act (*Crisis-varkenswet*) and the Dutch Pig Centre (*Nederlandsche Varkenscentrale*) the Dutch government centralised and subsidised the trade in pigs. Excise on pork paid for this. The measures were an incentive to farmers to breed more pigs. Hence, the government also intervened with the number of piglets kept, and stimulated the production of bacon of good quality to improve the competitive position of Dutch pig production.⁸⁶ In short, a coalition of agricultural organisations, agricultural specialists and government officials expanded existing agricultural policy to full-blown protectionism in this period – the start of ‘the green front’ as discussed in chapter 1.

In this context, agricultural research got more state support than the medical research conducted at the private *IPG*. The *RSI* got a new building in 1931. This institute was ‘a utility institute with all the characteristics of a factory’ rather than a research institute.⁸⁷ Before the Second World War, it focused on diagnostic research and the production of sera, vaccines and diagnostic tools like tuberculin. After the Second World War, the *RSI* could focus more structurally on scientific research, as it could leave many of its diagnostic tasks to the newly founded Animal Health Services (chapter 1). Moreover, new drugs like antibiotics took away much of the need to produce therapeutic sera. The State Veterinary Research Institute (*SVOI*)

83 *Verslag van de werkzaamheden der Rijksseruminrichting* (hereafter *Verslag RSI*) 1925-1939 (Rotterdam 1926-1940).

84 More than 200 million guilders per year between 1933 and 1936. De Rooy, *A Tiny Spot*, 204.

85 Offringa, ‘De depressiejaren’, 27-31; Bieleman, *Boeren*, 290-294.

86 Offringa, ‘De depressiejaren’, 32-33; Bieleman, *Boeren*, 416-423.

87 Verhoef, ‘Strenge wetenschappelijkhed’ I, 88.

was founded in the early 1930s to specifically research the major agricultural problem of foot-and-mouth disease in better research circumstances than the *RSI* could offer. Under the lead of H.S. Frenkel this institute quickly developed into an internationally renowned institute, especially once it developed a new cheap method to produce foot-and-mouth-disease vaccine in 1948-1949. After the Second World War, the institute broadened its research scope to include other virus diseases.⁸⁸

American and European veterinarians struggling with the economic problem of unknown infectious respiratory diseases of pigs received Shope's findings on swine influenza with interest, and published many studies on influenza-like diseases in pigs in the following years.⁸⁹ In the Netherlands, the *RSI* started to refer to the problems with piglet deaths for the first time as 'piglet and swine influenza' in 1933,⁹⁰ some time after Shope had paid the institute a visit.⁹¹ The *RSI* had found bacteria in the carcasses of dead piglets strongly resembling the *Haemophilus influenzae suis* bacteria involved in Shope's swine influenza. Infection experiments with these bacteria in combination with lung filtrate were successful, be it irregularly so. The *RSI* started a small-scale research project to study the relation between the problem of piglet deaths and 'piglet influenza'.⁹²

Veterinarian J.I. Terpstra conducted the project, although he was not yet an official employee of the *RSI* at this time. He worked as bacteriologist at the municipal slaughterhouse in Rotterdam, and thus was part of the veterinary public health community. Now and then he conducted research for the *RSI*, like in the case of this project on swine influenza.⁹³ His aim was to get better insight into the disease, to investigate the spread in the Netherlands, to research the relation with the widespread problem of piglet mortality, and to research relations between swine influenza and similar diseases in other animals. This was a major task, and Terpstra's study primarily produced a lot of new questions rather than answers, published in the veterinary journal in 1935.⁹⁴

Terpstra followed Shope's example by testing the combined infection of lung filtrates (containing a virus) and swine influenza bacterium. Halfway his unsuccessful attempts to infect mice and three-month old pigs, Terpstra learned about similar German research on swine

88 Ibidem, 83-120.

89 Anja Schulz, Die Geschichte der Tierkrankheiten unter besonderer Berücksichtigung der Ferkelgrippe (PhD thesis, Freien Universität Berlin 2010) 79-80.

90 *Verslag RSI* 1933, 7-9.

91 *Verslag RSI* 1931, 14-5.

92 *Verslag RSI* 1933, 7-9.

93 Verhoef, 'Strenge wetenschappelijkheid' I, 67.

94 J.I. Terpstra, 'Het voorkomen van influenza bij varkens in Nederland', *TvD* 62 (1935) 177-186.

influenza by veterinarians O. Waldmann and K. Köbe in Riems.⁹⁵ They had concluded that German swine pneumonia was not identical to Shope's swine influenza, as they could not prove the presence of influenza antibodies, and the German disease was less acute. Nevertheless, they thought the diseases were related, and proposed to use the name *Ferkelgrippe* for the German form, which translates as 'piglet flu'.⁹⁶

As the disease among piglets in the Netherlands seemed to be similar, Terpstra started another round of experiments. Obtaining suitable young animals was difficult, as uninfected piggeries could not be found, and the *RSI* had no space and money to start its own piggery. Eventually the Dutch Pig Centre helped Terpstra out with 4-6 weeks-old piglets. With this help, Terpstra managed 'to arouse a clinical picture, that has many similarities with the disease described by Köbe'.⁹⁷ Terpstra only used bacteriological techniques, and no serological ones. Hence, he could not say anything substantial on the questions about the relation between Köbe's virus and Shope's swine influenza virus, and whether these diseases occurred in the Netherlands. Very shortly, Terpstra referred to the work by 'Laidlow [sic]' on the human influenza virus, and its similarities with Shope's swine influenza. But he also thought it possible that the German virus was 'mitigated swine fever virus'.⁹⁸ He called for a large comparative study of the viruses involved in pig diseases in the USA, Germany and the Netherlands. But such a study never got priority at the *RSI*, which was not equipped to carry out state-of-the-art virus research,⁹⁹ or at the *SVOI*, which primary task was to study the foot-and-mouth-disease virus. The *RSI* continued to diagnose the influenza bacterium, which it rarely found in pigs or horses, as its diagnostic techniques were based on bacteriology rather than serology.¹⁰⁰ But it stopped using the name influenza or flu in relation to the problem of piglet mortality.

However, this was not the end of interest in influenza in relation to the economic problem of unknown pig diseases. In the late 1930s, De Blieck explicitly called for more attention to influenza of pigs in the agricultural domain, in relation to his work on influenza in the public health *IPG* network, discussed in section 1. He addressed 160 veterinarians¹⁰¹ with a speech entitled 'Influenza of piglets' during the 'Veterinary Week' of 1939.¹⁰² The Veterinary Week was organised at the Faculty of Veterinary Medicine in Utrecht for practising veterinarians

⁹⁵ On this institute: Paul Weindling, 'Between Bacteriology and Virology: The Development of Typhus Vaccines Between the First and Second World Wars', *History and Philosophy of the Life Sciences* 17 (1995) 81-90.

⁹⁶ Schulz, *Die Geschichte*, 79-80.

⁹⁷ Terpstra, 'Het voorkomen', 182.

⁹⁸ Ibidem, 185.

⁹⁹ J.I. Terpstra, 'Hoestende varkens (viruspneumonie der varkens)', *TvD* 79 (1954) 671-678, 672.

¹⁰⁰ *Verslag RSI* 1933, 26-8; *Verslag RSI* 1935, 23; *Verslag RSI* 1939, 25; *Verslag RSI* 1943, 10.

¹⁰¹ H. Venema, 'Verslag van de tweede veterinaire week, gehouden van 8 tot 10 juni 1939', *TvD* 66 (1939) 976-982, 977.

¹⁰² L. de Blieck, 'Influenza van biggen', *TvD* 66 (1939) 940-944.

to be informed of the latest scientific results by university professors and to socialise. To this audience, De Blieck expressed his disappointment that Terpstra had not continued his study of influenza among pigs in the Netherlands. De Blieck wanted to research the relation between American swine influenza and European piglet influenza using serological neutralisation tests. He called on practising vets for help, especially in providing him with research material. He explained them in detail what to watch for, and illustrated his research plan with slides and a film. He thought it likely that influenza was present among Dutch pigs, and stressed its economic impact to which vaccines of the RSI were of little help. Influenza was not only important for the sake of comparative medicine, but also in economic terms.

Indeed, it was especially the possible economic impact of swine influenza that attracted attention in the agricultural domain in the late 1930s. Veterinarians pre-occupied with agriculture became increasingly interested in defining at least part of the major economic problem of ill-controllable pig diseases as swine influenza or 'piglet flu'.¹⁰³ In 1938, veterinary professor H. Schornagel noted that pig(let) flu had not yet been found in the Netherlands, but that foreign colleagues were certain it was there.¹⁰⁴ Pig experts and pig keepers also discussed the new diagnosis as a potential solution for their economic concerns. Regional newspapers paid attention to piglet flu / swine influenza in the late 1930s.¹⁰⁵ In agricultural journals, swine influenza (*varkensinfluenza*) and piglet / pig flu (*biggengriep* / *varkensgriep*) were often used as synonyms, and became increasingly popular in the late 1930s.¹⁰⁶ Agricultural journal *De Nieuwe Veldbode* wrote that the very small influenza virus had been an ubiquitous presence at pig farms since it entered the country: 'all pigs in the Netherlands have suffered from the disease, are suffering from it now or will get it tomorrow. There is no escape from it.'¹⁰⁷ Veterinarian and pig expert J. Grashuis used influenza and 'flu' as synonyms, and estimated that mortality of piglets amounted to 25-50%.¹⁰⁸ Grashuis was a veterinarian with strong ties to organised agriculture and the green front, as director of the 1935 central agricultural organisations'

¹⁰³ See for instance: K. Büchli, 'Ziekten van varkens: de aetiologie van de varkensgriep', *TvD* 61 (1934) 29-32; K. Büchli, 'De influenzabacil van het varken', *TvD* 62 (1935) 376-377; K. Büchli, 'Bijdrage tot de overbrenging van de varkensgriep door contact en hare bestrijding door hygiënische maatregelen', *TvD* 64 (1937) 190; K. Büchli, 'Het probleem van de varkensgriep', *TvD* 66 (1939) 770-771.

¹⁰⁴ H. Schornagel, 'Indrukken van het 13^e Internationale Veeartsenkundige Congres', *TvD* 65 (1938) 934-941, 936-937.

¹⁰⁵ 'Hoesten bij biggen', *Nieuwsblad van Friesland* (January 20, 1937); 'Varkensgriep', *Nieuwsblad van Friesland* (December 7, 1938); 'Biggen die 'verkouden' worden', *Nieuwsblad van Friesland* (February 2, 1939); 'Hoesten, een lastig euvel bij de biggenfokkerij', *Provinciale Drentsche en Aser Courant* (March 6, 1940).

¹⁰⁶ J. Grashuis, 'Eerste Fokvarkensverkoopdag te Varsseveld', *De Graafschap-Bode* (October 11, 1935); Ed., 'Biggengriep', *DNV* 5:51 (1937-1938) 16; T., 'Varkensgriep', *DNV* 6:8 (1938-1939) 17; Ed., 'Influenza'; 'Varkensgriep', *De Boerderij* 25:16 (1939-1940).

¹⁰⁷ T., 'Varkensgriep'.

¹⁰⁸ J. Grashuis, 'Opfokziekten bij biggen: biggengriep', *Maandblad voor de Varkensfokkerij* (hereafter *MvdV*) 4:3 (1940) 23.

Stichting C.L.O. controle, a foundation for quality control of cooperative livestock feeds, and its livestock feeds research institute *Instituut voor de moderne Veevoeding De Schothorst* (founded in 1938).¹⁰⁹ The specific definition of the intangible problem of ‘breeding diseases’ as swine influenza was received as a first step towards a solution of an agricultural, economic problem, although this definition was only tentative.

Simultaneously, uncertainty continued to characterise the problem. I can illustrate this with the reports of the Veterinary Service. Its veterinary inspectors from ten different districts were responsible for the supervision of the health of agricultural animals.¹¹⁰ The reports show that practising veterinarians only incidentally reported cases of influenza, and did so mostly in the older sense of equine influenza. In the late 1930s, *Ferkelgrippe* was now and then reported by individual veterinarians as a local problem.¹¹¹ ‘Swine flu’ (*varkensgriep*) was for the first time reported in 1941.¹¹² After the Second World War, ‘piglet flu’ was continuously moved between the category ‘infectious diseases of pigs’ and the rest-category of ‘other diseases’, illustrating the difficulties in placing the disease.¹¹³ In some years the name disappeared entirely, and was replaced by ‘enzootic pneumonia’. These reports mostly did not use the name *influenza* when talking about piglet flu, apart from the one instance when the Frisian inspector was cited: ‘To what extend we are dealing with “influenza” or “Ferkelgrippe” here, cannot always be determined.’¹¹⁴ Despite the decline of horse influenza (mirroring the decline in the number of horses), the Veterinary Service continued to devote a section of its reports to horse influenza during the 1930s and 1940s.

After the Second World War, it took considerable time before the Dutch pig stock had recovered from war depletion (Figure 2).¹¹⁵ Consequently, deadly infectious diseases were a less serious problem than during the 1920s and 1930s. When the numbers of pigs slowly began to rise again, the Veterinary Service reports once again discussed piglet mortality as a major economic problem for pig keepers. Statistical overviews of piglet mortality in the Netherlands and abroad were discussed in the monthly on pig breeding from the late 1940s onwards.

109 K. Donker et al., *Dr. J. Grashuis 25 jaar directeur C.L.O. Controle* [Wageningen 1960].

110 Verhoef, ‘Strenge wetenschappelijkheid’ I, 51-52.

111 *Verslag VD* 1937, 65-66; *Verslag VD* 1938, 56, 71-72; *Verslag VD* 1939, 95.

112 *Verslag VD* 1941, 63.

113 *Verslag VD* 1946-1958.

114 VD, *Gezondheidstoestand van de veestapel* 1951-1952-1953 (Den Haag 1955) 98.

115 Despite the crisis years, the Netherlands had housed 1.2 million pigs (not counting piglets) in 1939. In 1947 the number was only 420,000 without piglets, and it reached pre-war levels only in the late 1950s. Bieleman, *Boeren*, 512.

Mortality continued to be related to piglet flu and influenza (regularly used as synonyms) as an agricultural problem.¹¹⁶

Simultaneously, structural attention for infectious pig diseases was expanding. In 1950, the Veterinary Service started attempts to map ‘unknown pig diseases’, consulting both the *RSI* and Grashuis. While the *RSI* replied that some unknown pig diseases were seen more frequently, but ‘not yet alarming’,¹¹⁷ Grashuis advised to research the impact of several unknown diseases, the most important one being ‘piglet flu (influenza)’.¹¹⁸ Grashuis’ advice was widely read: the director of the Veterinary Service E.J.A.A. Quaedvlieg forwarded it to all inspectors of the Veterinary Service and the veterinary research institutes *RSI* and *SVOI*.¹¹⁹ In 1956, the Veterinary Service installed a committee to research the occurrence, knowledge of and dealings with unknown pig diseases.¹²⁰ The Animal Health Committee of the newly founded Agricultural Board, responsible for coordinating the Animal Health Services and their bovine TB control (chapter 1), organised a meeting on pig diseases in 1956.¹²¹

It was this more structural attention to the economic problem of unknown pig diseases which led Terpstra to return to the question whether swine influenza was present in the Netherlands in the early 1950s.¹²² At this point, his possibilities to research the problem had considerably expanded as compared to the 1930s. He had acquired an official contract at the *RSI* as bacteriologist since 1942, and quickly got leading positions in the institute, steering its direction towards more structural scientific research rather than production during the 1950s.¹²³ The possibilities to study virus diseases were also expanded. In 1950, for instance, UN Food and Agricultural Organisation veterinarian Martin M. Kaplan trained the *RSI* researchers in growing virus in chicken eggs and mice.¹²⁴ The economic relevance was underlined by the financial support from the Marshall plan.

116 See for instance: E.J. Dommerhold, *Het varken* (Doetinchem 1946) 298-299; J. Grashuis, ‘Vraagbaak’, *MvdV* 13 (1950) 37; S. de Jong Szn., ‘Biggensterfte: Het grote probleem van de varkensfokkers e.a.’, *MvdV* 14 (1952) 83-85; Ed., ‘De varkensvoeding en de voorkoming van ziekten’, *DNV* 19 (1953) 574-576; J. Grashuis, ‘Biggengriep’, *MvdV* 15 (1953) 67-68; P.H.W. Tacken, ‘Varkensziekten’, *MvdV* 17 (1955) 97-100; ‘De bestrijding van besmettelijke en niet-besmettelijke varkensziekten en de opbouw van een ziektebestrijding’, *MvdV* 20 (1958) 89-91.

117 NA, 2.11.34 Veeartsenkundige Aangelegenheden 1897-1953 (hereafter VA), inv. nr. 216, Instelling van een onderzoek naar het voorkomen van onbekende varkensziekten 1949-1951, G.M. van Waveren aan E.J.A.A. Quaedvlieg (November 29, 1950).

118 Ibidem, J. Grashuis aan E.J.A.A. Quaedvlieg (December 15, 1950).

119 Ibidem, E.J.A.A. Quaedvlieg to inspectors of the *Veeartsenkundige Dienst* and the directors of the *RSI* and *SVOI* (December 23, 1950).

120 NA, VD 1931-1971, inv. nr. 888, Commissie varkensziekten 1956-1958.

121 Ibidem, Notulen Landbouwschap Gezondheidscommissie voor Dieren (September 26, 1956).

122 Ministerie van Landbouw, Visserij en Voedselvoorziening, *Vijftig jaar Rijksseruminrichting 1904-1954* [Den Haag 1954] 19; Terpstra, ‘Hoestende varkens’.

123 Verhoef, ‘Strenge wetenschappelijkheid’ I, 59-92.

124 Ibidem, 92.

From his new influenza study, Terpstra concluded that although Dutch pigs suffered from a virus, it was not Shope's swine influenza, as it missed 'the characterising properties of the influenza virus of Shope'.¹²⁵ Rather, Dutch pigs suffered from the enzootic pneumonia virus which had been isolated by W.I. Beveridge and T.S. Gulrajani. Terpstra spread the message that swine influenza was of little importance in Western Europe and had never been diagnosed in the Netherlands 'as far as I know', while enzootic pneumonia *was* a major Dutch economic problem.¹²⁶

At this point, the agricultural *SVOI* – specialised in virus diseases – also planned a study of swine influenza.¹²⁷ But its veterinarian J.G. van Bekkum had 'the impression' that Shope's swine influenza was of little importance in Western Europe after he had read the scientific literature, and he focussed on the major economic problem of enzootic pneumonia instead.¹²⁸ In the late 1950s, the framing of the economic problem of piglet mortality as 'piglet flu' or influenza slowly went out of fashion as a result.¹²⁹ For instance, the *GDs* rarely framed the problem as influenza or flu when they started to organise the control of infectious pig diseases collectively in the late 1950s.¹³⁰

As this section has indirectly shown, the agricultural domain generally did not pay a lot of attention to similarities between the pig and human types of influenza. Horse influenza and piglet flu were hardly related to human influenza. Rather, the diagnoses were used in an agricultural, economic context. A rare reference made to a possible relation was when veterinarians denied the possibility that pigs were infected via human beings.¹³¹ It is now time to study the relations between the domains of agriculture and public health regarding influenza in more detail.

125 Terpstra, 'Hoestende varkens', 673.

126 NA, VD 1931-1971, inv. nr. 888, Commissie varkensziekten 1956-1958, Notulen Landbouwschap Gezondheidscommissie voor Dieren (September 26, 1956) 8-11, 9 (quote).

127 Verhoef, 'Strenge wetenschappelijkheid' I, 120.

128 Archief Nieuw Land Lelystad, 713 Centraal Diergeneskundig Instituut (1904) 1959-1993 (1994), *SVOI*, inv. nr. 94, Verslagen van onderzoeken door J.G. van Bekkum betreffende varkensinfluenza en pneumonie 1955-1959, H.S. Frenkel, 'Verslag van de aan het Staatsveeartsenijkundig Onderzoekingsinstituut verrichte onderzoeken betreffende varkensinfluenza en pneumonie' [1955].

129 See for instance: P.H.W. Tacken, 'Viruspneumonie en/of varkensgriep', *TvD* 84 (1959) 278-286.

102

130 For instance: W.Th. Truijen, 'Eerste indrukken bij de georganiseerde bestrijding van varkens-ziekten in Noord-Brabant', *TvD* 84 (1959) 1367-1379. And a rare counter example: K.F. Joling, 'De bestrijding van besmettelijke en niet-besmettelijke varkensziekten en de opbouw van een ziektebestrijding', *MvdV* 20:11 (1957-1958) 89-91.

131 Grashuis, 'Biggengriep'; NA, 2.11.29 Ministerie van Landbouw en Visserij: Vecartsenijkundige Dienst (1931) 1954-1970 (1971) (hereafter *VD* 1931-1971), inv. nr. 888, Vergaderstukken en eindrapport van de Commissie varkensziekten 1956-1958, Notulen Landbouwschap Gezondheidscommissie voor Dieren vergadering varkensziekten (September 26, 1956) 10.

3. Collaborating disciplines, separate domains

As section 1 has shown, medically and veterinary trained researchers had regular contact in their work on influenza, in particular in the *IPG* comparative medicine and influenza network. And despite the agricultural domain's economic focus on swine influenza discussed in section 2, contacts also existed between the researchers studying the human influenza virus and researchers studying influenza-like illnesses among pig herds.¹³² Champions of comparative medicine led the Dutch agricultural veterinary research institutes and the *IPG*, and these institutes housed both medically and veterinary trained researchers.¹³³

This meant that the agricultural and public health domains knew what was going on in the other domain, and related their findings to one another. When the *RSI* started its small project on swine influenza in the Netherlands in 1933, it added that one of the aims was to research relations between swine influenza and diseases 'like coryza infectiosa of chickens and influenza of man'.¹³⁴ The Veterinary Service reported a veterinarian's observations of dogs with influenza in its report section on horse influenza in 1936 and 1937, and this veterinarian insisted 'that a similarity exists between the infective agent of man and animals'.¹³⁵ And when De Blieck called on practising veterinarians for help in his study of influenza among Dutch pigs in 1939, he stressed its potential relevance for public health:

The connection between [swine and human influenza], especially between those two virus species, is a very important matter [...]; particularly considering the question whether the swine influenza originates from the human influenza and whether a possibility exists that man infects himself with swine influenza.¹³⁶

Several other examples can be given to show that influenzas of humans and animals were linked in this comparative context.¹³⁷

However, calls for comparative studies of the influenza virus among the human and animal populations of the Netherlands were rare despite this culture of comparative medicine, and *actual* comparative work on the influenza virus among human and animal populations was even rarer. The most important examples are De Blieck's and Mulder's failed attempts in the late 1930s and early 1940s discussed in section 1. Terpstra also called for a comparative study in

¹³² See for example: Elkeles, 'Experimentelle Untersuchungen', 68; J.I. Terpstra and J.P.W.M. Akkermans, 'Over pneumococceninfecties', *TvD* 79 (1954) 141-146, 143.

¹³³ See also: Verhoef, 'Strenge wetenschappelijkheid' I; Interviews J. Huisman (March 4 and 28, 2014).

¹³⁴ *Verslag RSI* 1933, 9.

¹³⁵ *Verslag VD* 1936, 50; *Verslag VD* 1937, 52 (quote).

¹³⁶ De Blieck, 'Influenza van biggen', 941.

¹³⁷ Van der Hoeden, *De zoönosen*, 420; Van Oijen and Reitsma, *Vlees*, 236-237.

his 1935 article, but focussed on similarities and differences between influenza viruses among American, German and Dutch pigs, not the human population. Mulder did compare human influenza A viruses to Shope's swine influenza strain in his studies of influenza's variability in the early 1950s.¹³⁸ But his interest in the variability of human influenza viruses did not extend to swine influenza: he only used one swine influenza strain (Shope's) to compare it with many more human influenza virus strains.¹³⁹ The *IPG* network's outlook on influenza of pigs as possibly a zoonotic problem was no issue at all in circles of pig keepers and veterinarians working in agricultural practice. And the circles studying the medical problem of influenza pandemics did not discuss the agricultural problem of pig(let) influenza. In the United States and the United Kingdom on the other hand, the question on the relation between human and swine influenzas did inspire actual comparative studies in the same period.¹⁴⁰

So although the idea that animal influenza was of importance to human health continued to be contemplated during the late 1940s and the early 1950s, animal influenza was only rarely researched from a comparative perspective in the Netherlands. This lack of exchange in the process of defining influenza despite the culture of comparative medicine can partly be explained by actors struggling with influenza's biological complexities and changeability, and the contexts of crisis and the Second World War. But this is not all there is to it. I want to address two other explanatory factors: the institutional focus of the public health and agricultural domains, and the move away from the agricultural domain by *IPG* veterinarians involved in influenza research.

The veterinary research institutes in the agricultural domain primarily focussed on specific livestock disease problems considered to be of economic significance. Foot-and-mouth disease researched at the *SVOI* and bovine tuberculosis at the *RSI* are the most significant examples in this period. Swine influenza attracted attention as a possible explanation for the economic problem of piglet mortality and pneumonia of pigs. However, when the *RSI* concluded that this link was insignificant, attention shifted to pig diseases with higher economic impact. These were addressed by the joined forces of the agricultural *PBOs*, pig experts and the Dutch Ministry of Agriculture during the 1950s.

In the public health domain, influenza expert Jacob Mulder tried to secure money from the state for influenza research in 1946 by warning that a large influenza pandemic could

104 138 See for instance: J. van der Veen and Jacob Mulder, *Studies on the antigenic composition of human influenza virus A strains: with the aid of the haemagglutination inhibition technique* (Leiden 1950) 61.

139 For instance, Mulders group isolated 39 human virus strains in the Netherlands during the influenza epidemic of 1947. J.A.R. van Bruggen, C. van Oyen and J. Mulder, 'Clinische waarnemingen bij influenza A' in de winter van 1949 te Groningen', *NTvG* 94 (1950) 965-975, 966.

140 See for instance: C.N. Dale, 'Swine Influenza', in: 'Keeping livestock healthy', Gove Hambridge (ed.), United States Department of Agriculture, *The Yearbook of Agriculture 1942* [Washington 1942] 703-713; R.E. Glover and C.H. Andrewes, 'The Antigenic Structure of British Strains of Swine Influenza Virus', *Journal of Comparative Pathology and Therapeutics* 53 (1943) 329-341.

happen any time, while the Netherlands was ill-prepared.¹⁴¹ Rather than providing direct funding of influenza research, Minister of Social Affairs A.A. van Rhijn forwarded Mulder's call to the Health Council. Several Health Council influenza committees studied the influenza problem in the post-war decades.¹⁴² Members were appointed in consultation with the IPG influenza centre, like its director Bijl, Mulder, and IPG veterinarian Verlinde.¹⁴³ The Veterinary Faculty was not represented in these Health Council committees. Moreover, while the Health Council did invite the Chief Medical and Pharmaceutical Officers of Public Health (*Medische* and *Farmaceutische Hoofdinspecteuren van de Volksgezondheid*), it did not invite the Chief Veterinary Officer of Public Health. While the influenza problem had been of combined interest to medical and veterinary institutes in the comparative medicine network (the IPG and the Veterinary Faculty in particular) before and during the war, it became largely confined to *medical* institutes after it.

Funding of Dutch influenza research continued to be left to other (often private) parties than the Dutch state. The 1950 successor of the Prophylaxis Fund, the Prevention Fund (*Praeventiefonds*), continued to be the major funder of the IPG and Dutch influenza research.¹⁴⁴ With the change in name, its aims were broadened to encompass the entire population rather than just occupational disease, but the neocorporatist set-up was not changed, including a major role for employers and employees, and as a consequence continuous focus on occupational diseases.

The IPG also continued to be a major, non-public player. Like many scientific institutes, the institute rapidly expanded during the early 1950s.¹⁴⁵ The IPG continued to collaborate closely with influenza expert Jacob Mulder of the Leiden Academic Hospital in the 'influenza study group', and partly financed his research projects.¹⁴⁶ However, conflicts over the destination of privately raised money troubled the relation between the two institutes.¹⁴⁷ During the 1950s,

141 NA, GR 1920-1956, inv. nr. 182, Stukken betreffende het adviseren aan de minister inzake het voorkomen en bestrijden van influenza en Spaanse griep 1920-1953, J. Mulder, 'Kort rapport over de mogelijkheden van een influenza-bestrijding in ons land' (October 8, 1946).

142 Rigter, *Met raad*, 384-389.

143 NA, GR 1920-1956, inv. nr. 182, Stukken influenza, J.J. Brutel de la Rivière to J.P. Bijl (March 21, 1947) and J.P. Bijl to Gezondheidsraad (March 31, 1947). In the following year, this committee was transformed into the Organisation Committee for Influenza Control (*Organisatie Commissie voor de Influenzabestrijding*), continuing with the same members. See also: NA, 2.15.36 Gezondheidsraad 1957-1990 (hereafter GR 1957-1990), inv. nr. 2251, Agenda's en notulen Commissie inzake influenza (April 3, 1958).

144 Bijl, *Een kwart eeuw*, 76.

145 M.M. Hilfman, 'Uitbreiding Instituut voor Praeventieve Geneeskunde', *NTvG* 97 (1953) 3383.

146 See for instance: *Jaarverslag over 1951 van het Nederlands Instituut voor Praeventieve Geneeskunde Leiden* (hereafter *Jaarverslag IPG*), 14; J. Mulder and G.J. Verdonk, 'Studies over de pathogenese van een ziektegeval van influenza (A)-pneumonie van drie dagen duur', *NTvG* 94 (1948) 3837-3844.

147 NA, VGH, inv. nr. 913, Stukken betreffende het houden van toezicht op de gelden, ingezameld door een fonds te Curacao, ter ondersteuning van het Instituut voor Praeventieve Geneeskunde te Leiden.

the influenza study group was moved to Mulder's laboratory.¹⁴⁸ Critique of the strong bonds between *IPG* and industry and authority disputes between researchers and management in the late 1950s eventually led to the move of the *IPG* to the Dutch Organisation for Applied Scientific Research (*Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek*, known as *TNO*).¹⁴⁹ As a consequence, research of a possible relation with Dutch livestock or horses got no priority.

During the same period, the WHO influenza programme of the United Nations organised influenza research internationally. After the Second World War, the preparations for an expected influenza pandemic of 1918-1919 magnitude got an important impetus. Shortly after its foundation in 1948, the WHO appointed the National Institute for Medical Research in London as World Influenza Centre and associated influenza centres in other countries. As the WHO could not afford its own research facilities, from the very beginning it set up a large network of existing international reference laboratories. According to UN historian Staples, 'one of the most important relationships between the WHO and the medical community lay in the organisation's work as the international manager of medical research.'¹⁵⁰ Apart from general medical laboratories for the production of vaccines and other products, the WHO also worked with laboratories that were specialised in specific medical problems like influenza, *Salmonella* and TB. The World Influenza Centre in London and the International Influenza Center for the Americas coordinated the surveillance of influenza virus strains by more than 1,800 institutes and laboratories.¹⁵¹ In the early 1950s, the WHO also founded an expert committee on the influenza problem.¹⁵²

Private rather than public money mostly paid for the Dutch contribution to this WHO network of influenza centres. The Minister of Social Affairs appointed the *IPG* as WHO regional influenza centre in 1949.¹⁵³ The *IPG* itself financed the centre in 1949 and 1950. Only in 1951, the Dutch state was willing to pay for the costs, 'after long-lasting negotiations'.¹⁵⁴

148 Jaarverslag *IPG* 1951-1956.

149 NA, 2.15.65 Ministerie van Sociale Zaken: Directoraat-Generaal Volksgezondheid (1913) 1946-1982 (1989), inv. nr. 2902, 'Nota betreffende de in het Nederlands Instituut voor Praeventieve Geneeskunde (NIPG) bestaande conflictsituatie' (1958); NA, 2.14.36.23 Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (TNO): Nederlands Instituut voor Praeventieve Geneeskunde 1960-1970 (hereafter TNO IPG), inv. nr. 3, Stukken betreffende influenza 1960-1966.

150 Amy L. Staples, *The Birth of Development: How the World Bank, Food and Agriculture Organization, and World Health Organization changed the World, 1945-1965* (Kent, Ohio 2006) 155.

151 Ibidem, 156.

152 Vagneron, 'Surveiller', 141-145.

153 NA, VGH, inv. nr. 1866, Algemene correspondentie inzake de bestrijding van influenza 1938-1949, A. Timmerman and J.D. Verlinde to Organisatiecommissie voor de Influenzabestrijding (February 2, 1949); Bijl, *Een kwart eeuw*, 45.

154 NA, TNO IPG, inv. nr. 3, Stukken betreffende influenza 1960-1966, P.C. Broekhoff to *IPG* management (October 17, 1963) attachment A. In 1949, the *IPG* paid f53,000 and in 1950 f41,000 for the influenza centre.

After this one year, the Prevention Fund paid for the influenza centre until it was moved from the *IPG* to Mulder's laboratory in Leiden. Only in 1968, the Dutch state again promised a financial contribution to the influenza centre.¹⁵⁵ Like in the case of bovine TB, the American Marshall plan and the economic incentives behind it had a major role: in the early 1950s, the *IPG* received f 200,000 from the Marshall plan for their work on influenza.¹⁵⁶ Marshall funding of bovine TB and influenza control differed in the sense that the influenza funding was relatively small, and was directed at human influenza. The surveillance work of the Dutch influenza centre focussed on human influenza. For the mapping of influenza virus strains, the *IPG* cooperated with the Medical State Inspectorate of Public Health, several companies which informed the *IPG* of the sickness rates of their employees and a network of physicians throughout the country.¹⁵⁷

Veterinarians working in the domain of public health often reinforced rather than overcame a boundary between the domains of public health and agriculture. They claimed ownership over zoonoses, but also showed a tendency to prioritise 'medical' issues over 'veterinary' ones. In a report of the fourth international congress on microbiology (1947) in the veterinary journal, Jacob van der Hoeden complained that among the seventy Dutch participants only three were veterinarians, and 'What is more, the three men present (Verlinde, Winsser and Reporter [Van der Hoeden himself]) were mainly interested in human-medical questions'.¹⁵⁸ The *IPG* veterinarians Verlinde and Winsser both ended up being professors in a human medical context, Winsser in the United States of America.¹⁵⁹ Had Verlinde's predecessors as veterinarians *and* medical professors Jan Poels and Dirk Aart de Jong continued to be closely involved with the livestock sector,¹⁶⁰ Verlinde's links with the agricultural domain were limited to his PhD research conducted under De Blieck. After De Blieck retired, the contacts between the *IPG* and the Veterinary Faculty became less close. While De Blieck's successor Jansen was interested in influenza, as his admiration for Richard Shope illustrates,¹⁶¹ he only shortly

155 'Influenza-onderzoek', *NTvG* 112 (1968) 60.

156 M.M. Hilfman, 'Bestrijding van influenza', *NTvG* 96 (1952) 2973-2974.

157 *Jaarverslag IPG*, 17; J.D. Verlinde, 'De uitbreiding van influenza A en B in Nederland gedurende het tijdsvak 1950/1951 tot 1951/1952', *NTvG* 96 (1952) 2601-2607; J.Z.S. Pel, 'Het epidemiologische en klinische beeld van de Aziatische influenza in een huisartsenpraktijk te Middelburg', *NTvG* 103 (1959) 534-536; C.A. Kuypers, 'Het epidemiologische beeld van de Aziatische influenza in een huisartsenpraktijk in Zelhem', *NTvG* 103 (1959) 536-537.

158 J. van der Hoeden, 'Het vierde internationale congres voor microbiologie', *TvD* 72 (1947) 747-750, 747.

159 On Verlinde's medical chair in Leiden, see section 1 of this chapter. On Winsser's career: Dorssen, 'In memoriam'; Boor-Van der Putten, *75 jaar*, 115-117; Numans, Schuursma and Mathijzen, *Herinneringen*, 25-26, 49-50, 66.

160 Wallé, et al., *Leiden medical professors*, 249-255.

161 HUA, 270 FD, inv. nr. 137, Stukken eredoctoraten, Jansen to the Faculteit der Veeartsenkunde (undated) 2-3; J. Jansen, *Besmetting en weerstand* (Utrecht 1948) 11.

succeeded De Blieck as a member of the *IPG* study group.¹⁶² He never researched influenza, although his chair was changed from infectious diseases to virology in 1955. In short, an increasing separation between veterinarians working on the medical influenza problem and those working on agricultural problems of livestock health occurred after the Second World War.

Veterinarians who were very actively spreading knowledge on zoonoses in medical circles as discussed in section 1, were far less active in educating the agricultural domain on this topic. For instance, when the agricultural journal *De Nieuwe Veldbode* published a series on zoonoses in 1935 and 1936, it was a physician rather than a veterinarian who wrote it.¹⁶³ The veterinary interest in zoonoses was mainly a matter of elevating the social status of veterinary medicine in relation to medicine. In other words: the boundary between the domains of agriculture and public health was harder to cross than the boundary between medicine and veterinary medicine. But it was the latter boundary rather than the first veterinarians continuously problematised in their attempts to reach medical status. As a consequence, reference to the links between human and animal influenza resulted in little *actual* Dutch research on animal influenza.

4. Responding to domain-specific influenza problems

The domains also took influenza control measures from the perspective of their respective agricultural and medical problem definitions and not from a zoonotic disease perspective. I illustrate this with how influenza was discussed during the *IPG* ‘Preventive Medicine Day’ on ‘The meaning of animal diseases for public health’ in 1948.¹⁶⁴ Several speakers, like Verlinde and H.W. Julius, regarded influenza as a potential zoonosis ‘on theoretical grounds’.¹⁶⁵ But speakers who focussed on the practical control of zoonoses in the Netherlands, like veterinary professor and influenza study group member J.A. Beijers and Veterinary Chief Inspector of Public Health E.E.A.J. Quaedvlieg, did not refer to it.¹⁶⁶ Control measures were not aimed at influenza as a potential zoonosis, but at the two separate domain-specific problems.

Influenza control measures within the public health domain focused on surveillance of new virus strains, the production of influenza vaccines and ways to cure serious influenza. Influenza

162 *Jaarverslag IPG* 1951, 14; *Jaarverslag IPG* 1954, 90.

163 The first entry was: L.M. Metz, ‘Dезelfde ziekten bij mensch en dier: I. Boutvuur’, *DNV* 2:49 (1934-1935) 14-15. The end of the series was: L.M. Metz, ‘Dезelfde ziekten bij mensch en dier: XI. Tater, ringvuur & Vlekziekte’, *DNV* 3:45 (1935-1936) 13. Metz did not discuss influenza or bovine TB as zoonoses.

164 J.P. Bijl, ‘Verslag van den Directeur omtrent de werkzaamheden van het Instituut voor Praeventieve Geneeskunde gedurende het jaar 1944’, *IPG Verslag* 1944, 8-21, 16-17; Van der Hoeden et al., *De betekenis*.

165 Verlinde, ‘Virusziekten’, 17 (quote); H.W. Julius, ‘De plaats der zoönosen in de maatschappij’, in: Van der Hoeden et al., *De betekenis*, 58-68, 59, 64.

166 Van der Hoeden et al., *De betekenis*, 83-89.

experts considered surveillance of influenza virus strains important to monitor the occurrence of another pandemic of 1918-1919 magnitude and to produce influenza vaccines. They argued the WHO influenza centres were necessary for the production of low cost influenza vaccines ‘to ward off a recurrence of the 1918-19 influenza pandemic’.¹⁶⁷ Employers concerned about influenza as a major cause of sickness absence and vaccine-producing companies like Philips were also interested in the production of influenza vaccines.¹⁶⁸ Philips continuously supplied a member of the IPG Board and sponsored Mulder’s work. As a result, the IPG, Mulder and the Health Council influenza committees also focused on influenza vaccines.¹⁶⁹ The collaboration between the IPG, Mulder and industry was a major reason why the Netherlands became the second influenza vaccine producing country in the world in 1949, after the United States.¹⁷⁰

However, finding an effective vaccine was more complicated, as the variability of the influenza virus hampered long-term protection.¹⁷¹ For instance, in 1952-1953 Verlinde conducted a large IPG study on influenza vaccination of employees in several Dutch companies paid for by Marshall plan money, with ‘dubious’ results.¹⁷² The Health Council influenza committee concluded in its report of 1954 that the medical state of the art of preventive measures like vaccination would not be sufficient to stop a dangerous influenza pandemic. Instead, minimising the number of deaths would only be possible by focussing on quick

167 Staples, *The Birth*, 156.

168 NA, 2.25.12 Gemeenschappelijk Administratief Kantoor 1952-2001, inv. nr. 902, Correspondentie van CB met het Instituut voor Preventieve Geneeskunde betreffende subsidieaanvragen van het instituut bij CB, Several letters by J.J. Haver Droeze (1937); Bijl, *Een kwart eeuw*, 77-78; NA, TNO IPG, inv. nr. 3, Stukken betreffende influenza 1960-1966, ‘Beknopt jaaroverzicht 1961’, 17 and ‘Werkplan 1964 Influenza Werkgroep’; NA, GR 1920-1956, inv. nr. 182, Stukken influenza, Mulder, ‘Kort rapport’ (October 8, 1946) and J. Mulder, ‘Concept Influenzabestrijding in Nederland’ (December 11, 1947).

169 Bijl, ‘Jaarverslag’, MIPG 1938-1939, 3-5, 7; NA, GR 1920-1956, inv. nr. 182, Stukken influenza, Mulder, ‘Kort rapport’ (October 8, 1946) and notulen (November 28, 1946) and J.J. Brutel de la Rivière to Minister van Sociale Zaken (December 9, 1946); J. Mulder, ‘Feiten en vragen bij de vaccinatie tegen influenza’, *NTvG* 95 (1951) 30-42.

170 Wim Rakhorst, 65 jaar Influenza Vaccinproductie in Nederland (paper for the Day of the History of Pharmaceuticals, 7 November 2013, Utrecht). Mulder’s close contacts with the influenza vaccine industry led to a small media scandal after the 1957 influenza pandemic. Based on Mulder’s eagerness to declare a pandemic, physician F. Dekking suggested in the socialist newspaper *Het Parool* that Mulder had suspicious bonds with the producer of influenza vaccines Philips-Van Houten. Mulder sued *Parool* for defamation, and lost the case. F. Dekking, ‘Dr. Dekking schrijft ons’, *Het Parool* (July 5, 1957); ‘Prof. Dr. J. Mulder acht zich beleidigd’, *Nieuwsblad van het Noorden* (August 6, 1957); ‘Prof. Mulder: Artikel over A-griep beleidigend. Pleidooien in proces tegen Het Parool en vroegere medische medewerker’, *Het Parool* (February 10, 1959); ‘Dagbladartikel over A-griep beleidigde professor niet’, *Het Vrije Volk* (March 24, 1959) 11.

171 Eyler, ‘De Kruif’s Boast’.

172 *Jaarverslag IPG* 1954, 16 (quote); J.D. Verlinde, O. Maksteneks and C.A.G. Nass, ‘Resultaten van een proefvaccinatie tegen influenza in de winter 1952/1953’, *NTvG* 98 (1954) 559-565; J.D. Verlinde and O. Maksteneks, ‘Een experimenteel onderzoek naar de waarde van de vaccinatie tegen influenza in de winter 1952/1953’, *NTvG* 98 (1954) 2589-2591.

treatment of secondary bacterial complications, for instance with antibiotics.¹⁷³ In the Dutch context, the state did not direct those ways of reacting to a potential influenza pandemic.

A new pandemic, named ‘Asian influenza’, broke out in 1957. The pandemic was named after its first reported cases in Asia. People were found to be infected with a new variety of the influenza ‘A’ virus. The influenza study group led by Mulder had been warning for the appearance of a new influenza pandemic for years, and now welcomed the possibility to finally investigate pandemic influenza directly.¹⁷⁴ Mulder reported the first Dutch cases of Asian flu on June 14, 1957 in the Dutch medical journal, and sent his findings to the WHO.¹⁷⁵

A controversy about the start of the pandemic in the Netherlands between the Dutch government on the one hand and the WHO and Mulder on the other illustrates the somewhat complicated relations between influenza experts and public health authorities, the public impact of the announcement that the Netherlands were suffering from another influenza pandemic and official attempts to prevent public panicking. Minister of Social Affairs and Public Health J.G. Suurhoff interrupted a meeting of the Council of Ministers on Monday July 8 to convince gathered press that the Netherlands did *not* suffer from the Asian flu, despite press releases by the WHO which said the contrary on the basis of Mulder’s findings.¹⁷⁶ According to the high-ranking public health officials P. Muntendam and C. Banning, the WHO had wrongly interpreted Mulder’s ‘scientific message’ as the start of an epidemic. In the paper press, a steady stream of articles on ‘A-flu’ (*A-griep*) worldwide and in the Netherlands was published, while government officials continued to deny the epidemic was serious in the Netherlands.¹⁷⁷

Nevertheless, the editors of the *NTvG* wrote ‘editorial comments’ on the ‘Asian’ influenza pandemic in the Netherlands, warning for a ‘possibly massive outbreak’ on July 13.¹⁷⁸ As effective influenza vaccines or drugs were still not available despite years of work, their concerns were that little had changed since 1918. The new virus would find ‘the Dutch people like a “virginal soil” in immunological sense’,¹⁷⁹ and the fear was this outbreak would mirror the epidemic of 1918-1919, in which the first wave had been relatively mild, but the second wave overwhelmingly deadly.

Eventually, this pandemic turned out to be mild compared to the 1918-1919 pandemic.¹⁸⁰ After the pandemic was over, the influenza committee of the Health Advisory Council updated

173 Organisatiecommissie voor de influenzabestrijding, ‘Influenzabestrijding’, *VMV* 1954, 139-195, 139-151.

174 Nederlands IPG, *Verslag 1957 1958 en 1959*, 46.

175 J. Mulder, ‘Import van Aziatische influenza in ons land’, *NTvG* 101 (1957) 1187-1188.

176 Several newspapers reported this on July 9, 1957. Koninklijke Bibliotheek, ‘Delpher’, <http://www.delpher.nl/nl/kranten> (February 17, 2017).

177 Ibidem, newspaper articles on ‘A-griep’ during 1957. Passim.

178 Ed., ‘Aziatische influenza in Nederland’, *NTvG* 101 (1957) 1332.

179 Ibidem.

180 I. Geer and J. Mulder, ‘De sterfte aan Aziatische influenza in 1957’, *NTvG* 102 (1958) 1208-1211, 1211.

the manual on influenza of 1954 for all physicians, for instance with the new findings that vaccination *was* beneficial for certain risk groups.¹⁸¹ The committee also concluded that a medium for quick epidemiological reporting was lacking. In 1959, *NTvG* offered its section ‘Epidemiological announcements’ for reports on influenza.¹⁸² These sections were written by Mulder himself as he trusted no one of the Chief Inspectorate of Public Health with his material after their clash in the summer of 1957.¹⁸³

In the agricultural domain, official responses to the problem of unknown pig diseases and piglet mortality initially focussed on attempts to produce working vaccines, sera or drugs at the RSI. As these attempts were little successful, veterinary attention shifted to ways to improve the resistance of pigs through feeding and housing practices, including providing fresh air and daylight. Waldmann developed a system for the control of *Ferkelgrippe* along these lines, achievable by every pig keeper.¹⁸⁴ The system was not so much based on conventional hygiene, but meant to create ‘more natural living circumstances’.¹⁸⁵ Sows and piglets should be kept isolated from other pigs, with access to outdoors. These measures would prevent the spread of piglet flu and strengthen the resistance of piglets. Dutch veterinarians concerned about the pig diseases with high economic impact strongly relied on this argument. They were particularly worried about the effects on pigs’ disease resistance of ‘modern’ developments like the ‘much too strict laws of hygiene’, cement rather than soil flooring, indoor keeping and improved breeds.¹⁸⁶

Measures directed at strengthening the ‘natural’ resistance of pigs against micro-organisms through changes in feeding, housing and breeding practices were very popular, also among pig keepers.¹⁸⁷ Scarce sources on the perception of farmers of influenza or flu of pigs reveal firstly, that it was a largely unknown disease, and secondly, that pig keepers focussed on changes in their pig breeding and keeping practices to control it. Several farmers wrote letters to the

181 NA, GR 1957-1990, inv. nr. 2250, Algemene correspondentie Commissie inzake influenza 1958-1965, J. Wester to Minister van Sociale Zaken en Volksgezondheid (hereafter SZV) (June 26, 1959).

182 The first was: J. Mulder, ‘Influenza B’, *NTvG* 103 (1959) 237.

183 NA, GR 1957-1990, inv. nr. 2250, Algemene correspondentie Commissie inzake influenza 1958-1965, J. Mulder to J. Wester (March 11, 1958).

184 Schulz, *Die Geschichte*, 100-101.

185 ‘Varkensgriep’.

186 Ibidem (quote). See also: A. van Leeuwen, ‘Bijgensterfte in verband met fokinrichting en opfokmethoden’, *De Veldbode* 30:1514 (1931-1932) 499; Ed., ‘Biggengriep’; De Blieck, ‘Influenza’, 944; Ed., ‘Influenza’; Grashuis, ‘Opfokziekten’; NA, VD 1931-1971, inv. nr. 888, Commissie varkensziekten 1956-1958, Notulen Landbouwschap Gezondheidscommissie voor Dieren (September 26, 1956) 2-8, 24-31; P.H.W. Tacken, ‘Opmerkingen ten aanzien van opfokziekten en ziekten bij opgroeende varkens’, *TvD* 84 (1959) 199-207.

187 De Jong Szn., ‘Bijgensterfte’; NA, VD 1931-1971, inv. nr. 888, Commissie varkensziekten 1956-1958, Notulen Landbouwschap Gezondheidscommissie voor Dieren (September 26, 1956) 2-8.

editorial board of agricultural magazines and newspapers to ask for advice on piglet death and breeding diseases.¹⁸⁸ In the late 1930s, agricultural journalists asked readers for reactions to the foreign reports on piglet flu, inspired by a veterinary observation that piglet flu had not been observed in the Netherlands, while foreign veterinarians thought it had to be there.¹⁸⁹ Did farmers have any experience with this disease among their own pigs or the pigs of a colleague? The reactions to this call focussed on changes in pig keeping practices available to deal with unknown pig diseases like piglet flu.¹⁹⁰

These considerations fit in the picture Abigail Woods sketches of British pig keeping during the first half of the 20th century.¹⁹¹ Woods has shown that pig keepers and experts thought ‘natural’ living circumstances were central to the success of their companies, although interpretations of what ‘natural’ meant differed. Woods argues this shows that the seemingly self-evident intensification of pig keeping after the Second World War was not so self-evident after all. Similar sensibilities can be found in Dutch discussions on pig keeping, intimately linked to understandings of a little-known or ill-controllable infectious disease like influenza. The articles on ‘pig flu’ show an awareness of the changeability of (infectious) diseases which was related to changing farming practices, especially the attempts to increase production efficiency. As farmers were working with animals they were continuously changing, the idea of ‘emerging’ infectious diseases was not a strange one. Changing the pigs and their environment in such a way that the disease could not easily thrive was seen as a solution to the problem of uncontrollable pathogens.

During the 1950s, agricultural authorities made plans to study and deal with the economic problem of unknown pig diseases more systematically.¹⁹² In 1956, the Veterinary Service installed a committee to investigate unknown pig diseases and how the resulting losses among piglets could be prevented. The committee discussed influenza (using both the names ‘flu’ and ‘influenza’) among the (infectious) diseases causing problems in pig keeping. It did not address possible public health problems related to the unknown pig diseases. The committee estimated the losses of piglets younger than eight weeks at 20% and the losses of pigs from eight weeks until slaughter age at 8% of the remaining pigs, of a total of at that

188 ‘Biggensterfte in een nieuw gebouwden stal’, *De Veldbode* 29:1450 (1930-1931) 170; ‘Biggensterfte’, *De Veldbode* 29:1463 (1930-1931) 530-531; Mart van Dorsser, ‘Biggensterfte’, *De Veldbode* 31:1561 (1932-1933) 357; S. Bamberg, ‘Biggensterfte’, *De Veldbode* 31:1563 (1932-1933) 390; ‘Nieuwe varkensstal’, *De Boerderij* 23:38 (1938); V.d. M., ‘Nieuwe varkensstal’, *De Boerderij* 23:42 (1938).

189 Ed., ‘Biggengriep’.

190 Ed., ‘Uit de praktijk’, *DNV* 6:4 (1938-1939) 25; A.P. Keijzer and A. Enserink, ‘Een praktische voerbak’, *DNV* 6:8 (1938-1939) 17.

191 Abigail Woods, ‘Rethinking the History of Modern Agriculture: British Pig Production, c.1910-65’, *Twentieth Century British History* 23 (2012) 165-191.

192 See for example: HUA, 256-2 Rijksveeteeltconsulenten voor de varkensfokkerij te Utrecht, inv. nr. 61, Correspondentie met de Rijksseruminrichting betreffende de bestrijding van het besmettelijk hoesten bij varkens 1954-1957.

point three million pigs in the Netherlands (Figure 2).¹⁹³ Although it was ‘a shot in the dark’, the committee estimated financial losses as a result of these mortality figures at ‘more than 15 million guilders per year’, which did not include the financial loss as a result of hampered piglet growth.¹⁹⁴ Most losses could be prevented by better housing, feeding and nursing practices. But the committee also concluded that the research facilities for in-depth research of pig diseases of the Veterinary Faculty, the agricultural veterinary research institutes *SVOI* and *RSI*, and the Animal Health Services were insufficient ‘in relation to the economic importance of the pig stock’.¹⁹⁵ Importantly, the Veterinary Faculty should abandon its focus on horses:

When the time and attention paid to the horse are compared with those paid to the pig during the veterinary studies, then the question arises whether this proportion still corresponds to the economic importance of these two animal species.¹⁹⁶

The Veterinary Faculty reacted to the report of the committee on unknown pig diseases and that of another committee on poultry diseases simultaneously.¹⁹⁷ It argued that it had already paid attention to poultry and pig diseases in the curriculum. To improve the experience of students with these problems, the faculty was building a research institute with a poultry clinic. For reasons I did not investigate, the faculty remained silent about the suggestion to start such an institute on pig diseases.

All in all, the domains of public health and agriculture organised responses to human and swine influenza separately. This did not mean that the relation between human and animal influenzas no longer attracted interest. During the 1950s, major influenza researchers worldwide continued to contemplate the relation between human and animal influenzas. This interest was driven by the problem of the influenza virus’ antigenic variation, the identification of a new influenza A-virus as the cause of fowl plague by German veterinarian and virologist Werner Schäfer in 1955,¹⁹⁸ and the growing influence of ‘disease ecology’, combining medical and biological thinking about infectious diseases.¹⁹⁹

¹⁹³ These figures were based on data provided by the State Consulting Agency for Pig Breeding (*Rijksconsulentenchap voor de Varkensfokkerij*).

¹⁹⁴ NA, VD 1931-1971, inv. nr. 888, Commissie varkensziekten 1956-1958, A. Burggraaf et al., ‘Rapport aan de Directeur van de V.D. van de Commissie belast met het onderzoek en de bestudering van de toestand in de varkenshouderij en in het bijzonder betreffende de varkensziekten en de verliezen die deze veroorzaken’ (February 19, 1957) 1.

¹⁹⁵ Ibidem, 4.

¹⁹⁶ Ibidem.

¹⁹⁷ NA, VD 1931-1971, inv. nr. 888, Commissie varkensziekten 1956-1958, J. Jansen and J.H. ten Thije to the director of the Veeartsenijkundige Dienst (June 20, 1958).

¹⁹⁸ On Schäfer, see: Waterson and Wilkinson, *An Introduction*, 136-138; Beveridge, ‘Unravelling’, 24.

¹⁹⁹ Mendelsohn, ‘From Eradication’; Anderson, ‘Natural Histories’.

According to historian of medicine John M. Eyler, the 1957 influenza pandemic ‘tipped the balance in the debate about the nature of the flu virus’: influenza researchers now thought rapidly changing influenza viruses could potentially infect different animal species, rather than seeing their presence in animals as an accidental side-effect of human infections.²⁰⁰ Animals became ‘influenza virus reservoirs’,²⁰¹ and the WHO defined influenza as an ‘emerging’ zoonosis – emerging from animal reservoirs, that is – in 1959.²⁰² At the start of the 1957 pandemic, also Mulder speculated ‘whether the Asian influenza could have an animal source’.²⁰³

Two events during the 1957 influenza pandemic were incentives for actual animal influenza research in the Netherlands, involving direct collaboration between agricultural and public health institutes. In July 1957, the local GP A.H.M. Habets and veterinarian J.M. Schreurs observed both children and piglets which had been in contact suffered from pneumonia in the province of South-Limburg. Habets and Schreurs reported this to the Medical Inspection of Public Health, which informed the *IPG* about it immediately, linking the outbreak to the Asian influenza pandemic. Verlinde strongly suspected the involvement of pandemic influenza virus. He was very surprised to find a very different virus responsible for the pneumonia in two piglets that were investigated: Coxsackie virus, a virus which was considered not to infect animals.²⁰⁴ As the children had recovered before the research started, the virus could not be shown in their sputum, but they carried antibodies against it in their blood.²⁰⁵ The team thought these findings possibly showed that pigs were of epidemiological significance in outbreaks of Coxsackie-infections among people, and Terpstra and Verlinde started a joined *RSI-IPG* research project on Coxsackie virus in pigs.²⁰⁶

These results attracted attention in the discussions on the agricultural problem of unknown infections of pigs and piglet mortality. Veterinarian P.H.W. Tacken, the director of the Southern Limburg *GD*, extensively reviewed the *IPG* findings on the shared Coxsackie

200 Eyler, ‘De Kruif’s Boast’, 435-437.

201 Vagneron, ‘Surveiller’. The concept of ‘animal reservoirs’ was introduced in epidemiology in the 1920s, in relation to bubonic plague research. Hardy, ‘Animals’, 207-209.

202 Martin M. Kaplan and Ervin A. Eichhorn, ‘Joint WHO/FAO expert committee on zoonoses: second report’, World Health Organisation, *Technical Report Series* 169 (Geneva 1959) 47-48, 55-57; A.M.M. Payne, ‘Expert committee on respiratory virus diseases : first report’, World Health Organisation, *Technical Report Series* 170 (Geneva 1959) 11-14. Van der Hoeden’s zoonoses textbook mirrored this shift: in the second edition from 1964 influenza was discussed as a ‘true’ zoonosis rather than an ‘anthroponosis’. J. van der Hoeden (ed.), *Zoonoses* (Amsterdam, London, New York 1964).

203 J. Mulder, ‘De influenza in Azië’, *NTvG* 101 (1957) 1134 (quote); J. Mulder, ‘Asiatic Influenza in the Netherlands’, *The Lancet* 273 (1957) 334.

204 J.D. Verlinde and J. Versteeg, ‘Coxsackie-viruspneumonie bij biggen als smetstofbron voor de mens’, *TvD* 83 (1958) 459-468, 460; J.D. Verlinde, J. Versteeg and H. Beeuwkes, ‘Mogelijkheid van een besmetting van de mens door varkens lijdende aan een Coxsackie-viruspneumonie’, *NTvG* 102 (1958) 1445-1447, 1446.

205 Nederlands IPG, *Verslag 1957 1958 en 1959*, 35-36; Tacken, ‘Viruspneumonie en/of varkensgriep’, 279.

206 Verlinde and Versteeg, ‘Coxsackie-viruspneumonie’, 467.

virus infection of piglets and children.²⁰⁷ Tacken described Verlinde's surprise when he did not find pandemic influenza virus, but Coxsackie virus. He noted: 'For the first time, Verlinde has demonstrated a coxsackie virus to be the cause of swine flu [*varkensgriep*] with these findings!'²⁰⁸ The agricultural problem of 'swine flu' in the Netherlands now seemed to have lost its relation with human influenza altogether: 'As in our country Shope's virus – as far as is known – does not occur, it is in fact wrong to speak about swine influenza [*varkens-influenza*] when we refer to virus pneumonia or the swine flu [*varkensgriep*].'²⁰⁹ In the agricultural journal *De Nieuwe Veldbode* Verlinde's findings were reported without any reference to the problem of piglet flu or the context of influenza research.²¹⁰

The second event which was an incentive for the domains of agriculture and public health to start collaborative research on animal influenza, in this case the Veterinary Service and the IPG, was a large-scale survey of animal influenza by the WHO. Veterinarian Martin M. Kaplan and physician A.M.M. Payne of the WHO conducted an international survey to map animal influenza (swine and equine influenza in particular) in relation to the 1957 pandemic.²¹¹ The Netherlands was one of the 33 countries included in the survey. WHO (and former FAO) veterinarian Kaplan contacted the Veterinary Service in July 1957 to ask for Dutch participation in his survey, as 'The present situation may afford an excellent opportunity to clarify the position of swine and horses in the epidemiology of human influenza which has been the subject of much speculation since the 1918 pandemic'.²¹² The WHO influenza centre in the Netherlands, the IPG, was involved in the project at a later stage, to analyse the serum samples for the presence of influenza antibodies. IPG veterinarian J.D. Verlinde and Kaplan mostly communicated with one another about the project indirectly, via the Veterinary Service. Influenza among livestock was initially a problem of the agricultural rather than the public health domain.

Finding the right animals for Kaplan's survey was quite a difficult task for all countries involved. Kaplan had emphasised that the animals used should be tested twice: before and after the influenza pandemic had struck. For horses, this was feasible, but in the case of pigs these requirements were hard to meet. Pigs had to be over three months of age for the experiment, and therefore Kaplan advised the use of breeding pigs rather than pigs raised for slaughter, which would not reach the age necessary for the second sample. As practical difficulties arose

207 P.H.W. Tacken, 'Viruspneumonie en varkensgriep', *Vlaams Diergeneeskundig Tijdschrift* 27 (1958) 102-111; Tacken, 'Viruspneumonie en/of varkensgriep'.

208 Tacken, 'Viruspneumonie en/of varkensgriep', 279.

209 Ibidem.

210 Ed., 'Coxsackie-virus pneumonie bij biggen', *DNV* 24:42 (1958) 7.

211 Vagneron, 'Surveiller'.

212 NA, VD 1931-1971, inv. nr. 373, World Health Organisation, M.M. Kaplan to J.M. van den Born (July 29, 1957).

on this issue, the Veterinary Service and Verlinde decided that slaughtering pigs would not be exempted from the survey, which meant that samples of *different* pigs would be used to compare their influenza antibodies before and after the pandemic. As a compromise, Verlinde decided he would use pigs from the same owner.²¹³ Another problem was how to test agricultural animals for the presence of influenza antibodies before and after the pandemic, as the influenza epidemic in the Netherlands was well underway by the time the Veterinary Service and the *IPG* were ready to conduct the first round of sampling in September 1957.

Eventually, the *IPG* analysed 124 blood samples of pigs, which were all considered as post-pandemic samples, and 79 blood samples of horses for antibodies against Asian A2 human influenza virus.²¹⁴ Pigs turned out not to have developed antibodies, but roughly one-fifth of the horses did.²¹⁵ In 1958, the *IPG* influenza team published an article in the Dutch veterinary journal on the possible relation between horse influenza and the human pandemic.²¹⁶ The influenza A antibodies in a part of the studied horse sera pointed at a natural infection with the disease, and the authors related this conclusion to Bemelmans' earlier work on the relation between influenza of humans and horses. In the article they asked for reactions via telephone by veterinarians who observed non-bacterial respiratory infections in horses. The emphasis on the telephone as the necessary means of communication illustrates worries on the short presence of influenza antibodies in the blood. It also reveals the importance given to the study of animal influenza at this time.

The outcome of the WHO survey was that Dutch pigs had no role at all in the 'Asian' influenza pandemic. In this sense, the contact on influenza between medical and agricultural institutes was of short duration. But the WHO survey did show that the 'Asian' influenza virus A2 strain was found in horses in most participating countries (including the Netherlands), be it that clinical signs of such infection were largely absent – in contrast to horses infected with specific equine influenza strains, which were also found in many of the investigated countries. For some countries, natural infection of swine with A2 influenza virus had been found, also without clinical signs. Shope's swine influenza virus (the A-swine strain of influenza) was found in at least two European countries: Great Britain and Czechoslovakia. Looking at these data in combination with other knowledge on influenza among animals, Kaplan and Payne concluded that animal influenza deserved a place in theories about the origin of novel influenza epidemics and pandemics.²¹⁷

213 NA, VD 1931-1971, inv. nr. 373, World Health Organisation, Several letters.

214 Nederlands IPG, *Verslag 1957 1958 en 1959*, 32; M.M. Kaplan and A.M. Payne, 'Serological survey in animals for type A influenza in relation to the 1957 pandemic', *Bulletin of the World Health Organization* 20 (1959) 465-488, 470.

215 NA, VD 1931-1971, inv. nr. 373, World Health Organisation, Reports by J.D. Verlinde (December 2 and 23, 1957).

216 J. Versteeg, R.P. Mouton and J.D. Verlinde, 'Aziatische influenza bij paarden?', *TvD* 83 (1958) 608-613.

217 Kaplan and Payne, 'Serological survey', 480-481. See on later developments: Vagneron, 'Surveiller'.

In the Netherlands, attention shifted to Dutch horses, which seemed to have developed influenza antibodies, and pigs in China, where the pandemic was thought to originate.²¹⁸ The relation between animal and human influenza became a standard topic in discussions on influenza. Mulder's team expressed a strong conviction that animal populations, especially pigs, were reservoirs of new pandemic strains of the influenza virus in its many publications based on 'Asian' influenza pandemic material. In *The Lancet*, Mulder argued that the period 1918-1957 could best be called 'the "swine influenza" era'.²¹⁹ Mulder's team looked at foreign locations of these animal reservoirs rather than its homeland: 'Probably the Asian virus originated from Asian pigs'.²²⁰ This meant that 'a veterinary-virological expedition to Central Asia' had become 'almost a scientific necessity'.²²¹

Summary

Research of influenza in the public health domain in the period following the 1918-1919 influenza pandemic involved a lot of medical-veterinary collaboration, an argument Bresalier and Worboys have made before on British influenza research.²²² The major research programmes on the influenza virus in the US and the UK of the 1920s and 1930s delivered important findings and new questions on the relation between different influenzas, human influenza viruses and Shope's swine influenza virus in particular. In the Netherlands, the Institute for Preventive Medicine (*Instituut voor Praeventieve Geneeskunde, IPG*) became the centre for both influenza research and comparative medicine in the 1930s, although at a much smaller scale than in the US and UK because of structural financial difficulties. In this work, the *IPG* provided an excellent environment for veterinarians aspiring scientific and social veterinary elevation. Veterinary-medical collaboration also resulted in tensions. Most illustrative in this regard is the discussion at the Utrecht Veterinary Faculty whether or not granting a honorary degree to medically trained American influenza researcher Richard Shope in 1951 meant that veterinarians did not qualify for such an honour.

In particular, this chapter adds to existing scholarship on the history of influenza by relating the developments in the public health domain to developments in the agricultural domain. There, Shope's findings on swine influenza were received as a possible explanation for

218 Kaplan and Payne, 'Serological survey', 481-484.

219 J. Mulder and N. Masurel, 'Pre-epidemic antibody against 1957 strain of Asiatic influenza in serum of older people living in the Netherlands', *The Lancet* 271 (1958) 810-814, 813.

220 J. Mulder, N. Masurel and J.F.Ph. Hers, 'De Aziatische-influenza-pandemie van 1957', *NTvG* 102 (1958) 1992-1999, 1992.

221 Ibidem, 1996.

222 Bresalier, 'Uses'; Bresalier and Worboys, "Saving".

unknown pig diseases and piglet death in the early 1930s. Until the 1950s, the pig keeping sector discussed swine influenza as an economic problem. As existing control responses with sera and vaccines proved to be difficult, practical solutions were primarily sought in ‘natural’ measures to improve the pigs’ resistance against disease. This fits in Abigail Woods’ nuancing of the dominant modernisation narrative in the history of agriculture.²²³

The profound interest in comparative medicine in Dutch influenza research, and the awareness that influenza might be a zoonosis, led to several calls for comparative studies of human and animal influenzas (swine influenza in particular). While individuals made some small-scale attempts in the 1930s, such studies were not conducted structurally until the 1957 influenza pandemic. Especially the WHO call for input for a study of influenza as zoonosis was an important incentive to look for influenza viruses among Dutch livestock.

Two explanations can be given for the relative lack of actual comparative influenza studies in the Netherlands, despite the enthusiasm for comparative medicine and zoonoses among Dutch influenza researchers. In the first place, the veterinarians who succeeded in obtaining successful positions in the medical domain tended to prioritise medical issues over agricultural ones. This was in particular true for the veterinarians affiliated to the *IPG*.

This can be understood by the second explanation: the institutional context and funding of attention for influenza. The influenza case again clearly reveals the very different attitude of the state regarding livestock disease and human disease. The private *IPG* and Mulder’s laboratory carried out Dutch influenza research in the public health domain, following the interests of its individual researchers. The Dutch state continued to be reluctant to get involved until the 1960s. Characteristic of the attitude of the Dutch state regarding public health issues, dealings with influenza were left to private initiatives, and paid for from a diverse collection of civic organisations, in which the influence of employers was important in approaching influenza as an occupational illness. The agricultural domain knew far more state intervention, especially from the 1930s crisis years onwards. Hence, it was the agricultural *RSI* which studied pig diseases, including influenza. Very soon, it concluded that swine influenza had little economic importance in Europe. Thus, the agricultural domain was not structurally interested in a possible relation with human influenza, but only in a solution for economically important diseases.

So, the public health and agricultural domains studied and dealt with animal and human influenzas primarily as domain-specific problems. In the agricultural domain, this was the economic problem of unknown pig diseases. In the public health domain, this was the problem of pandemic influenza and influenza as an occupational illness. We will now move to another zoonosis in another period of time: salmonellosis.

223 Woods, ‘Rethinking’.

3

Formalising public-private partnerships in the welfare state: salmonellosis (1951-1978)

Salmonellosis was the major zoonosis of the 1950s. It was for instance the first zoonosis discussed by the joined WHO/FAO Expert Committee on Zoonoses.¹ This chapter starts in 1951, when the public health authorities started to structurally register salmonellosis cases associated with livestock in the Netherlands. This occurred in the context of the expanding welfare state, and very soon public health experts also called for state measures to curb the rising incidence of salmonellosis. Simultaneously, livestock production was intensified on an unprecedented scale, and the ties between organised agriculture and the state became stronger than ever before. A controversy quickly arose between the domains of agriculture and public health on the salmonellosis problem. This chapter takes the second Health Council salmonellosis committee's advice of 1978 as endpoint, when it had become clear which camp had won the fight over *Salmonella*'s ownership, and the welfare state was increasingly criticised in a new political reality.

¹ Kaplan and Eichhorn, 'Joint WHO/FAO Expert Committee', 8-19.

1. Defining salmonellosis as a public health problem

Three concerns constituted the public health perspective on livestock-associated salmonellosis as a problem. First, public health experts internationally observed a rise in both human and animal cases of salmonellosis after the Second World War, while the formerly high incidence of specifically human salmonelloses typhoid fever and paratyphoid decreased.² Via food products of animal origin, *Salmonella* bacteria could infect people. Hence the popular name of salmonellosis: food poisoning (*voedselvergiftiging*). As a response, Dutch public health authorities started to register livestock-associated salmonellosis incidence from 1951 onwards, via the Infectious Disease Act (*Besmettelijke Ziektewet*). Especially a major peak in cases during the summer of 1959 was worrisome.³ This peak turned out to be the start of a period of high numbers of salmonellosis cases (Figure 3.1). Registered figures showed thousands of human cases per year, while several dozens of vulnerable patients died of salmonellosis.⁴ Public health experts feared these official figures gave a too rosy picture of the real situation, as most people suffering from a food infection would not visit a doctor, and not all doctors would report cases.

The rise in *human* salmonellosis cases was not the only observation that triggered concern. Second, a rise in *Salmonella* infections of certain animals was found, especially in pigs in the Netherlands. Detecting these infected animals was very complicated, as pigs were mostly infected subclinically: they would carry the bacteria without getting ill themselves. Different from bovine TB, no simple diagnostic existed to prove latent *Salmonella* infections. This meant that a subclinical infection was difficult to detect during visual meat inspection – the standard route for the public health authorities to protect the public from food infections. Infected pigs mostly passed inspection unnoticed after being slaughtered. Cattle on the other hand did develop disease symptoms when infected, especially young calves, and could be rejected during meat inspection. This meant that especially the pig was seen as the culprit, ‘la bête noire’,⁵ in this period. Poultry would take over this reputation later in the century. Public health experts thought preventing the pigs from being infected central to overcome these detection problems.

2 Hardy, *Salmonella*, chapters 7 and 8.

3 Van Zon, *Tachtig jaar RIVM*, 247; Gezondheidsraad, ‘Rapport inzake het Salmonellosevraagstuk’, VMV 1964, 419-567; C. Bergsma, ‘Veterinaire problemen bij de epidemiologie der salmonellosen’, *TvD* 84 (1959) 872-891, 882; A.Ch. Ruys, ‘De salmonella-epidemie van deze zomer’, *NTvG* 103 (1959) 2399-2401.

4 J. Huisman, *Microbiële voedselvergiftiging en voedselinfectie: epidemiologie en preventie* (Alphen aan de Rijn 1980) 26-28.

5 Bergsma, ‘Veterinaire problemen’, 882.

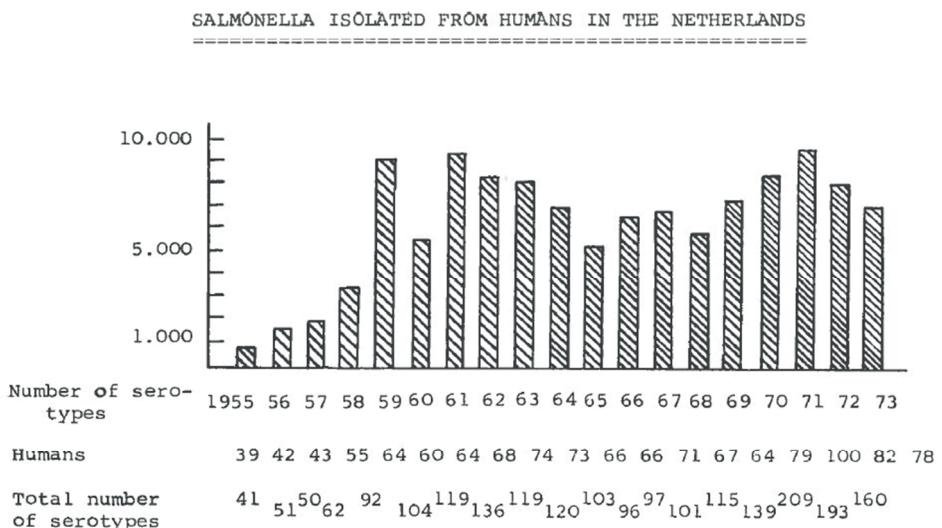


Figure 3.1 *Salmonella* isolated from humans in the Netherlands (1955-1973). W. Edel, M. van Schothorst and E.H. Kampelmacher, ‘Kringlopen van *Salmonella* bacteriën’, *Mededelingen van de Faculteit Diergeneeskunde Rijksuniversiteit Gent* 19:3 (1975) 64-84, 79.

Third, public health experts observed a rise in the number of different *Salmonella* types found in both animals and people (Figure 3.1). It had been known since the late nineteenth century that a variety of *Salmonella* types existed, but the exact identity of those bacteria caused a lot of confusion, as was common in early bacteriology. Serological techniques were particularly important for the classification of *Salmonella* types, and scientists refined them in the interwar period. The number of known *Salmonellas* increased in particular in the years after 1940.⁶ For instance, the Health Council listed as many as 44 different animal species in which different types of *Salmonellas* were found.⁷

As an explanation for these developments of concern, public health experts singled out *Salmonella*-contaminated feed, particularly its components meat and bone meal (called ‘animal meal’, *diermeel*, in Dutch) and fish meal.⁸ In the post-war decades, such imported meal of animal origin was increasingly used as a source of protein in livestock feed. Dutch public health experts argued that this ‘primary source’ of *Salmonella* infection of livestock should be the most important target of control measures, to eliminate ‘the root of the evil’ as the Health Council put it.⁹ They believed government-controlled sterilisation of imported meat, bone and fish meal would be most effective. Their shining example was Denmark: it had introduced sterilisation of

⁶ Hardy, *Salmonella*, 136-138.

⁷ Gezondheidsraad, ‘Rapport’, 438-444.

⁸ Hardy, *Salmonella*, chapters 7 and 8.

⁹ Gezondheidsraad, ‘Rapport’, 523.

meals of animal origin in 1954.¹⁰ Whether Denmark was unique in this is unclear. Although Hardy discusses the problem of contaminated feeds in her history of *Salmonella*, she does not refer to the sterilisation solution in the British and Danish contexts as a result of her focus on *Salmonella* science rather than policies.¹¹

The public health concerns about salmonellosis arose in the post-war context of the successive coalitions of Catholics and social democrats (until 1958) and of confessionals and liberals (from 1958 onwards) expanding state intervention in different aspects of social life, during the unprecedented ‘golden years’ of economic growth.¹² Health care and public health became an integral part of this welfare state. For example, these governments continued compulsory health insurance, which the German occupation had introduced during the Second World War.¹³ In 1951, ‘Public Health’ was added to the name of the Ministry of Social Affairs. This Ministry provided the State Institute for Public Health (*RIV*) with more money, more staff and larger accommodations.

Simultaneously, the catholic-social democratic coalitions of the reconstruction period continued to debate the question whether the state or private organisations should be given the lead in policy. Thus, the public health debate bore many similarities with the simultaneous debate on the statutory industrial organisations (*PBOs*), which I have introduced in chapter 1 and will discuss in more detail in the next section. The new Health Act (*Gezondheidswet*) of 1956 was a compromise between the two perspectives. In 1958, the catholic-socialist government was dissolved because of this difference of opinion on the need of expanding public services, including public health services. However, the dispute was to some extent politically opportunistic, because the confessional governments after 1958 continued to increase the role of the state in social security, public education, health services, housing and social work. Still, the social democrats thought the extent of state intervention too small and its speed too slow. Private initiative continued to play an important role in Dutch health care.¹⁴

Veterinarians specialised in public health were important to the perspective on salmonellosis as a public health problem in the Netherlands. They identified their field as ‘veterinary public

10 NA, GR 1957-1990, inv. nr. 2267, Algemene correspondentie Salmonellose-commissie 1959-1964, J. Wester to Minister SZV (December 4, 1959); Bergsma, ‘Veterinaire problemen’ (1959) 884.

11 Hardy, *Salmonella*, chapters 7 and 8.

12 Joop M. Roebroek and M. Hertogh, *De beschavende invloed des tijds: Twee eeuwen sociale politiek, verzorgingsstaat en sociale zekerheid in Nederland* (Den Haag 1998) chapter 17; Van Zanden, *The economic history*, chapter 8; De Rooy, *A Tiny Spot*, 232-233.

13 Vonk, ‘Een taak’.

14 Paul Juffermans, *Staat en gezondheidszorg in Nederland: met een historische beschouwing over het overheidsbeleid ten aanzien van de gezondheidszorg in de periode 1945-1970* (Nijmegen 1982) 145-148; Piet de Rooy, *Republiek van rivaliteiten: Nederland sinds 1813* (Amsterdam 2002) 234-236; Jan J.C. Huige, *Van kruiswerk tot thuiszorg: de moeizame strijd voor erkennung van een boeiende maar complexe werksoort in de periode 1946-1990* (Bunnik 2011) 330-335; Van Klaveren, *Het onafhankelijkheidssyndroom*, chapter 1.

health' from the early 1950s onwards.¹⁵ Chief Veterinary Officer of Public Health Jacques van den Born was a central figure in defining the salmonellosis problem during the 1950s. Van den Born and his 'zoonosis Officer' Aart van Keulen¹⁶ focussed on contaminated feed as the major issue. They ordered research to be done, and published several reports arguing for the obligatory sterilisation of meat, bone and fish meal as the most important control measure.¹⁷

The veterinary public health attention for contaminated feed components went hand in hand with developing the Animal Rendering Act (*Destructiewet*).¹⁸ This Act of 1957 replaced a ministerial regulation on hygienic rendering of animal waste (excepting fish waste), for instance in animal feed, dating from the Second World War. The Act demanded 'destruction' of any pathogens before reuse (hence the Dutch name) to stop infections spreading from this source. The Act was put under the responsibility of Chief Veterinary Officer of Public Health and thus the Minister of Social Affairs, just like the Meat Inspection Act had been in 1919.¹⁹ Public health veterinarians saw the introduction of official veterinary public health responsibility for hygienic animal rendering as 'the closing piece' in meat inspection regulation.²⁰ Chains of interdependence also extended to slaughterhouses' valuable garbage. However, the Ministry of Agriculture continued to be responsible for *imported* meat and bone meals which did not need to comply with the Animal Rendering Act. Thus, meat and bone meal produced in the Netherlands was 'generally clean', while imported meat and bone meal continued to be a source of disease.²¹ Feed companies mixed both products in pig and poultry feeds.

Meat inspection in general was an important context for veterinary concerns about salmonellosis,²² and the national veterinary authorities closely cooperated with directors of public slaughterhouses and meat inspection services. As *Salmonella*-infected pigs were most often healthy carriers of the bacteria, meat inspection in slaughterhouses was not sufficient

15 A. van Keulen, 'Dierenarts en volksgezondheid', *TvD* 87 (1962) 47-52, 47; E.H. Kampelmacher, "Veterinary Public Health", *NTvG* 122 (1978) 1660-1664; Offringa, '1945-1971', 187.

16 A. van Keulen, 'De zoonosen (I)', *Huisarts en Wetenschap* 6 (1963) 21-27, 21-23; NA, VD 1931-1971, inv. nr. 373, World Health Organisation, J.M. van den Born to M.M. Kaplan (June 4, 1957).

17 NA, 2.06.059.18 Directie Ordeningsvraagstukken (Productschappen en Bedrijfschappen) 1950-1968 (hereafter PBO), inv. nr. 227, Notulen van besloten bestuursvergaderingen van het Produktschap voor Veevoeder (hereafter PvV) 1956-1964, J.M. van den Born, 'Hersterilisatie van vis- en diermeel in verband met de wering van salmonellose bij mens en dier' (hereafter 'Hersterilisatie') (1958); NA, GR 1957-1990, inv. nr. 2271, Dokumentatie Salmonellose-commissie 1959-1965, J.M. van den Born, 'Rapport over onderzoeken naar het voorkomen van *Salmonella*-bacteriën in dier- en vismeel, alsmede over maatregelen tot wering van het gevaar van infectie door pathogene kiemen in hier bedoelde produkten' (August 5, 1959).

18 Anne-Marie T.M. Oudejans, *Categorie één: Dierlijk afvalverwerking door de eeuwen heen* [Emmen 2012] 87.

19 Koolmees, *Symbolen*, 178-179.

20 Koolmees, *Symbolen*, 223; H. Verburg, R.G. Herbes, P.A. Koolmees, 'Van Destructiewet naar Dierlijke Bijproductenverordening (DBVo)', *Diergeneskundig Memorandum* 51:3 (2004) 37-47, 39.

21 NA, GR 1957-1990, inv. nr. 2266, Notulen Salmonellose-commissie 1959-1962 (December 1, 1959) 3.

22 Koolmees, *Symbolen*.

to control the disease. Rather, the technique of cutting into intestine mesenteries during inspection could *spread* the bacteria from infected pigs to uninfected animals, and worsen the problem. Therefore, veterinary meat inspectors argued for measures to prevent the animals from getting contaminated, especially the sterilisation of imported meat, bone and fish meal.²³ They even informed the Minister of Social Affairs at a certain point they could ‘no longer carry responsibility for the Public Health in their inspection districts’.²⁴

Van den Born and his team also collaborated a lot with the State Institute for Public Health (*RIV*), which conducted most salmonellosis research. Veterinarians at the Institute had been interested in salmonellosis for a long time at this point, and the *RIV* focussed its research activities on this zoonosis. In 1939, *RIV* veterinarian A. Clarenburg founded the Dutch National Salmonella Centre as part of the international network of *Salmonella* research centres under the lead of the League of Nations-sponsored International Salmonella Centre in Copenhagen.²⁵ The network traced infections with *Salmonella* bacteria, typified different *Salmonella* strains and aimed to prevent infections by singling out sources. Veterinarian E.H. Kampelmacher succeeded Clarenburg at the department for Zoonoses and Pathological anatomy, as the Veterinary Department was renamed in 1950, and he became the head of the Laboratory for Zoonoses (*Laboratorium voor Zoönosen*). This again illustrates how important zoonoses were for veterinary public health claims. Kampelmacher would become famous internationally with his research on *Salmonella* ecology in the 1970s, the so-called ‘Walcheren project’.²⁶

The large outbreak of salmonellosis among the human population in the summer of 1959 intensified the medical world’s concerns about salmonellosis.²⁷ Prominent officials at the Ministry of Social Affairs and Public Health agreed with the perspective on salmonellosis as a serious threat to public health. In September 1959, physician and Director-General of Public Health Piet Muntendam wrote to his friend and colleague Jan Wester, chairman of the Health Council, that he thought the salmonellosis problem to be an ‘urgent’ one that needed a quick response from the public health authorities, starting with a scientific advice from the Health Council.²⁸ In this period advice on infectious diseases formed ‘the rescue of the Health Council’

23 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, J.M. van den Born, ‘Nota omtrent de problematiek van de Salmonellosen bij dieren en de Salmonella-besmetting van dierproducten’ (1960) 4-5; Ibidem, inv. nr. 2271, Dokumentatie, Gezondheidscommissie voor Dieren, ‘Lezing gehouden [...] door de Heer H.B.F. Snelting, directeur van de Keuringsdienst van Slachtdieren en van Vlees te Eindhoven’ (November 28, 1960); J.J Ooms, ‘*Salmonella typhi* murium infecties en vox populi’, *TvD* 84 (1959) 901-904; Bergsma, ‘Veterinaire problemen’.

24 NA, VD 1931-1971, inv. nr. 779, Hersterilisatie vis- en diermeel: onderzoeken en besprekingen 1960-1965 (hereafter Hersterilisatielijstdocumenten), J.M. van den Born to the Minister van Landbouw en Visserij (hereafter LV) (January 14, 1961) 2.

25 Hardy, *Salmonella*, 147-148.

26 Offringa, ‘1945-1971’, 194; Van Zon, *Tachtig jaar RIVM*, 244-248; Edel, ‘Diergeneeskunde’, 624-625.

27 Ruys, ‘De salmonella-epidemie’, 2400.

28 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, P. Muntendam to Wester (September 16, 1959).

in the words of historian Rigter, as it was in danger of being discontinued until Wester took up the position of chairman with new energy in 1956.²⁹ As was his custom, Wester himself became chairman of the Health Council salmonellosis committee, which he installed in 1959.³⁰

From the start, physicians adopted the analysis of the public health veterinarians that imported meat, bone and fish meal used in feed formed the central issue of the salmonellosis problem. To prevent infection of both animals and people, medical professor in bacteriology Charlotte Ruys argued, ‘it is in the first place necessary, that salmonellas are not continuously fed to the livestock.’³¹ Chairman Wester introduced contaminated feed as the most important problem during the first meeting of the salmonellosis committee, and immediately afterwards, he wrote to the Minister of Social Affairs that something should be done about it.³² Committee member and Amsterdam Municipal Medical and Health Service physician Arend Noordam considered the sterilisation of feed components essential to achieve *Salmonella*-free farms: ‘This may be difficult, but if it fails, we will be left with the problem forever.’³³

Attention for salmonellosis as a serious public health problem emerged while other infectious diseases diminished in importance. Antibiotics provided a successful cure for bacterial diseases, and vaccination campaigns prevented many infectious diseases. Salmonellosis was not a serious illness in comparison with bacterial diseases like TB, but became relatively more serious as public hygiene and the medical profession were more successful in controlling graver ones.³⁴

Simultaneously, large-scale changes in (veterinary) medicine, agriculture and the food industry after the Second World War were cause for new public health concerns. Livestock-associated *Salmonella* bacteria seemed to be everywhere in the agricultural domain over which medicine/public health had little control. Moreover, companies introduced many previously unknown chemicals and products, like antibiotics, hormones and other additives in feed, and new additives in human food.³⁵ Public health experts worried about (*Salmonella*) bacteria developing resistance to antibiotics, as farmers used antibiotics in livestock feed to promote growth, to prevent or cure disease, and to cover up illness and increase the storage life of meat shortly before slaughter.³⁶ The Health Council committee related the salmonellosis problem to

29 Rigter, *Met raad*, 319.

30 Rigter, *Met raad*, 215; Gezondheidsraad, ‘Rapport’.

31 Ruys, ‘De salmonella-epidemie’, 2401.

32 NA, GR 1957-1990, inv. nr. 2266, Notulen (December 1, 1959) 1-3; Ibidem, inv. nr. 2267, Correspondentie, Wester to the Minister SZV (December 4, 1959).

33 Ibidem, inv. nr. 2266, Notulen (February 26, 1960) 5-6.

34 Porter (ed.), *The History*, 1; Anne Hardy, ‘Food, Hygiene and the Laboratory: a Short History of Food Poisoning in Britain, circa 1850-1950’, *Social History of Medicine* 12 (1999) 293-311.

35 NA, GR 1957-1990, inv. nr. 2266, Notulen (1959-1962).

36 Gezondheidsraad, ‘Rapport’, 516-518; NA, GR 1957-1990, inv. nr. 2266, Notulen, (November 9, 1960) 16-19, 21; Van Zon, *Tachtig jaar RIVM*, 247.

the effects of the ‘modernisation’ of Dutch agriculture: ‘*The past seclusion of the farm yard has given way to contact with all continents.*’³⁷ Imported feed brought in ‘exotic’ *Salmonella* types, or brought ‘the tropics to the farm, with all the associated risks.’³⁸ With modernisation came ‘downsides of progress’, as Ruys put it.³⁹

Many Health Council committee members feared economic interests would prevail over public health interests when these issues were at stake. Measures against *Salmonella*-contaminated meat, bone and fish meal were a matter of principle in the defence of public health against economic interests. In the first meeting of the committee, Wester argued that ‘we should study this issue from the perspective of public health, and leave the economy out of our consideration.’⁴⁰ Despite its own restrictions to scientific advice,⁴¹ the Health Council was deeply concerned with wider social issues, and took a stance on them. The separation between science and politics the Council proclaimed explicitly from the 1950s onwards, did not apply to its attitude towards the salmonellosis problem, as I will show in more detail later. First, I will analyse how physicians and veterinarians who both claimed ownership of salmonellosis as a public health problem related to one another.

As Swabe has argued, veterinary authorities became firmly established during the first half of the twentieth century.⁴² In 1956, finally, the Veterinary Faculty could officially call itself Faculty of ‘Animal Medicine’ (*Diergeeskunde*) instead of ‘Livestock Medicine’ (*Veeartsenkunde*), and Dutch veterinarians could call themselves ‘animal doctor’ (*dierenarts*) instead of ‘livestock doctor’ (*veearts*).⁴³ At the same time, veterinary medicine continued to strive for recognition in relation to human medicine. For example, when income was concerned, veterinarians on average earned considerably less than medical doctors.⁴⁴ Veterinary claims to ownership of public health problems via their expertise on zoonoses – like salmonellosis – continued to be important, and the introduction of the term ‘veterinary public health’ accentuated this claim.⁴⁵ In this regard, it is significant that the (Royal) Netherlands Veterinary Association ((K) *NMvD*) started to carry the motto *hominum animaliumque saluti* – ‘to the benefit of man and animal’, rather than the older veterinary motto *animalium hominumque saluti* – ‘to the benefit

37 Gezondheidsraad, ‘Rapport’, 520. Emphasis in the original.

38 J. Huisman, “Andere Salmonellosen” te Rotterdam, *NTvG* 115 (1971) 1062-1064, 1063.

39 NA, GR 1957-1990, inv. nr. 2266, Notulen (December 7, 1960) 15; Anna Charlotte Ruys, *Keerzijden van vooruitgang* (Haarlem 1959).

40 NA, GR 1957-1990, inv. nr. 2266, Notulen (December 1, 1959) 3.

41 Rigter, *Met raad*, 336-339.

42 Swabe, *Animals*, 106-112.

43 Offringa, ‘Ars Veterinaria’, 430.

44 See for figures on 1962 and 1967: Offringa, ‘1945-1971’, 203.

45 Swabe, *Animals*, 84.

of animal and man'.⁴⁶ The cover illustration of this dissertation, the logo of the *KNMvD* during the 1960s, demonstrates this significance very well. Veterinarians also continued to stress the importance of medical-veterinary collaboration.⁴⁷

Such collaboration occurred regularly, and veterinarians welcomed this as a sign that medical circles took veterinary public health seriously. The Health Council salmonellosis committee consisted of both medically and veterinary trained experts (the latter representing the major 'veterinary public health' institutes in the Netherlands), and extensively used both veterinary and medical literature on *Salmonella*.⁴⁸ The chairman of the Health Council, GP and social physician Wester, was the son of veterinarian and first rector magnificus of the Veterinary College in the Netherlands: Jurjen Jans Wester.⁴⁹ His son appointed more non-medical experts as members of the Health Council than his predecessors.⁵⁰ Van den Born gave Director-General of Public Health Muntendam a 'special welcome' at a Veterinary Service meeting, as many problems were related to medicine and veterinary medicine at the same time, like antibiotics use and salmonellosis control, 'problems that should be solved as quickly and effectively as possible by the Ministry of Social Affairs and Public Health'.⁵¹ In interviews, Health Council salmonellosis committee member and medical-epidemiologist Joop Huisman repeatedly expressed his great admiration for several veterinarians as scientists: he was a PhD student of virologist and veterinarian J.D. Verlinde, worked under the 'brilliant' veterinarian H.S. Frenkel during his PhD research on the smallpox vaccine, and considered veterinarian Kampelmacher among the greatest experts on the salmonellosis problem.⁵²

But at the same time, just like in the case of animal influenza, a boundary was also constructed and continued between the two disciplines. As a result of the strong veterinary expertise on salmonellosis developed during the 1940s and 1950s, veterinarians claimed ownership of salmonellosis primarily as a *veterinary* public health problem. Veterinarian

46 It is unclear when the (*K*)*NMvD* exactly started to carry this motto. In 1919, the Veterinary College (*Veeartsenijkundige Hoogeschool*) used the motto *animalium hominumque saluti*. At least after the Second World War, the *NMvD* had reversed this to *hominum animaliumque saluti*. See: J.J. Wester, *Animalium hominumque saluti* (Utrecht 1919); University Museum Utrecht, inv. nr. UMD-5730, Bestuurskleden van de afdeling Zuid-Holland van de KNMvD (1948); Sophie Deleu, 'Animalium hominumque saluti', *TvD* 118 (1993) 425-428, 425; Koolmees, *Tussen mens*, 117.

47 Bergsma, 'Veterinaire problemen', 884-885; A. van Keulen, 'Salmonellosis als Zoönose', *TvD* 84 (1959) 1102-1117, 1114.

48 Gezondheidsraad, 'Rapport'; Ruys, 'De salmonella-epidemie'.

49 P. Muntendam, 'In memoriam dr. J. Wester', *NTvG* 129 (1985) 2136.

50 Rigter, *Met raad*, 321.

51 J.M. van den Born, 'Openingsrede ter gelegenheid van de derde Voorlichtingsdag van de Veeartsenkundige Dienst', *TvD* 85 (1960) 1775-1779, 1775.

52 Interviews Huisman (March 4 and 28, 2014).

and slaughterhouse director C. Bergsma argued for instance in 1959: ‘the salmonellosis [has become] primarily a veterinary and secondarily a medical problem.’⁵³

On the other hand, physicians also claimed ‘primary’ responsibility for the salmonellosis problem. This was related to a continuation of contempt for veterinary medicine. For instance, physicians generally considered the quality of veterinary bacteriology lower than the quality of medical bacteriology.⁵⁴ The Health Council strictly separated a ‘medical side’ and a ‘veterinary side’ of the salmonellosis problem.⁵⁵ Twelve physicians became members of the committee (including the influential positions of chairman and secretary) and only four veterinarians. As physician Joop Huisman, member of the Health Council salmonellosis committee, argues in hindsight:

Look, this research [on salmonelloses] has to be done primarily from a medical perspective, a medical-epidemiological perspective. And not from a veterinary perspective, important as it may be. Because, eventually, that’s – for *us* that’s secondary. We know: it’s coming from those animals for slaughter. Well, that’s your business, those animals for slaughter. We’ll do it on this side.⁵⁶

Again this shows how dealings with zoonoses were occasions for disciplinary boundary work, *in particular* in contexts of multidisciplinary collaboration.

How physicians and veterinarians used the word ‘colleague’ illustrates the boundaries they drew between their disciplines. Historian Sjoerd Keulen has argued that ‘colleague’ was used as an address carrying certain standing within the government during this period. Young new officials could not simply start calling their superiors ‘colleague’.⁵⁷ In their intensive contacts on the salmonellosis problem, veterinarians and physicians generally never addressed each other as ‘colleague’, while veterinarians and physicians among each other did.⁵⁸ For instance, Wester even addressed the far younger Joop Huisman as ‘colleague’ in letters, and Huisman is still amazed by the memory of physician Jacob Mulder addressing him similarly when he had just finished his medical studies.⁵⁹ ‘Colleague’ was a sign that the person belonged to the same social group with a certain standing. An exception was the discipline of bacteriology: veterinary bacteriologist Albert van der Schaaf and medical bacteriologist Charlotte Ruys addressed each

53 Bergsma, ‘Vetinaire problemen’, 884.

54 Interview Huisman (March 28, 2014).

55 NA, GR 1957-1990, inv. nr. 2266, Notulen (July 7, 1960) 21, and (December 7, 1960) 22.

56 Interview Huisman (March 4, 2014).

57 Keulen, *Monumenten*, 39-40.

58 See for examples: NA, GR 1957-1990, inv. nr. 2267, Correspondentie.

59 Interview Huisman (March 4, 2014).

other as ‘colleague’, because they were both professors in bacteriology, for example.⁶⁰ In section 3, veterinary-medical relations will be further analysed in the context of the relations between the domains of public health and agriculture.

In the 1970s, the public health problem definition of salmonellosis changed, as a result of a broader shift to environmental thinking in public health science and society at large. The 1960s saw a growing interest in environmental issues in the Netherlands, often related to the growing prominence of public health. Rachel Carson’s *Silent Spring* (1962) about the effects of the pesticide DDT on public health and the environment was translated as *Dode lente* in Dutch. It was very popular from its first edition in the Netherlands, and went through several editions in a short period of time.⁶¹ The late 1960s Club of Rome was even more popular: Dutch readers bought half of the worldwide number of copies of its first *Limits to Growth* report (1972).⁶² In the early 1970s, 40% of voters were concerned about ‘the environment’.⁶³ These concerns were related to public health policy.⁶⁴ The RIV founded a department Environmental Hygiene (*Milieuhygiëne*) in 1961, and the entire Institute was renamed State Institute for Public Health and Environmental Hygiene (*Rijksinstituut voor Volksgezondheid en Milieuhygiëne, RIVM*) in 1984.⁶⁵ In 1971, the confessional-liberal government Biesheuvel installed a separate Ministry of Public Health and Environmental Hygiene (*Volksgezondheid en Milieuhygiëne*), which published its ‘Urgency Memorandum Environmental Hygiene’ in 1972.⁶⁶ Public health and environmental problems were thought to be closely interrelated. The salmonellosis problem was viewed from this perspective as well.

In this context, the outlook on salmonellosis changed. With some minor fluctuations, salmonellosis incidence continued to be high during the 1960s, and seemed to worsen in the early 1970s.⁶⁷ The new Minister of Public Health and Environmental Hygiene asked the Health Council for another advice on the salmonellosis problem in 1972.⁶⁸ One of the occasions for

60 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, A.T. van der Schaaf to A.Ch. Ruys (October 31, 1960); NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Ruys to Van der Schaaf (November 4, 1960).

61 Jens van de Maele, ‘De resonantie van een stille lente: Nederlandse en Vlaamse persstemmen over Rachel Carsons Silent Spring (1962-1963)’, *Jaarboek voor ecologische geschiedenis* (2013) 97-118, 100-102.

62 Keulen, *Monumenten*, 193.

63 Krajenbrink, *Het Landbouwschap*, 305, footnote 170.

64 Van Klaveren, *Het onafhankelijkheidssyndroom*, chapter 3.

65 Van Zon, *Tachtig jaar RIVM*, 252-268, 345.

66 See: Keulen, *Monumenten*, 194.

67 The reported incidence fluctuated around 40 cases per 100,000 inhabitants and several dozens of deaths per year. Huisman, *Microbiële voedselvergiftiging*, 26-28.

68 NA, GR 1957-1990, inv. nr. 916, Algemene correspondentie commissie inzake salmonellosevraagstuk 1972-1977, Minister van Volksgezondheid en Milieuhygiëne (hereafter VM) to A.J.Ch. Haex (July 13, 1972).

this question was a new research project at the *RIV*: veterinarian Kampelmacher's 'Walcheren project' (1971-1981). Kampelmacher located the project in and named it after the area Walcheren in the province of Zeeland. This was a relatively secluded area, was relatively easy to reach, and had a regional Veterinary Inspectorate and Food Inspection Service (*Keuringsdienst van Waren*) to collaborate with.⁶⁹ The project studied 'the influence of the environment on *Salmonella* infections and contaminations'.⁷⁰ It showed 'that everything is in fact connected' in the salmonellosis problem, according to one of the team's researchers, veterinarian Willem Edel.⁷¹ *Salmonella* bacteria did not travel one-way from feeds to animal to human, but in so-called '*Salmonella* contamination cycles'. This was not simply a problem of animal to animal/human infection with feed as primary source, but a problem of complicated chains of infection and contamination between animal and non-animal *Salmonella* carriers in different environments. The titles of publications on the Walcheren project illustrate the diversity of factors involved: sea gulls, pigs, water, humans, chopping blocks, insects, food, kitchens, slaughterhouses, butchers, sewage systems and farms were all relevant and interconnected.⁷² The salmonellosis problem was 'an unbreakable chain in which feeds, livestock, the environment and humankind all play their part'.⁷³ According to Edel, an important engine for Kampelmacher's change of perspective was his study tour in Peru in 1963, where he related the *Salmonella* contamination of fish meal to the presence of pelicans and other animals at the processing sites.⁷⁴ Kampelmacher even went as far as questioning the definition of salmonellosis as *zoonosis* in the 1970s, because the bacteria turned out to be everywhere, not just in animals.⁷⁵ Although other public health experts did not accept this change of definition, it is telling for a shift in emphasis during the 1970s: livestock (and its feed) was only a part of *Salmonella* ecology.

The Health Council published its second advice on salmonellosis in 1978. Feelings of alarm had changed little: 'More people die in the Netherlands of salmonellosis than of all other reported infectious diseases of group B [of the Infectious Diseases Act] together',⁷⁶ and

69 Interview W. Edel (April 10, 2014).

70 W. Edel, M. van Schothorst, en E. H. Kampelmacher, 'Epidemiologisch *Salmonella*-onderzoek in een bepaald gebied ("Project Walcheren") I: Het voorkomen van *Salmonella* bij mens, varkens, insecten, mieren en voorts in levensmiddelen en effluenten', *TvD* 100 (1975) 1304-1311, 1305.

71 Interview Edel (April 10, 2014).

72 The entire series of five papers is called 'Epidemiological Studies on *Salmonella* in a Certain Area ("Walcheren Project")', published in English in the *Zentralblatt für Bakteriologie A* (1976-1982), and in Dutch in *TvD* 100-106 (1975-1981) by Kampelmacher's *Salmonella* team.

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73 As *RIV Salmonella* researcher and veterinarian Piet Guinée put it. NA, GR 1957-1990, inv. nr. 918, Notulen salmonellosevraagstuk 1974-1976 (September 12, 1975) 2.

74 Interview Edel (April 10, 2014); NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, E.H. Kampelmacher and D.A.A. Mossel, 'Rapport over een oriëntatiereis naar Peru in verband met het voorkomen van *Salmonellakiemen* in geïmporteerd Peruaans vismeel' (1963).

75 NA, GR 1957-1990, inv. nr. 918, Notulen (September 12, 1975) 5.

76 Gezondheidsraad, *Advies inzake het salmonellosevraagstuk* (Den Haag 1978) 3.

the Health Council still suspected it knew only ‘the tip of the iceberg’ of salmonellosis cases.⁷⁷ While many of its conclusions from 1962 were still relevant, the Health Council took over Kampelmacher’s perspective on salmonellosis as a problem of the entire Dutch environment. Simultaneously, the Health Council continued to present feed as ‘an important, if not the most important factor’,⁷⁸ especially for the introduction of new *Salmonella* types into the Dutch environment. This was a direct message to the agricultural domain, which developed a very different perspective on the salmonellosis problem.

2. Agriculture and feed trade opposition to the problem definition of salmonellosis

Public health experts had singled out a source of disease – feed – that also happened to be one of the pillars of what critics would start calling factory farming (*bio-industrie*) during the 1960s.⁷⁹ Between 1960 and the mid-1980s, the number of Dutch pigs increased more than fivefold to circa nine million.⁸⁰ The poultry industry increased even more vastly (Figure 2). This rise in the number of animals and the simultaneous decrease in the number of farms could only happen because the feed industry supplied farms with cheap feed, using cheap components like meat, bone and fish meal from overseas, imported in huge quantities via the port of Rotterdam.⁸¹ The agricultural domain called these pig and poultry companies ‘landless’, meaning that they did not need their own agricultural land for livestock keeping.⁸² Of course, land (and water) was needed elsewhere for the production of the imported feed. The feed industry also financed extension of farms in exchange for signed contracts. As a result, two-thirds of the raw materials for feed were imported from outside the European Economic Community (EEC) in the mid-1980s, which meant that 60-80% of domestic meat production in the Netherlands was based on imported feed.⁸³ So once public health veterinarians started to point to feed as the central

77 NA, GR 1957-1990, inv. nr. 917, Algemene correspondentie commissie inzake salmonellosevraagstuk 1978-1979, Ministerie VM, ‘Advies Gezondheidsraad over Salmonellose-vraagstuk’ (November 20, 1978).

78 Gezondheidsraad, *Advies*, 38-39. A large part of the advice was devoted to the role of animal feed in the salmonellosis problem, 37-59.

79 Krajenbrink, *Het Landbouwschap*, 195, 260, 305; Bieleman, *Boeren*, 520-521, 527-528; Karel, *Boeren*, 174-176.

80 Bieleman, *Boeren*, 515.

81 Only in 1958, almost 100,000 tons of meat, bone and fish meal were imported in the Netherlands, of which 78% consisted of fish meal. NA, PBO, inv. nr. 227, Notulen besloten PvV vergaderingen, PvV, ‘Nota voor het bestuur’ [January 1959] 3.

82 Karel, *De maakkbare boer*, 167.

83 Bieleman, *Boeren*, 520.

issue of the salmonellosis problem, representatives of both the feed industry and livestock breeders immediately reacted very critically.

'Modernisation' and 'rationalisation' of agriculture were also late nineteenth century phenomena,⁸⁴ but during the decades after the Second World War agriculture changed into 'agribusiness'.⁸⁵ Historians of agriculture use this term for the embedding of farms in the food production chain, resulting in loss of autonomy of individual farmers. Livestock keeping, pig and poultry farms in particular, vastly specialised, intensified, 'rationalised' and 'modernised', and the government stimulated this process. The consumption of products of animal origin, meat in particular, rose considerably in the period of prosperity that started during the 1950s, while the memory of the hunger winter during the Second World War strengthened the focus on maximal production. As a result, export of meat increased dramatically as well.⁸⁶ Social-democrat Minister of Agriculture Sicco Mansholt led the government-supported focus on increase of production from 1945 to 1958, and also played a major role as European Commissioner in the creation of the similarly focussed Common Agricultural Policy (CAP) of the EEC from 1958 to 1972.⁸⁷

As referred to in chapter 1 regarding bovine TB control, farms and feed companies were represented in the public domain via the neo-corporatist system of statutory industrial organisations (*publiekrechtelijke bedrijfsorganisaties, PBOs*) from the 1950s onwards. *Private* social organisations of economic life got *public* responsibilities in policy-making in this system. The Catholics in particular proposed the founding of the *PBOs* as a solution to the 'crisis' of parliamentary democracy experienced during the 1930s, in which the large pillarized political parties *RKSP, CHU, ARP* and *SDAP* eroded the political order in the eyes of many organisations, intellectuals and the queen.⁸⁸ By handing over legislative responsibilities from parliament to public-private *PBOs*, the new post-war catholic-social democrat coalitions hoped to solve this problem. The Catholics secured a larger role for organised private initiative within state policy, while the social democrats secured the representation of employees within the *PBO* system. *PBOs* became especially popular in the agricultural sector, with the Agricultural Board as prime example, and less so in larger industry.⁸⁹ Historians have therefore generally

84 Karel, *De maakbare boer*, 143.

85 Bieleman, *Boeren*, part IV.

86 Koolmees, 'From Stable'.

87 Van Merriënboer, *Mansholt*; Johan van Merriënboer, 'Commissioner Sicco Mansholt and the creation of the CAP', in: Kiran Klaus Patel (ed.), *Fertile Ground for Europe? The History of European Integration and the Common Agricultural Policy since 1945* (Baden-Baden 2009) 181-197.

88 Nele Beyens, *Overgangspolitiek: De strijd om de macht in Nederland en Frankrijk na de Tweede Wereldoorlog* (Amsterdam 2009) 34-37, 95-103; Ido de Haan, 'Parlementaire democratie en maatschappelijke organisatie: de politieke context van de Sociaal-Economische Raad', in: Teun Jaspers, Bas van Bavel and Jan Peet (eds.), *SER 1950-2010: zestig jaar denkwerk voor draagvlak* (Amsterdam 2010) 23-48; De Rooy, *A Tiny Spot*, 191-197.

89 Krajenbrink, *Het Landbouwschap*, 61-63, 159-162; Karel, *Boeren*, 40-43.

dismissed the *PBO* system as a failure, with the exception of the Social Economic Council (*Sociaal Economische Raad, SER*), originally the *PBO*-umbrella organisation, which evolved into a major government advisory body.⁹⁰ However, historians have paid little attention to individual *PBOs* and their influence on state policy.⁹¹

However, the Agricultural Board and the Feed Board (*Productschap voor Veevoeder*) played a central role in the salmonellosis debate, which therefore shows that the *PBOs* as non-parliamentary bodies of legislative power deserve more historiographical attention.⁹² As a consequence of the central importance of contaminated feed in the problem definition of public health experts, the Feed Board was most involved in the debate on the salmonellosis problem. The Feed Board was founded in 1956, and represented different companies growing feed crops, producing waste used for feed, processing raw materials into feed and trading feed. Unfortunately, only a selection of the archives of this Commodity Board has been preserved in the National Archives, but year reports and documents present in the archives of other salmonellosis debate stakeholders complement this limited source.⁹³

The better studied Agricultural Board became responsible for the financing of the provincial Animal Health Services in 1956, and thus got an important role in the control of livestock disease. The Agricultural Board was founded in 1954 and consisted of representatives of the ‘general’ (liberal), Protestant and Catholic central agricultural organisations and unions of farm labourers. It operated in such close and successful collaboration with the Ministry of Agriculture and Fisheries and the agricultural committee of Dutch parliament, that the three together have been described as the ‘green front’, the ‘farmers bulwark’ or the ‘iron grip’.⁹⁴

As Krajenbrink has argued in his history of the Agricultural Board, its attitude was generally reactive and defensive, and aimed at protecting the status quo.⁹⁵ Preserved Feed Board and Agricultural Board documents reveal that they reacted similarly to the salmonellosis problem. The agricultural domain generally perceived human salmonellosis as a not too serious illness, which antibiotics could easily cure.⁹⁶ Once Jacques van den Born and his veterinary public health team singled out sterilisation of imported meat, bone and fish meal as the most necessary measure in dealing with salmonellosis in the mid-1950s, the Agricultural Board and the Feed Board immediately started lobbying to prevent the Ministry of Agriculture from

90 Woltjer, *Recent verleden*, 394-395; Wielenga, *Nederland*, 198; De Haan, ‘Parlementaire democratie’, 23-48.

91 Krajenbrink, *Het Landbouwschap* is the exception to this rule.

92 See for this argument: Floor Haalboom, ‘Who owns *Salmonella*? The Politics of Infections shared by Humans and Livestock in the Netherlands, 1959-1965’, *BMGN-LCHR* 132:1 (2017) 83-103.

93 NA, PBO, inv. nr. 227, Notulen besloten PvV vergaderingen, and inv. nr. 228-230, Notulen openbare PvV vergaderingen 1956-1964. NA, VD 1931-1971 and NA, GR 1957-1990 provide several missing documents.

94 Krajenbrink, *Het Landbouwschap*; Karel, *Boeren*, 40-43.

95 Krajenbrink, *Het Landbouwschap*, 149.

96 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, A. van Keulen to Wester (February 22, 1960).

imposing obligatory meal sterilisation. Especially Van den Born's 1958 and 1959 reports on the (re-)sterilisation of imported meat, bone and fish meal were occasions for the Boards to collect criticism on the proposed measure from their constituent organisations.⁹⁷ The criticism focussed on three main themes: the costs of preventively sterilising all imported animal and fish meal, the consequences of the government interfering with the freedom of private enterprises, and the quality of salmonellosis research conducted by veterinary public health experts.

Regarding the costs, the Boards and their member organisations were quite clear: obligatory sterilisation of all imported animal and fish meal was simply too expensive. Farmers' expenses on feed were, after labour costs, their highest.⁹⁸ Efficient livestock feeding was one of the aims of the Rural Area Development Programme (*streekverbeteringsplan*) in this period.⁹⁹ Costs of sterilising imported animal and fish meal would directly threaten the trade position of the Netherlands on both the feed and meat market. Van den Born's team had estimated the costs of sterilisation of all imported animal and fish meal to be f5.50 per 100 kilogram at the most.¹⁰⁰ However, according to the Society of Importers of Fish and Animal Meal (*Vereniging van Importeurs van Vis- en Diermeel*) the costs of sterilisation added up to f 8.50 per 100 kilogram animal and fish meal, or 'about f 10,000,000!' in total.¹⁰¹ These costs included f2 per 100 kg for the loss of nutritional value of the meal as a result of sterilisation, something the Veterinary Service had ignored altogether in its calculations. The Feed Board took over the Society's estimation and emphasised that the buyers of animal feed, livestock breeders, had to pay these costs.¹⁰²

The feed and agriculture representatives had a clear opinion on the effects of government interference in private enterprises also. Such interference in the form of obligatory sterilisation would do more harm than good in controlling the salmonellosis problem, as it would take away the incentive for private enterprises to improve their products because of market forces. As the general secretary of the Agricultural Board wrote to the Minister of Agriculture on the effects of obligatory sterilisation of meal: 'By such a measure every incentive to import a good – *Salmonella* free – product would be taken away. Rather, great spread of the *Salmonella*-

97 See for instance: NA, PBO, inv. nr. 227, Agenda besloten PvV vergadering (January 7, 1959); Ibidem, Van den Born, 'Hersterilisatie' (1958); Ibidem, Vereniging van Importeurs van Vis- en Diermeel to PvV (December 24, 1958); Ibidem, Vereniging van Nederlandse Mengvoederfabrikanten to PvV (January 9, 1959); Ibidem, Stichting Afnemers Controle op Veevoer to PvV (January 3, 1959); Ibidem, PvV, 'Nota voor het bestuur' [January 1959]; NA, GR 1957-1990, inv. nr. 2267, Correspondentie, M.J.L. Dols et al., 'Rapport van de Commissie van Advies inzake hersterilisatie van vis- en diermeel' (January 1960) 1; NA, VD 1931-1971, inv. nr. 779, Hersterilisatierecorden, Gezondheidscommissie voor Dieren to Minister LV (December 14, 1960).

98 Karel, *De maakbare boer*, 104.

99 Ibidem, 163-164.

100 NA, PBO, inv. nr. 227, Notulen besloten PvV vergaderingen, Van den Born, 'Hersterilisatie' (1958) 20.

101 Ibidem, Vereniging van Importeurs van Vis- en Diermeel to PvV (December 24, 1958) 9.

102 Ibidem, PvV, 'Nota voor het bestuur' [January 1959] 5.

contamination should be feared as the result of such a measure.¹⁰³ A good enterprise traded good quality products. Government interference would only reward bad practices.

Furthermore, the feed trade and farmers' representatives thought the research which the *RIV* and the Veterinary State Inspectorate of Public Health conducted was of bad quality, and was biased. They found it extremely unlikely that animal feed had the central position in *Salmonella* epidemiology which public health experts claimed it had, as many more infection sources of *Salmonella* existed. With reference to veterinary literature, one of the member organisations of the Feed Board listed: 'frozen or salted meat, wool and other hair, hides, grain, cattle cakes, eggs and egg products, rats, flies, gulls, mice, vermin, cattle, poultry, canals, ditches and especially humans'.¹⁰⁴ Moreover, the companies thought proof of the relation between the *Salmonellas* found in animals and people, and the ones found in meal weak. They pointed out that the most common type found in people was *S. typhi murium*, a type hardly found in meat, bone and fish meal. Moreover, most *Salmonellae* were isolated from cows and humans, 'groups not consuming the meat, bone and fish meals at issue'.¹⁰⁵ Regarding the study design, the companies criticised the sample-taking, and pointed out that the public health veterinarians had too little expertise regarding different kinds and origins of animal and fish meal. Lumping all these different meals together seriously affected the study outcomes, and unnecessarily damaged the image of the feed trade at large.

All in all, the agricultural *PBO* bodies criticised the lack of corporate involvement in the proposed public health control measures: 'it is after all self-evident, that when measures like resterilisation of meat, bone and fish meal are proposed, the industry concerned is called in, or at least consulted'.¹⁰⁶ The agricultural and feeds sector preferred self-regulation by the sector in the framework of the *PBO* system.

The corporate criticism on the sterilisation of animal and fish meal also reveals tensions within the feed trade itself. One such tension was the competitive relation between companies importing ingredients for animal feed from abroad and those using products and waste from Dutch farms, industries and fishermen. The Animal Rendering Act ensured the sterilisation of meat and bone meal which was produced in the Netherlands. Importers of animal and fish meal pointed out that this did not mean that Dutch animal meal was better, and claimed that Dutch fish meal was even more infected with *Salmonellas* than fish meal imported from overseas. A second tension occurred between western and 'exotic' practices in the feed trade. Dutch feed companies largely held the latter responsible for infections of the meal, because of 'the nature

103 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Gezondheidscommissie voor Dieren to Minister LV (December 14, 1960) 2.

104 NA, PBO, inv. nr. 227, Notulen besloten PvV vergaderingen, Vereniging van Importeurs van Vis- en Diermeel to PvV (December 24, 1958) 4.

105 Ibidem, PvV, 'Nota voor het bestuur' [January 1959] 4.

106 Ibidem, Vereniging van Importeurs van Vis- en Diermeel to PvV (December 24, 1958) 1.

technique' of sun-dried fish meal in developing countries like Angola in particular.¹⁰⁷ They argued that Angolian fish meal should be regulated more stringently than fish meal processed by western companies.¹⁰⁸

The agricultural domain *did* define salmonellosis as a problem when it had major economic consequences. Salmonellosis of cows was an economic problem as much as a public health problem, as cattle developed clinical symptoms in reaction to *Salmonella* infection which affected productivity.¹⁰⁹ Hence, the Veterinary Association (*K*)*NMvD* devoted its *Salmonella* symposium of 1959 largely to cattle.¹¹⁰ In the case of cows, the public health and agricultural perspectives on salmonellosis led to few disagreements.¹¹¹ The director of the Frisian Animal Health Service pointed out that 'the economic importance of the animal disease and the importance of the associated germs for public health' went hand in hand here.¹¹² The disagreement on contaminated feeds primarily arose regarding pigs and – to a lesser extent in this period – poultry as subclinical carriers of *Salmonella* without suffering from illness themselves.

From the development of the 'green front' during the 1930s onwards, the Ministry of Agriculture largely functioned as a 'clientele ministry', which promoted agricultural interests in close collaboration with the central agricultural organisations.¹¹³ These organisations optimised their mutual collaboration in the Agricultural Board, which continued close relations with the Ministry of Agriculture, and primarily emphasised its role as representing collective agricultural interests. It left formal responsibilities in agricultural policy-making largely to other agricultural PBO bodies, which as a result were even more intertwined with the Ministry of Agriculture.¹¹⁴ Also in a personal sense, the 'green front' connections were strong: the chairman of the Feed Board, Van Beukering, initially worked at the Ministry of Agriculture, for instance.¹¹⁵

In September 1959, only two days after the Minister of Social Affairs had asked Health Council advice on the salmonellosis problem, the Minister of Agriculture asked advice of a different group of experts, in particular on Van den Born's thesis that obligatory sterilisation of

107 Ibidem, Stichting Afnemers Controle op Veevoer to PvV (January 3, 1959) 2.

108 Ibidem, Documents (December 1958 - January 1959).

109 Hardy, *Salmonella*, 187-188.

110 A.T. van der Schaaf et al., 'Symposium "Het Salmonellosis-probleem"', *TvD* 84 (1959) 1429-1464, 1430.

111 However, this was not self-evidently the case regarding livestock disease with productivity impact. Abigail Woods shows that economic considerations also led the livestock sector and veterinary authorities to *accept* livestock diseases with some impact on productivity. Woods, 'Is Prevention', 126-127.

112 P. Sjollema, 'Salmonellose bij het rund', *TvD* 84 (1959) 1047-1056, 1047.

113 Hans Bekke and Jouke de Vries, *De onttopdelering van de Nederlandse landbouw* (Leuven, Apeldoorn 2001) 46.

114 Krajenbrink, *Landbouwschap*, 391.

115 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen besloten PvV vergadering (April 26, 1961) 2.

imported meat, bone and fish meal was necessary for the sake of public health. The chairman of this agricultural ‘Committee of advice on the resterilisation of fish and animal meal’ was Matthieu Jean Leonard Dols, who also gave the committee its informal name of ‘Dols Committee’. Dols was a major figure in agricultural circles. He was an agriculturalist trained at Wageningen Agricultural College, and did his PhD on the use of vitamin D2 in poultry feed. Before and during the war, Dols was a central figure in the official preparations of the Dutch food supply at the State Institute for (the Preparation of) the Food Supply during War Time (*Rijksbureau voor de (Voorbereiding van de) Voedselvoorziening in Oorlogstijd*).¹¹⁶ Other members of the Dols committee were agricultural scientists, veterinarians, and physicians. The committee met three times in total, and organised meetings with the veterinary public health authorities and representatives of the Feed Board. In January 1960, the committee presented its report.¹¹⁷

Although the Dols committee presented itself as occupying a middle position between Van den Born and the Feed Board, its proposal was more in line with the wishes of the feed industry than with the wishes of public health experts. The report discussed both the compulsory sterilisation measure proposed by public health experts as unpractical and exaggerated, and self-regulation by the Feedstuffs Board as inadequate, but it paid much more attention to criticising the public health perspective than the Feed Board’s. It proposed the Dutch agricultural authorities would set requirements on the production of meat, bone and fish meal in collaboration with the governments of meal-exporting countries. To make sure these requirements were met, the production process should be tested by state-appointed agricultural research institutes.

Dols committee member Albert van der Schaaf was the most outspoken opponent of the public health compulsory sterilisation measure. Although Van der Schaaf started his career as one of the veterinary researchers at the medical Institute for Preventive Medicine (IPG) in Leiden (chapter 2), this farmer’s son moved into agricultural veterinary medicine in the following years, starting in the Dutch East Indies.¹¹⁸ In 1955, he became professor in veterinary bacteriology at Utrecht University. In this capacity, he was mainly interested in salmonellosis of cattle as an economic problem. During the 1960s, Van der Schaaf repeatedly strongly criticised the public health argument for obligatory sterilisation of imported meat, bone and fish meal. His opposition was mainly inspired by social-economic reasons rather than bacteriological ones, although he conducted experiments on salmonellosis to support his argument. He viewed government-imposed sterilisation as a direct danger to the position

116 R. Luyken, ‘In memoriam prof. dr. Ir. M.J.L. Dols’, *NTvG* 124 (1980) 1220-1221; Pim Huijnen, *De belofte van vitamines: Voedingsonderzoek tussen universiteit, industrie en overheid 1918-1945* (Hilversum 2011) 123, 132-134.

117 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Dols et al., ‘Rapport’ (January 1960).

118 G.F. de Boer, ‘Het professionele leven van Prof. Albert van der Schaaf (1905-1985)’, *Cahiers van het Veterinair Historisch Genootschap* 7 (Utrecht 2016).

of farmers, who he described as ‘the part of our national population that does not share in our national distribution of wealth and the five-day working week’.¹¹⁹ Such concerns were part of the ‘small farmers problem’ (*kleine-boerenvraagstuk*) which worried the Ministry of Agriculture and agricultural experts in this period. Protection of free trade and the individual responsibility of farmers was important for Van der Schaaf. Rather than government-imposed measures against salmonellosis, he preferred a ‘voluntary control system’ and a contribution towards the costs by consumers.¹²⁰

Indeed, the agricultural domain saw Van der Schaaf as a scientific authority and ally, who came down on the agricultural side because his experiments proved this side was right. For instance, a member of the Feed Board referred to the ‘very expert Prof. v.d. Schaaf’, whose experiments showed the Feed Board was right in criticising obligatory sterilisation of meal.¹²¹ In one case, there is evidence that the Feed Board asked Van der Schaaf directly for support to counter the public health argument: ‘The chairman [of the Feed Board, FH] will ask professor v.d. Schaaf to write a statement for the Feed Board’ ‘which the Feed Board can present at the right time’.¹²² Generally, the Ministry of Agriculture also saw Van der Schaaf as the major expert who provided reliable scientific evidence against the sterilisation measure.¹²³

During the 1970s, the import of cheap, grain-replacing feed was essential for high yields in the rapidly expanding ‘landless’ pig and poultry industry.¹²⁴ While the average number of fattening pigs was 38.1 per farm in 1969, it had risen to 63.5 pigs per farm in 1973, while the total number of pigs had risen from 1.4 million to 1.8 million in the same period (Figure 2).¹²⁵ The use of compound feeds in livestock breeding had doubled from 1964 to 1973, with a particular rise in pig keeping,¹²⁶ although feed companies more often replaced meat, bone and

119 NA, GR 1957-1990, inv. nr. 2271, Dokumentatie, Van der Schaaf to Wester (November 11, 1961).

120 A. van der Schaaf, ‘Salmonellosis bij de huisdieren’, *TvD* 84 (1959) 1430-1434, 1432 and 1434.

121 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen besloten PvV vergadering (April 26, 1961) 5.

122 NA, PBO, inv. nr. 227, Notulen PvV (December 6, 1961) 3-4.

123 See for instance: NA, VD 1931-1971, inv. nr. 848, Hersterilisatie van vis- en diermeel i.v.m. bestrijding van Salmonella 1961-1962 (hereafter Hersterilisatiedocumenten), M.J.L. Dols to Minister LV (December 9, 1961); Ibidem, DG Landbouw Wellen to DG Voedselvoorziening (September 12, 1961); Ibidem, Gezondheidscommissie voor Dieren to J. van den Born (February 26, 1962); NA, VD 1931-1971, inv. nr. 549, Wijzigingen van de Veewet 1954-1970, M.J.L. Dols to Minister LV (June 8, 1962); Ibidem, Minister LV to Staatssecretaris SZV (September 17, 1964).

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124 Krajenbrink, *Het Landbouwschap*, 260. In the same period, a large proportion of Dutch grain farmers in the north went bankrupt, as their product had become too expensive to use as pig feed: Frank Westerman, *De graanrepubliek* (Amsterdam 1999).

125 NA, GR 1957-1990, inv. nr. 918, Notulen, Productschap voor Vee en Vlees (hereafter PvVV), ‘Nota inzake de bedrijfsgrootte in de varkenshouderij’ (February 13, 1974).

126 The total use of compound feeds as feed rose from 5 million tons in 1964-1965 to 10 million tons in 1972-1973. NA, GR 1957-1990, inv. nr. 918, Notulen (June 21, 1974) 2; Ibidem, PvV, ‘Nota voor de vergadering van de commissie inzake het salmonellosevraagstuk van de Gezondheidsraad’ (May 31, 1974).

fish meal with vegetable components as sources of protein.¹²⁷ Trading feed components became easier, as the EEC and the Benelux removed trade barriers.¹²⁸ The feed trade also experienced drawbacks, like the oil crisis. Moreover, the depletion of Peruvian anchovy (*Engraulis ringens*) – the main global resource for fish meal¹²⁹ – meant a decrease in the availability of fish meal and a sharp rise in price. The import of fish meal in the Netherlands decreased as a result (with 42% in 1973), and the relative importance of domestically produced meat and bone meal increased, although fish meal continued to be the major imported source of animal protein for feed during the 1970s.¹³⁰

Ironically, the new 1970s environmental perspective of the public health experts on the salmonellosis problem seemed to support the argument of the agricultural camp: contaminated feed was not a central problem after all, but only one link in a larger network of contaminated sources and infection carriers. Although agricultural representatives admitted ‘that one has widely (the farmer, the exporting industry and also feed producers) become aware that the Salmonellosis problem is hanging over the industry like a sword of Damocles’ in 1974,¹³¹ they continued to oppose any special attention to feed. They welcomed Kampelmacher’s pessimism on the possibilities of controlling the salmonellosis problem as a result of the Walcheren project, as it weakened claims on the central role of contaminated feed.¹³²

3. The public health camp versus the agricultural camp

The public health and agricultural camps disputed the salmonellosis problem and its ownership for years. Policy-making on the salmonellosis problem – in the words of Health Council chairman Wester – ‘comes under two Departments. At the Agricultural Department it is approached from the economic side, and here we look at it from the public health side.’¹³³ A serious controversy on what should be done arose. This was a result of the products-livestock task division between the public health and agricultural authorities (chapter 1), and the opposite views of public health experts and well-organised agricultural interest groups

127 Gezondheidsraad, *Advies*, 43.

128 ANP, ‘Produktschap: minder strenge grenscontrole op vismeel’, *Het Vrije Volk* (October 29, 1970) 23.

129 PvV, *Produktschap voor Veevoeder 1973* (‘s-Gravenhage 1978) 64. In 1970, 12,277,000 tons of Peruvian anchovy were caught in Peru in total, and in 1977, ‘only’ 792,106 tons. Max Aguero, ‘A Bioeconomic Model of the Peruvian Pelagic Fishery’, in: D. Pauly and I. Tsukayama (eds.), *The Peruvian Anchoveta and Its Upwelling System* (Callao, Eschborn, Manila 1987) 307-324, 309.

130 PvV, *Produktschap voor Veevoeder 1973* (‘s-Gravenhage 1974) 59-61, attachment VIII; PvV, *Produktschap voor Veevoeder 1977* (‘s-Gravenhage 1978) 64-65.

131 NA, GR 1957-1990, inv. nr. 918, Notulen (March 27, 1974) 6.

132 Ibidem, (September 12, 1975) 3-7, and (December 10, 1975) 6.

133 Ibidem, inv. nr. 2266, Notulen (December 1, 1959) 17.

interrelated with the agricultural authorities in the *PBO* system. This shows that *Salmonella* was a political issue even at the heyday of what political scientist Martin J. Smith calls the period of ‘the depoliticization of food’ after the Second World War,¹³⁴ although the political debate took place behind the scenes.

The development of the welfare state meant that public health authorities and services were expanded, but this did not automatically imply that the public health domain obtained a larger say over the agricultural domain. To the contrary, the salmonellosis controversy shows that the public health camp continued to have little say over the externalities of livestock production and trade affecting public health. At the height of the ‘green front’, the Ministry of Agriculture had high status in the hierarchy of ministries, and became known as ‘the empire on the *Bezuidenhoutseweg*’, after its street address in The Hague.¹³⁵ This ‘empire’ preferred self-regulation by the agricultural sector. In this dynamic, the public health camp tried to claim ownership via state intervention, which it did not prefer in public health policy as a rule. The salmonellosis dispute is an early example of the difficult task division between the Ministry of Agriculture and other ministries, comparable to the 1980s manure problem.¹³⁶

An official intermediary between the two separate policy domains was the veterinarian Jacques van den Born, who was director of both the Veterinary State Inspectorate of Public Health and the agricultural Veterinary Service. He had earned this position by his central role as inspector of the Veterinary Service in executing the large-scale bovine TB control programme in the agricultural domain during the early 1950s (chapter 1).¹³⁷ Nevertheless, Van den Born strengthens my distinction between a public health and an agricultural camp. Van den Born strongly identified with the public health perspective on the salmonellosis controversy. As a result, ‘two camps exist within [the agricultural] Ministry with regard to the solution of [the] problem’.¹³⁸ The public health perspective was a minority perspective at the Ministry of Agriculture, and Van den Born found himself in a difficult position as a consequence. For instance, Secretary-General of Agriculture J.H. Patijn called Van den Born’s continuing argument for obligatory sterilisation ‘an attempt to enforce’, while another high-ranking official referred to it as a ‘guerrilla’.¹³⁹ Van den Born himself often felt that he was kept

¹³⁴ Martin J. Smith, ‘From policy community to issue network: Salmonella in eggs and the new politics of food’, *Public Administration* 69 (1991) 235–255, 236–240.

¹³⁵ Bekke and De Vries, *De ontspoldering*, 43–47, 67–68.

¹³⁶ Krajenbrink, *Het Landbouwschap*, chapter 7.

¹³⁷ J.M. van den Born: Veterinair Hoofdinspecteur van de Volksgezondheid, tevens Directeur van de Veeartsenkundige Dienst’, *TvD* 78 (1953) 901–902.

¹³⁸ NA, VD 1931–1971, inv. nr. 779, Hersterilisatiedocumenten, Van den Born to Minister LV (December 30, 1960) 1.

¹³⁹ NA, VD 1931–1971, inv. nr. 848, Hersterilisatiedocumenten, Secretaris-Generaal LV to Minister LV (March 27, 1962); *Ibidem*, anonymous draft to Minister LV [June 1961] 1.

out of the decision-making process at the Ministry of Agriculture.¹⁴⁰ In short, the salmonellosis ownership controversy divided the Ministry of Agriculture itself.

The call for self-regulation by the *PBO* bodies fundamentally clashed with the public health perspective on salmonellosis as a *public* problem. In 1960, Director-General of Public Health Piet Muntendam wrote to the Minister of Agriculture: ‘Control of salmonella infections is in my view primarily a public health problem. Therefore, I deem it wrong in principle, that the design and implementation of control measures [...] is left to a Product Board.’¹⁴¹ In every aspect of the controversy, the public health camp, which consisted primarily of experts, stood opposite the well-organised ‘green front’, which had a broader social base and direct control over policy changes in the agricultural domain. And while the public health camp defended rather abstract public health interests, the agricultural camp promoted very concrete economic interests of the agricultural sector *and* cheap products of animal origin popular among Dutch consumers.

While the aim of the Health Council salmonellosis committee and the agricultural Dols committee was to depoliticise the controversy with technocratic, expert advice, this failed. Both camps selected their own scientific experts, thus steering the direction of advice,¹⁴² only trusted affiliated laboratories, and refused to meet each other. The two expert committees became the most important sites for the polarised salmonellosis ownership dispute during its first years. Thus, rather than depoliticising the problem, the two expert committees contributed to the polarisation.

Although the Dols committee presented itself as a neutral body which tried to bring the opposite parties within the salmonellosis debate together and to find a reasonable compromise, the Health Council perceived it as representing agricultural and feed trade interests rather than the interests of public health. Already during the first meeting of the Health Council committee, Van den Born had positioned the vision of the Dols committee as ‘more from the economic side’ than the side of public health, and thought its advice ‘useless for the current difficulties’.¹⁴³ Therefore, the Health Council committee devoted several meetings to prepare a counter advice to the Minister of Social Affairs and Public Health, and refused to meet the Dols committee on the issue of animal and fish meal sterilisation, offending the latter.¹⁴⁴

¹⁴⁰ NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Van den Born to Minister LV (December 30, 1960).

¹⁴¹ NA, GR 1957-1990, inv. nr. 2267, Correspondentie, DG Volksgezondheid on behalf of Minister SZV to Minister LV (November 22, 1960) 6.

¹⁴² See also: Bijker, Bal and Hendriks, *The Paradox*.

¹⁴³ NA, GR 1957-1990, inv. nr. 2266, Notulen (December 1, 1959) 17; Ibidem, inv. nr. 2267, Correspondentie, Dols et al., ‘Rapport’ (January 1960) 5.

¹⁴⁴ Ibidem, inv. nr. 2266, Notulen; Ibidem, inv. nr. 2267, Correspondentie, Dols et al., ‘Rapport’ (January 1960) 6; Ibidem, inv. nr. 2269, Nota hersterilisatie, Wester to Minister SZV (June 24, 1960).

The agricultural sector on the other hand viewed the public health camp as equally subjective and biased on the issue of *Salmonella* contamination of animal and fish meal. The Feed Board thought the proposal of the Dols Committee ‘a real possibility’.¹⁴⁵ To the Board’s annoyance, ‘the other side’ brushed aside expert evidence, and kept discrediting the feed trade on an ideological basis.¹⁴⁶ An unknown official of the Ministry of Agriculture and Fisheries presented his Minister with ‘a short summary of the main moments in this guerrilla’ in June 1961.¹⁴⁷ This official discussed the Dols committee and ‘the V.d. Born school’ as two opposing camps, which could not be seen as ‘groups of equal merit’.¹⁴⁸ The Dols committee had ‘authority hard to dispute’, while he called the Health Council salmonellosis committee’s critique of the Dols report ‘a kind of counter view [...] signed by dr. Wester, chairman of a Social Affairs committee’.¹⁴⁹ This image of the Health Council as a biased lobby group for the Ministry of Social Affairs did not match its self-image as a neutral scientific advisory body for the government.¹⁵⁰

Both camps produced a large amount of *Salmonella* studies in their respective affiliated research institutes, which regularly disagreed on scientific standards and quality. The *RIV* conducted studies ordered by the Veterinary State Inspectorate of Public Health. The State Agricultural Testing Station (*Rijkslandbouwproefstation*) in Maastricht, Van der Schaaf at the Utrecht Veterinary Faculty and Applied Scientific Research (*TNO*) institutes provided the Feed Board and the Ministry of Agriculture with most figures and arguments. The two camps presented their own research as well-informed and neutral, while they depicted that of the other side as incompetent, biased and politically informed. The public health camp thought scientific knowledge produced by institutes with close ties to agricultural stakeholders unreliable, and feared that the feed trade sector would manipulate research data in order to discredit the sterilisation measure.¹⁵¹ The agricultural camp argued that research on *Salmonella*-contaminated feeds could only deliver sound results when researchers had a good sense of the practice of livestock keeping and the feed industry.¹⁵² For instance, when the *RIV* concluded that a far larger percentage of fish meal was contaminated with *Salmonellas* than the Feed

145 Ibidem, inv. nr. 2267, Correspondentie, Dols et al., ‘Rapport’ (January 1960) 5.

146 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen besloten PvV vergadering (April 26, 1961) 5.

147 NA, VD 1931-1971, inv. nr. 848, Hersterilisatiedocumenten, anonymous draft to Minister LV [June 1961] 1.

148 Ibidem, 3.

149 Ibidem, 2-3.

150 Rigter, *Met raad*, 336-341.

151 E.g.: NA, GR 1957-1990, inv. nr. 2266, Notulen (November 9, 1960) 3-4, 21; NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, J. van den Born to *RIV* (July 15, 1963), A. van Keulen to DG Volksgezondheid (July 22, 1963).

152 E.g.: NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Van Beukering to Van den Born (July 12, 1963); Ibidem, Kampelmacher to Van den Born (July 23, 1963).

Board's figures had indicated,¹⁵³ this only fuelled the discussion on fish meal contamination as 'controversial point' – known as the 'fish meal dilemma'.¹⁵⁴ Agricultural PBO bodies did use *RIV* evidence in the case of export-relevant research. For example, in 1957, the *RIV* regularly conducted research for the Poultry and Eggs Board (*Produktschap voor Pluimvee en Eieren*) because of *Salmonella*-related export difficulties to Germany.¹⁵⁵

Distrusting the alliance between their agricultural peers and corporate interests, experts from the public health camp in particular regularly refused to meet in principle. But eventually, this attitude was untenable. As the top of the Ministry of Agriculture demanded 'a shared viewpoint' on the fish meal dilemma from its advisers in 1963,¹⁵⁶ they eventually forced Van den Born to agree with a meeting. However, the camps continued to fundamentally disagree on the preferable solution, as a process of negotiating the interpretation of the meeting in different minutes shows.¹⁵⁷ Later meetings between the Veterinary Service and the Feed Board under pressure from the Minister and Director-General of Agriculture did not solve the fundamental disagreements on what should be done about contaminated meals of animal origin either.¹⁵⁸

These dynamics also coloured veterinarians' and physicians' boundary work on salmonellosis. The veterinary balancing act between public health and agricultural interests came to the fore here. Jacques van den Born's difficult position at the Ministry of Agriculture is illustrative. Just after the publication of the Dols committee report, Veterinary Officer of Public Health Van Keulen wrote Health Council chairman Wester a long letter on his concerns about the schism within the Ministry of Agriculture and Van den Born's position. Van Keulen asked the Health Council to back up the veterinary public health arguments, while he kept this letter secret from Van den Born, who was 'afraid to burn his fingers again, and rather lets time work for him'.¹⁵⁹

Physicians' perspective that salmonellosis was primarily a *medical* responsibility, was related to distrust of the veterinary balancing act between public health and agricultural

¹⁵³ The *RIV* concluded that 26-31% of imported fish meal was very likely contaminated with *Salmonella* bacteria, against claims of the agricultural camp that fish meal contamination was sporadic. See for an overview: NA, VD 1931-1971, inv. nr. 570, Wijzigingen verordening veevoeder 1961-1969, K.C. Winkler et al., 'Het *Salmonella*-probleem bij vismeel: rapport van de werkgroep ad hoc' (March 1967).

¹⁵⁴ NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, W[ellen] to Van den Born (September 26, 1963).

¹⁵⁵ Van Zon, *Tachtig jaar RIVM*, 247.

¹⁵⁶ NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, W[ellen] to Van den Born (September 26, 1963).

¹⁵⁷ PvV and VD versions of minutes of the meeting have been preserved: NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen (November, 1963).

¹⁵⁸ NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Verslag bespreking PvV, VD / Veterinaire Hoofdinspectie van de Volksgezondheid (January 10, 1964); Ibidem, inv. nr. 549, Wijzigingen Veewet, J. van den Born to Minister LV (September 11, 1964).

¹⁵⁹ NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Van Keulen to Wester (February 22, 1960) 8.

interests. Huisman reconciled his great admiration for veterinarian Kampelmacher in Dutch salmonellosis research with his distrust of veterinary medicine in a telling manner: ‘he was a veterinarian, but in his heart he was a doctor, so to speak.’¹⁶⁰ In his view, Van den Born’s personal union of the agricultural Veterinary Service and the Veterinary State Inspectorate of Public Health was more dubious: ‘But such a gentleman who was Chief Veterinary Officer, was working much more from the *veterinary perspective!*’¹⁶¹ A meeting of both physicians and veterinarians on the salmonellosis epidemic in Amsterdam in the summer of 1959 resulted in a heated discussion on the trustworthiness of the Veterinary State Inspectorate of Public Health and veterinarians allied to public slaughter houses.¹⁶² Such medical distrust¹⁶³ regarding the veterinary loyalty to public health interests is the most likely explanation why only four veterinarians were invited as members of the Health Council salmonellosis committee.¹⁶⁴

Veterinarian Van der Schaaf was *not* invited as a member. His passionate support of the agricultural argument confirmed medical worries that veterinarians were working for economic interests in the first place. He clashed repeatedly with the Health Council on the issue of animal and fish meal sterilisation.¹⁶⁵ In particular, he stressed veterinary ownership of the salmonellosis problem. For instance, in a public argument against contaminated meat, bone and fish meal, Noordam was “quacking” in the field of veterinary medicine.¹⁶⁶ The medical Health Council members reacted coolly to Van der Schaaf’s ‘emotional’¹⁶⁷ ‘activism’,¹⁶⁸ especially because Van der Schaaf sent copies of his letters to agricultural authorities (including the *PBO* bodies) and eventually to the Minister of Agriculture.¹⁶⁹ The medical Health Council members stopped all correspondence with Van der Schaaf.

Van der Schaaf’s behaviour did not help the complicated position of public health veterinarians. They attempted to isolate Van der Schaaf as a subjective, biased advocate of

160 Interview Huisman (March 28, 2014).

161 Interview Huisman (March 4, 2014), Huisman’s emphasis.

162 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Notulen GG&GD Amsterdam vergadering paratyfus (August 24, 1959) 6.

163 See for another example of this distrust: Interview Huisman (March 4, 2014).

164 No documents on the selection criteria for members of the Health Council salmonellosis committee have been preserved in NA, GR 1957-1990.

165 E.g.: NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Van der Schaaf to Ruys (October 31, 1960); NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, A.Ch. Ruys to A. van der Schaaf (November 4, 1960); NA, GR 1957-1990, inv. nr. 2271, Dokumentatie, J. Wester to A. van der Schaaf (November 20, 1961); Ibidem, Wester to A.L. Noordam (November 20, 1961); Ibidem, Van der Schaaf to Wester (November 21, 1961).

166 NA, GR 1957-1990, inv. nr. 2271, Dokumentatie, Van der Schaaf to Wester (November 11, 1961) 3.

167 Ibidem, Wester to Van der Schaaf (November 20, 1961).

168 Ibidem, inv. nr. 2266, Notulen (December 7, 1960) 21.

169 E.g.: NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, A. van der Schaaf, ‘Het Salmonella-vraagstuk’ (November 10, 1960); NA, VD 1931-1971, inv. nr. 848, Hersterilisatiedocumenten, A. van der Schaaf to Minister LV (November 20, 1961).

agricultural interests, who was not representative for veterinary medicine in general. Van den Born saw Van der Schaaf as a major opponent, who was ‘creating sentiment against my advice for resterilisation in agricultural circles’.¹⁷⁰ He tried to monitor as many of Van der Schaaf’s moves as possible, and called in the help of *RIV* veterinarians to systematically counter every argument Van der Schaaf used.¹⁷¹ In the Health Council salmonellosis committee meetings, veterinary members again and again criticised Van der Schaaf’s statements on the sterilisation issue, and distanced themselves from his publications in veterinary literature.¹⁷² Indeed, Van der Schaaf’s close relation with the feed industry was not standard: tensions also existed between veterinarians and the industry because of the growing influence of the feed industry in veterinary matters in livestock keeping (like through medicated feeds), in particular when public health issues were at stake.¹⁷³

Whereas medical distrust focussed on veterinary medicine (often undeservedly in the case of public health veterinarians), several medical doctors supported the agricultural camp in the salmonellosis controversy as well. Three physicians became members of the Dols committee installed by the Ministry of Agriculture (compared to two veterinarians): prof. dr. H.W. Julius, prof. dr. J.W. Tesch and dr. G.D. Hemmes.¹⁷⁴ These physicians were part of the network of food scientists and officials affiliated to the organisation Applied Scientific Research (*Toegepast-Natuurwetenschappelijk Onderzoek, TNO*), which facilitated ‘applied’ research for industry and the government, the Food Council, which advised the government on food in relation to public health, and the Agricultural College in Wageningen.¹⁷⁵ This network had close ties with the food and feed industry. Julius combined this with strong liberal political convictions: he repeatedly cautioned for ‘exaggeration’ in government-imposed public health regulations.¹⁷⁶ Tesch’ dual membership of both the Dols committee and the Health Council salmonellosis committee had caused ‘some difficulties’.¹⁷⁷ Tesch joined only *one* of the 25 meetings of the Health Council salmonellosis committee, during which he defended the arguments of the

¹⁷⁰ NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Van den Born to A.Ch. Ruys (November 11, 1960).

¹⁷¹ E.g.: NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, A. van der Schaaf, ‘Het Salmonella-vraagstuk’ (November 10, 1960) with comments in the margins like ‘chatter’ (*geklets*) by the *VD*; *Ibidem*, D. Clarenburg to Van den Born (December 10, 1960); *Ibidem*, Clarenburg and E.H. Kampelmacher to Van den Born (January 6, 1961); *Ibidem*, inv. nr. 848, Hersterilisatiedocumenten, E.H. Kampelmacher to J. van den Born (December 11, 1961).

¹⁷² E.g.: NA, GR 1957-1990, inv. nr. 2266, Notulen (March 8, 1962) 20-21, and (June 28, 1962) 1.

¹⁷³ Hardy, *Salmonella*, 196.

¹⁷⁴ NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Dols et al., ‘Rapport’ (January 1960).

¹⁷⁵ Huijnen, *De belofte*, 129, 132-134.

¹⁷⁶ Julius, ‘De plaats’, 66-67; K.C. Winkler, ‘Levensbericht van H.W. Julius’, *Jaarboek der Koninklijke Nederlandse Akademie van Wetenschappen* (Amsterdam 1977) 167-171, 171.

¹⁷⁷ NA, VD 1931-1971, inv. nr. 848, Hersterilisatiedocumenten, anonymous draft to Minister LV [June 1961] 2.

Dols committee.¹⁷⁸ Another physician in the Health Council committee, Medical Officer of Public Health B.V. Bekker, joined this criticism of the necessity of government-imposed sterilisation.¹⁷⁹ The agricultural camp welcomed such medical support of the argument against the obligatory sterilisation measure.¹⁸⁰

To some extent the medical support of the agricultural camp was a strategic problem for the public health camp: it took extensive debate and pressure from Wester to get Bekker to endorse the viewpoint on the sterilisation of animal and fish meal, although not wholeheartedly.¹⁸¹ But apart from this, the Health Council salmonellosis committee did not discuss the medical members of the Dols committee as a danger to the cause like it did with veterinarian Van der Schaaf.¹⁸² These examples also make clear that collaboration between medicine and veterinary medicine occurred extensively in *both* the public health and agricultural camps, but this did not solve the controversy between them.

To some extent, the salmonellosis controversy became public in the early 1960s. Several public health experts made their concerns public via the press, aware of their inability to prevent PBO influence on salmonellosis policy via the public health ministry.¹⁸³ Although most public health experts distrusted media distortion of scientific arguments,¹⁸⁴ such media attention had the potential to influence the debate in the direction preferred by the public health domain. Van der Schaaf wrote his indignant letters to Health Council members because of this fear: ‘how can it be considered seemly, that government officials can unnecessarily harm the interests of hard-working Dutch farmers in this way, by openly and falsely exposing the quality of their products.’¹⁸⁵ Members of the Feed Board saw the ‘worthless and biased reporting’ as attempts of the public health camp to unfairly publicly condemn the animal feed industry and to impose its will after ‘the official way’ had failed.¹⁸⁶ Moreover, the public attention was feared as ‘a danger to the entire feed sector’: media attention could inspire parliamentary debate and spread

178 Tesch was only present during one meeting: NA, GR 1957-1990, inv. nr. 2266, Notulen (January 22, 1960) 2-3.

179 Ibidem, Notulen (January 10, 1961) 12.

180 E.g.: NA, GR 1957-1990, inv. nr. 2267, Correspondentie, DG Volksgezondheid to Wester (October 17, 1960); NA, VD 1931-1971, inv. nr. 848, Hersterilisatierecorden, anonymous draft to Minister LV [June 1961] 2, 4; Ibidem, Secretaris-Generaal LV to Minister LV (March 27, 1962).

181 NA, GR 1957-1990, inv. nr. 2266, Notulen (March 7, 1961) 5.

182 Ibidem, (October 12, 1960) 12.

183 ‘Volksgezondheid’, *Haagse Post* (November 12, 1960); A.L. Noordam, *Stop de Salmonella* (Amsterdam 1961); C. Bergsma, ‘Paratyfus in 1961 record ondanks koude zomer’, *Het Vrije Volk* (January 2, 1962).

184 NA, GR 1957-1990, inv. nr. 2266, Notulen (November 12, 1960) 12-14.

185 NA, VD 1931-1971, inv. nr. 779, Hersterilisatierecorden, Van der Schaaf to Ruys (November 17, 1960).

186 NA, PBO, inv. nr. 227, Notulen (December 6, 1961) 3.

to other countries. As ‘the freedom of the press complicates preventing such publications’,¹⁸⁷ the Board considered counter statements in the media, but decided against this because of fears this would attract even more public attention. It decided to warn the Minister of Agriculture for ‘the writing’ (*het geschrijf*) of the public health camp and to ask their supporter Van der Schaaf to write a counter pamphlet.¹⁸⁸ When *Salmonella*-contaminated meat and bone meal was also discussed on television,¹⁸⁹ the Feed Board changed strategies. The Feed Board urged journalists to pay attention to complexities of the salmonellosis problem only experts like Van der Schaaf could provide, and Van der Schaaf’s counterargument was taken serious by at least one agricultural journalist, of the social democratic newspaper *Het Vrije Volk*.¹⁹⁰

The salmonellosis controversy also attracted attention as part of a more general public debate on the *PBO* system. All parties considered the compromise between different political perspectives on the *PBO* design unsatisfactory in the 1950 *PBO* Act – a major reason why the *PBOs* were not an overall success.¹⁹¹ 1962 saw the first major parliamentary debate on corporatism, which only survived because parliament strongly supported the Agricultural Board, according to its historian Krajenbrink.¹⁹² In the early 1960s, the Consumers Union (*Consumentenbond*) referred to the salmonellosis controversy as part of its critique of the *PBO* system and of the tendency to move commodities inspection responsibilities from public to corporate hands. This alarmed the Feed Board and Van der Schaaf. Both defended the quality of the Board’s self-regulation which deserved ‘homage’ rather than criticism, and repeated the arguments against obligatory sterilisation in letters to the Consumers Union.¹⁹³

But the Consumers Union’s criticism did not result in any actual advantages for the public health camp in the meal sterilisation controversy during the early 1960s. This can be understood in the context of the depoliticisation of food policy in Europe after the Second World War,¹⁹⁴ and the Consumers Union’s ‘difficult start’ in relation to the *PBO* system in the Netherlands in particular.¹⁹⁵ In 1953, concerns about the power of producers in the *PBO*

187 Ibidem.

188 Ibidem, 4.

189 AVRO television broadcast *FLITS* (January 26, 1962).

190 PvV, *Jaarverslag 1962* [The Hague 1963] 22; ‘Grote partijen diermeel moeilijk te hersteriliseren’, *Het Vrije Volk* (February 24, 1962); NA, GR 1957-1990, inv. nr. 2271, Dokumentatie, PvV, ‘Salmonella - vijand van de volksgezondheid nummer 1?’ (sa).

191 De Haan, ‘Parlementaire democratie’, 23-48.

192 Krajenbrink, *Het Landbouwschap*, 399-400.

193 ‘De controle op besmetting met Salmonella-bacteriën’, *Consumentengids: Maandblad van de Nederlandse Consumentenbond* (hereafter *Consumentengids*) 9:10 (1961) 189.

194 Smith, ‘From policy’.

195 Johan van Merriënboer, ‘De moeizame start van de Consumentenbond’, *Politieke opstellen: Jaarlijkse uitgave van het Centrum voor Parlementaire Geschiedenis* 18 (1998) 52-69. On the similar situation in the UK, see: Smith, ‘From policy’.

system was an important reason for several officials of the Ministry of Agriculture and Food Supply (!) to found the Consumers Union and to aspire a role for this organisation in the PBOs. This failed, because producers successfully opposed this plan, and the Consumers Union initially had few members. The Consumers Union *was* an important factor in heightening public awareness and criticism of the salmonellosis problem in general in the following years.¹⁹⁶ Parliament paid attention to the salmonellosis controversy relatively late, and in this debate the public health perspective was a minority in comparison to the ‘green front’. This will be discussed in the next section in relation to actual policy measures taken.

The 1970s changed understanding of the salmonellosis problem as an *environmental* problem meant public health scientists gave the agricultural opposition to compulsory sterilisation of meat, bone and fish meal unintentional munition.¹⁹⁷ Moreover, Kampelmacher’s team increasingly questioned whether the observed increase in salmonellosis cases since the 1950s was real, or whether it was more related to an increase in research or improved methodologies.¹⁹⁸ Methods to research *Salmonella* contamination improved considerably during the 1960s, and this meant that data from the 1950s and 1960s were difficult to compare.¹⁹⁹ But in the debate with the agricultural camp, public health experts did not abandon the claim that contaminated feed was the initial cause of the salmonellosis problem. If the Netherlands had introduced obligatory sterilisation of all imported animal and fish meal in the late 1950s or early 1960s, Kampelmacher argued, ‘we would (perhaps) not have had the salmonellosis problem, *neither* among people *nor* among livestock.’²⁰⁰ Several members of the Health Council did not want to follow Kampelmacher’s conviction ‘that we should indeed try “to live with Salmonellae”’, because this perspective was warmly welcomed by the agricultural camp.²⁰¹

The public health domain did change tactics in relation to the agricultural domain after its general failure during the 1960s to claim ownership of salmonellosis, which will be discussed in more detail in the next section. Rather than polarisation, it sought collaboration with agricultural parties, and generally accepted the agricultural domains’ ownership of salmonellosis as far as livestock production was concerned. Importantly, the 1972-1978 Health Council salmonellosis committee agreed that ‘a meaningful discussion about livestock feed can only take place in the presence of a representative of the Feed Board.’²⁰² It invited the

196 See for example: ‘Consumentenbond waarschuwt: Filet Américain te vaak knoeiwerk!’, *De Telegraaf* (May 29, 1979) 5.

197 See: NA, GR 1957-1990, inv. nr. 918, Notulen.

198 Gezondheidsraad, ‘Rapport’, 434; Interview Edel (April 10, 2014).

199 NA, GR 1957-1990, inv. nr. 918, Notulen (September 12, 1975) 6. See also: Hardy, ‘Food’.

200 NA, GR 1957-1990, inv. nr. 918, Notulen (March 27, 1974) 5.

201 Ibidem, (February 15, 1974) 2.

202 Ibidem, 5.

chairman of the Feed Board Van Beukering as a member. Expert supporters of the agricultural argument were also invited to become members, like dr. ir. P. van der Wal, head of the Institute for Agricultural Research of biochemical products.²⁰³ This did not mean that no old members with strong interventionist views on the problem returned in the second Health Council salmonellosis committee: Noordam is the most outspoken example. Joop Huisman also continued to endorse this perspective. He welcomed the membership of the Feed Board chairman as listener to expert advice from the public health domain: 'that's why such a man should be a member. Even if he keeps his mouth shut all the time, it doesn't matter at all, he should listen.'²⁰⁴ The change was also possible because Wester at this point had quitted his position as chairman of the Health Council. Historian of the Health Council R.B.M. Rigter discusses Wester's personality as an example of the decisive influence of the Health Council chairman on the Council.²⁰⁵ His strong opinion that economic interests had no place within the Health Council's advice on salmonellosis had been very influential in the 1960s. The involvement of the Feed Board in the 1978 Health Council salmonellosis committee meant that only those agricultural *PBO* bodies which were *not* represented in the committee publicly opposed its conclusions, like the Poultry and Eggs Board and the Livestock and Meat Board (*Produktschap voor Vee en Vlees*).²⁰⁶

The expanding European Common Agricultural Policy institutionalised veterinary ownership of livestock disease control even stronger, as control of disease was essential to safeguard agricultural free trade.²⁰⁷ The role of veterinarians could no longer be underplayed. Wester's successors A.J. Ch. Haex (chairman of the Health Council) and H.C. Zanen (chairman of the 1972-1978 salmonellosis committee) allowed even higher numbers of non-medical Health Council members in order to broaden the scientific basis of the Council.²⁰⁸ This also included more veterinarians: more than half of the members of the salmonellosis committee of 1972-1978 were now veterinarians, compared to a small veterinary minority in the first Health Council salmonellosis committee.²⁰⁹ Most veterinary members represented Kampelmacher's broadly admired *RIV* salmonellosis research group and the Veterinary State Inspectorate of Public Health or the Veterinary Service. The successor of Van der Schaaf, veterinary bacteriologist prof. dr. J.F. Frik, became another member. Joop Huisman reflects

203 Gezondheidsraad, *Advies*, 8-9.

204 Interview Huisman (March 28, 2014).

205 Rigter, *Met raad*, 321-322.

206 'Klachten over publicatie salmonella-rapport worden onderzocht', *Nederlands Dagblad* (November 29, 1978) 6.

207 Swabe, *Animals*, 106-112.

208 Rigter, *Met raad*, 326.

209 Among the 19 members were 7 physicians (including chairman H.C. Zanen and secretary J. Huisman), and 9 veterinarians (including D.A.A. Mossel, who was not trained as a veterinarian but as a chemist, but was professor at the Veterinary Faculty). Gezondheidsraad, *Advies*, 8-9.

like this on his appointment: ‘the veterinarians [...] did have a key position after all [...]. [It] was simply also a *medical* necessity that he as a veterinarian was a member.’²¹⁰ Willem Edel was one of the veterinary members from Kampelmacher’s research team. He recalls: ‘we did not poach on each other’s territory: they studied *people*.²¹¹ Experts still distinguished the ‘medical’ and ‘veterinary side’ of the salmonellosis problem, but with the acceptance of the agricultural domain’s role in salmonellosis control, medical experts also more readily accepted veterinarians as problem owners. These changes also meant that at this point, the Health Council committee addressed concerns about the effects of salmonellosis measures on the social-economic position of farmers.²¹²

4. Fighting salmonellosis measures

Although the agricultural domain fiercely opposed public health measures against *Salmonella*-infected pigs and poultry, it did not object to measures against *Salmonella* infections of cattle, because these had economic as much as public health impact. Hence, already shortly after the Second World War, the Ministries of Social Affairs and Agriculture had shared the costs of small-scale salmonellosis control among cattle. Nevertheless, the Ministry of Social Affairs paid the bulk of these costs, because, according to the Minister of Agriculture, ‘the Salmonellosis of cattle is also dangerous to humans, the *Public Health* will benefit more from the clearing of cattle suffering from this disease than the Veterinary Service.’²¹³ Moreover, the agricultural sector and veterinary medicine generally relied on broad-spectrum antibiotics as a remedy against *Salmonella* infections of young calves.²¹⁴ As a result, *Salmonella* infection of cattle was a small problem.²¹⁵

This stood in sharp contrast to the controversy over meat, bone and fish meal sterilisation. The two camps debated policy compromises during the first half of the 1960s. The first concerned self-regulation by the Feed Board, and the second included salmonellosis in the Livestock Act in the form of the ‘little *Salmonella Bill* (*het Salmonellawetje*) in 1965. The agricultural domain formulated and institutionalised both compromises, and thus owned them.

210 Interview Huisman (March 28, 2014), including emphasis.

211 Interview Willem Edel (April 17, 2014), including emphasis.

150 212 E.g.: NA, GR 1957-1990, inv. nr. 918, Notulen (April 26, 1974) 3, (February 15, 1974) 7, (February 21, 1975) 7.

213 *Handelingen Tweede Kamer* 1948-1949, Bijlage A, 1000 XI Rijksbegroting, nr. 2, Minister van Landbouw, Visserij en Voedselvoorziening, Memorie van Toelichting, 17.

214 J.F. Frik, ‘Enige ervaringen met experimentele *Salmonella*-infecties bij met kunstmelk gevoerde kalveren en behandeling daarvan met furazolidone (handelsnaam Furoxone)’, *TvD* 84 (1959) 1057-1074.

215 Huisman, *Microbiële voedselvergiftiging*, 30.

From the start, it was clear that both Ministers approached the problem differently, in line with the antipodal advice they got from their expert committees and their responsibility for different domains and interests. During the salmonellosis epidemic of the summer of 1959, public health experts urged the Minister of Social Affairs and Public Health Charles van Rooy to start obligatory sterilisation of imported meat, bone and fish meal.²¹⁶ As this was agricultural terrain, Van Rooy contacted his colleague of the Ministry of Agriculture Victor G.M. Marijnen on the possibilities of using the Livestock Act for this. But Marijnen preferred control measures at a completely different stage of the *Salmonella* contamination chain: the hygiene of meat and meat products, and education of consumers on how to use their meat as hygienically as possible.²¹⁷ After a lot of agricultural opposition, the Minister of Agriculture explicitly opposed obligatory sterilisation of imported meat, bone and fish meal in a letter to his colleague of Social Affairs. The arguments he listed were a summary of the counterarguments against the sterilisation measure of the agricultural camp. On the role of the statutory industrial organisations in the matter, the Minister of Agriculture commented that the Feed Board had the right to be involved in salmonellosis control measures regarding feed. The principal boundary the Ministry of Social Affairs wanted to draw between trade and government was unnecessary. An important requirement was that the governments' perspective 'is also fully accepted as guideline by the PBO bodies involved.'²¹⁸ The best way to make sure this happened, was 'a state regulation with joint governance by the PBO bodies'.²¹⁹

In the meantime, the Feed Board had indeed introduced a self-regulation on *Salmonella*-contaminated meat, bone and fish meal as a strategy to ward off state-imposed obligatory sterilisation in March 1960. This self-regulation demanded inspection of samples of imported lots of all kinds of meat, bone and fish meals by the General Inspection Service (*Algemene Inspectiedienst*) of the Ministry of Agriculture, and sterilisation of lots found to contain *Salmonella* bacteria. However, the regulation was largely a paper measure. Few samples were tested, companies did not need to await laboratory results before they could further distribute parties, and they could reuse '*Salmonella-free*' certificates issued by the Feed Board. The Board replaced this 'repressive' regulation by a 'preventive' one in July 1961, which still allowed for exemptions, but did prohibit the shipping of lots before test results were known.²²⁰ The Feed

216 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Notulen GG&GD Amsterdam vergadering paratyfus (August 24, 1959) 5.

217 Ibidem, Correspondentie, Minister LV to Minister SZV (December 8, 1959).

218 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Minister LV to Minister SZV (January 21, 1961) 3.

219 Ibidem.

220 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, PvV, 'Verordening Gezondheidseisen Geïmporteerde Dierlijke Eiwitten' (November 25, 1959); PvV, *Jaarverslag 1961* [Den Haag 1962] 20.

Board self-regulation activities fundamentally clashed with the public health perspective on salmonellosis as a *public* problem.²²¹

The change from the ‘repressive’ to the ‘preventive’ Feed Board’s self-regulation was not unproblematic in the agricultural domain. The Dols Committee had presented the change as a compromise in the controversy with the public health domain, and the Minister of Agriculture followed this advice in order to avoid the public health camp’s proposal.²²² But the Feed Board initially feared the preventive regulation would be too costly, mainly because of the costs in the port of Rotterdam for awaiting the laboratory results of meal sample tests. These costs could even exceed the costs of obligatory sterilisation, one member of the Feed Board feared.²²³ Eventually, the Ministry of Agriculture convinced the Feed Board that the preventive regulation was a compromise to prevent stricter measures like obligatory sterilisation.²²⁴ Fear for publicity was a major incentive for the Feed Board to agree with this compromise.²²⁵ Another major reason why the Feed Board finally agreed, was its influence on the composition of an ‘exemption committee’. This committee would decide which meal products and countries of origin would get a release for testing under the Board’s new preventive regulation, to meet the feed trade’s objections and to reward companies which imported clean products. At first, the Feed Board feared the members of this committee would be too strict and ‘unpractical’ in their requirements.²²⁶ Eventually, the Ministry of Agriculture could convince the Board that their influence on who would become members of the exemption committee would be so large, that they could trust them to work in the Board’s interests. At the suggestion of the Feed Board, members of the exemption committee became well-known supporters of the Board’s perspective.²²⁷ They were trusted to look at the salmonellosis problem ‘objectively and

221 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, DG Volksgezondheid on behalf of Minister SZV to Minister LV (November 22, 1960).

222 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Minister LV to PvV (December 9, 1960); Ibidem, Notulen besloten PvV vergadering (April 26, 1961).

223 Ibidem, 4; ‘De Salmonella-bacterie: Minister stelt preventieve controle voor’, *Algemeen Handelsblad* (February 23, 1961) 11.

224 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen besloten PvV vergadering (April 26, 1961).

225 Ibidem. See for the Board’s major fear for publicity also: NA, PBO, inv. nr. 227, Notulen PvV (December 6, 1961).

152

226 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen besloten PvV vergadering (April 26, 1961) 3.

227 Members became: Van der Schaaf (chairman), C. Engel of the Central Institute for Food Research of the Dutch organisation Applied Scientific Research (*TNO Centraal Instituut voor Voedingsonderzoek*), and A.H.M. Grimbergen of the Agricultural Research Institute for Animal Feed (*Centraal Instituut voor Landbouwkundig Onderzoek - Instituut voor de Veevoeding*) in Lelystad. Advisors of the committee became H. van Zijl of the State Agricultural Testing Station (*Rijkslandbouwproefstation*) in Maastricht and J.J.P. Scherpbier of the Feed Board’s secretariat itself.

scientifically'.²²⁸ Very soon the new preventive regulation functioned again as the repressive one, as importers avoided suppliers which did not get exemptions in practice.²²⁹

Thus, the Ministry of Agriculture and the Feed Board saw the latter's preventive regulation as a major compromise in the controversy on the salmonellosis problem. However, the public health camp thought the preventive regulation everything but satisfactory. Informed by his public health advisers, the Minister of Social Affairs opposed this policy, especially because of the absence of the obligatory sterilisation measure and the influential position of the Feed Board.²³⁰ Van Rooy could accept exceptions for nations which complied with Dutch standards of hygiene in feed factories under veterinary control, but he did not agree with exceptions for companies, as the protection of public health interests depended on government regulations. In short, the controversy was far from solved with this 'compromise'.

The agricultural camp's concerns about public health media statements in 1960 and 1961, and continuing pressure from the Ministry of Social Affairs led the Ministry of Agriculture to propose another compromise with the 'little *Salmonella* Bill'. This gave the Minister of Agriculture direct control over when the Livestock Act would have practical consequences for *Salmonella*. The Ministry of Agriculture made the first preparations for the little *Salmonella* Bill in the spring of 1961.²³¹ The Minister of Agriculture proposed to include salmonellosis in the list of diseases in article 45, which would make the Livestock Act 'partially applicable' to salmonellosis via a ministerial regulation (*algemene maatregel van bestuur*). Public health experts were well aware that the impact of the little *Salmonella* Bill thus depended on the willingness of the Minister of Agriculture to use it: 'When the Minister fails to do this, nothing will happen'.²³² Therefore, public health experts did not consider this a sufficient answer to their concerns, although the Health Council committee hoped it would provide possibilities to facilitate the sterilisation of imported meat, bone and fish meal.²³³ The Minister of Agriculture sent the little *Salmonella* Bill to parliament in September 1961.²³⁴ But the sterilisation issue continued to be an issue of controversy between the two camps, which led high agricultural official Director-General of Food Supply Franke to propose another compromise in the autumn of 1961. As meat and bone meal were more often found to be contaminated and fish

228 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Notulen besloten PvV vergadering (April 26, 1961) 5-7.

229 NA, VD 1931-1971, inv. nr. 570, Wijzigingen, Winkler et al., 'Het *Salmonella*-probleem' (March 1967) 14-15.

230 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Minister SZV to Minister LV (March 14, 1961) 1.

231 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Voorontwerp wijziging Veewet en Memorie van toelichting (March 28, 1961).

232 NA, GR 1957-1990, inv. nr. 2266, Notulen (June 27, 1961) 14.

233 Ibidem, (June 27, 1961) 13-14 and (November 14, 1961) 2.

234 *Handelingen Tweede Kamer* 1961-1962, Bijlage 6505 Wijziging van artikel 45 van de Veewet, nr. 2, Minister LV, Ontwerp van wet; Ibidem, nr. 3, Minister LV, Memorie van Toelichting.

meal made up the bulk of the trade in animal proteins, he proposed to introduce obligatory sterilisation of meat and bone meal only and to abstain from sterilising fish meal.²³⁵

The debate on this proposal became known as the ‘fish meal dilemma’, and it was new cause for controversy. Different parties within the agricultural camp severely criticised the prospect of obligatory sterilisation of imported meat and bone meal.²³⁶ For example, the Feed Board again fundamentally criticised the assumption that feed was at the heart of the salmonellosis problem, and argued that the government should avoid ‘not absolutely necessary measures’ which damaged the vulnerable position of the livestock sector.²³⁷ Simultaneously, the proposal to exempt fish meal from compulsory sterilisation led to opposition in the public health camp. Although Van den Born thought the compromise ‘the maximum attainable’,²³⁸ he refused to give up his argument for the sterilisation of imported fish meal immediately. He did not trust the figures on fish meal contamination, as the Feed Board had obtained them, and German figures of similar foreign parties of fish meal showed higher contamination. He advised the Minister of Social Affairs to suspend his judgement on the issue of fish meal until ‘a scientific study by the government’ provided ‘a better understanding of the real contamination of fish meal’.²³⁹ In January 1962, the Ministers decided in principle that imported animal meal needed to be sterilised, while the degree of contamination of imported fish meal would be researched.²⁴⁰

The proposed little *Salmonella* Bill meant parliament became involved, and this changed the odds to the advantage of the agricultural camp in public debate. As we have already seen above, the Ministry of Agriculture designed and institutionalised salmonellosis policy compromises. In this process, the Feed and Agricultural Boards had decisive influence, while public health experts had very little. At this point, the parliamentary committee on agriculture

235 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, DG Voedselvoorziening to Van den Born, Dols and Zandstra (September 19, 1961); PvV, *Jaarverslag* 1962 [Den Haag 1963] 19.

236 NA, VD 1931-1971, inv. nr. 848, Hersterilisatiedocumenten, Gezondheidscommissie voor Dieren Landbouwschap to Van den Born (February 26, 1962); Ibidem, inv. nr. 549, Wijzigingen Veewet, Dols to Minister LV (June 8, 1962); *Handelingen Tweede Kamer* 1961-1962, Bijlage 6505 Wijziging van artikel 45 van de Veewet, nr. 4, Vaste Commissie LV, Voorlopig Verslag (March 13, 1962); A. van der Schaaf, ‘Salmonellose onder de werking van de Veewet’, *TvD* 87 (1962) 976-980.

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237 NA, GR 1957-1990, inv. nr. 2271, Dokumentatie, PvV, ‘Enkele kritische kanttekeningen op de Memorie van Antwoord 6505 No. 5 met betrekking tot wijziging van art. 45 van de Veewet’ (June 1962).

238 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Van den Born to Minister SZV (November 23, 1961) 2. See also: Ibidem, Van den Born to DG Voedselvoorziening (September 25, 1961).

239 Ibidem, Van den Born to Minister SZV (November 23, 1961) 2.

240 Ministerie LV, ‘Salmonellose onder de werking van de Veewet’, *TvD* 87 (1962) 996-997; NA, VD 1931-1971, inv. nr. 848, Hersterilisatiedocumenten, Van den Born to Minister LV (March 16, 1962).

also opposed the prospect of obligatory sterilisation of imported meat and bone meal.²⁴¹ It argued that not only the Feed Board, but the Agricultural Board should be involved in the debate too, because of the ‘major economic interests’ involved.²⁴² For the public health camp this parliamentary opposition was particularly disturbing, as the public health parliamentary committee was not allowed to react to proposed changes in the *agricultural* Livestock Act before the plenary debate in parliament. The Health Council members thought this unfair, as ‘the background [...] is almost entirely public health terrain.’²⁴³ Moreover, while concrete agricultural interests meant the ‘green front’ of the Ministry of Agriculture, the *PBOs* and the parliamentary committee of agriculture was closely involved in the salmonellosis debate, public health representatives in parliament turned out to know little about it.²⁴⁴ Again, we see that the public health salmonellosis problem was primarily a problem of *experts* who were concerned about abstract public health interests, without organised and formalised social support comparable to the ‘green front’.

The strong ‘green front’ opposition was an important incentive for the Health Council to finish the salmonellosis report in the summer of 1962.²⁴⁵ Wester asked permission to send the Health Council advice to both parliamentary committees of agriculture and public health, and to publish it in the official serial of the State Inspectorate of Public Health.²⁴⁶ The Ministers had still not given such permission in September 1963 due to the ongoing controversy, although at that point parliament and public health authorities had confidentially received copies.²⁴⁷ Only in January 1964, the Council of Ministers decided the Health Council advice could be made public, although Minister of Agriculture Biesheuvel added that he ‘has no objection to publication of the report, but does object to its contents.’²⁴⁸ The Health Council published its advice two years after it had been finished.²⁴⁹

The agricultural opposition to meat and bone meal sterilisation and the public health opposition to the exemption of fish meal, meant the plenary parliamentary debate on the little *Salmonella* Bill was postponed several years. In the meantime, experts of both camps argued

241 For example: Van der Schaaf, ‘Salmonellose onder de werking van de Veewet’; *Handelingen Tweede Kamer* 1961-1962, Bijlage 6505 Wijziging van artikel 45 van de Veewet, nr. 4, Vaste Commissie LV, Voorlopig Verslag (March 13, 1962); NA, GR 1957-1990, inv. nr. 2271, Dokumentatie, PvV, ‘Enkele kritische kanttekeningen op de Memorie van Antwoord 6505 No. 5 met betrekking tot wijziging van art. 45 van de Veewet’ (June 1962).

242 *Handelingen Tweede Kamer* 1961-1962, Bijlage 6505 Wijziging van artikel 45 van de Veewet, nr. 4, Vaste Commissie LV, Voorlopig Verslag (March 13, 1962).

243 NA, GR 1957-1990, inv. nr. 2266, Notulen (June 20, 1962) 4.

244 Ibidem, 3-4.

245 Ibidem.

246 NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Wester to Minister SZV (September 13, 1962).

247 Ibidem, Sickenga to GR Salmonellosecommissie (September 10, 1963).

248 NA, 2.02.05.02 Ministerraad 1823-1990, inv. nr. 756, Notulen (January 31, 1964) 3.

249 Gezondheidsraad, ‘Rapport’.

about the fish meal dilemma. The public health camp's alarming new findings on *Salmonella* contamination of fish meal fuelled renewed public health calls for compulsory sterilisation of imported fish meal.²⁵⁰ But in 1963, the Minister of Agriculture urged his colleague of Social Affairs 'not to run ahead' of the fish meal dilemma in the debate on the Public Health budget.²⁵¹ In 1964, when media attention for the sterilisation controversy had subsided, German authorities rejected the import of *Salmonella*-contaminated Argentinian meat. To be able to control such import in the Netherlands via the little *Salmonella* Bill too, the Ministers agreed on the meat and bone meal sterilisation compromise. Apparently, the agricultural camp had no difficulty in considering *Salmonella* a public problem when foreign agricultural interests were at stake. However, the Ministers still postponed a decision on the controversial fish meal dilemma.²⁵²

On February 11, 1965, the Lower Chamber debated the salmonellosis problem, repeating the entire salmonellosis debate in a nutshell and illustrating the success of the 'green front' in claiming ownership. Social democrat (*PvdA*) member of the opposition and general practitioner Jan Lamberts was a lonely voice in defending the public health perspective, in particular on the sterilisation of meat, bone and fish meal. Confessionals Schakel (*ARP*) and Van Koeverden (*KVP*) and liberal Tuijnman (*VVD*) of the coalition parties repeated the feed trade and agriculture arguments, and emphasised the disagreements among experts about what should be done, explicitly referring to Van der Schaaf's counterarguments. Lamberts' concerns about the dangers of raw meat, of parliamentary members' raw minced steak sandwiches in particular, caused general hilarity. The Minister and new State Secretary of Public Health repeated their considerations: as the fish meal issue was still contested among experts, they would postpone a decision on it, but as sterilisation of meat and bone meal was uncontested, that could be regulated. The little *Salmonella* Act was passed, leaving the fish meal dilemma unresolved.²⁵³ Newspapers repeated that 'great discord' existed 'in circles of science'.²⁵⁴ As a reaction to the compulsory sterilisation of imported meat and bone meal, the feed trade sector decreased the import of these products.²⁵⁵

250 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Van den Born to Minister LV (September 20, 1963); Ibidem, W[ellen] to Van den Born (September 26, 1963); Ibidem, Van den Born to Minister LV (October 10, 1963); NA, GR 1957-1990, inv. nr. 2267, Correspondentie, Van den Born to Minister SZV (September 20, 1963).

251 NA, VD 1931-1971, inv. nr. 779, Hersterilisatiedocumenten, Minister LV to Minister SZV (October 11, 1963).

252 NA, VD 1931-1971, inv. nr. 549, Wijzigingen Veewet, several letters (August-December, 1964).

253 *Handelingen Tweede Kamer* 1964-1965 (February 11, 1965) 1163-1174.

254 'Kamer ten strijde tegen veeziekte salmonellose', *Nieuwsblad van het Noorden* (February 12, 1965) 3.

255 NA, VD 1931-1971, inv. nr. 570, Wijzigingen, Winkler et al., 'Het *Salmonella*-probleem' (March 1967) 13.

To solve the fish meal dilemma, the two ministries installed a mutual ‘ad hoc’ expert advice committee, known as the Winkler committee after its chairman, physician Winkler. This committee ignored the Health Council’s advice. Members were medical microbiologists with no history in the salmonellosis debate and representatives from the world of agricultural science. The committee did not invite key figures from the veterinary public health and agricultural authorities who endorsed the public health camp’s perspective. The Winkler committee did succeed in depoliticising the fish meal dilemma in the sense that it provided the government with a single scientific advice. It concluded in 1967 that sterilisation of imported fish meal was unnecessary, and that the feed trade’s self-regulation was sufficient to deal with the salmonellosis problem.²⁵⁶ In the late 1960s the Feed Board designed a regulation for fish meal. In general, the ‘green front’ organised dealings with contaminated fish meal according to its wishes. This outcome left the public health camp with a sense of defeat for decades to come.²⁵⁷

Both domains shifted their attention from compulsory sterilisation of feed components to ways of minimising infection dangers via consumer education and behaviour.²⁵⁸ Refrigerators were increasingly used in professional and private places, and the responsibility of consumers to heat meat products thoroughly at home was stressed. For instance, Minister of Agriculture Biesheuvel said in the 1965 debate on the little *Salmonella* Bill: ‘I believe that by now, the Dutch housewife knows what dangers are related to insufficient heating of meat.’²⁵⁹ The Consumers Union incidentally continued to criticise the *Salmonella*-contaminated feed problem, but simultaneously stressed that the Feed Board was doing good work, and that consumers could practise ‘the necessary caution themselves’.²⁶⁰ It did not further discuss the fish meal dilemma outcome of 1967.²⁶¹ The media also generally took over this way of looking at the salmonellosis problem.²⁶² For example, newspapers generally reported German commotion about *Salmonellas* as exaggerated,²⁶³ especially when it concerned imported *Salmonella*-contaminated Dutch poultry meat in the summer of 1967. A Frisian newspaper noted: ‘the presence of salmonella bacteria in poultry and pigs [is] not a problem, as one does not usually eat raw chicken or raw pig meat.’²⁶⁴

256 Ibidem, Winkler et al., ‘Het *Salmonella*-probleem’ (March 1967).

257 Gezondheidsraad, *Advies*, 2; interviews Huisman (March 4 and 28, 2014).

258 See also: Hardy, *Salmonella*, chapter 9.

259 *Handelingen Tweede Kamer* 1964-1965 (February 11, 1965) 1171.

260 ‘Woensdag gehaktdag – woensdag salmonelladag?’, *Consumentengids* 13 (1965) 184-185.

261 *Consumentengids* 15 (1967).

262 See for example: ‘Dit jaar nog weinig paratyfus-gevallen: Publiek voorzichtiger met rauw vlees’, *Limburgsch Dagblad* (August 2, 1967) 5.

263 Also in ‘Woensdag gehaktdag – woensdag salmonelladag?’, *Consumentengids* 13 (1965) 184-185.

264 ‘*Salmonella*-bacteriën in Nederlandse kippendelen gaven opschudding: nadeel voor export?’, *Leeuwarder Courant* (September 4, 1967) 9.

The new environmental definition of the salmonellosis problem in the 1970s only strengthened this emphasis on individual responsibility in controlling the disease. This new definition combined with the failures in the debate on sterilisation of feed components during the 1960s created a sense of pessimism among experts: ‘the Salmonella problem, as it occurs today in the Netherlands, [can] not be solved in the short term.’²⁶⁵ As the public health domain had failed to prevent *Salmonella* bacteria from entering the Dutch environment, it shifted its attention to measures to attempt to control the damage and prevent as many human and animal infections as possible, especially through education on kitchen hygiene. This sense of pessimism and the focus on the responsibilities of individual households in dealing with the problem would prevail in the following decades.²⁶⁶

The agricultural domain continued to prefer voluntary sector regulations over compulsory measures against the problem of contaminated livestock feeds too. Public health and agricultural representatives in the 1970s Health Council salmonellosis committee turned to a technical alternative to meal sterilisation which the agricultural sector had developed: the process of turning feed into pellets, which killed most *Salmonella* bacteria.²⁶⁷ The feed trade advised farmers to use pellets already in the 1960s, because they were economically profitable.²⁶⁸ But even in this case, the Feed Board did not want to introduce a compulsory regulation, and farmers’ choice for pellets remained voluntary.²⁶⁹ In the 1980s, experts still linked contaminated feed to the growing problem of *Salmonella* infections of poultry.²⁷⁰ In the following decades, the agricultural domain succeeded in avoiding compulsory *Salmonella* control in the Netherlands, different from other countries. A study commissioned by the Feed Board proudly noted in 2008: ‘Until now the feed sector has been able to prevent that a general compulsory regulation is used in *Salmonella* control like is the case in other countries.’²⁷¹ Only recently, EU policies have introduced compulsory *Salmonella* control policies in the Netherlands.²⁷² Importantly, this occurred in the context of the disappearance of the PBO system (chapter 4).

In short, the compulsory measures argued for by the public health camp were not taken. This is in line with the argument of historians that the leading principles during the expansion

265 Gezondheidsraad, *Advies*, 2.

266 Smith, ‘From policy’. See also: J. Huisman, ‘Listeria monocytogenes: een ubiquitair voorkomend micro-organisme’, *NTvG* 133 (1989) 1917-1918.

267 Gezondheidsraad, *Advies*, 46-59.

268 N.H.H. Addens, ‘Afnehmerscontrole op Veevoer’, *Boerderij* 47 (1963) 1967.

269 NA, GR 1957-1990, inv. nr. 918, Notulen (June 21, 1974) 3, (June 2, 1976) 4-7; *Produktschap voor Veevoeder* 1973 (s-Gravenhage 1974) 19-20.

270 Oudejans, *Categorie één*, 61.

271 H.A. Vahl, ‘Verbetering van de *Salmonella*-status van pluimveebedrijven door voedingsmaatregelen: een literatuurstudie’ (June 2008) 49, <http://www.vahlfeedandhealth.nl/publicaties.html> (January 15, 2017).

272 Minister van Economische Zaken H.G.J. Kamp, ‘Regeling van de Minister van Economische Zaken van 10 december 2014, nr. WJZ/14139630, houdende wijziging van diverse regelingen in verband met de opheffing van de bedrijfslichamen en de overname van taken’, *Staatscourant* 35166 (2014) 1-87.

of the welfare state in the 1950s, 1960s and 1970s continued to be the confessional preference for organised civil society's own responsibility whenever this was possible, in particular in the case of economy and trade.²⁷³

Summary

This chapter has analysed the controversy between the domains of public health and agriculture over the zoonotic food infection salmonellosis (1951-1978). The public health domain created the problem: public health experts defined livestock-associated salmonellosis as a major public health problem during the 1950s. They linked the rise in the number of human cases of livestock-associated salmonellosis to the significant increase in import of *Salmonella*-contaminated livestock feeds for the quickly intensifying livestock sector. In order to solve the salmonellosis problem, they argued, compulsory sterilisation of imported meat, bone and fish meal under state supervision was necessary. Veterinarians working in the field of veterinary public health started this argument. Salmonellosis was very important for the veterinary ownership claim of issues of public health, and veterinary public health institutions like the veterinary Zoonoses Laboratory of the State Institute for Public Health and the State Veterinary and Medical Inspectorate of Public Health devoted much time and money to the disease. Physicians joined the public health veterinarians during the unprecedented salmonellosis outbreak in the summer of 1959. This outbreak was the incentive for public health authorities to install the Health Council salmonellosis committee (1959-1962), which put the obligatory sterilisation measure at the core of its advice. Political welfare state principles were important here: the state should be responsible for safeguarding public health via public health expertise, and the interest of public health should always be prioritised over economic interests.

The agricultural domain resisted the public health's problem definition of salmonellosis and its ownership claim on *Salmonella*-contaminated feed. Cheap feeds were the foundation for the quickly intensifying agribusiness, and the agricultural domain argued the high costs of compulsory sterilisation threatened this base. The agricultural camp questioned both the assumption that contaminated feeds were the primary cause of the salmonellosis problem and its definition as a *public* problem demanding compulsory state intervention. If *Salmonella*-contaminated feeds constituted a problem at all, the agricultural sector itself should handle it, coordinated by the system of statutory industrial organisations (*publiekrechtelijke bedrijfsorganisaties, PBOs*). While the public health camp primarily consisted of experts, the agricultural camp had a broader social base: the *PBO* Feed and Agricultural Boards, veterinary and medical experts working in agriculture and food science, officials at the Ministry of Agriculture and Fisheries, and agricultural representatives in parliament.

273 Roebroek and Hertogh, 'De beschavende invloed', chapter 17, in particular: 357-359.

Hence, the issue of *Salmonella*-contaminated livestock feed and whether or not the state should enforce its sterilisation became the most controversial topic in dealings with the salmonellosis problem during the 1960s and 1970s. The public health and agricultural camps would clash over ownership of the salmonellosis problem for several decades, not only among experts and officials, but also in parliament and in the media. Thus, although experts claimed a major role in defining the salmonellosis problem, it was not just a problem of expertise, but essentially a political problem. Both camps installed advice committees of experts endorsing the camp's perspective, and blamed each other for ideologically inspired research biases and conflicts of interests. Depoliticising the polarisation through rational science and facts was not very successful.

Both camps called in experts with both veterinary *and* medical backgrounds, who collaborated extensively. Thus, the controversy did not arise from disciplinary boundaries, but from the clashing preferences of the two domains. Veterinarians had acquired institutionalised responsibilities for zoonoses at this point, and the discipline of veterinary public health had a major role in the public health camp's definition of the salmonellosis problem. But boundary work and sensitivities between the medical and veterinary disciplines continued to play a role, in particular in the context of the polarised salmonellosis controversy and the veterinary balancing act between public health and agriculture. Physicians in the public health camp more easily associated veterinarians with economic agricultural interests than the medically trained experts who endorsed the agricultural camp. The salmonellosis case again illustrates the importance of distinguishing between veterinary public health and agricultural veterinary medicine when livestock-associated zoonoses are at stake, like the cases of bovine TB and animal influenza. Despite those tensions, veterinarians and physicians collaborated on the salmonellosis problem. Indeed, the struggle on whether veterinarians or physicians had 'primary' responsibility was more a sign of frequent collaboration than a sign that such cooperation was lacking. However, this collaboration did not mean that the domains of public health and agriculture were integrated, as medical-veterinary relations were not the major problem in dealings with salmonellosis.

Rather, organised agriculture, the Ministry of Agriculture and parliamentary agricultural representatives acted as a strongly interlinked 'green front' in the salmonellosis debate, which was most powerful in the ownership dispute. This alliance controlled the making of policies on diseases among living livestock: the Ministry of Agriculture and the agricultural PBOs designed responses to the salmonellosis controversy. The public health camp had little control over these organisations. Although the personal union of agricultural and public health veterinary authorities meant the public health's perspective was represented at the Ministry of Agriculture, this resulted in polarisation at the agricultural Ministry itself with the public health perspective as minority voice. The public health camp had a much narrower social base of public health experts, and proved to be unequal to the power of the 'green front'. Public attention for the salmonellosis controversy in media and by the Consumers Union had the

potential to give the public health camp more power in the controversy. But the agricultural domain pacified this threat with its well-organised dominance in the parliamentary debate, and its counterstatements in the media and parliament, stressing for instance that scientific experts disagreed on the situation. The compromises the agricultural camp agreed with were relatively small sacrifices that did not amount to anything from the public health point of view. Self-regulation by the sector continued to be at the core, and the compromise of sterilising meat and bone meal related to the little *Salmonella* Act affected only a small proportion of the trade in meal.

Just like in the case of bovine TB and unknown pig diseases, the agricultural authorities in the Netherlands continued to prefer self-regulation by the agricultural sector, *despite* the changed political context of the welfare state. This fits the argument of historians that the Dutch welfare state was a project in which confessional-liberal private regulation ideals continued to play an important role, especially when market and trade interests were at stake. The *PBO* system facilitated this, in particular in the agricultural sector. What had changed was that the state interfered with setting preconditions. However, simultaneously it relied on organised agriculture itself to decide on actual policies, in particular when it concerned an issue with direct impact on the economic interests of the sector, like sterilisation of imported feed. The salmonellosis controversy shows that this interpretation of the welfare state did not take place without conflict. But this conflict primarily arose behind closed doors among experts and 'green front' parties.

In line with the focus on self-regulation was the perspective on *Salmonella* as a public health danger that could best be countered through individual consumers' cooking behaviour rather than compulsory state measures during the production of meat. The shift of the public health's problem definition of salmonellosis to an environmental perspective in the 1970s endorsed this focus. *Salmonella* bacteria were present in the entire Dutch environment, and travelled from environmental infection sources to livestock to consumers in complicated contamination cycles. Public health experts still thought contaminated feed was an important factor in the creation of this situation, but its sterilisation was no longer considered a sufficient solution. The agricultural camp welcomed this new problem analysis: feed was not the central factor in the salmonellosis problem after all, like it had argued from the beginning. As a result, the agricultural sector continued to self-regulate *Salmonella* contaminations and infections, and public health authorities relied on educating consumers about the dangers of *Salmonella*-infected foods and the importance of kitchen hygiene.

4

Exporting public health problems on the common European market: Bovine Spongiform Encephalopathy (1988-2001)

In the 1980s a previously unknown neurodegenerative disease (encephalopathy) turned up among British cattle: Bovine Spongiform Encephalopathy (BSE) or ‘mad cow disease’. Concerns about the possible risk of this disease for human health quickly arose, in particular because of its similarities with the human encephalopathy Creutzfeldt-Jakob Disease (CJD). BSE turned up in the context of large changes in the political culture of the 1980s. Deregulations, diminishing the role of the government and outsourcing former government tasks to private parties became fashionable, in different countries more or less simultaneously. While in the Netherlands the confessional and liberal parties had played a major role in constructing the welfare state in the preceding decades, at this point they preferred a smaller government and looked for market rather than government solutions to check expanding costs. Social democrats also joined this thinking with their ‘third way’ between a liberal market economy and the welfare state. This period saw the end of confessional dominance in Dutch politics: in 1994 the Christian Democrats for the first time since 1918 did not join the coalition government, and made place for two successive liberal-social democrat coalitions.¹ The chapter starts in 1988, when

¹ Roebroek and Hertogh, ‘*De beschavende invloed*’, 433-460; Keulen, *Monumenten*; De Rooy, *A Tiny Spot*, 265-288.

BSE first got attention in the Netherlands. It ends in 2001, when the European Union (EU) interfered in Dutch BSE policies on an unprecedented scale.²

1. Defining BSE as a foreign export danger: agriculture

BSE turned up among British cattle in the mid-1980s, and quickly developed into a serious epizootic. At its height in 1992-1993 circa 35,000 BSE cases were reported in the UK yearly.³ Epidemiologists quickly related BSE to the practice of feeding cattle meat and bone meal. A scientific debate about the nature of the pathogen followed. An influential hypothesis was that an earlier unknown kind of infectious agent caused encephalopathies: an infectious protein called ‘prion’ – which was also associated with the human disease kuru related to cannibalism of human brains and the sheep neurodegenerative disease scrapie. This chapter will not deal in detail with the history of this international scientific debate on the pathogen,⁴ but will focus on how BSE was defined and responded to as a societal problem in the Netherlands.

BSE was initially regarded as an ‘animal health issue’ in the Netherlands, like it was in the UK.⁵ In 1988, agricultural journalists reported on BSE for the first time,⁶ and Dutch organised agriculture and the Ministry of Agriculture and Fisheries started to call for vigilance against this unknown foreign threat from the UK.⁷ Export considerations were the most important reason for this call. As Dutch BSE scientist Bram Schreuder comments on this early phase: ‘We, in an exporting country, well, we would be hurt terribly by any outbreak in this country.’⁸ Concerns focussed on the possible spread of BSE via trade in meat and bone meal. The Netherlands imported relatively few meat products from the UK, but did import feed ingredients, like meat and bone meal.⁹ The total Dutch use of meat and bone meal in the period 1984-1989 roughly doubled national production: yearly, it imported 150,000 to 200,000 tons meat and

2 Oosterveer, ‘Reinventing’, 217.

3 Kiheung Kim, *The Social Construction of Disease: From Scrapie to Prion* (London 2007); Warwick Anderson, *The Collectors of Lost Souls: Turning Kuru Scientists into Whitemen* (Baltimore 2008).

4 Keir Waddington, ‘Mad and Coughing Cows: Bovine Tuberculosis, BSE and Health in Twentieth-Century Britain’, in: David Cantor, Christian Bonah and Matthias Döries (eds.), *Meat, Medicine and Human Health in the Twentieth Century* (London 2010) 159-177, 161; Oosterveer, ‘Reinventing’, 218.

5 Interview Bram Schreuder (September 2, 2016).

6 Veterinaire Dienst (hereafter VD), ‘BSE in het Verenigd Koninkrijk’, *TvD* 114 (1989) 528-529; VD, ‘Alertheid op BSE nog steeds gewenst’, *TvD* 114 (1989) 855-856.

7 Interview Schreuder (September 2, 2016).

8 In 1985-1986 the Feed Board reported 2,228 tons of meat and bone meal import from the UK, compared to 46,453 tons of meat and bone meal from Germany. PvV, *Jaarverslag 1986* ('s-Gravenhage 1987) attachment 8, table 1f. In 1988, the Netherlands imported 1,790 tons of UK meat and bone meal, and 4,247 tons in 1989. B.E.C. Schreuder and C.J.G. Wever, ‘Waar komt BSE in Nederland vandaan?’, *TvD* 127 (2002) 40-50, 43. See also: Interview Jos Goebbels (April 12, 2016).

bone meal, 1-3% of which came from the UK.⁹ Meat and bone meal was relatively little used in cattle feed in the Netherlands compared to the UK.¹⁰ But it was used enough for organised agriculture and the Ministry of Agriculture to fear infection of Dutch cows with BSE via feeds, and they demanded preventive measures ‘considering the large (export) interests of the cattle and meat sector in particular’ in the late 1980s.¹¹

Although this chapter focuses on the national Dutch response to BSE, this response took place within the larger context of the EU. Far-reaching economic collaboration had characterised the EEC from its start. This was especially the case for the Common Agricultural Policy, which combined an extending common market with large-scale EEC public support of European farmers and protectionist policies towards ‘third countries’. The 1980s and 1990s saw increasing political unification, coined European Union with the Treaty of Maastricht in 1992, in particular focussed on further extension of the economic integration: the completion of the European single market (launched on January 1, 1993) and the start of the monetary union. The European single market meant that member countries could freely trade goods, and harmonised their veterinary agricultural policies via European legislation. This was a complicated task in itself, as national governments tended to close their borders in the case of disease threat. BSE quickly turned into a major international trade problem, to which the start of the common European market added considerable complexity.¹²

The Dutch BSE concerns were primarily inspired by unrest about the potential risk of BSE to human health in countries to which the Dutch livestock sector exported its products, particularly Germany (see section 2). Germany was the ‘biggest customer’ of Dutch agricultural products, but German consumers were increasingly critical of their safety, quality and environmental impact.¹³ The Dutch agricultural domain also discussed possible public health implications of BSE at an early stage: 1990 documents of the agricultural Veterinary Service include headings like ‘Relation scrapie – BSE – public health’.¹⁴

However, according to Dutch organised agriculture and the agricultural Ministry, ‘scientific grounds’ that BSE threatened public health and needed far-reaching intervention

9 Schreuder and Wever, ‘Waar’, 42.

10 Bram E.C. Schreuder, Epidemiological aspects of scrapie and BSE including a risk assessment study (PhD thesis, Universiteit Utrecht 1998) 211; Schreuder and Wever, ‘Waar’, 44.

11 PvV, *Jaarverslag 1989-1990* ('s-Gravenhage 1991) 12-13.

12 Howard Batho et al., *The EU veterinarian: Animal health, welfare and veterinary public health developments in Europe since 1957* (Luxembourg 2008) 24-26; Patel (ed.), *Fertile Ground*.

13 W. de Wit, ‘Wikken en wegen’, *TvD* 117 (1992) 169-172, 170.

14 NA, 2.11.51 Veterinaire Dienst van het Ministerie van Landbouw, Natuurbeheer en Visserij 1971-1995 (hereafter VD 1971-1995), inv. nr. 513, Bovine Spongiform Encephalopathy (BSE) 1990-1994, Afdeling Veterinaire Epidemiologie to VD (June 1, 1990) 2.

were absent.¹⁵ The agricultural domain did not take the German public health concerns very seriously. The distinction which the Ministry of Agriculture made between the ‘veterinary-technical’ aspects and ‘political’ aspects of BSE was important in this regard.¹⁶ This distinction helped the agricultural domain to depoliticise the BSE problem. On the one hand, agricultural authorities related the political aspects of the BSE problem to Germany and other countries which demanded safeguards against a possible link between BSE and public health. These foreign ‘political’ concerns posed a market danger, which was the major warrant for strict BSE control. In 1991, for instance, the private Animal Health Service affiliated to the Agricultural Board suggested ‘for psychological reasons, especially directed at foreign countries, [...] more draconian measures’ than it considered strictly necessary.¹⁷ The veterinary-technical problem definition of BSE on the other hand was more in line with how the Dutch agricultural domain viewed BSE. This perspective was based on veterinary science, focussed on technical ways to prevent spread, and regarded a link between BSE and public health unproven and very unlikely, particularly informed by the example of scrapie of sheep, which had never been found to spread to humans.¹⁸

Agriculture and the extensive European Common Agricultural Policy were more and more criticised in this period, in the context of growing public concerns about agriculture’s environmental, animal welfare and public health impacts. In 1989, the Ministry of Agriculture and Fisheries was renamed Ministry of Agriculture, Nature Management and Fisheries (*Ministerie van Landbouw, Natuurbeheer en Visserij*). In this context, historians have argued that the 1980s and 1990s saw the decline of agricultural dominance and the system of statutory industrial organisations (*PBOs*). Historian Piet de Rooy argues the ‘green front’, as ‘most striking example of neo-corporate organization in Dutch politics’,

was only brought to an end in 1984, when the minister announced a manure policy without holding preliminary consultations with the organizations, putting a brake on the unbridled growth of intensive cattle farming. This was the beginning of the end: the [Agricultural] Board was formally dismantled 15 years later.¹⁹

15 NA, VD 1971-1995, inv. nr. 513, BSE, DG Landelijke Gebieden en Kwaliteitszorg (hereafter DG LGK) to Minister van Landbouw, Natuurbeheer en Visserij (hereafter LNV) (September 20, [1990]) 2 (quote); PvV, *Jaarverslag 1989-1990*, 12.

16 NA, VD 1971-1995, inv. nr. 513, BSE.

17 Ibidem, G. de Vries (Stichting Gezondheidsdienst voor Dieren) to H.U.R. Nieuwenhuis (VD) (August 22, 1991).

18 VD, ‘Bovine scrapie-like encephalopathy’, *TvD* 113 (1988) 836; NA, VD 1971-1995, inv. nr. 513, BSE, DG LGK to Minister LNV (May 31, 1990); Ibidem, Afdeling Veterinaire Epidemiologie to VD (June 1, 1990); Ibidem, DG LGK to Minister LNV (June 5, 1990); VD, ‘BSE (Bovine Spongiform Encephalopathy)’, *TvD* 115 (1990) 603-604; Oosterveer, ‘Reinventing’, 219.

19 De Rooy, *A Tiny Spot*, 220, note 148.

It is rather ironic that the coining of the term ‘*poldermodel*’ and the pride of this ‘typically Dutch’ neo-corporatist approach in the late 1990s coincided with the disappearance of its most striking example.²⁰

Apart from growing public criticism, several other developments played a role here. The power of the primary, agricultural sector diminished in the context of the growing power of supermarkets in the second half of the twentieth century. The increasing liberalisation of the agricultural market meant that competition between different agricultural sectors increased, and companies were no longer interested in collective interest representation. *LTO Nederland* took over the general lobby for agricultural interests. The central agricultural organisations were merged in this Dutch Federation of Agriculture and Horticulture (*Land- en Tuinbouw Organisatie Nederland, LTO*), but it faced many difficulties in addressing the interests of the diverse and increasingly specialising agricultural sector. Multinational corporations, which had not been very enthusiastic about the *PBO* system even at its heyday, criticised the predominant focus of the Ministry of Agriculture on the primary sector. The existence of the *PBO* system also became topic of principle political debate, after the Christian Democrats’ major election defeat in 1994. The liberal-social democrat cabinet Kok I (1994-1998) argued that a sharper distinction between government and society should replace the neo-corporatist organisation of society, and introduced the ‘primacy of politics’. Liberal politicians like Van Aartsen (1994-1998) and Brinkhorst (1999-2002) were the first Ministers of Agriculture without former experience in the agricultural sector, after decades of mostly confessional Ministers who came from the ‘green front’ network. The atmosphere between government and primary sector became ‘tougher and more business-like’.²¹ The Ministry of Agriculture was scaled down and lost its former aura of ‘empire’. In 2010, it was merged with the Ministry of Economic Affairs. The liberal-social democratic cabinet Rutte II decided to abolish the *PBO* system entirely in 2012, since January 2015 it does no longer exist.²²

However, the idea that the 1990s saw the decline of the ‘green front’ also needs some nuancing. The other agricultural *PBO* bodies survived for almost twenty years after the Agricultural Board was discontinued in 1995, and were even positively evaluated in the same period.²³ To some extent their position became more powerful, as they took over several tasks

20 The claim that the ‘*poldermodel*’ is typically and traditionally Dutch is put in long-term historical perspective by: Dennis Bos, Maurits Ebben, Henk te Velde (eds.), *Harmonie in Holland: het poldermodel van 1500 tot nu* (Amsterdam 2007); Maarten Prak and Jan Luitens van Zanden, *Nederland en het poldermodel: sociaal-economische geschiedenis van Nederland, 1000-2000* (Amsterdam 2013).

21 Bekke and De Vries, *De ontspoldering*, 66.

22 Van der Woude, ‘Het boerenbolwerk’; Bekke and De Vries, *De ontspoldering*; Krajenbrink, *Het Landbouwschap*; Verhoef, ‘Strenge wetenschappelijkheid’ I, 195-196; Daniël Broersma, *Het groene front voorbij: de agrarische belangenbehartiging door LTO Nederland* (Groningen, Wageningen 2010); De Rooy, *A Tiny Spot*, 220.

23 Krajenbrink, *Het Landbouwschap*, 316.

from the Agricultural Board. This was especially the case in agricultural sectors in which a lot of differentiation existed, like the meat sector, and less so in a concentrated sector, like the dairy sector in which large cooperations did not need interest representation by a Product Board.²⁴ Especially the Feed Board (*Productschap voor Veevoeder*, later *Diervoeder*) continued to be particularly important in shaping BSE policy in the Netherlands (section 4).

Moreover, in the context of neoliberalism, reliance on corporate responsibilities to meet public ends increased rather than diminished. Scholars have related the UK origin of BSE to the neoliberal political context: the conservative Thatcher government decided to diminish legal animal rendering requirements and to give control to the feed industry itself, easing the spread of the BSE pathogen through meat and bone meal.²⁵ As part of the movement to cut down government expenses and leave more responsibilities to the private sector, the Dutch government discontinued the Veterinary Service in 1994-1995 and divided it between several departments at the Ministry of Agriculture.²⁶ However, the Animal Health Service became an independent company and continued to play an important role in livestock disease control after the disappearance of the Agricultural Board.²⁷ For example, it maintained the identification and registration system of cattle, which had been extended and computerised in the late 1980s and early 1990s.²⁸ Moreover, the agricultural PBO bodies developed self-regulatory quality control systems, like Good Manufacturing Practices (GMP) and Integrated Chain Control (*Integrale Ketenbeheersing, IKB*), supported by the government.²⁹ Companies participated on a voluntary basis, and almost all companies were involved during the early 1990s.³⁰

Because of the major export interests at stake, the Ministry of Agriculture ordered research projects on BSE and the related sheep disease scrapie at an early stage.³¹ The Ministry reserved

24 Bekke and De Vries, *De ontpoldering*, 53-55.

25 Patrick van Zwanenberg and Erik Millstone, “Mad cow disease” 1980s-2000: how reassurances undermined precaution’, in: Paul Harremoës et al. (eds.), *Late lessons from early warnings: the precautionary principle 1896-2000*, EU Environmental issue report 22 (Luxembourg 2001) 157-167, 158.

26 Verhoef, ‘Strenge wetenschappelijkheid’ I, 196.

27 Landbouwschap, *Jaarverslag 1995* ('s-Gravenhage 1996) 102.

28 Frank V. van der Most and Wim A. Smit, BSE and the Netherlands National Action System, Building a Common Data Base on Scientific Research and Public Decision on TSEs in Europe - BASES report (University of Twente Enschede, Grenoble 1999) 29-30.

29 See for instance: PvV, *Jaarverslag 1989-1995* ('s-Gravenhage 1990-1996); Geesje Rotgers, ‘Veel verwarring over IKB-rund’, *TvD* 121 (1996) 669-670.

30 In November 1992, 60% of feed companies, and in 1993, circa 90% of mixed feed companies had already complied to the GMP programme. PvV, *Voortgangsrapportage kwaliteitsbeleid diervoedersector 1992* ('s-Gravenhage 1992) 10; PvV, *Jaarverslag 1993* ('s-Gravenhage 1994) 10.

31 Interview Schreuder (September 2, 2016).

£1.2 million for this project.³² This was a particularly large amount in the context of austerity policy and fusions in state agricultural research in the neoliberal context.³³ The Central Veterinary Institute (*Centraal Diergeneeskundig Instituut*) in Lelystad conducted the research,³⁴ and became the centre for research of BSE and scrapie in the Netherlands. Veterinarian Bram Schreuder was the principle investigator. The project started relatively early compared to other countries, which ensured early collaboration and exchange with researchers in the UK. From 1988 onwards, the Central Veterinary Institute repeatedly called for notification of possible Dutch BSE cases,³⁵ but no Dutch BSE cases were found until 1997. Hence, the research focus lay with scrapie – a disease which was very similar to BSE and was hypothesised to have originally infected cattle with BSE via meat and bone meal in cattle feed. As Schreuder put it: ‘Both diseases cannot be considered separately, neither from a veterinary nor political perspective.’³⁶ An internal memo of the Veterinary Service shows the concerns over scrapie at the Ministry of Agriculture should be seen primarily in a context of export interests as well: ‘Should this be asked, what guarantees can the Netherlands give on scrapie for the export of sheep and mutton?’³⁷ A preclinical scrapie test was a particular success of the BSE/scrapie research group in 1996 (such a test could not be made for BSE initially), and was exchanged for BSE research material from the UK.³⁸

The major economic interests involved influenced what these researchers could say. The management of the Central Veterinary Institute repeatedly interfered with what Schreuder could publicly argue.³⁹ In late 1993, for instance, Schreuder publicly endorsed international scientific estimates that the real BSE incidence was probably higher than the zero cases found in the Netherlands (and other countries).⁴⁰ This was the start of a difficult period for him. ‘The

32 B.E.C. Schreuder, ‘Boviene spongiforme encefalopathie- en scrapieonderzoek’, in: Peter Verhoef (ed.), ‘*Strenge wetenschappelijkheid en praktische zin*: Een eeuw Nederlands centraal veterinaire instituut 1904-2004 II, Jaap M. van Leeuwen and Peter W. de Leeuw (eds.), *Capita selecta* (Rotterdam 2005) 291-298, 293.

33 Verhoef, ‘*Strenge wetenschappelijkheid*’ I, 195-214.

34 The *Centraal Diergeneeskundig Instituut (CDI)* would go through many changes of name in this period as a result of reorganisations and the merging with Wageningen University, the agricultural university in the Netherlands. To prevent confusion for the reader, I will refer to it as ‘Central Veterinary Institute’ throughout this chapter. See: Verhoef, ‘*Strenge wetenschappelijkheid*’ I, 195-214.

35 For instance: D.J. Houwers, G.J. Binkhorst, E. Gruijs, ‘Bovine spongiforme encephalopathy (BSE) in Engeland (Nederland)?’, *TvD* 113 (1988) 93; B.E.C. Schreuder, ‘Bovine spongiforme encefalopathie (BSE), een hernieuwde oproep’, *TvD* 115 (1990) 175.

36 B.E.C. Schreuder, ‘Scrapie en BSE, de situatie in Nederland’, *TvD* 120 (1995) 12-17, 15.

37 NA, VD 1971-1995, inv. nr. 513, BSE, Afdeling Veterinaire Epidemiologie to VD (June 1, 1990) 4.

38 *Nature* published on the test: B.E.C. Schreuder et al., ‘Preclinical test for prion diseases’, *Nature* 381 (1996) 563.

39 Interview Schreuder (September 2, 2016).

40 “Koegekte moet ook Nederland hebben bereikt”, *Leeuwarder Courant* (December 21, 1993) 3. See also: Interview Schreuder (September 2, 2016).

sector did not thank' him for his warnings, because of the major economic consequences of doubts on the BSE-free status of the Netherlands: 'The Product Boards [...] probably better realised than I did all the risks of closing borders'.⁴¹ Difficulties with export to Russia arose, and the management of the Central Veterinary Institute restrained Schreuder from contacting the media after interference by the Ministry of Agriculture.⁴² Schreuder's director countered his statements personally in public,⁴³ and Schreuder's publication on the estimated Dutch BSE cases was 'delayed' until 1997, when the first Dutch cases were reported.⁴⁴ The BSE research project of the Central Veterinary Institute was not an independent programme, but closely linked to the agricultural export interests.

As no BSE was initially reported in the Netherlands, the livestock sector regarded BSE as a foreign danger the Netherlands had very successfully kept outside its borders.⁴⁵ An illustration of this feeling of nationalistic pride combined with Dutch trade interests is a banner put in front of a farm during the first major European BSE crisis of 1996. The banner addressed supermarket Albert Heijn and carried both a Dutch flag and the text 'The Dutch cow is not that mad!!' (Figure 4.1).⁴⁶ One year earlier, Albert Heijn had decided to replace Dutch beef with Irish 'Greenfields' beef, but it banned the Irish meat from its store shelves because of the BSE commotion. The agricultural journal *Boerderij* discussed the issue under the heading 'Rehabilitation' (*Eerherstel*). Veterinarians had a similar feeling that the Netherlands did well in controlling the foreign problem of BSE.⁴⁷

41 Interview Schreuder (September 2, 2016).

42 Personal archive of Bram Schreuder on BSE.

43 See for instance: "Geen BSE in Nederland", *Oogst* (July 15, 1994).

44 Schreuder, 'Boviene spongiforme encefalopathie- en scrapieonderzoek', 294.

45 Jan Braakman, 'Alleen Nederland toonde zich bezorgd over BSE-uitbraken in Groot-Brittannië', *Boerderij Vandaag* (November 18, 2000).

46 'BSE-vrij Nederland toch zwaar getroffen', *Boerderij* 81:27 (1995-1996) 14-16, 16.

47 B.E.C. Schreuder and A.D.M.E. Osterhaus, 'Bovine spongiforme encefalopathie (BSE), een overzicht', *TvD* 115 (1990) 507-517, 513; Schreuder, 'Scrapie en BSE'; Sophie Deleu, 'Nederland en Engeland samen BSE te lijf: ID-DLO ontwerpt pre-klinische test voor scrapie', *TvD* 121 (1996) 433-434, 434; 'Landelijke scrapie bestrijdingsprogramma mogelijk dankzij ID-DLO onderzoek', *TvD* 123 (1998) 383.



Figure 4.1 Protest banner addressed to supermarket Albert Heijn in front of a Dutch cattle farm, 1996. 'BSE-vrij Nederland toch zwaar getroffen', *Boerderij* 81:27 (1995-1996) 14-16, 16.

The finding of the first Dutch BSE cases in 1997 challenged this image of pride. 'Anja 3' was the first Dutch cow to be diagnosed with BSE in March 1997 in the mid-east of the country, quickly followed by a second case in the north. The agricultural journal *Boerderij* wrote: 'The Netherlands are an island in Europe no longer.'⁴⁸ And: 'The Netherlands has lost its BSE-free status, and moreover the source of the infection seems to be here.'⁴⁹ The latter realisation in particular was shocking. While veterinary experts expected some Dutch BSE cases would turn up as a consequence of livestock trade with the UK, it was surprising that the Dutch cases were not 'imported UK cases' like earlier French, German and Danish ones, but had developed independently at Dutch farms, most likely via contaminated feeds.⁵⁰ In the autumn of 2000,

48 Marcel Henst, 'Brandende vragen over BSE', *Boerderij/Veehouderij* 82:7 (1997) 4-6, 4.

49 Marcel Henst, 'Meer monsters', *Boerderij/Veehouderij* 82:7 (1997) 3. See for similar wording: Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1997* (Rijswijk 1998) 18.

50 L. van Wuijckhuise et al., 'Bovine Spongiforme Encephalopathy (BSE): het klinische beeld, de meldingsplicht en de consequenties van een positieve bevinding', *TvD* 122 (1997) 252-253.

seven Dutch BSE cases had been found.⁵¹ Compared to the large number of British cases these figures were still very small,⁵² but nevertheless had a major economic impact.⁵³

The message agricultural organisations repeated in the media was that Dutch beef was safe and that the Netherlands protected itself successfully from the foreign, British danger of BSE. For example, the chairman of the Livestock and Meat Board was the only Dutch person who was given ample time in the first extensive Dutch television broadcast about BSE in 1990.⁵⁴ And in later years, *PBO* bodies like the Livestock, Meat and Eggs Boards and the Feed Board, and *LTO* continued to be regularly invited in the media.⁵⁵ But in particular after the 1996 European BSE crisis and the first Dutch BSE cases, BSE consistently attracted media attention, and potentially enhanced public criticism of intensive livestock keeping, like in the UK and in Germany.⁵⁶ The *PBO* bodies started organised campaigns to counter these negative images in the media.⁵⁷ The Cattle, Meat and Eggs Board for instance started a periodical newsletter ‘for policy decision makers and those outside the sector who influence policy’, a free information telephone line for consumers together with the meat sector’s Meat Educational Office (*Voorlichtingsbureau Vlees*), and invested in the relationship with ‘the most relevant media’, resulting in ‘publications worth several hundred thousands of guilders, if they would be valued at advertising charges’.⁵⁸ It is difficult to assess the effects on the public perception of BSE. This would at least need a more systematic study of the Dutch media image of BSE than can be done here. But as section 2 will show in more detail, Dutch consumers generally responded relatively calmly to BSE as far as their meat consumption behaviour was concerned, very different from other European countries.

51 ‘BSE: wie zoekt, zal vinden’, *NRC Handelsblad* (November 17, 2000).

52 The overwhelming majority of BSE cases came from the UK, which saw almost 184,627 reported cases in total until this day. World Organisation for Animal Health (OIE), ‘BSE situation in the world and annual incidence rate’, <http://www.oie.int/en/animal-health-in-the-world/bse-specific-data/> (December 7, 2016); Oosterveer, ‘Reinventing’, 217.

53 Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1997*, 5; Bertil Muller, ‘BSE-onderzoek mag niet verslappen’, *Boerderij/Veehouderij* 82:10 (1997) 5.

54 In Beeld en Geluid, description of *NOS Laat*, television programme, item ‘Gekke-koeienziekte in Groot-Brittannië’, May 29, 1990, <http://in.beeldengeluid.nl/collectie/details/expressie/46639/false/true> (March 20, 2017).

55 See for instance: In Beeld en Geluid, description of *Radio 1 Avondjournaal*, radio programme, March 21, 1996, <http://in.beeldengeluid.nl/collectie/details/expressie/563626/false/true> (March 20, 2017); In Beeld en Geluid, description of *Nova*, television programme, April 9, 1997, <http://in.beeldengeluid.nl/collectie/details/expressie/224310/false/true> (March 20, 2017); ‘Weer BSE: “jammer, maar helaas”, *NRC Handelsblad* (August 27, 1998).

56 Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1997*, 29.

57 See also: Broersma, *Het groene front*, 105.

58 Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1997*, 29-32.

Veterinary medicine's balancing act had not disappeared in this period. The percentage of veterinarians working in the agricultural sector had gradually declined due to the growing importance of companion animals and the decrease in the number of farms.⁵⁹ Nevertheless, livestock continued to be a major point of attention for the Royal Netherlands Veterinary Association (*KNMVd*) and for veterinary education at the Utrecht Veterinary Faculty, because of the strong institutionalised veterinary position in livestock disease control – what Swabe calls the veterinary regime.⁶⁰ This close identification with agriculture meant the increasingly negative public image of agriculture also affected the public image of veterinarians and led to tensions within the veterinary community itself. This was especially the case in the wake of the non-vaccination and preventive slaughtering policies to control the economic damage of swine fever (1997) and foot-and-mouth-disease (2001). At the height of the foot-and-mouth-disease epidemic for instance, an angry companion animal veterinarian criticised the 'atmosphere of agrarian dominance' in the Veterinary Association and veterinary education, which he thought 'Historically explicable, but rather frustrating for someone who keeps or wants to keep well clear of that, like many (silent) colleagues'.⁶¹ The Veterinary Association had to compromise between these blood groups among its members, the increasing societal criticism of intensive livestock keeping and the interests of the (organised) agricultural sector.⁶²

In line with the neoliberal tendency to give private sectors primary responsibilities in the protection of product quality and safety, veterinarians positioned practising veterinarians in agriculture as the first line of defence of public health, quality, animal health and animal welfare at the farm, next to their responsibilities in agricultural production support.⁶³ Despite these intentions, veterinarians working in the agricultural sector did not consider public health of prime interest, but focussed on sector interests instead.⁶⁴

This lack of 'agricultural' attention to public health can also be seen in the attitude towards BSE. No editorial in the veterinary journal discussed the first Dutch BSE cases in 1997, while the swine fever and the non-vaccination policy with its negative impact on the

59 Koolmees, *Tussen mens*, 192-197.

60 Swabe, *Animals*.

61 A.P. van der Kolk, 'Splitsing gezelschapsdieren en landbouwhuisdieren', *TvD* 126 (2001) 517-518. See also: A.E. van den Bogaard, 'Dier of ding?', *TvD* 126 (2001) 614-615.

62 Koolmees, *Tussen mens*, 177-191.

63 See for example: Rotgers, 'Veel verwarring'; M.E. Thomas and J.P.T.M. Noordhuizen, 'Een integraal kwaliteitsbeleid voor en door dierenartsen', *TvD* 124 (1999) 374-379; Jan Hulsen, 'Groep Gezondheids- en Kwaliteitszorg', *TvD* 124 (1999) 488-489, 488; L.J.A. Lipman et al., 'Van dierenarts naar kwaliteitsmanager: Wat gaat er in Nederland voor de praktiserende dierenarts landbouwhuisdieren veranderen onder invloed van het Witboek over voedselveiligheid?', *TvD* 127 (2002) 184-187.

64 See for instance: Ed., 'Van de Hoofdredactie', *TvD* 121 (1996) 443; G.H. Wentink, 'Rundvee-diergeneeskunde tot 2010', *TvD* 121 (1996) 547-550; 'Infectieziekten centrale rol in oktobernummer Veehouder en dierenarts', *TvD* 123 (1998) 619-620; Hulsen, 'Groep'.

public image of veterinarians was the subject of many editorials in the same year.⁶⁵ A fraud case of a veterinarian who passed a cow with ‘brain symptoms’ for slaughter in 1999, made the headlines of liberal newspaper *NRC Handelsblad* in November 2000.⁶⁶ Initially, the veterinary community had not recognised this case as a collective professional problem,⁶⁷ but it quickly developed into a veterinary PR crisis. The Minister of Agriculture Brinkhorst addressed the yearly congress of the Veterinary Association sternly on the worth of veterinarians’ claim to be public health protectors.⁶⁸ The Veterinary Association and the agricultural lobby organisation *LTO* publicly responded that they would open a complaints centre, but also stressed that the public indignation was exaggerated.⁶⁹ The agricultural veterinary community regarded the Dutch BSE cases primarily as incidents, and generally continued to view the Dutch veterinary-technical response to BSE as adequate. This perspective was not challenged by the public health domain, to which I will turn now.

2. Little interest in a British, agricultural problem: public health

Germany was exceptional in defining BSE as a public health problem from the start.⁷⁰ The introduction of the ‘precautionary principle’ in EU discourse originated in Germany: it is the perspective that public health and environmental interests should be prioritised in the case of uncertainty, and this principle gained particular attention in response to the BSE episode.⁷¹ As the previous section showed, the German concerns about a link between BSE and the human encephalopathy Creutzfeldt-Jakob Disease (CJD) were the primary incentive for the Dutch agricultural domain to define BSE as an economic export problem in the late 1980s and early 1990s. During the early 1990s, concerns about the public health implications of BSE

65 *TvD* 122 (1997).

66 ‘Geen actie na BSE-koe’, *NRC Handelsblad* (November 8, 2000) 1.

67 R. Kuiper, ‘Uit de Hoofdredactie’, *TvD* 125 (2000) 608; ‘Uitspraak Veterinair Tuchtcollege in fraudezaak’, *TvD* 125 (2000) 627-631.

68 Susan Umans, ‘Minister Brinkhorst opent Jaarcongres 2000 met pittige toespraak’, *TvD* 125 (2000) 688-698.

69 T. Jorna, ‘Uit de Hoofdredactie’, *TvD* 125 (2000) 707; In Beeld en Geluid, description of *Buitenhof*, television programme, November 12, 2000, <http://in.beeldengeluid.nl/collectie/details/expressie/143071/false/true> (March 20, 2017); ‘Dierenartsen en veehouders willen gezamenlijk meldpunt voor klachten’, *TvD* 125 (2000) 769.

70 Katharina T. Paul, Food Safety: A Matter of Taste? Food Safety Policy in England, Germany, the Netherlands, and at the Level of the European Union (PhD thesis, Universiteit van Amsterdam 2009) 28, 150-209.

71 Paul Harremoës et al. (eds.), *Late lessons from early warnings: the precautionary principle 1896-2000*, EU Environmental issue report 22 (Luxembourg 2001) 11-16; Van Zwanenberg and Millstone, “Mad cow disease”.

heightened when scientists found the disease to cross the species barrier to zoo animals and companion animals.

The Dutch public health domain did not generally share the early German public health perspective. Although the Dutch medical journal *NTvG* discussed news on the British BSE developments, including concerns about their possible public health implications, prior to 1996, it did not discuss any possible implications for the Netherlands.⁷² The periodical of the Medical Association *KNMG*, *Medisch Contact*, and the mutual journal on infectious diseases of the Medical State Inspectorate and the *RIVM*, the *Infectieziekten Bulletin*, hardly mentioned BSE at all, or again only as a British problem.⁷³ Livestock-related public health problems like BSE were not the top priority at the Ministry of Public Health during the 1990s, in the context of focus on control of expanding public health costs, changes in the health care system and medical ethics.⁷⁴ Another important context for understanding this silence in the public health domain, is the relative decline in importance of infectious diseases in this period.⁷⁵ Compared to the heyday of infectious disease control discussed in the previous chapters, the Medical Inspectorate had little interest in zoonoses. Moreover, the field of infectious disease control was fragmented. Only with public attention for a polio epidemic in 1996, the National Co-ordination Infectious Disease Control (*Landelijke Coördinatie Infectieziektenbestrijding, LCI*) was founded to coordinate the infectious diseases control by the Municipal Health Services (*GGD*), but it had only little manpower and no formal authority.⁷⁶

Hence, the public health perspective on BSE depended on bottom-up individual professional interests and networks rather than centralised state attention – very much in line with the Dutch health care tradition.⁷⁷ Dutch medical specialists organised surveillance of CJD in relation to BSE bottom-up from the early 1990s onwards. An epidemiological network of

⁷² For instance: J.B. Meijer van Putten, ‘Groot-Brittannië: Incidentie van de ziekte van Creutzfeldt-Jakob verdubbeld’, *NTvG* 137 (1993) 1744-1745; J.B. Meijer van Putten, ‘Ziekte van Creutzfeldt-Jakob bij jong meisje’, *NTvG* 138 (1994) 432; J.B. Meijer van Putten, ‘Groot Brittannië: Weer opschudding over “dolle-koeienziekte”’, *NTvG* 139 (1995) 2516-2517.

⁷³ *Medisch Contact* (1989-1996); *Infectieziekten Bulletin* 1-7 (1990-1996).

⁷⁴ Interview via e-mail with Bart Sangster (May 2016). See on this broader context of (public) health policy: Timo Bolt, *A Doctor’s Order: The Dutch Case of Evidence-Based Medicine (1970-2015)* (Antwerpen, Apeldoorn 2015); Van Klaveren, *Het onafhankelijkheids syndroom*; and the forthcoming works: Roland Bertens, Legal Cures for Medicine’s Ailments? Dutch Health Care Legislation 1960-2006 (forthcoming PhD thesis); Noortje Jacobs, Ethics by Committee: A history of governing human experimentation in the Netherlands, 1945-2000 (forthcoming PhD thesis).

⁷⁵ Interview Joost Ruitenberg (March 23, 2016); Interview Jim van Steenbergen (July 5, 2016).

⁷⁶ Interview Van Steenbergen (July 5, 2016). See also: *Handelingen Tweede Kamer* 1996-1997, Bijlagen, 25295 Infectieziektenbestrijding, nr. 2, Minister van VWS E. Borst-Eilers, Nota.

⁷⁷ See on the continuing importance of civil society in Dutch health care during the 1980s and 1990s: T.E.D. van der Grinten, ‘Macht, tegenmacht, onmacht: De hardnekkige aanwezigheid van het maatschappelijke middenveld in de gezondheidszorg’, in: E. Dekker and E. Elsinga (eds.), *Mensen en machten: gezondheidszorg in de jaren ’90* (Houten 1990) 115-127; Van Klaveren, *Het onafhankelijkheids syndroom*.

neurologists, neurophysiologists and neuropathologists monitored the incidence of CJD in the Netherlands in the long-term, coordinated by the Epidemiology and Biostatistics Institute of the Erasmus University in Rotterdam and the Pathology section of the academic hospital in Utrecht.

Veterinary networks most often initiated discussion about possible public health implications of BSE within the Netherlands. In particular, public health veterinarians were important in setting up interdisciplinary (research) relations to address the possible public health implications of BSE. The medical specialists' network to monitor CJD was for instance immediately referred to in veterinary discussions of BSE.⁷⁸ *RIVM* veterinarians quickly viewed BSE from the public health perspective. For instance, *RIVM* veterinarian and chairman of the Veterinary Association Dan Kampelmacher had already urged *RIVM* veterinarian Ab Osterhaus to keep an eye on BSE in the late 1980s and early 1990s.⁷⁹ This initiative was not strongly supported by the public health authorities, however: Osterhaus' attempts to secure funds for BSE research at the *RIVM* failed as the Ministry of Welfare, Public Health and Culture (*Ministerie van Welzijn, Volksgezondheid en Cultuur, WVC*) was unwilling to pay.⁸⁰ Hence, Osterhaus collaborated with the large agricultural BSE research project of the Central Veterinary Institute, with Schreuder in particular. Initially, they stressed the uncertainties surrounding the public health implications of BSE, but they addressed them from the start in joint publications in the veterinary journal. Osterhaus was also Dutch representative in the Scientific Veterinary Committee of the EEC, and continued to be closely involved with BSE on the European level in the following years. Osterhaus became chairman of the first Health Council advice on prion diseases of 1996 as a result.⁸¹

The Veterinary State Inspectorate of Public Health was another important veterinary institution addressing the possible public health implications of BSE at an early stage.⁸² In close collaboration with the *RIVM*, it stressed initially that no evidence existed for a link

78 Schreuder and Osterhaus, 'Bovine spongiforme encefalopathie', 515-516; Schreuder, 'Scrapie en BSE', 17; Sophie Deleu, 'Gekke-koeienziekte; een gekke koeienziekte', *TvD* 121 (1996) 271-273.

79 Interview Ab Osterhaus (April 21, 2016).

80 Schreuder, 'Boviene spongiforme encefalopathie- en scrapieonderzoek', 293; Interview Schreuder (September 2, 2016).

81 Schreuder and Osterhaus, 'Bovine spongiforme encefalopathie'; F. van Knapen, A.D.M.E. Osterhaus and B.E.C. Schreuder, 'Bovine Spongiforme Encephalopathy (BSE)', *TvD* 121 (1996) 265-266; Sophie Deleu, "Gezondheidsbescherming vanuit een veterinaire perspectief": Wetenschappelijke vergadering VHI/RIVM in Lelystad', *TvD* 121 (1996) 450-452; Gezonhedsraad, *Prionziekten* (Rijswijk 1996); Interview Osterhaus (April 21, 2016); Interview Schreuder (September 2, 2016).

82 NA, 2.27.18 Veterinaire Hoofd-Inspectie en Veterinaire Regionale Inspectie Zuid-Holland van het ministerie VWS (1920) 1950-1989 (hereafter VHI), inv. nr. 126, Agenda's en notulen van de kernstafvergaderingen 1989 (July 11, 1989).

between BSE and human spongiform encephalopathies like CJD.⁸³ The Ministry of Agriculture used this argument in its disagreement on the public health dangers of BSE with German authorities.⁸⁴ The discovery of BSE cases (imported from the UK) in Germany and France fuelled renewed German concerns about the public health implications of BSE in 1994, which again meant export difficulties for the Netherlands.⁸⁵ In this context, the Inspectorate still followed the veterinary-technical perspective: ‘until now no evidence exists that the disease can be transmitted to humans’.⁸⁶ Nevertheless, a 1992 zoonoses study ordered by the Veterinary State Inspectorate of Public Health was exceptional for its early concerns on the public health dangers of BSE. BSE was likely to turn up in the Netherlands, the authors wrote, and although its implications for public health were unclear, ‘infection of humans seems [...] a possibility’ and ‘extra vigilance’ was warranted.⁸⁷ Still, these concerns were not very prominent: the contents of the book did not list the disease, and articles on the study did not refer to BSE.⁸⁸ High officials of the Ministry of Public Health did start to share concern about the possible public health implications of BSE with the department responsible for food safety and veterinary affairs and the Veterinary State Inspectorate of Public Health in the context of the European 1994 unrest, and also shared this concern with State Secretary of Public Health Erica Terpstra, who took office at the renamed Ministry of Public Health, Welfare and Sport (*Ministerie van Volksgezondheid, Welzijn en Sport*) in August 1994.⁸⁹

Simultaneously, the field of veterinary public health had a difficult time from the 1970s onwards. Veterinary directors led public slaughterhouses as ‘symbols of public hygiene’ and important vehicles for veterinary emancipation during the late nineteenth and twentieth century. However, these public abattoirs could not survive in the quickly scaling up of the slaughtering business, which significantly reduced the public health risks through sophisticated cooling techniques and quality control systems.⁹⁰ In the context of cutbacks on state expenses,

83 Veterinaire Hoofdinspectie van de Volksgezondheid, ‘Wetenschappelijke Vergadering VHI/RIVM’, *TvD* 114 (1989) 970-973, 972; VHI and RIVM, ‘BSE: Geen aanwijzingen voor infectiegevaar bij de mens’, *TvD* 115 (1990) 183.

84 NA, VD 1971-1995, inv. nr. 513, BSE, DG LGK to Minister LNV (June 5, 1990) 3; Veterinaire Dienst, ‘BSE (Bovine Spongiform Encephalopathy)’.

85 NA, VD 1971-1995, inv. nr. 513, BSE, J.H.G. Goebbels to DG Volksgezondheid B. Sangster (July 7, 1994); Leo Tholhuijsen and Frans Visser, ‘Britse gekte komt naar het vasteland: Duitse BSE-hysterie kan overslaan’, *Boerderij* 79 (1993-1994) 12-15.

86 NA, VD 1971-1995, inv. nr. 513, BSE, Goebbels to DG Sangster (July 7, 1994).

87 H.F. Treurniet and K. Schaapveld, *Zoönosen in Nederland* (Leiden 1992) 54-55.

88 K. Schaapveld and H.F. Treurniet, ‘Zoönosen als volksgezondheidprobleem’, *TvD* 119 (1994) 272-275; H.F. Treurniet, ‘Zoönose in Nederland: een inventarisatie’, *Infectieziekten Bulletin* 4 (1993) 92-98 (including ‘Commentaar van de GHI’).

89 NA, VD 1971-1995, inv. nr. 513, BSE, documents (1994); E-mail interview Sangster (May 2016).

90 Koolmees, *Symbolen*; H. Verburg, R.G. Herbes and P.A. Koolmees, ‘Vleeskeuring inclusief zoönosen, milieu en verbreding van de productieketen’, *Diergeneeskundig Memorandum* 51:3 (2004) 21-36, 27.

inspection authorities increasingly called in non-veterinary inspectors.⁹¹ Moreover, meat inspection work suffered from a serious lack of popularity among Dutch veterinarians around 1990.⁹² According to former deputy Chief Veterinary Officer of Public Health Jos Goebbels, the status of meat inspection was the opposite of what it had been: ‘the [veterinary] profession looks down somewhat [...] on the colleagues who work in slaughterhouses’.⁹³ And the State Inspectorate of Public Health in general increasingly lost its former ‘aureole’.⁹⁴ At the European level, veterinarians discussed BSE as a way to reclaim veterinary public health responsibilities. They did this in a context of lamentations over veterinary public health’s continuous loss of supervision, inspection and surveillance tasks because of continuing budget cuts and minimal national implementation of European legislation.⁹⁵

While veterinary public health was losing status among veterinarians, they continued to criticise medical disinterest in zoonoses and repeated the argument for the veterinary importance for human health. For example, when the medical committee of the Royal Netherlands Academy of Arts and Sciences (*Koninklijke Nederlandse Akademie van Wetenschappen, KNAW*) organised a conference called ‘Disease, not only in humans’ in 1990, the veterinary report of this conference noted: ‘It can be called disappointing that the human-medical world was conspicuous by its absence, despite the extensive announcements and invitations. At least 90% of the audience came from the veterinary world.’⁹⁶ Solace could be found in the conviction that ‘only one animal medicine [*diergeneeskunde*] exists in principle, covering all species including humankind’.⁹⁷ Veterinarians continued to express such frustrations from a veterinary inferiority complex in relation to human medicine, and the low status of veterinary public health in veterinary medicine itself deepened such frustrations.⁹⁸ And medical distrust had not disappeared either. Osterhaus continued the tradition of veterinary virologists to move

91 In the 1990s, only one in four inspectors of the Rijksdienst voor de Keuring van Vee en Vlees was a veterinarian. Van der Most and Smit, BSE, 28. See also: NA, VHI, inv. nr. 125, Agenda’s en notulen van de kernstafvergaderingen 1988.

92 NA, 2.11.84 Rijksdienst voor de Keuring van Vee en Vlees 1984-1999 (hereafter RVV), inv. nr. 51, Notulen en agenda’s van vergaderingen met de Koninklijke Nederlandse Maatschappij voor Diergeneeskunde 1993-1997, Notulen (May 8, 1991) 3.

93 Interview Goebbels (April 12, 2016).

94 Ibidem.

95 Sophie Deleu, ‘KNMVd gastheer voor veterinaren van Europa: FVE-week in Utrecht vanwege 175 jaar DON’, *TvD* 121 (1996) 403-404; Sophie Deleu, ‘Consument wil *veterinaire* garanties: FVE-vergadering over BSE te Parijs’, *TvD* 121 (1996) 466-468, 466.

96 R.A. van Nieuwstad, ‘Ziekte, niet alleen bij mensen: symposium alleen voor veterinaren’, *TvD* 115 (1990) 643.

97 Ibidem.

98 See also: Ed., ‘Van de Hoofdredactie’, *TvD* 122 (1997) 157; F.J. van Sluijs, ‘De pretenties van de (dieren) arts’, *TvD* 125 (2000) 153-154; T. Jorna, ‘Uit de Hoofdredactie: Volksgezondheid’, *TvD* 125 (2000) 412; F. van Knapen, ‘Dierenarts kwaliteitsbewaker productieketen’, *TvD* 125 (2000) 533.

into the medical domain (chapter 2). He recalls from his entering an academic medical hospital environment in the early 1990s: ‘my medical colleagues [...] did not take me very seriously initially, of course. “This chicken doctor,” that’s what they think, “what should we do with him?”’⁹⁹

In 1995, scientists related several British patients with Creutzfeldt-Jakob Disease to the BSE epidemic, especially because they were uncharacteristically young CJD patients. Soon, this variant of Creutzfeldt-Jakob Disease was referred to as a (new) variant of CJD ((n)vCJD). BSE panic truly arose after the UK government released a report by their Spongiform Encephalopathy Advisory Committee (SEAC) on March 20, 1996, which declared that a link between human patients with vCJD and the BSE epidemic among cattle was most likely. The British Health Secretary abandoned the policy of denying public health risks of BSE. Some epidemiologists feared hundreds of thousands of patients, as vCJD probably had a long incubation period. In April 1996, the World Health Organisation advised that no part of an animal with BSE should enter the human or animal food chains. As a response, media and consumer panic was immense, especially in the UK, Germany and France.¹⁰⁰ This caused a huge EU trade-political crisis which is referred to as the ‘Beef Wars’, especially for the United Kingdom (see section 4). This turn of events made BSE a standard current reference point in British historiography on zoonoses.¹⁰¹

Written documents show a relatively calm and careful response of the Dutch public health domain to the ‘BSE panic’. To some extent this response mirrored the feeling within agricultural circles that all was well within Dutch borders, although the perspective on BSE had shifted to: ‘it cannot be ruled out that BSE could cause disease in humans’ in early 1996.¹⁰² To what extent this attitude was also upheld backstage needs further research, as relevant archival papers are not yet available in the National Archives. But the image that can be obtained, is quite consistent. Former Veterinary Officer of Public Health Goebbels recalls: ‘here in the Netherlands, in any case, if you should turn to old newspapers, has been no panic *at all*.

99 Interview Osterhaus (April 21, 2016).

100 Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1995* (Rijswijk 1996) 10; Rochus Kingmans, ‘Verkoop koeien alleen als het echt moet’, *Boerderij/Veehouderij* 81:10 (1996) 30-31; Rochus Kingmans, ‘BSE-scherven nog niet opgeruimd’, *Boerderij/Veehouderij* 81:11 (1996) 38-39.

101 Peter Atkins and Paul Brassley, ‘Mad Cows and Englishmen’, *History Today* 46:9 (1996) 14-17; John R. Fisher, ‘Cattle Plagues Past and Present: The Mystery of Mad Cow Disease’, *Journal of Contemporary History* 33 (1998) 215-228; David Cantor and Christian Bonah, ‘Introduction’, in: Cantor, Bonah and Dörries (eds.), *Meat*, 1-31, 28-29; Waddington, ‘Mad and Coughing Cows’; Neil Pemberton and Michael Worboys, *Rabies in Britain: Dogs, Disease and Culture, 1830-2000* (London, New York 2013) 4; Hardy, *Salmonella*.

102 W. Edel, J.A. Smak, A.E.M. van der Pluijm, ‘Boviene spongieuze encefalopathie (BSE): Onderzoek in slachthuizen per 1 maart 1996 verplicht’, *TvD* 121 (1996) 113-114.

Nothing, zero. Zero.¹⁰³ In July 1996, the *RIVM* continued to be reluctant to assume a link between BSE and vCJD in a report on a meeting on prion diseases which it held in April 1996.¹⁰⁴ The newly founded national infectious disease control co-ordination body *LCI* did not regard BSE as a serious Dutch problem either.¹⁰⁵ The State Secretary of Public Health did install a Health Council committee on prion diseases. It concluded that the public health risks of BSE were a real concern, but also stressed how advanced and quick measures against the spread of BSE had been in the Dutch livestock sector, and regarded the potential dangers to be primarily British.¹⁰⁶ In 1996, members of the epidemiological CJD network argued in the Dutch medical journal that much was unclear about vCJD and that a causal relation to BSE had not been proven. BSE was not mentioned at all in a descriptive study of Dutch CJD patients in the same year.¹⁰⁷

Only sporadically, critical questions regarding public health implications of BSE in the Netherlands were asked. The Health Council asked questions on the ‘effectiveness’ of the scrapie surveillance programme, and touched upon the possible tension between a thorough surveillance of animal prion diseases and (national) economic interests.¹⁰⁸ These questions were repeated with some more emphasis in the medical journal one year later.¹⁰⁹ But the Minister of Public Health did not address these issues in her policy paper on infectious disease control in 1997.¹¹⁰

A growing international concern was that BSE prions might spread among the human population through blood transfusions.¹¹¹ This did inspire Joost Ruitenberg, director of the Red Cross Central Laboratory of the Blood Transfusion Service (*Centraal Laboratorium van de Bloedtransfusiedienst, CLB*), to seek contact with British transfusion institutions like the British National Blood Authority,¹¹² and the BSE scientific experts of the Dutch Central Veterinary

103 Interview Goebbels (April 12, 2016).

104 Van der Most and Smit, BSE, 15.

105 *Infectieziekten Bulletin* 7-11 (1996-2000).

106 Gezondheidsraad, *Prionziekten*, 45; Ab Leussink, “Gekke-koeien ziekte”: Commissie taxeert risico’, *Infectieziekten Bulletin* 8 (1997) 60.

107 D.P.W.M. Wientjes et al., ‘Spongiforme encefalopathie bij rund en mens’, *NTvG* 140 (1996) 1252-1254; F.B. van der Wurff, W.A. van Gool, A. Hijdra, ‘De ziekte van Creutzfeldt-Jakob: diagnostiek bij tien patiënten’, *NTvG* 140 (1996) 927-931.

108 Gezondheidsraad, *Prionziekten*, 37-38.

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109 W.A. van Gool and P.H.S. Meijerink, ‘De ziekte van Creutzfeldt-Jakob; een jaar later’, *NTvG* 141 (1997) 613-615.

110 *Handelingen Tweede Kamer* 1996-1997, Bijlagen, 25295 Infectieziektenbestrijding, nr. 2, Minister van VWS E. Borst-Eilers, Nota, 20-23.

111 See on the international concerns about spread via blood for instance: Meijer van Putten, ‘Groot Brittannië: Weer opschudding’.

112 dr. Karl Landsteiner Foundation, *Research at CLB: Annual Report 1997* (Amsterdam sa) vi.

Institute.¹¹³ A joint meeting with the latter was occasion for the first discussion of BSE in the joint periodical of the Medical State Inspectorate and the *RIVM* – seven years after the start of the discussion about BSE in the EU and the agricultural domain.¹¹⁴ The meeting ended with major scientific doubts, and was the start of research collaboration between the *CLB* and the Central Veterinary Institute, for instance on establishing the possibility of prion infections through blood and on developing tests to detect prions in blood.¹¹⁵

According to Ruitenberg, this contact with the agricultural veterinary institute was not obvious in the medically-oriented *CLB* itself. Again, his personal veterinary network was important here: Ruitenberg is a veterinarian by training and had worked at the *RIVM* in the preceding decades.¹¹⁶ Contacting the veterinarians working in Lelystad was self-evident for him when questions about BSE for the safety of blood transfusion arose, as he had studied and worked with them before: ‘So indeed, you’d call them and say: “Folks...”’¹¹⁷ In the following years, the Central Laboratory of the Blood Transfusion Service researched measures to minimise the risk of spread of prions via blood. A blood test to detect prions in bovine blood developed in collaboration with the Central Veterinary Institute was ready for the veterinary market in 2001, but developing a human blood test was for both commercial and legal-ethical reasons more problematic and did not succeed.¹¹⁸

In 1997, the first Dutch BSE cases came as a shock to Dutch farmers, but were met relatively relaxed by everyone else, most notably Dutch consumers. Market figures show they had reacted relatively calmly to the 1996 BSE crisis, and the finding of the first Dutch BSE cases did not change this: Dutch consumers only for a very short time stopped buying beef.¹¹⁹ The relatively mild reaction of Dutch consumers to BSE can possibly be explained by a combination of a quick response to BSE (discussed in more detail in section 4) and the large role for organised agriculture and agricultural authorities in depoliticising media messages (section 1). Also, the Dutch Consumers Union continuously emphasised that all was well in the Netherlands.¹²⁰ The 1996 crisis did not change the Union’s analysis that BSE was primarily a British problem, to which the Dutch authorities responded well, and it gave this

113 J.G. van Bekkum, ‘Prionziekten bij mens en dier’, *TvD* 121 (1996) 166.

114 H.L. Zaaijer, ‘Prionziekten en bloedtransfusie’, *Infectieziekten Bulletin* 7 (1996) 229-230.

115 dr. Karl Landsteiner Foundation, *Research at CLB: Annual Report 1997*, vii; CLB, 1998 (Amsterdam 1999) 20.

116 Interview Ruitenberg (March 23, 2016).

117 Ibidem.

118 Stichting Sanquin Bloedvoorziening, *CLB 2001* (s.l. sa) 31; Sanquin Blood Supply Foundation, *CLB Scientific Report 2000* (s.l. sa) 15-16; Stichting Sanquin Bloedvoorziening, *Jaarverslag 2004* (Amsterdam sa) 16; Interview Ruitenberg (March 23, 2016).

119 Oosterveer, ‘Reinventing’, 220. See also: Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1997*, 5.

120 ‘WVC en Landbouw willen aanscherping preventie BSE’, *Agrarisch Dagblad* (July 6, 1994); Van der Most and Smit, BSE, 11.

message to the many members who called the Union with questions during the first weeks of the crisis.¹²¹ Moreover, the first Dutch BSE cases of 1997 did not change this, but was occasion for the Union to stress: ‘The danger of BSE to humans is uncertain.’¹²² The Consumers Union only rarely reacted to BSE in the media,¹²³ especially in comparison to organised agriculture. Parliament paid attention to the 1996 European BSE crisis, but also did not regard the Dutch BSE cases as particularly significant.¹²⁴ In effect, consumers generally endorsed the framing of the BSE problem by the agricultural sector and authorities.

The public health domain did not discuss the appearance of the first Dutch BSE cases in 1997 as a significant problem either.¹²⁵ The absence of any discussion of the first Dutch BSE cows in medical periodicals illustrates this most strikingly.¹²⁶ Jim van Steenbergen, at that time one of the few employees of the infectious disease control co-ordination structure *LCI*, recalls: ‘[Later] I realised, that I had taken no notice at all of the control of BSE on the veterinary side. From the human side.’¹²⁷ But despite Van Steenbergen’s distinction between a veterinary and a human medical side, this was also the case for public health *veterinarians*. One of them, Joost Ruitenberg, remembers: ‘what exactly happened with these cattle in the agricultural setting, you heard that, but still it passed by’.¹²⁸ And Ab Osterhaus cannot remember the moment the authorities found the first Dutch BSE cows.¹²⁹ Once again we see that problem ownership was not so much a disciplinary matter, but a matter of the domains of public health and agriculture. The control of BSE within the Netherlands was left to agricultural veterinary authorities with no further thought.

In short, few people in the public health domain attempted to define BSE as a *Dutch* public health problem in the Netherlands during the early 1990s, apart from the personal networks of veterinarians working in the public health domain. Although the public health

121 ‘Gerechtvaardigde actie tegen gekke-koeenziekte’, *Consumentengids* [44] (1996) 276.

122 ‘Consument hoeft rundvlees niet te mijden’, *Consumentengids* [45]:5 (1997) 4.

123 Few examples are: In Beeld en Geluid, description of *Twee Vandaag*, television programme, March 23, 1996, <http://in.beeldengeluid.nl/collectie/details/expressie/226291/false/true> (March 20, 2017); In Beeld en Geluid, description of *Nova*, television programme, item ‘Britse regering misleidde bevolking inzake veiligheid rundvlees’, October 26, 2000, <http://in.beeldengeluid.nl/collectie/details/expressie/46807/false/true> (March 20, 2017); ‘Consumentenbond blij met Europese BSE-maatregel’, *NRC Handelsblad* (December 5, 2000).

124 *Handelingen Tweede Kamer* 1996-1999, via ‘Parlementaire documenten’, https://zoek.officielebekendmakingen.nl/zoeken/parlementaire_documenten (March 15, 2017). Search term ‘BSE’.

125 Interview Goebbels (April 12, 2016); Interview Ruitenberg (March 23, 2016); Interview Osterhaus (April 21, 2016); Interview Van Steenbergen (July 5, 2016). See also: *Handelingen Tweede Kamer 1996-1997*, Bijlagen, 25295 Infectieziektenbestrijding, nr. 2, Minister van VWS E. Borst-Eilers, Nota, 20-23.

126 *NTvG* 141-143 (1997-1999); *Medisch Contact* (1996-2000); *Infectieziekten Bulletin* 7-11 (1996-2000).

127 Interview Van Steenbergen (July 5, 2016).

128 Interview Ruitenberg (March 23, 2016).

129 Interview Osterhaus (April 21, 2016).

domain followed any news about BSE developments from the UK, it very much regarded BSE as a British problem, and initially was reluctant to assume a link between BSE and public health. When the European BSE crisis of 1996 made this link more likely, the public health domain continued to view BSE as an agricultural issue, with the agricultural domain as chief problem owner.

Internationally, concerns about a potential massive outbreak of vCJD grew: scientists were uncertain about the potential magnitude of the epidemic,¹³⁰ and the peak of vCJD cases lay in the years 2000-2002. Most of these cases continued to be found in the UK.¹³¹ Nevertheless, a major second European BSE crisis occurred in the autumn of 2000, because France discovered BSE-infected beef in a supermarket, and Germany reported its first 'native' BSE case. Again, Dutch consumers reacted relatively calmly in comparison to other countries, and the only attention the Dutch Consumers Union paid to this BSE crisis was a reassuring article.¹³² The reaction in for instance Germany was very different.¹³³

However, the crisis did result in more structural attention of parliament¹³⁴ and of the public health domain to BSE and vCJD. This also occurred in the context of major changes in the organisation of infectious disease control. After the 9/11 attacks (and the associated 'anthrax letters') in 2001 and the threat of SARS one year later, infectious diseases were more prominently present in the public and political gaze. A centre for the co-ordination of infectious disease control with actual power was founded at the *RIVM* (but only in 2005).¹³⁵ The medical journal *NTvG* and the joint periodical of the Medical State Inspectorate and the *RIVM* published more regularly about BSE and vCJD, whose causal relation was now

130 See for instance: A.C. Ghani et al., 'Estimation of the number of people incubating variant CJD', *The Lancet* 352 (1998) 1353-1354; Huillard d'Aignaux et al., 'Predictability of UK Variant Creutzfeldt-Jakob Disease Epidemic', *Science* 294 (2001) 1729-1731.

131 Worldwide, 229 people died of vCJD until this day, of which 177 were British people, with a peak of 28 cases in 2000. Creutzfeldt-Jakob Disease International Surveillance Network, 'CJD Surveillance Data 1993-2013' (2015), <http://www.eurocjd.ed.ac.uk/surveillance%20data%201.html> (December 17, 2016).

132 Oosterveer, 'Reinventing', 220; '15 vragen over BSE', *Consumentengids* 49:2 (2001) 10-11.

133 Daniela Kleinschmidt and Peter H. Feindt, 'Verursacher, Opfer und Helfer: BSE und Agrarpolitik in deutschen Zeitungen', *Forschungsjournal Neue Soziale Bewegungen* 17:3 (2004) 93-98; Eva Barlsius and Axel Phillips, "Eine Zeit lang haben wir kein Rindfleisch gegessen": BSE zwischen Alltagsbewältigung, politischer Krise und medialer Skandalisierung', *Zeitschrift für Agrargeschichte und Agrarsoziologie* 54:2 (2006) 23-35; Peter H. Feindt and Daniela Kleinschmit, 'The BSE Crisis in German Newspapers: Reframing Responsibility', *Science as Culture* 20 (2011) 183-208.

134 *Handelingen Tweede Kamer 2000-2001*, via 'Parlementaire documenten', https://zoek.officielebekendmakingen.nl/zoeken/parlementaire_documenten (March 15, 2017). Search term 'BSE'.

135 The *Centrum Infectieziektenbestrijding (CIB)*. The 'powerless' *Landelijke Coördinatie Infectieziektenbestrijding (LCI)* became part of this centre. Interview Ruitenberg (March 23, 2016); Interview Van Steenbergen (July 5, 2016).

considered likely.¹³⁶ Regarding transmission from humans to humans, the most important concern was spread via blood products.¹³⁷

Only at this point, public health experts started to critically discuss BSE-related trade relations. Hans Zaaijer, medical microbiologist at the VU Academic Hospital in Amsterdam, argued in the medical journal *NTvG* that because of European free trade in agricultural products and ‘vulnerability of the system for fraud’, thinking about BSE risks in terms of ‘low’ and ‘high’ risk countries was ‘unwise’ – all countries shared the risks through complicated trade networks.¹³⁸ To the annoyance of experts working in the agricultural domain,¹³⁹ medical publications related BSE to the wider public criticism of the livestock sector, although the leading medical opinion journal *Medisch Contact* would remain silent on public health implications of the livestock sector until the Q fever outbreak in 2007-2010. From a British problem, BSE and vCJD had turned into hard-to-control problems of free-trading continental Europe.

When the first vCJD patient was diagnosed in the Netherlands in 2005 this was not a real surprise,¹⁴⁰ and more cases were expected to be found.¹⁴¹ This was the incentive for the Dutch medical journal to finally call for awareness, as BSE had been found ‘In 79 cows in the Netherlands’ (with a reference to the Ministry of Agriculture’s website) and possibly contaminated meat had been traded internationally.¹⁴² And only at this point, CJD guidelines were designed to coordinate responses to the disease.¹⁴³ Veterinary experts were consulted in

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- 136 E.A. Croes et al., ‘Overdraagbare spongiforme encefalopathieën: de ziekten, surveillance en preventie in Nederland’, *Infectieziekten Bulletin* 12 (2001) 211-216; J.E. van Steenbergen, ‘Risicokoe’, *Infectieziekten Bulletin* 12 (2001) 244; H.L. Zaaijer, ‘Interpretatie van de toename van boviene spongiforme encefalopathie buiten Groot-Brittannië’, *NTvG* 146 (2002) 748-750, 748.
- 137 R. Kersseboom, S.C. Koekoek and J.H. Richardus, ‘Het risico van de variant van de ziekte van Creutzfeldt-Jakob in Nederland en het effect van preventieve maatregelen’, *NTvG* 146 (2002) 754-759, 758.
- 138 H.L. Zaaijer, ‘Boviene spongiforme encefalopathie en de veiligheid van voedsel’, *NTvG* 144 (2000) 1052-1057.
- 139 H.L. Zaaijer, ‘Verwarring rond boviene spongiforme encefalopathie (BSE) en het risico op de nieuwe variant van de ziekte van Creutzfeldt-Jakob’, *NTvG* 144 (2000) 2288-2290 and G. Hof, response (January 2001), <https://www.ntvg.nl/artikelen/verwarring-rond-boviene-spongiforme-encefalopathie-bse-en-het-risico-op-de-nieuwe-variant/ingezonden-mededeelingen> (December 22, 2016).
- 140 See for earlier expectations that Dutch vCJD cases would be found: E.A. Croes et al., ‘Ziekte van Creutzfeldt-Jakob: diagnostiek, incidentie, preventie en behandeling’, *NTvG* 146 (2002) 750-754; Kersseboom, Koekoek and Richardus, ‘Het risico’; Jannetje Koelewijn, ‘In een paar weken dement: BSE gaat ook in Nederland Creutzfeldt-Jakob veroorzaken’, *NRC Handelsblad* (December 28, 2000).
- 141 C. Jansen et al., ‘De eerste patiënt in Nederland met de nieuwe variant van de ziekte van Creutzfeldt-Jakob’, *NTvG* 149 (2005) 2949-2954.
- 142 Ibidem, 2953.
- 143 Interview Van Steenbergen (July 5, 2016); RIVM, ‘LCI-richtlijn ziekte van Creutzfeldt-Jakob’ (May 6, 2011), http://www.rivm.nl/Documenten_en_publicaties/Professioneel_Praktisch/Richtlijnen/Infectieziekten/LCI_richtlijnen/LCI_richtlijn_Creutzfeldt_Jakob_ziekte_van (March 15, 2017).

this process, but simultaneously Jim van Steenbergen characterises it as occurring ‘in splendid isolation’ from what happened in the agricultural domain.¹⁴⁴ Until now, the predictions of large numbers of BSE-related vCJD patients have not come true. The Netherlands in particular has been relatively well-off until this day, with three vCJD patients and 88 cows which have been diagnosed with BSE.¹⁴⁵

3. Who owns food safety?

BSE occurred in a period of quickly expanding liberalisation of trade, within the EU in particular, and major changes in the relation between private and public organisations concerned with the livestock sector and its effects on public health. In this section, I will analyse the relations between the state authorities of agriculture and public health, and between the government and the (semi-)private agricultural sector. In the EU context, national governments continued to regulate public health and consumer protection. These occupied a ‘disadvantaged position’, in particular in relation to the ‘special status’ of the European Common Agricultural Policy according to Paul in her dissertation on European food safety.¹⁴⁶ European public health policy was largely restricted to issues related to single market trade barriers. Closely related to these agricultural-public health relations in a neoliberal context, the EU saw (and continues to see) product safety as a corporate responsibility.¹⁴⁷

However, BSE became a direct incentive to expand the EU’s food safety policy, and fundamentally changed the relation between the EU policy domains of agriculture and public health. This was closely linked to growing public criticism of the expensive and producer-centred Common Agricultural Policy. Before 2000, the EU had located responsibilities for BSE control within economically orientated policy domains.¹⁴⁸ During the early 1990s this had already been cause for tensions, especially because Germany demanded precautionary principle-based BSE policy to protect public health from the start.¹⁴⁹ Growing public criticism of the EU’s prioritising of trade over public health interests, in particular voiced by the European Parliament in the aftermath of the 1996 BSE crisis, resulted in the reorganisation of food safety policy, institutions and scientific advice. The EU moved all veterinary policies from

144 Interview Van Steenbergen (July 5, 2016).

145 Wageningen University, ‘BSE: de gekke koeienziekte’, <http://www.wageningenur.nl/nl/Expertises-Dienstverlening/Onderzoeksinstiututen/central-veterinary-institute/show/BSE-1.htm> (March 15, 2017).

146 Paul, Food Safety, 5-7.

147 Batho et al., *The EU veterinarian*, 24-26; Paul, Food Safety, 1-18, 262-304. See on the CAP: Patel (ed.), *Fertile Ground*.

148 DG III for the EU’s internal market and enterprise, and DG VI for agriculture and fisheries (including veterinary matters).

149 Paul, Food Safety, 28 and 150-209.

the Directorate General VI for Agriculture to Directorate General XXIV for Consumer Policy and Consumer Health Protection, which was expanded and renamed Directorate General for Health and Consumer Protection ('DG SANCO'). As a response to the criticism that the EU's scientific advisers had been too much subjected to the pressures of economic interests,¹⁵⁰ the EU founded several new scientific committees on health and food safety. Stricter consumer protection policies for the entire food production chain were set out in the EU White Paper on food safety (2000), and the new European Food Safety Authority was founded in its wake. As Paul has argued, these EU developments kept room for the different national approaches to public health, food safety and consumer protection (in which national governments continued to be dominant), and the continuing importance of the single European market. But the autonomous position of agriculture was increasingly subjected to pressure.¹⁵¹ Similar developments occurred in the UK, France and Germany.¹⁵²

Very different from the debate on the relations between public health and agriculture BSE induced in the EU context, the policy domains of agriculture and public health did not experience any difficulties in addressing BSE together in the Netherlands.¹⁵³ Like former deputy Chief Veterinary Officer of Public Health Goebbels puts it: 'with BSE [...] we immediately realised all together: folks, we need to go that way.'¹⁵⁴ Interviewees explain this by everyone's drive and willingness to collaborate, and the general realisation that BSE was a serious threat to public health (supported by media attention).

However, these excellent relations between the agricultural and public health authorities were not self-evident. While Osterhaus agrees that Dutch BSE control was harmoniously done, this was exceptional: 'the interaction between the Ministries in this period was [...] suboptimal. To put it carefully. They did not speak to one another.'¹⁵⁵ In the 2000s, especially the Q fever epidemic became notorious for the collaboration and communication problems between the policy domains of agriculture and public health.¹⁵⁶ Hence, the relations between the Dutch

150 Compare interview Osterhaus (April 21, 2016).

151 Bekke and De Vries, *De ontspoldering*, 66-67; Van Zwanenberg and Millstone, "Mad cow disease"; Batho et al., *The EU veterinarian*; Paul, *Food Safety*, 262-304.

152 Patrick van Zwanenberg and Erik Millstone, 'BSE: A Paradigm of Policy Failure', *Political Quarterly* 74 (2003) 27-37. See for an extensive comparison of BSE policies in different European countries: M. Barbier et al., *BSE Saga in Europe: Lessons and Perspectives, Building a Common Data Base on Scientific Research and Public Decision on TSEs in Europe - BASES final report* (2002).

153 NA, VD 1971-1995, inv. nr. 513, BSE, letters between the Ministries of Agriculture (*LVN*) and Public Health (*WVC*) (1994); Interview Goebbels (April 12, 2016); Interview Osterhaus (April 21, 2016); E-mail interview Sangster (May 2016).

154 Interview Goebbels (April 12, 2016).

155 Interview Osterhaus (April 21, 2016). Former Director-General of Public Health Bart Sangster calls the relation 'more than difficult' until 1995. E-mail interview Sangster (May 2016).

156 Interview Osterhaus (April 21, 2016); Van Dijk et al., *Van verwerping*.

policy domains of agriculture and public health in the BSE period deserve some further study, before we will discuss the actual BSE measures they started in relative harmony in section 4.

In the BSE period, the conflict between the Ministries of Agriculture and Public Health on the twentieth-century livestock production-product division intensified.¹⁵⁷ This task division corresponded to the perception that zoonotic and food safety problems belonged to both policy domains, but did not help to fundamentally clarify responsibilities, like the 1992 study on zoonoses in the Netherlands ordered by the Veterinary State Inspectorate of Public Health noted.¹⁵⁸ The respective responsibilities of the Ministries continued to be a regular ‘awkward case’.¹⁵⁹ Regular evaluations of food safety from the late 1990s onwards – in the wake of BSE and other food safety issues like the dioxin affair¹⁶⁰ – repeated more or less the same message every time: while the Ministry of Public Health had primary responsibility for public health officially, in practice the Ministries continued to share responsibilities, resulting in conflicts and problems again and again.¹⁶¹

Two developments explain this deepening of the conflict. Firstly, the growing societal critique of the agricultural sector in the context of the growing importance of health, the environment and animal welfare in the public eye, eroded the powerful position of the agricultural ‘green front’. In 1983, social basic rights were included in the Dutch Constitution, which obliged the government to take measures to promote public health and a healthy environment.¹⁶² Respective responsibilities of agricultural and public health authorities for the Dutch position as ‘a gigantic agrarian trading partner’ on the one hand and the ‘public health interest’ on the other,¹⁶³ resulted in tensions intensified by the increasing liberalisation of trade and the growing societal value of individual health.

However, secondly, control of public *agricultural* authorities and private industry was extended simultaneously in the neoliberal political context. Dutch agricultural food production largely continued to be understood as an economic matter, of central importance to Dutch

157 This occurred at national, European and global levels. Batho et al., *The EU veterinarian*, 156; Interview Osterhaus (April 21, 2016).

158 Treurniet and Schaapveld, *Zoönosen*, 45-46.

159 NA, RVV, inv. nr. 51, Notulen vergaderingen met KNMvD, Notulen (May 8, 1991) 2.

160 Paul, *Food Safety*, 210-261.

161 Examples are: Berenschot, *Voedselveiligheid: Waar borgen en waar zorgen: Onderzoek naar het waarborgen van voedselveiligheid* (Utrecht 1999); *Handelingen Tweede Kamer 2000-2001*, Bijlagen, 27 495 Uitvoering Destructiewet, nr. 2, Algemene Rekenkamer, ‘Rapport’, 3-55; *Handelingen Tweede Kamer 2005-2006*, Bijlagen, 30 400 Voedselveiligheid en Diervoeders, nr. 2, Algemene Rekenkamer, ‘Nota’, 3-53; Onderzoeksraad voor de Veiligheid, *Risico’s in de vleesketen* (Den Haag 2014).

162 D.Y.A. van Meersbergen and M.C.I.H. Biesaart, *Praktisch Gezondheidsrecht* (Groningen, Houten 2013) 23. In the Public Health Memorandum (*Volksgezondheidsnota*) of 1966, Minister of Social Affairs and Public Health Veldkamp already defined health care as a social basic right. See: Van Klaveren, *Het onafhankelijkheidssyndroom*, 117-125.

163 Interview Osterhaus (April 21, 2016), including emphasis.

export interests. The agricultural domain continued to define policy issues predominantly from a corporate, producer perspective,¹⁶⁴ while the influence of the public health domain on food inspection diminished. During the reorganisations of the 1980s, the formerly municipally organised meat inspection was centralised at the Ministry of Agriculture in the State Livestock and Meat Inspection Service (*Rijksdienst voor de Keuring van Vee en Vlees, RVV*). The Ministry of Public Health continued to be responsible for product inspection and *supervision* of meat inspection and animal rendering via the Veterinary State Inspectorate of Public Health. During the first half of the 1990s, debate on responsibilities for food inspection was the major reason for the difficult relation between the two ministries.¹⁶⁵ The early 2000s saw a lot of transfers of food inspection and animal rendering responsibilities between them, inspired by (short-term) political considerations and ad hoc crises. In 2001, meat inspection was shortly moved from the agricultural to the public health authorities, supported by the food industry to reassure consumers.¹⁶⁶ In 2003, the partly confessional government moved this new organisation again in its entirety to the renamed Ministry of Agriculture, Nature and Food Quality (*Landbouw, Natuur en Voedselkwaliteit*), which public health officials, the Consumers Union and large multinational food corporations criticised as a ‘farmers’ coupe’.¹⁶⁷ Thus, while the UK and EU responded to the BSE crisis by decreasing the power of agricultural authorities, the opposite occurred in the Netherlands.¹⁶⁸

This was closely linked to the outsourcing of former public tasks to private parties in the neoliberal context of the 1980s, 1990s and early 2000s, an international phenomenon, but taken on with particular enthusiasm in the Netherlands.¹⁶⁹ The existing literature does

164 Paul, Food Safety, 210-261.

165 The ‘Hendriks-De Zeeuw report’ on food inspection of 1992 (written by former confessional State Secretary of Public Health Jo Hendriks and former liberal Director-General of Agriculture Aart de Zeeuw) proposed full privatisation of food inspection. The covenant ‘De Leeuw/Sangster’ of 1995 (reached by the respective Directors-General of Agriculture and Public Health) introduced a pragmatic solution by agreeing on specific points in the production chain where primary responsibility was passed on from the agricultural authorities to public health authorities, like the deboning phase in the case of meat. J.P.M. Hendriks and A. de Zeeuw, *Op weg naar een gezonde kwaliteit: advies met betrekking tot een evenwichtige taakverdeling tussen de departementen van LNV en WVC op het terrein van de levensmiddelenwetgeving en -controle* ([s-Gravenhage] 1992); E. Wubben a.o., *De Nederlandse Voedsel en Warenautoriteit in het systeem voor borging van voedselveiligheid: Een verkenning naar de toepasbaarheid van een institutioneel-economisch perspectief* (Den Haag 2003) 30-31; E-mail interview Sangster (May 2016).

166 ‘Negende BSE-geval ontdekt in Olst: Kamer wil één ministerie voor voedselveiligheid onder Borst’, *NRC Handelsblad* (January 13, 2001).

167 Marcel van Silfhout, *Uitgebeend: Hoe veilig is ons voedsel nog?* (Amsterdam 2014) 109-115.

168 E-mail interview Sangster (May 2016).

169 L.B. Humbert, *Zicht op toezicht: een institutioneel onderzoek naar het Staatstoezicht op de Volksgezondheid, 1940-1990*, PIVOT-rapport nr. 5 (Den Haag 1993) 5-6; Keulen, *Monumenten*; Paul, Food Safety, 232; Van Klaveren, *Het onafhankelijkheidssyndroom*, chapter 4.

not sufficiently address the role of private parties in food safety policy.¹⁷⁰ The neoliberal ideals of a smaller government, deregulation and cutbacks were combined with the ideas that companies were responsible for ensuring the quality and safety of their products and that the role of the state could be scaled down to supervision of companies' compliance with the law. While public institutes responsible for food inspection and livestock disease control experienced several reorganisations, fusions and cutback rounds,¹⁷¹ private parties increasingly took over their tasks. In the early 1990s, the confessional-social democratic coalition Lubbers III came close to introducing the privatisation of food inspection.¹⁷² The meat sector and the *RVV* actively supported this plan, while the Veterinary Association *KNMvD* only criticised the low profile of veterinary professionals.¹⁷³ Shortly after, the new liberal-social democratic coalition called off the plan again.¹⁷⁴ But while the liberal-social democratic coalitions of the 1990s criticised the public-private interrelations within the *PBO* system, they moved practical inspection responsibilities to corporate hands.¹⁷⁵ Social liberal Minister of Agriculture Laurens-Jan Brinkhorst argued in 2000 that private parties rather than state authorities should get more responsibilities to meet consumer protection standards set by the state, referring among others to the context of BSE.¹⁷⁶

So despite the gradual decline of the *PBO* system, the authorities continued to closely collaborate with organised enterprise. Both agricultural and public health authorities shared this view. '[T]ogether with [the Ministry of Agriculture] and business' was the outlook of the Veterinary State Inspectorate of Public Health's responsibilities in the year in which the Agricultural Board imploded.¹⁷⁷ Both the Ministry of Agriculture and the Veterinary State

170 This theme is missing in particular in: Oosterveer, 'Reinventing'; Kari Tove Elvbakken, Per Laegreid and Lise Hellebø Rykkja, 'Regulation for Safe Food: A Comparison of Five European Countries', *Scandinavian Political Studies* 31 (2008) 125-148.

171 'In plaats van de VHI: de inspectie W&V', *TvD* 123 (1998) 571; Edel, 'Diergeneeskunde', 623; Van Silfhout, *Uitgebeend*, 131-136, 206-207; Interview Goebels (April 12, 2016).

172 *Handelingen Tweede Kamer* 1993-1994, Bijlagen, 23400 XIV Vaststelling van de begroting van de uitgaven en de ontvangsten van hoofdstuk XIV (Ministerie van Landbouw, Natuurbeheer en Visserij) voor het jaar 1994, nr. 24, Lijst van vragen en antwoorden over kabinetsstandpunt over het rapport van de commissie Hendriks/De Zeeuw (December 8, 1993).

173 R.J. Tazelaar, 'Landbouwbeleid na(ar) 1992', *TvD* 115 (1990) 3-9; NA, RVV, inv. nr. 51, Notulen vergaderingen met KNMvD, Notulen (April 26, 1993), (May 2, 1994) and (July 10, 1995); Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1994* (Rijswijk 1995) 27

174 *Handelingen Tweede Kamer* 1994-1995 (November 2, 1994) 891.

175 Ibidem 1999-2000, Bijlagen, 27 232 Visienota Voedsel en Groen, nr. 2, Nota, 14-15. See also: Pieter Cloo, 'Beste dierenarts', *TvD* 126 (2001) 118; E.N. Noordhuizen-Stassen, 'Toekomst veehouderij: uitdagingen voor practicus', *TvD* 126 (2001) 423-425, 423; Productschap Diervoeder, *Rapportage controle Diervoederwetgeving in Nederland: Jaarverslag 2003*, Kwaliteitsreeks nr. 100 (Den Haag 2004); Onderzoeksraad voor de Veiligheid, *Risico's*, 72-73.

176 L.J. Brinkhorst, "Naar een ministerie voor Voeding en Groen", *TvD* 125 (2000) 393-394.

177 H. Verburg, 'Veterinaire inspectie van de volksgezondheid: 75 jaar', *TvD* 120 (1995) 511-512.

Inspectorate at the Ministry of Public Health regularly consulted with *PBO* bodies and with private organisations like the Central Organisation for the Meat Sector (*Centrale Organisatie voor de Vleessector*) and the Animal Health Service.¹⁷⁸ The Inspectorate's supervision role over the production chain (since the 1980s) was based on private sector quality control initiatives.¹⁷⁹ The new relations were also occasion for conflict. Private parties demanded a say over inspection policy, as they had to contribute to costs formerly paid by the state. For instance, a serious conflict on meat inspection tariffs arose in 1994. The Meat Board called on slaughterhouses not to pay the meat inspection service *RVV* until it would agree with close consultation with the meat sector and pay back part of the former sum. Millions of guilders stood on the Board's bank account until the *RVV* gave in.¹⁸⁰ The meat inspection tariffs would be a continuing source of conflict over the following years.¹⁸¹ Goebbels remarks that the private Animal Health Service had a central role as 'a kind of eyes and ears' in livestock disease surveillance, of central importance for the Veterinary State Inspectorate's warning function.¹⁸² And as a veterinarian of the Animal Health Service voiced it, this meant: 'Without an economic basis no successful zoonoses control programme'.¹⁸³ Organised business continued to have a major say in the design of policies affecting their activities in the Netherlands.

As a result, responsibilities for the effects of intensive livestock keeping on public health were divided over many organisations and institutes, both public, semi-private and private, in both the agricultural and public health domains. Also insiders did not exactly know the responsibilities and tasks of all the different public and private organisations involved.¹⁸⁴ Such compartmentalisation did not help to clarify responsibilities, and could easily lead to uncertainty and conflicting interests in the case of a livestock-associated zoonosis and/or food safety problems. Indeed, Dutch policy was repeatedly criticised, both in and outside the Netherlands. Public health veterinarians observed that voluntary corporate quality and safety improvement programmes worked very well as market improvement tools, but did not

178 Deleu, "Gezondheidsbescherming"; Interview Goebbels (April 12, 2016).

179 VD, 'Veterinaire Hoofdinspectie van de Volksgezondheid: Besluit Staatstoezicht (Gezondheidswet aangepast', *TvD* 113 (1988) 834; Veterinaire Hoofdinspectie van de Volksgezondheid, 'Reorganisatie van de Veterinaire Inspectie van de Volksgezondheid per 9-12-1989 een feit', *TvD* 115 (1990) 280-282; Treurniet and Schaapveld, *Zoönosen*, 22-23; Verburg, 'Veterinaire inspectie'.

180 Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1994*, 26-27; Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1995*, 29.

181 NA, RVV, inv. nr. 110, Notulen en agenda van een overleg van de Commissie van Advies van de RVV met de DG's van de ministeries LNV en VWS 1996-1998.

182 Interview Goebbels (April 12, 2016).

183 Deleu, "Gezondheidsbescherming", 452.

184 Treurniet and Schaapveld, *Zoönosen*, 13-23; Berenschot, *Voedselveiligheid*, 27-28.

guarantee public health protection.¹⁸⁵ Regarding livestock-associated zoonoses, a recurring complaint in circles of public health is that the private Animal Health Service is reluctant to collaborate in research.¹⁸⁶ The European Commission and the German government criticised the far-reaching reliance on corporate responsibility in public health protection and livestock disease control in the Netherlands in the context of BSE.¹⁸⁷ Recently, the Dutch government has brought practical meat inspection back to the public domain in response to several meat safety scandals.¹⁸⁸ But the Netherlands Food and Consumer Product Safety Authority (*Nederlandse Voedsel- en Warenautoriteit, NVWA*) continues to be located at the Ministry of Economic Affairs until this day, although it has been made independent in the sense that the Ministry no longer controls the Authority's budget and financial priorities.¹⁸⁹

As has been discussed in chapter 3, the personal union between the veterinary authorities at the Ministries of Agriculture and Public Health formed an important 'intermediary' in linking the agricultural and public health domains, although this was no direct solution in the case of controversies. In the preparing phase of the common European market, the Netherlands appointed both the Veterinary State Inspectorate of Public Health and the agricultural Veterinary Service as competent veterinary authorities.¹⁹⁰ The Veterinary State Inspectorate in particular played an important intermediary role in institutionalising structural attention for known and unknown zoonotic diseases, especially by pointing out problems and communicating with many parties in the public health and agricultural domains.¹⁹¹ A clear example of this is the evaluative study on general zoonoses control in the Netherlands it

185 'Organisatie keuring en toezicht, heden en toekomst', *TvD* 118 (1993) 91-93; Deleu, "Gezondheidsbescherming", 451; S. Deleu and W Sybesma, 'Oosterom: "Alles is overal, de mens reguleert": tachtig procent van de infecties ontstaat in de keuken', *TvD* 121 (1996) 719-721, 720; J.G. van Logtestijn and W. Sybesma, 'Modernisering van de vleeskeuring broodnodig: Bijeenkomst Groep GKZ en Bond van Keurmeesters', *TvD* 125 (2000) 65-66.

186 NA, VHI, inv. nr. 126, Agenda's en notulen kernstafvergaderingen 1989 (January 10, 1989); Van Dijk et al., *Van verwerping*, 80-83; Interview Ruitenberg (March 23, 2016); Interview Osterhaus (April 21, 2016).

187 NA, RVV, inv. nr. 51, Notulen vergaderingen met KNMvD, Notulen (July 10, 1995); Ibidem, inv. nr. 110, Notulen overleg met de DG's van de ministeries LNV en VWS, H.H. Eggenkamp (LVN) to Aad van Sprang (RVV) (April 26, 1996).

188 Onderzoeksraad voor de Veiligheid, *Risico's*, 72-73; Rijksoverheid, 'Keuring en toezicht voedselketen: toekomstbestendig en onafhankelijk' (October 16, 2015), <https://www.rijksoverheid.nl/actueel/nieuws/2015/10/16/keuring-en-toezicht-voedselketen-toekomstbestendig-en-onafhankelijk> (March 16, 2017); *Handelingen Tweede Kamer 2015-2016*, Bijlage, 33 835 Nederlandse Voedsel- en Warenautoriteit (NVWA), nr. 16, Brief van de Staatssecretaris van Economische Zaken (October 16, 2015).

189 Elvbakken, Laegreid and Rykkja, 'Regulation', 139.

190 Veterinaire Hoofdinspectie, 'Aanwijzing Veterinaire Hoofdinspectie als bevoegde autoriteit in het kader van Richtlijn 89/608/EWG betreffende bijstand aan de Europese Commissie en diensten belast met de handhaving van veterinaire wetgeving in de Lid-Staten', *TvD* 116 (1991) 482-483.

191 Humbert, *Zicht*; Interviews Edel (April 10 and April 17, 2014); Interview Goebbels (April 12, 2016).

ordered.¹⁹² This study of 1992 concluded among other points that a central coordination point for the registration of zoonoses was lacking and that surveillance of data on zoonoses should be published in an organised way, preferably in the joint report of the Medical Inspectorate of Public Health and the *RIVM*.¹⁹³ It also warned for the consequences of the disappearance of EU border inspections.¹⁹⁴ The Medical Inspectorate of Public Health installed a study group with representatives of the public health and agricultural public authorities and research institutes as a response to the study's criticism.¹⁹⁵ It also published an overview of reported zoonoses cases, but did not turn this into a habit. So the responses to the study also illustrate the low priority given to zoonoses in the public health domain at large.

Simultaneously, veterinarians rapidly lost their strong institutional position at both ministries, especially as a consequence of the neoliberal reorganisations and budget cuts. The personal union between the Veterinary Service and the Veterinary State Inspectorate of Public Health was discontinued in 1984. For the *RIVM* this was occasion to strengthen the relations with the agricultural research institutes in Lelystad and Wageningen.¹⁹⁶ After the Veterinary Service was discontinued in 1995, the public State Livestock and Meat Inspection Service *and* the private Animal Health Service took over livestock disease control, while the newly founded Chief Veterinary Officer became responsible. In 1997 and 1998, the Veterinary State Inspectorate of Public Health was included in the more general Inspectorate of Health Protection, Commodities and Veterinary Affairs (*Inspectie Gezondheidsbescherming, Waren en Veterinaire Zaken*) at the Ministry of Public Health, with a lower number of veterinary staff and lower inspection frequency. In 2001, the liberal-social democrat coalition Kok II merged this inspectorate with the new food safety authority, which the centre-right coalition Balkenende II moved to the Ministry of Agriculture in 2003.¹⁹⁷

Despite the ownership conflicts about food inspection at large, agricultural and public health authorities did not seriously clash about BSE control. Goebbels recalls that the views of all public and private parties involved in responding to BSE matched well:

192 The study was conducted by the TNO succession institute of the Institute for Preventive Medicine (*IPG*), with a large tradition in attention for zoonoses (chapter 2).

193 The *Infectieziekten Bulletin*.

194 Treurniet and Schaapveld, *Zoönosen*, ii.

195 Treurniet, 'Zoönose in Nederland', 97-98.

196 Interview Ruitenberg (March 23, 2016).

197 At that point under the name *Voedsel en Warenautoriteit*. NA, RVV, inv. nr. 51, Notulen vergaderingen met KNMvD, Notulen (May 2, 1994 and July 10, 1995); H. Verburg, 'Het veterinaire Staatstoezicht op de Volksgezondheid', *TvD* 122 (1997) 518; *Handelingen Tweede Kamer* 1997-1998, Bijlage, 25600 XVI Vaststelling van de begroting [...] van het Ministerie van VWS (XVI) voor het jaar 1998, nr. 54, Brief van de minister en de staatssecretaris van VWS (January 15, 1998); Susan Umans, 'RVV onder Voedsel en Warenautoriteit, maar dierziektebeleid blijft onder ministerie LNV', *TvD* 128 (2003) 58-59; Edel, 'Diergeneeskunde', 623.

And again, we had no differences of opinion at all on BSE, actually. Everyone said: *never* any trace of BSE in the Netherlands. Look, [...] it's still like that. Now that I am chairman myself [of the Central Organisation for the Meat Sector] too: we are working on world markets, so we cannot have problems. Period.¹⁹⁸

Former Director-General of Public Health Bart Sangster also recalls the intensive and good contact between the relevant agricultural and public health authorities and industry representatives in this period, working together in one meeting room during the 1996 European BSE crisis.¹⁹⁹ Both domains strongly relied on the agricultural authorities' response to the Dutch BSE cases found from 1997 onwards. Even veterinarians working in the public health domain considered responding to the appearance of BSE within Dutch borders a task of the agricultural veterinary authorities.²⁰⁰ As Osterhaus comments: 'That is simply well organised in the Netherlands, livestock disease control as such. Excepting the Q fever, of course. Because that again meant trouble between public health and agriculture.'²⁰¹ It is now time to investigate actual BSE control measures in the Netherlands, who shaped them, and why they were evaluated so positively seeing the general context of conflicts between agriculture and public health discussed above.

4. The harmonious Dutch response to BSE

Food safety policies, responses to BSE in particular, differed considerably between different EU member states.²⁰² Paul and Oosterveer show that compared to the British, French and German framing of BSE as a consequence of 'modernisation' to which public health interests were sacrificed for economic interests, the Netherlands dealt with BSE as a depoliticised, technocratic problem. However, they pay little attention to *who* designed this technocratic response.²⁰³

Contrary to the claim in the literature that the Netherlands introduced early BSE measures because the Ministries of Agriculture and Public Health shared responsibilities,²⁰⁴ the Dutch

198 Interview Goebbel (April 12, 2016)

199 E-mail interview Sangster (May 2016).

200 Interview Ruitenberg (March 23, 2016); Interview Osterhaus (April 21, 2016).

201 Interview Osterhaus (April 21, 2016).

202 Barbier et al., BSE Saga; Oosterveer, 'Reinventing'; Paul, Food Safety.

203 Oosterveer hardly pays attention to actual Dutch BSE measures, and Paul's account of them is incomplete. See for an early overview: Van der Most and Smit, BSE.

204 Patrick van Zwanenberg and Erik Millstone, 'Policy-making under conditions of uncertainty and controversy: BSE policy in the UK, France, the Netherlands, Portugal and the European Commission', in: Barbier et al., BSE Saga, 81-99, 99.

‘green front’ initiated and executed the early measures against BSE *as an export danger*. In 1989, the Feed Board decided to ban the use of meat and bone meal in ruminant feeds, pushed by the livestock sector’s and Minister of Agriculture’s concerns about BSE’s potential impact on the Dutch export position.²⁰⁵ This had not been the original intention: the price of UK meat and bone meal had plummeted as a result of BSE, and the Dutch feed sector initially *increased* the import by more than 100%.²⁰⁶ In 1990, the German import ban of *all* British meat and bone meal was reason for the Dutch Minister of Agriculture to protest ‘vigorously’.²⁰⁷ But this was quickly followed by a Feed Board’s ban of British *ruminant* meat and bone meal to protect the trade position,²⁰⁸ which the Dutch agricultural authorities defended as ‘the most *liberal* meat and bone meal import policy’ on the European market.²⁰⁹ Different from the German and French governments, the Dutch government did not consider an import ban of British beef to protect public health.²¹⁰ In a general sense, the Ministry of Agriculture relied heavily on the *PBOs* to improve quality and safety supervision for the sake of both general public health and corporate market interests.²¹¹ It left supervision of feed companies’ compliance with the *PBO* BSE regulations to the Feed Board.²¹² Scrapie control, closely linked to BSE, was also based on voluntary participation during the 1990s.²¹³ These agricultural self-regulatory activities led to the existing image that the Netherlands responded early to BSE.

Inconsistent with this image, however, is that the Netherlands was slow with implementing European BSE policies simultaneously. European BSE regulations mostly had the form of EU directives, which are binding, but member states have freedom in how to meet them. In 1990, the EU introduced mandatory reporting of BSE cases, stricter animal rendering policies and conditions for the trade in British beef and cattle. The animal rendering directive divided all animal by-products not suitable for human consumption in high-risk and low-risk material,

205 Pvv, *Jaarverslag 1989-1990*, 12.

206 This figure compares the imports of 1988 and 1989. Schreuder and Wever, ‘Waar’, 42.

207 NA, VD 1971-1995, inv. nr. 513, BSE, DG LGK to Minister LNV (September 20, [1990]).

208 Ibidem, ‘Verslag BSE-overleg VD/RVV/AID’ (August 16, 1990); Ibidem, P.J.A. van Geldrop to J. Enting (Algemene Inspectiedienst LNV, hereafter AID) and F.H. Pluimers (RVV) (September 9, 1990) attachment 2, PvV, ‘Besluit Importverbod Brits diermeel 1990’; PvV, *Jaarverslag 1989-1990*, 13.

209 NA, VD 1971-1995, inv. nr. 513, BSE, Katharina van der Leeden VD to ‘Hans’ (December 19, 1991) (quote); Ibidem, DG LGK to Minister LNV (September 20, [1990]).

210 ‘Geen invoerverbod van Brits rundvlees’, *NRC Handelsblad* (June 2, 1990) 1.

194 211 Produktschap voor Veevoeder, *Kwaliteitsbeleidsplan diervoedersector* (s-Gravenhage 1991) 17-18; PvV, *Jaarverslag 1989-1990*, 16-17, 73.

212 NA, VD 1971-1995, inv. nr. 513, BSE, ‘Verslag BSE-overleg VD/RVV/AID’ (August 16, 1990); Henst, ‘Meer monsters’.

213 Schreuder, ‘Scrapie en BSE’, 15; B.E.C. Schreuder, ‘Epidemiologische aspecten van BSE en scrapie’, *VPI: Veterinaire Praktijk Informatie: Een maandelijkse uitgave van A.U.V. coöperatie* (October 1998) 4-6; ‘Landelijke scrapie bestrijdingsprogramma’.

and demanded all high-risk material to be either rendered in a high-risk processing plant, or burnt/buried.²¹⁴ The UK could only export living cattle if they were less than six months old, and if these calves were slaughtered before reaching the age of six months – important exceptions for the large Dutch calf fattening sector importing 20-30% of its calves from the UK.²¹⁵ The UK could only export not-deboned beef from companies which were BSE-free for at least two years. Visible nerve and lymphatic tissue had to be removed from this meat.

The Netherlands initially did not fully comply with these policies. In the first place, mandatory reporting of BSE was quickly implemented in the Act on the Practice of Veterinary Medicine (*Wet op de uitoefening van de diergeneeskunde*) in June 1990, but this act only organised veterinary surveillance and not control of the disease. The lack of a compensation fee made it unlikely that cases would be reported, and it was unclear what should happen in the rare instances a suspected case *was* reported.²¹⁶ Thus, the Netherlands started a passive surveillance system for BSE, which was not very effective in detecting BSE among Dutch cattle.²¹⁷ Because reliable BSE control was important to protect export interests, veterinary authorities and organised agriculture quickly agreed on a control plan without a legal foundation.²¹⁸ The livestock disease control fund, which consisted of 50% corporate money, paid for the costs, including the essential compensation fees. Still, it would take until 1997 before the first case of BSE was found in the Netherlands. This is not surprising considering the huge consequences of a BSE case, in particular a first one.²¹⁹ In this, the Netherlands were of course not unique. Scientists estimated that at least several undetected BSE cows had to be present in the Netherlands and many other (European) countries, as a result of import.²²⁰

The second delay concerned changing animal rendering policies. These were delayed, because the implementation occurred at the Ministry of Public Health (chapter 3), but close collaboration with agricultural PBO bodies, the rendering industry and the Ministry of Agriculture was needed. The existing plants of animal rendering company Rendac, part of the company Sobel NV, had a monopoly position in animal rendering in the Netherlands, Belgium and part of Germany. Sobel NV in turn had close links with organised agriculture: the provincial agricultural organisation *Noordbrabantse Christelijke Boerenbond*, later *ZLTO*,

214 Oudejans, *Categorie één*, 69.

215 NA, VD 1971-1995, inv. nr. 513, BSE, H.P. Braam to A.G. Andela, G. de Peuter, J.A. Smak and A. Ottevanger (September 1, 1994), attachment ‘Bovine Spongiforme Encefalopathie’, 7.

216 NA, VD 1971-1995, inv. nr. 513, BSE, H.U.R. Nieuwenhuis to C.C.J.M. van der Meijs (November 26, 1990); Ibidem, I. Peutz and H. van Schuppen to VD (April 4, 1991).

217 Treurniet and Schaapveld, *Zoönosen*, 41

218 NA, VD 1971-1995, inv. nr. 513, BSE, ‘Instructie Bovine Spongiforme Encephalopathie’ (sa); Ibidem, Bram E.C. Schreuder to H.U.R. Nieuwenhuis (August 15, 1991); Ibidem, C.C.J.M. van der Meijs to Directieraad LNV (November 12, 1991).

219 Interview Schreuder (September 2, 2016); Interview Osterhaus (April 21, 2016).

220 Interview Schreuder (September 2, 2016).

owned 95% of its shares.²²¹ As the EU directive meant that Dutch rendering plants would lose their monopoly on the trade in low-risk rendering materials, an important issue was how processing high-risk material could remain profitable.²²²

Third, the restrictions on trade of British beef and cattle did not turn out well either. Initially, the Animal Health Service rejected the policy of marking cattle imported from the UK, because of ‘lack of sector support’.²²³ Later, the start of the common market in 1993 seriously hampered compliance. After the EU discontinued its internal trade borders, the responsible public State Livestock and Meat Inspection Service and private Animal Health Services lost sight of these commodities, according to an internal 1994 evaluation.²²⁴

In 1994, the Germans demanded stricter European measures against British livestock products, and demanded the EU Council of Ministers of Public Health instead of the Council of Ministers of Agriculture would address BSE. Both Councils started to pay extensive attention to BSE.²²⁵ This also led high officials of the Dutch Ministries of Agriculture and Public Health to seek direct contact about BSE.²²⁶ While in parliament, members of the government stressed that a link between BSE and human health was unproven and BSE was still not regarded as an evident zoonosis,²²⁷ this assertion was more and more abandoned backstage. Telling is the careful wording of the Directors-General of Public Health and Agriculture on BSE as a public health problem: ‘there are no indications [...] that the disease is transmissible to humans (nor indications to the contrary)’.²²⁸ Thus, the Dutch authorities formulated a careful compromise:

221 In 2000, newspaper *NRC Handelsblad* estimated the property of this organisation at two to three billion guilders. Broersma, *Het groene front*, 134.

222 See for instance: Landbouwschap, *Jaarverslag 1995*, 80.

223 As cited in: Schreuder, ‘Boviene spongiforme encefalopathie- en scrapieonderzoek’, 293. Interview Schreuder (September 2, 2016).

224 NA, VD 1971-1995, inv. nr. 513, BSE, H.P. Braam to A.G. Andela, G. de Peuter, J.A. Smak and A. Ottevanger (September 1, 1994) attachment ‘Bovine Spongiform Encephalopathy’, 7; Ibidem, Braam to Andela, De Peuter, Smak and Ottevanger (September 28, 1994) attachment ‘Bovine Spongiform Encephalopathy’.

225 *Handelingen Tweede Kamer* 1993-1994, Bijlage, 21 501-16 Landbouwraad, nr. 101, Brief van de Minister van LNV (April 13, 1994) 6; Ibidem, nr. 102, Brief van de Minister van LNV (May 19, 1994) 4; Ibidem, nr. 104, Brief van de Minister van LNV (June 14, 1994) 3; Ibidem, nr. 106, Brief van de Minister van LNV (August 3, 1994) 5; *Handelingen Tweede Kamer* 1993-1994, Bijlage, 21 501-19 Gezondheidsraad, nr. 9, Brief van de Minister van Welzijn, Volksgezondheid en Cultuur (hereafter WVC) (June 21, 1994) 4.

226 NA, VD 1971-1995, inv. nr. 513, BSE, DG LNV Van der Lely and DG Volksgezondheid Sangster to Minister WVC (July 8, 1994).

227 *Handelingen Tweede Kamer* 1993-1994, Bijlage, 21 501-19, Gezondheidsraad, nr. 8, Brief van de Staatssecretaris van WVC (December 30, 1993) 4; Ibidem, nr. 9, Brief van de Minister van WVC (June 21, 1994) 4; NA, VD 1971-1995, inv. nr. 312, Hormonen, Zoönosen en overige stoffen, VWS and LNV, ‘Nationale Plan “Zoönosen” Nederland’ (November 1994).

228 NA, VD 1971-1995, inv. nr. 513, BSE, DG LNV and DG Volksgezondheid to Ministers WVC and LNV (July 8, 1994) 2.

the Dutch response to BSE was evaluated as ‘proper’ ‘from a veterinary-technical perspective’, but should possibly become more drastic ‘from the political consideration [...] that the risk of exposure of consumers and animals to the BSE pathogen is limited to an absolute minimum’.²²⁹ While the Dutch authorities continued to regard BSE principally as an agricultural issue, the ‘political’ public health concerns also induced more attention in the Netherlands.²³⁰

The heightened political pressure from Germany induced new Feed Board self-regulation activities with no practical impact,²³¹ but also led to somewhat better Dutch compliance with EU law. The European Council of Ministers of Agriculture agreed on tightening existing BSE control regulations to prevent the Germans from taking drastic unilateral measures.²³² In the Netherlands, this was occasion for more structural contact between the Ministries on BSE via an interdepartmental BSE working group.²³³ This group generally thought the existing measures sufficient to protect ‘human and animal’ from the British BSE problem, but also evaluated the national problems.²³⁴ Only at this point, in July 1994, mandatory reporting of BSE cases was included in the Animal Health and Welfare Act (*Gezondheids- en welzijnswet voor dieren*), which had replaced the Livestock Act in 1992. This inclusion finally made legally organised BSE control possible.²³⁵ Mandatory reporting of scrapie was also added to this Act (required by the EU since 1993), but had no practical meaning without a compensation fee.²³⁶ The Dutch Ministry of Public Health also started to demand additional certificates with beef imported from the UK, as an administrative response to the free trade-related inspection problems.²³⁷ The Animal Rendering Act was finally changed according to the EU directive at the end of 1994, after the European Commission took the Dutch delay to the European Court of Justice.²³⁸ However, the Netherlands continued to be slow with implementing new EU requirements on animal rendering of low-risk materials even after the discovery of the

229 Ibidem.

230 Van Zwanenberg and Millstone, “Mad cow disease”; Paul, Food Safety, 94-209.

231 Schreuder and Wever, ‘Waar’, 42, 44.

232 Gezondheidsraad, *Prionziekten*, 40; Van Zwanenberg and Millstone, “Mad cow disease”, 163.

233 NA, VD 1971-1995, inv. nr. 513, BSE, Braam to Andela, De Peuter, Smak and Ottevanger (September 1, 1994) attachment ‘Bovine Spongieuze Encefalopathie’.

234 NA, VD 1971-1995, inv. nr. 513, BSE, Braam to Andela, De Peuter, Smak and Ottevanger (September 28, 1994) attachment ‘Bovine Spongieuze Encefalopathie’, 8. No archives on what was done with this evaluation are yet public.

235 Schreuder, ‘Scrapie en BSE’, 12, note 2.

236 Jacques van Engelen, ‘Ten geleide: Alleen maar narigheid’, *Het Schaap* nr. 8 (1994).

237 NA, VD 1971-1995, inv. nr. 513, BSE, DG LNV and DG Volksgezondheid to Minister van WVC(July 8, 1994), bijlage 1, J.M. Rojer (WVC) and A. Ottevanger (LNV), ‘Bijlage bij de nota BSE aan de bewindslieden van WVC en LNV’, 3

238 Handelingen Tweede Kamer 1993-1994, 22 952 Wijziging van de Destructiewet en de Vleeskeuringswet (in verband met E.G.-richtlijn inzake destructie), nr 8, Brief van de Minister van WVC (April 7, 1994).

first Dutch BSE cases in 1997.²³⁹ This did not negatively affect the Dutch response to BSE, as the existing strict animal rendering system turned out to be effective against the spread of prions.²⁴⁰ This ‘blessing in disguise’ (*‘geluk bij een ongeluk’*), in Goebbels’ words, is a major explanation for the eventual low incidence of BSE in the Netherlands.²⁴¹

In all this, the Ministry of Agriculture was more heavily involved with BSE than the Ministry of Public Health. This was a consequence of several factors: the initial perspective on BSE as a purely agricultural problem, the related large agricultural export interests, the Ministry of Agriculture’s traditional responsibility for livestock disease control, and the public health authorities’ relative lack of attention for infectious diseases and livestock-associated public health problems. The agricultural *Minister*, and the public health *State Secretary* handled BSE, indicating an important difference in importance the Ministries attached to BSE.

When the UK government publicly acknowledged a relation existed between BSE and vCJD in 1996, the EU reacted with drastic measures it had until then avoided: it introduced a total export ban of all British beef and meat and bone meal at the end of March 1996, which would be in place until August 1998.²⁴² The 1996 crisis changed the scope of Dutch measures, but the perspective on BSE as a foreign problem threatening the Dutch export position continued to be important, now combined with heightened concern about the dangers of BSE for public health. The politically responsible Minister of Agriculture Van Aartsen and State Secretary of Public Health Terpstra, and related industries agreed on what policy responses would be necessary. As a result these parties harmoniously prepared drastic measures within two days: the large-scale destruction of British calves present in the Netherlands and the recall and destruction of all products containing British beef from shops.²⁴³ The state compensated companies for any loss, an important reason why they reported practically all British meat products.²⁴⁴ Compensation and the unprecedented, enormous logistic operation to destroy everything cost circa f150 million in total, and Minister of Agriculture Van Aartsen successfully secured EU money for four-fifth of this amount.²⁴⁵ Via its two lobbyists in Brussels, the Meat

239 ‘Besluit van 5 januari 1996, houdende vaststelling van regels ter uitvoering van de Destructiewet (Destructiebesluit 1996)’, *Staatsblad* 126 (1996) 1-20; Europese Commissie, *Geconsolideerd eindverslag aan de tijdelijke commissie follow-up BSE-aanbevelingen van het Europees Parlement*, COM(97)0509 - FDR 336732, Celex-number 51997DC0509 (October 20, 1997) 75.

240 Interview Goebbels (April 12, 2016). See also: Deleu, ‘Gekke-koeienziekte’, 273.

241 Interview Goebbels (April 12, 2016).

242 Van Zwanenberg and Millstone, “Mad cow disease”, 163.

243 This happened during the two days following the news of March 20, 1996 from the UK. E-mail interview Sangster (May 2016).

244 Interview Goebbels (April 12, 2016).

245 *Handelingen Tweede Kamer* 1996-1997, Bijlage, 24 668 Gekke-koeienziekte (BSE), nr. 16, Brief van de Minister van LNV (June 11, 1997) 4. See also: Interview Goebbels (April 12, 2016).

and Cattle Board was very successful in obtaining one third of the EU subsidies for the early slaughter of calves, which were meant to help restore the BSE-affected beef market.²⁴⁶

The recall of British meat products was generally accepted as a relevant measure to protect public health. But members of Dutch parliament and several veterinarians publicly criticised the destruction of the British calves as irrelevant for public health protection (as calves had not eaten any feeds possibly contaminated with prions) and as originating from the wish to protect the Dutch export position.²⁴⁷ Indeed, export interests were a major reason for the drastic 1996 measures. Goebbels recalls: ‘We said: we don’t want to run any risk, also from the viewpoint of our trading position in the world. We have to recall everything linked to England [the UK] from the market immediately.’²⁴⁸ He puts public and private parties’ excellent collaboration in this light, and recounts that the meat sector still considers the 1996 destruction of calves a ‘golden measure’.²⁴⁹ Supermarkets were also keen to distance themselves from the UK crisis by recalling British beef from stores.²⁵⁰ Reactions from the livestock sector also support the analysis that export interests were of major importance. Although the livestock sector initially criticised the destruction of British calves, it eventually agreed in order to protect the Dutch trading name.²⁵¹ Thus, a major explanation for the harmonious Dutch response to BSE was that no conflicts of interests between protecting export and public health arose in this case.

The only exception to this was the decision of the Minister of Public Health to classify specific tissues of sheep and goats as high-risk material because of public health risks in November 1996, before the EU took this measure. This was occasion for the Livestock and Meat Board to go to court. The court initially invalidated the public health measures in December 1996. Only eventually, in June 1998, the Supreme Court turned down the Board’s appeal. In the meantime, the Minister of Agriculture and the State Secretary of Public Health asked the meat sector to apply the measure voluntarily.²⁵²

The finding of Dutch BSE cases in 1997 meant serious export damage, and inspired drastic visible state measures taken unilaterally before the EU did. The initial response of the Minister of Agriculture and the State Secretary of Public Health was to ban all risk-organs (especially nerve tissue) of cattle, sheep and goats from the human food chain, several years before the EU ban of specified risk materials of October 2000. Affected farms were covered by a strict

246 Produktschappen Vee, Vlees en Eieren, *Jaarverslag 1997*, 24-25.

247 *Handelingen Tweede Kamer 1995-1996* (April 3, 1996) 4709-4735; ‘Wetenschappers sturen minister tegenstrijdige BSE-adviezen’, *Agrarisch Dagblad* (April 2, 1996); Deleu, ‘Gekke-koeienziekte’.

248 Interview Goebbels (April 12, 2016).

249 Ibidem.

250 ‘Albert Heijn zoekt leverancier rundvlees’, *Boerderij* 81:31 (1995-1996) 10; E-mail interview Sangster (May 2016).

251 ‘BSE-vrij Nederland’.

252 Van der Most and Smit, BSE, 16.

stamping-out policy.²⁵³ This was terrible for affected farmers, as it ruined the long-term careful selection work on their herds.²⁵⁴ Strongly supported by the livestock sector, the agricultural authorities intensified research to detect prion infections.²⁵⁵ As experts thought contaminated feed to be the most likely source of the infections, the livestock sector put the feed trade under intensified scrutiny. It criticised the Feed Board's largely *administrative* inspections: 'what is written *on* the bag, does not have to be in it'.²⁵⁶ After all, the banned mammalian meat and bone meal was also a high quality and cheap feed component. As a response to these concerns, agricultural minister Van Aartsen intensified existing feed safety rules, primarily by legally demanding more laboratory research of samples.²⁵⁷ The influence of the Feed Board on animal rendering policies also decreased in the context of cuts in the *PBO* system.²⁵⁸

But agricultural authorities and the livestock sector continued to be the primary owners of the problem of Dutch BSE cases. In 1997, the Council for Animal Affairs (*Raad voor Dieraangelegenheden*)²⁵⁹ advised the Ministry of Agriculture to give the Chief Veterinary Officer of Public Health a more prominent role in BSE control.²⁶⁰ In the same period, however, the Veterinary State Inspectorate of Public Health was discontinued. The government continued to closely collaborate with organised enterprise and to rely on voluntary self-regulation. Examples include: the voluntary regulation to remove risk tissue from economically valuable bovine heads, the Cattle, Meat and Eggs Boards' responsibility for supervising the 1997 EU voluntary regulation to label the origin of beef (again inspired by French and German BSE concerns),²⁶¹ the responsibilities of the Animal Health Service for the inspection of export meat and the cattle identification and registration system which both did not function properly in the context of

253 Landbouwschap, *Jaarverslag 1997* ('s-Gravenhage 1998) 23.

254 The stamping-out policy involved not only the affected BSE cow, but also its parents, its descendants, all the cows born at the same farm in the same year and even pet animals present at the farm. See on the impact: Interview Schreuder (September 2, 2016).

255 See for instance: *Handelingen Tweede Kamer 1996-1997*, Bijlage, 24 668 Gekke-koeienziekte (BSE), nr. 16, Brief van de Minister van LNV (June 11, 1997); Muller, 'BSE-onderzoek'.

256 Henst, 'Meer monsters'.

257 *Handelingen Tweede Kamer 1996-1997*, Bijlage, 24 668 Gekke-koeienziekte (BSE), nr. 16, Brief van de Minister van LNV (June 11, 1997) 3-4; Henst, 'Meer monsters'; Bertil Muller, 'Ongrijpbaar BSE loert op nieuwe kans', *Boerderij/Veehouderij* 82:10 (1997) 6-8.

258 Staatssecretaris VWS and Minister LNV, 'Besluit van 8 mei 1995, houdende wijziging van het Besluit op de Destructieraad', *Staatsblad* 285 (1995) 1-3.

259 This Council was founded in the wake of the new Animal Health and Welfare Act of 1992.

260 Raad voor Dieraangelegenheden to LNV Directeur Milieu, Kwaliteit en Gezondheid (December 16, 1997), via Raad voor Dieraangelegenheden, 'Dierziektendraaiboeken; BSE', <http://www.rda.nl/home/31> (March 16, 2017).

261 A case of large-scale Dutch fraud with these labels in 1997-1998 in the export of meat to Russia suggests that such self-regulatory supervision was not sufficient. Van der Most and Smit, BSE, 22.

BSE,²⁶² and the Feed Board's continuing responsibility for supervision of compliance with the stricter legal demands on feeds.²⁶³

Calls for stricter, compulsory measures came from the livestock sector itself. In 1998, traces of meat and bone meal were found in cattle feeds twice, several new BSE cases were identified, and the poultry industry decided to ban meat and bone meals from poultry feeds to protect its image from any association with BSE.²⁶⁴ Pressure by the dairy cattle sector led the State Secretary of Agriculture to introduce a ban on feeding ruminants with *any* meat and bone meal (rather than just ruminant meat and bone meal) in March 1999, which was fully implemented in August 1999. This forced the Feed Board to make the separation of ruminant and pig/poultry feed mandatory.²⁶⁵ BSE experts later thought this measure to be of crucial importance to control the major BSE risk factor of meat and bone meal. Different from cattle feeds, meat and bone meal *was* used extensively in pig/poultry feeds. Two-thirds of Dutch feed companies produced cattle and pig/poultry feeds in the same production line, which led to small-scale cross-contamination, only partly tackled by voluntary GMP regulations. Nevertheless, even in this case, four companies got foreign export exceptions,²⁶⁶ until the height of the 2000 European BSE crisis.²⁶⁷

The second major European BSE crisis of 2000 meant a radical change for the powerful position of the Dutch agricultural domain and its perspective on BSE as a foreign export threat. In 2000, BSE was occasion for unprecedented drastic and costly EU measures, combined with the major institutional changes in agricultural and public health responsibilities (section 3). In the first place, the EU demanded all member states to test cattle older than two years with a newly developed BSE test during slaughter. Secondly, the EU banned the use of meat and bone meal in *all* livestock feeds. Thirdly, the EU demanded obligatory removal from the human food chain of specified risk material (SRM), and banned the processing of mechanically separated meat from ruminant bones. These European measures intervened in Dutch responses to livestock-associated zoonoses on a scale never seen before, and in this sense meant a major

262 Ibidem, 23-25, 28.

263 *Handelingen Tweede Kamer* 1996-1997, Bijlage, 24 668 Gekke-koeienziekte (BSE), nr. 16, Brief van de Minister van LNV (June 11, 1997) 3; Produktschappen Vee, Vlees en Eieren, *Jaarverslag* 1997, 18 and 24; Productschap Diervoeder, *Jaarverslag* 1997-1998 (Den Haag 1999) 8, 14.

264 Broersma, *Het groene front*, 105.

265 Productschap Diervoeder, *Jaarverslag* 1997-1998, 14; 'Beheersing diermeel in voer voor herkauwers aangescherpt', *TvD* 124 (1999) 158.

266 However, these exceptions were never used, related to an unexpected consequence of the measure: mixed feed companies stopped using meat and bone meal in all feed, rather than separating production lines.

267 W. Edel, 'Uit de Hoofdredactie: Diermeel en BSE', *TvD* 126 (2001) 38; Schreuder and Wever, 'Waar', 44, 46.

break with the preceding century. That this change was brought about by an external actor, the EU, was more continuous with the events discussed in the previous chapters.

Developments in the EU forced the Netherlands to abandon its largely technocratic response to BSE. Initially, agricultural measures were very much like the ones taken before.²⁶⁸ These actions could not prevent the introduction of the new EU-wide binding BSE legislation. The agricultural sector and veterinarians thought the European measures were exaggerated seeing the early Dutch BSE control measures.²⁶⁹ Goebbels puts this in a more general context: ‘That has changed. It has [...] become strongly political, what measures should be taken, and no longer purely an expert decision’.²⁷⁰ While depoliticising policy decisions through expertise had not been self-evident before either (see previous chapters), public scrutiny of policy decisions intensified in this period.²⁷¹

Criticism on the effectiveness of existing measures from both outside and within the Netherlands increasingly challenged the feelings of pride about the quick and accurate Dutch response to BSE. The EU became stricter in supervising BSE risks in member states. In July 2000, the EU Scientific Steering Committee warned that ‘a passive surveillance system that is not able to identify all clinical cases’ defined the Dutch low BSE risk status, and that the Netherlands had been subject to ‘high external challenges’ until 1997.²⁷² In October 2000, the Dutch General Audit Office (*Algemene Rekenkamer*) concluded that Dutch animal rendering legislation did not sufficiently cover public health risks.²⁷³ In March 2001, the newly founded British Food Standards Agency found forbidden specified risk material in beef exported from the Netherlands for the second time. In response and forced by the European Commission, Minister of Agriculture Brinkhorst warned half of all Dutch slaughterhouses and closed one of them.²⁷⁴

The 2000 BSE crisis was occasion for the public health authorities to pay more attention to BSE. Apart from the product-recall state interventions in 1996 and 2000, and the EU-related policy changes, the public health domain had left responses to the BSE/vCJD crisis to

268 See for instance: Rochus Kingmans, ‘Hou APK-keuring voor koeien eenvoudig’, *Boerderij/Veehouderij* 85:15 (2000) 3.

269 J.M. Swabe, *Van zaadje tot karbonaadje: Betrokkenen over de volksgezondheidsrisico's van de veehouderij*, Rathenau Instituut Werkdocument 82 (Den Haag 2001) 19-20; ‘Nederland: naar snelle ontheffing’, *NRC Handelsblad* (December 8, 2000); Productschap Dervoeder, *Jaarverslag 2000* (Den Haag 2001) voorwoord; *TvD* 126-127 (2001-2002) passim.

270 Interview Goebbels (April 12, 2016).

271 Compare: Smith, ‘From policy’, who refers to the ‘politicization of food’ from the 1980s onwards.

272 Scientific Steering Committee, *Report on the Assessment of the Geographical BSE-Risk (GBR) of the Netherlands* (s.l. July 2000) 30, https://ec.europa.eu/food/sites/food/files/safety/docs/sci-com_ssc_out124_en.pdf (March 20, 2017).

273 *Handelingen Tweede Kamer* 2000-2001, Bijlagen, 27 495 Uitvoering Destructiewet, nr. 2, Algemene Rekenkamer, ‘Rapport’, 5-8.

274 ‘BSE-materiaal uit Nederland geëxporteerd’, *NRC Handelsblad* (March 6, 2001); ‘Brussel uit kritiek op fouten in slachterijen’, *NRC Handelsblad* (March 21, 2001).

bottom-up private initiatives typical for the Dutch health care system. In the context of the 2000 BSE crisis, Minister of Public Health Els Borst-Eilers put food safety more prominently on her agenda, and food inspection was moved in its entirety to the Ministry of Public Health for a short period of time.²⁷⁵ The Health Council started to repeatedly advise her on the blood donation infection dangers.²⁷⁶ It advised to start leukodepletion in relation to vCJD in 2001 (several years after the European Scientific Steering Committee had argued for its introduction), and while the Minister of Public Health had initially been reluctant because of the high costs, it was introduced in this year.²⁷⁷ Mandatory reporting of vCJD replaced the existing specialists' surveillance system in 2002.²⁷⁸

The mandatory BSE test turned the passive surveillance system of cattle into an active surveillance system. The agricultural authorities introduced this test exceptionally and remarkably quickly on January 2, 2001, while other EU member states had to destroy cattle as they were unable to introduce the new test in time. The incentives for this quick introduction were again primarily economical: it prevented major costs, as the EU only partly compensated for destruction of cattle, and the agricultural domain expected the test to help solve BSE-related export problems. Initially, the Minister of Agriculture tried to turn the EU ban of meat and bone meal into a temporary measure for the Netherlands. The organised agricultural sectors strongly supported this attempt. However, the EU never granted the Netherlands such an exceptional position: today, it is still prohibited to use meat and bone meal in livestock feed.²⁷⁹ The measure drastically changed the company management, and increased the costs for slaughterhouses, the feed industry, pig and poultry breeders, and animal rendering plants. For agricultural authorities, the ban resulted in a huge surplus of meat and bone meal before power stations could start processing it. Still, complying with the new regulations was mostly

275 'BSE: Borst belooft plan', *NRC Handelsblad* (November 23, 2000).

276 Gezondheidsraad, *Variant van de ziekte van Creutzfeldt-Jakob en bloedtransfusie* (Den Haag 2001); Gezondheidsraad, *Testen van bloeddonors op variant Creutzfeldt-Jakob? Signaleren ethiek en gezondheid 2006/2* (Den Haag 2006).

277 Gezondheidsraad, *Leukodepletie van bloedproducten* (Den Haag 2000); Gezondheidsraad, *Variant*; Interview Ruitenberg (March 23, 2016).

278 This shift was also related to technical changes: the number of obductions of CJD victims declined following a new method which could detect CJD biochemically, while the variant CJD related to BSE could only be detected during obduction. 'IGZ-bericht over spongiforme encefalopathieën', *Infectieziekten Bulletin* 12:7 (2001) 216; Lourens Heres a.o., *BSE in Nederland: Een verklaring van de oorzaak en interpretatie van de risicofactoren* (Lelystad 2005) 5.

279 Mostly due to problems with detecting the source of the meal, as European BSE-inspired legislation prescribes animals cannot be fed with their own kind.

considered to be a corporate responsibility, and the Ministry of Agriculture and the EU supported the change with public money.²⁸⁰

The active surveillance of BSE via the mandatory test was expected to yield a rise in the number of Dutch BSE cases from the start. Hence, the Ministries of Agriculture and Public Health accompanied the introduction of the test with a joint message in newspapers that a rise in BSE cases only meant that public health was better protected than before.²⁸¹ Indeed, active surveillance of BSE resulted in a factor 10 rise of BSE cases from 2001 to 2003, when 63 cases were detected in total (Figure 4.2).²⁸² Veterinarians also reported more than two times as many clinically suspected cases in 2001.²⁸³ After some months, the EU relaxed the BSE culling policy. Nevertheless, the Minister of Agriculture continued the stricter Dutch culling policy, which livestock keepers supported because of the difficulties in selling cattle once BSE was found at their farm.²⁸⁴

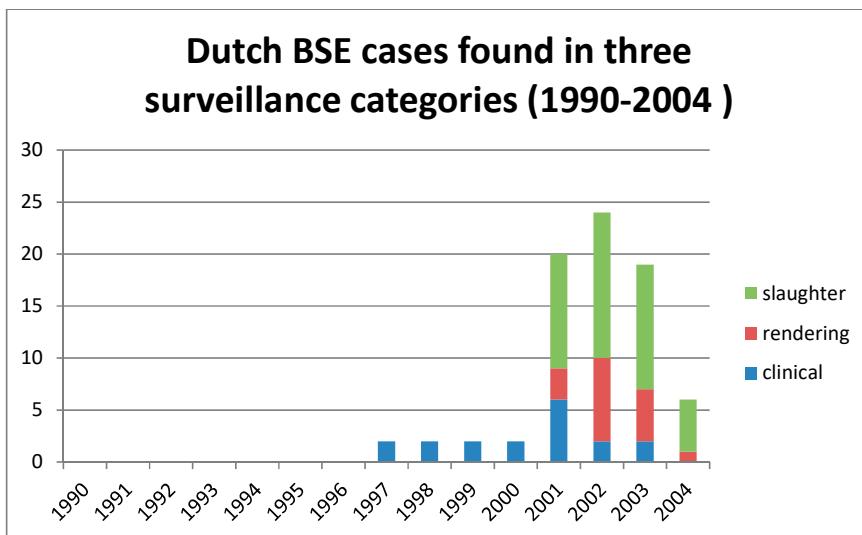


Figure 4.2 Dutch BSE cases found in three surveillance categories (1990-2004). In 1990, passive surveillance was introduced. In 2001, active surveillance via the BSE test was introduced.²⁸⁵

280 Oudejans, *Categorie één*, 59, 64-76; Productschap Diervoeder, *Jaarverslag 2000*, 3; Bert Urlings, ‘BSE-testen op 17.000 runderen negatief’, *TvD* 126 (2001) 72; *Handelingen Tweede Kamer* 2000-2001, Bijlage, 24 668 Gekke-koeienziekte (BSE), nr. 57, Brief van de Minister van LNV (March 19, 2001); ‘Advies van TNO: verbrand dierresten’, *NRC Handelsblad* (August 23, 2001); Schreuder and Wever, ‘Waar’, 44.

281 See for instance: ‘Aanvoer van runderen afgenomen: Lage prijs en BSE-angst’, *NRC Handelsblad* (January 9, 2001); Wouter Bax, “Salmonella is een veel groter gevaar”, *Trouw* (January 12, 2001).

282 All countries replacing passive surveillance with active surveillance saw a rise in detected cases. Heres a.o., *BSE*, 8 and 19.

283 From 30-40 suspected cases in the preceding years to 97. Heres a.o., *BSE*, 7.

284 ‘Familie van BSE-koe gespaard’, *NRC Handelsblad* (March 9, 2001); Pieter Cloo, ‘Alert blijven’, *TvD* 126 (2001) 731.

285 Source: Heres a.o., *BSE*, table 1.1 and figure 3.

Only at this point, the Ministry of Agriculture ordered the Central Veterinary Institute in Lelystad to research the source of Dutch BSE cases. This resulted in a key article for understanding the occurrence of BSE in the Netherlands despite its early BSE measures, and I have used it in this section to evaluate the effects of Dutch measures.²⁸⁶ The authors, among them Bram Schreuder, noted that while meat and bone meal was the most likely source of BSE spread, the agricultural authorities had insufficiently studied it as risk factor because of the ‘obscureness of the trade flows’.²⁸⁷ Theirs was the first attempt to publicly evaluate these trade routes, rather late for a country that claimed to be exceptionally quick with preventive meat and bone meal measures. The authors seriously questioned the 1990s’ feeling of pride about Dutch BSE control: ‘It is therefore not correct to state that all infection risk was completely under control in 1994, as has been stated regularly lately, also by some experts.’²⁸⁸ They argued the 1997 specified risk material ban and the 1999 zero tolerance of animal proteins in ruminant feed were the crucial measures to fully control the meat and bone meal risk factor. Therefore, they thought the EU total meat and bone meal ban unnecessary for the Netherlands. All in all, the Netherlands was very well off in comparison to the UK, thanks to a combination of the early agricultural self-regulatory measures and ‘chance’ conditions like different livestock feeding practices and the effective animal rendering system.²⁸⁹

However, the evaluation did not pay explicit attention to the agricultural sector’s ownership of BSE in Dutch policy. This observation can be made in general. Both the domains of agriculture and public health systematically ignored the primarily economic rather than public health protection incentives underlying the quick Dutch response to BSE, and did not pay attention to the largely neocorporatist and neoliberal context of preventive BSE measures during the 1990s.²⁹⁰ Very different from the public health domain’s fierce criticism of agricultural ownership of the salmonellosis problem (chapter 3), the public health domain was not critical at all of the agricultural ownership of BSE control.

286 Schreuder and Wever, ‘Waar’.

287 Ibidem, 42

288 Ibidem, 48.

289 Ibidem, 44.

290 See for instance: Deleu, ‘Nederland’, 434; Gezondheidsraad, *Prionziekten*, 47; Kersseboom, Koekoek and Richardus, ‘Het risico’, 757-758; E-mail interview Sangster (May 2016); Interview Goebbels (April 12, 2016); Interview Osterhaus (April 21, 2016); Interview Schreuder (September 2, 2016); Landelijke Coördinatie Infectieziektebestrijding, *Draaiboek Extramurale procedures bij melding van de ziekte van Creutzfeldt-Jakob* (Bilthoven 2006) 14, http://www.rivm.nl/Documenten_en_publicaties/Professioneel_Praktisch/Draaiboeken/Infectieziekten/LCI_draaiboeken/Creutzfeldt_Jakob_draaiboek_extramurale_procedures (May 5, 2017).

Summary

The livestock sector, the Minister of Agriculture and agricultural statutory industrial organisations (*PBOs*) defined BSE as an agricultural export problem threatening Dutch livestock from abroad in the late 1980s. This occurred in the tradition of the ‘green front’ and in the context of further expansion of the common market of the European Union. Germany as major Dutch export market was an important external factor, as it immediately approached BSE as a public health problem. The Dutch agricultural domain explicitly did not go along with this early public health perspective on BSE, but it did inspire the *PBO* bodies to take quick, self-regulatory measures, characterised as technocratic in the literature.²⁹¹ Thus, the BSE case illustrates that the historiographical claim that the 1990s saw the end of the ‘green front’ needs some nuancing. While the Agricultural Board was discontinued during the 1990s, agricultural Product Boards continued to play an important role in both making and executing public policy and representing private interests. Moreover, the coalition governments in the neoliberal context preferred to outsource former public tasks to business. In general, the agricultural domain viewed the quick, self-regulated agricultural response to BSE with pride. The finding of several Dutch ‘native’ BSE cases from 1997 onwards challenged this pride, and inspired the agricultural domain to take even more drastic control measures, supported by the primary sector.

The public health domain followed the initial perspective on BSE as a foreign, agricultural problem, and was not particularly concerned about public health matters related to the agricultural sector. Public health authorities did not pay structural attention to BSE until the major European BSE crisis of 2000. This occurred in the broader context of declining interest in ‘conquered’ infectious diseases and public health as opposed to individual health, and the neoliberal context of a smaller government, reliance on market solutions and budget cuts. Private initiatives to survey potential public health implications existed from an early stage, in particular among public health veterinarians. But veterinary public health had considerably lost status among veterinarians, meat inspection in particular. Media, the Consumers Union and parliament also generally followed the framing of BSE as a foreign problem the Netherlands had successfully coped with.

Despite this agreement on BSE, relations between the domains of public health and agriculture were not self-evidently excellent. The place of food safety in particular was a source of conflict in the context of the growing societal importance of health and the larger role of the government in safeguarding it on the one hand, and the political preference for farming out implementation of policy to business and liberalised trade on the other. The twentieth-century public veterinary infrastructure in both the agricultural and public health domains was largely dismantled. Different from the EU and the UK in response to the BSE crisis, the Dutch

291 Paul, ‘Dutch food safety’; Oosterveer, ‘Reinventing’.

Ministry of Public Health only shortly accommodated food safety responsibilities. Shortly after, the government moved the entire food safety authority to the Ministry of Agriculture.

In the case of BSE, the response of the Dutch government to BSE occurred without major problems between the domains, as economic interests quickly and continuously inspired preventive measures before public health concerns became prominent. The agricultural domain was the primary owner of the BSE problem, and its quick response to BSE got the shape of self-regulating measures by private parties. Public health considerations did not play a significant role, and the public health domain or public debate hardly criticised this response. Especially during the early 1990s, both the domains of agriculture and public health translated the uncertainties over the public health implications of BSE as evidence that such implications were lacking – very different from the German perspective. The public health domain hardly paid attention to BSE among Dutch cattle. Its lack of attention for the first Dutch BSE cases illustrates this most clearly. Even public health veterinarians saw those cases as the responsibility of agricultural veterinary authorities. The drastic European measures following the 2000 BSE crisis came as a major shock to the Dutch agricultural domain: for the first time, the self-regulatory activities of the agricultural domain were significantly thwarted.

Indirectly, the German precautionary public health perspective had major influence on the course of events in the Netherlands: the measures to protect the Dutch export position turned out to protect Dutch public health too. The Netherlands saw few BSE and vCJD cases as a result. However, the agricultural domain did not take these measures to protect consumers of Dutch products as well as possible. Future archival research is needed to analyse how public health authorities discussed this matter behind the scenes. If BSE had originated within the Netherlands – an unlikely scenario because of the animal rendering quality originating from decade-long public health responsibilities – the story might have unfolded very differently.

Conclusion

The mad cows have brought us back to our own time, the twenty-first century. To conclude, I will present what this book has to offer to its two intended audiences: historians and controllers of present-day zoonoses. First, I will provide an overall answer to the main questions of this study: how have the domains of agriculture and public health negotiated and claimed problem ownership¹ of livestock-associated zoonoses in the Netherlands during the twentieth century? Who gained control to define those diseases as (public) problems and to decide on the nature of interventions? And how have the disciplines of veterinary medicine and human medicine related to one another in this broader context? Second, I will reflect on what insights this history has to offer to dealings with future outbreaks of diseases affecting both human and livestock health.

The four chapters of this book have each analysed a particular case of a livestock-associated zoonosis in a particular period. They show that dealings with zoonoses have been remarkably similar in the Netherlands during the past century.

The first chapter on bovine tuberculosis (TB) (1898-1956) has illustrated how the agricultural domain secured primary ownership of the disease as an economic problem in the early 1900s. Its control was set up by agricultural authorities, and generally followed organised agriculture's preference for voluntary control supported by state money. Public health authorities obtained responsibility for compulsory food inspection, introduced during the wave of social legislation after the First World War. This meant that they obtained limited, secondary

¹ In Joseph R. Gusfield's sense: Gusfield, *The Culture*; Gusfield, 'Constructing'.

ownership of bovine TB as a public health problem as compared to the agricultural domain's ownership of livestock disease control. The voluntary set-up of bovine TB control among livestock was changed into a compulsory public control system during and shortly after the Second World War. This was again unrelated to public health considerations or authorities, but to war-related external factors and the start of full-blown protectionism of agriculture during the economic crisis of the 1930s. Thus, bovine TB created the format for Dutch dealings with livestock-associated zoonoses during the twentieth century. The artificial separation between livestock disease control by agricultural authorities and product inspection by public health authorities created an influential – and problematic – division of responsibilities for the rest of the century.

In contrast to the chapter on bovine TB, chapter 2 on influenza (1918-1957) zooms in on a disease with which state authorities hardly concerned themselves, despite the devastating impact of the 1918-1919 influenza pandemic. In this context, influenza did attract considerable attention in the new scientific field of virology in both the domains of public health and agriculture. Veterinary and medical experts approached influenza from the perspective of comparative medicine, which combined the medical and veterinary study of human and animal diseases. The chapter shows that *despite* this culture of comparative medicine, the two domains approached influenza as either a problem of human (primarily occupational) health or an economic agricultural problem of pigs. External factors related to the influenza pandemic of 1957, a World Health Organisation survey in particular, induced more structural attention to influenza as a zoonosis.

Chapter 3 shows a major conflict on the control of salmonellosis (1951-1978) during the heyday of the agricultural 'green front' and the expansion of state interference with public health. The public health domain's control over food inspection was insufficient to adequately respond to *Salmonella* infections of livestock. Public health authorities failed to realise compulsory control measures in the agricultural domain. Instead, the agricultural sector could self-regulate *Salmonella* control – mostly along voluntary lines. The public health authorities' influence was limited to educating the public about kitchen hygiene.

Finally, chapter 4 argues that the agricultural domain continued to be remarkably dominant in policy responses to bovine spongiform encephalopathy, better known as BSE or 'mad cow disease' (1988-2001). This is remarkable, because the 'green front' disintegrated simultaneously, and public health protection was seen as a self-evident government task at this point in time. While in the United Kingdom and the European Union at large, BSE was the incentive to move food inspection and zoonoses control from the agricultural to the public health or consumer protection authorities, the Dutch government did the opposite by moving food inspection to the Ministry of Agriculture in 2003.

This book draws two overall conclusions from these particular four case studies. In the first place, the dominance of the agricultural domain compared to the public health domain during the entire twentieth century is fundamental to understanding conflicts over policy responses

to livestock-associated zoonoses in the Netherlands. In the second place, medical-veterinary interdisciplinary collaboration occurred extensively on the specific livestock-associated zoonoses studied for this book. This was nevertheless accompanied by continuous complaints that such collaboration was lacking or insufficient. Moreover, *both* physicians and veterinarians worked in *both* domains of public health and agriculture: the disciplinary boundary between veterinary medicine and medicine never completely corresponded to the more fundamentally problematic boundary between agriculture and public health.

These conclusions stress continuities, which is not to say that nothing has changed in livestock-associated zoonoses control. In the following, I will explain why these conclusions are so continuous in the light of the many twentieth-century historical changes. First, I elaborate on my second conclusion regarding veterinary-medical relations. After that, I return to my first and more fundamental conclusion regarding the relations between the domains of public health and agriculture.

How is it possible that the rhetoric that veterinary-medical collaboration on zoonoses was lacking or insufficient co-occurred with veterinary-medical collaboration during the entire twentieth century? A first explanation is that boundary work between veterinary medicine and medicine occurred in particular where veterinarians and physicians met, that is: in contexts of existing collaboration. A second explanation is that disciplinary identity was more important for experts' perspective on zoonotic problems than the broader social and political context. This is unsurprising, because experts had to reconcile two opposites: they became more involved in political work, and wanted to protect the image of their own expertise as disinterested and neutral.² Thus, physicians would sooner distrust the 'agricultural ties' of veterinarians, even when the latter were working in the public health domain, than their medical 'colleagues' support of the agricultural domain. Veterinarians would sooner point at medical ignorance of and indifference to zoonoses than at the major influence of organised agriculture on the design of zoonoses control policies. In other words, experts prioritised disciplinary loyalty over domain loyalty, at least rhetorically.

Thirdly, the collaboration argument was useful to veterinary and medically trained experts for different reasons in changing circumstances, which I discuss in the following paragraphs. In the early twentieth century, zoonoses provided an important opportunity to elevate the 'lower' veterinary discipline to 'higher', human health-associated scientific status. Simultaneously, veterinary medicine was predominantly an *agricultural* affair in practice, and it was a relatively small veterinary elite who concerned themselves with public health issues. It was this small group of veterinarians that was active in the hygienist movement (known as sanitary movement in the English-speaking world), and accused 'medicine' of paying too little attention to veterinary work. Representatives of veterinary medicine as a whole (the Netherlands Veterinary Association (*KNMvD* in particular) had to perform a balancing act between different kinds of

² Vandendriessche, Peeters and Wils, 'Introduction', 8.

priorities within the discipline itself: the early and strongly institutionalised veterinary position in the agricultural domain and the smaller, but symbolically important one in the public health domain. To hygienists, 'public health' veterinarians were important for claiming a say over the rapidly expanding state intervention in agriculture in comparison to its restraint regarding public health. Simultaneously, this difference also caused medical irritation with veterinary medicine in the context of concerns about social inequality: was livestock more important than people? By the mid-twentieth century, a distinct group of public health veterinarians had developed. They were so successful in their social elevation, that they largely concerned themselves with human medical problems and hardly with agricultural veterinary ones.

With the rise of the welfare state after the Second World War, experts in general obtained a diverse array of institutionalised roles and positions throughout the state apparatus. In this context, veterinary and medically trained experts collaborated a lot in both the public health and agricultural domains, but this did not help to solve controversies like the *Salmonella* case of chapter 3. Moreover, the second half of the twentieth century saw major changes in the medical disciplines and their patients. In medicine and public health, the burden of infectious diseases declined considerably during the second half of the twentieth century. Related to this, the value of individual health gained prominence in comparison to *public* health which had been so central to the earlier hygienist movement. In livestock medicine the opposite development was occurring, in particular regarding the quickly expanding poultry and pig herds: veterinarians and farmers increasingly approached these animals as populations rather than individuals. Veterinary public health had started as an important, emancipating field of veterinary medicine in the late nineteenth and early twentieth centuries, especially in the form of institutionalised meat inspection tasks. But the latter decades of the twentieth century saw a sharp decline in this formerly high status, linked to the successes of controlling major food safety problems, the disappearance of public slaughterhouses, and the ongoing increase in scale and automation of slaughtering. Public health veterinarians continued their call for recognition of the value of veterinary medicine for public health in the context of this 'fall'. Simultaneously, veterinary and medical disciplinary identities continued to be strong as a consequence of ongoing disciplinary socialisation, especially through education. In the context of the declining burden of infectious diseases and the declining importance of their control infrastructure in the public health domain, veterinary and medically trained scientists did seek contact on a topic-driven individual basis. However, the institutionalisation of veterinary public health and infectious disease control became less strong.

The boundaries between the disciplines of veterinary medicine and human medicine did not correspond to the more important boundaries between the domains of agriculture and public health. This brings me back to my first overall conclusion: the agricultural domain was dominant in negotiations on the problem ownership of livestock-associated zoonoses. Its focus on trade politics and export interests was decisive in policy responses to zoonoses, and public health interests of the Dutch population were not, at least not primarily. Simultaneously,

the value of (public) health grew in public and political debate, although state intervention in public health occurred on a smaller scale than in agriculture during the first half of the twentieth century. As a solution for controversies between agriculture and public health regarding livestock-associated zoonoses, the government artificially divided problem ownership of disease control of living livestock and product contamination between agricultural and public health authorities respectively during the first decades of the twentieth century. This meant that the agricultural domain had primary control over livestock production and agricultural practice, while public health authorities in general achieved secondary control over the products originating from this agricultural practice. Veterinarians secured intermediary problem ownership in both fields: the official veterinary livestock disease control function was institutionalised at the agricultural authorities (Veterinary Service, 1906), and their role in meat inspection at the public health authorities (Veterinary State Inspectorate of Public Health, 1920). However, this did not take away the potential for friction, as the salmonellosis case illustrates most clearly. And even while the ‘green front’ started to disintegrate, and public health protection was seen as a self-evident state responsibility, the agricultural domain and export interests continued to be dominant in the initial control of the potential and eventually confirmed zoonosis BSE. In this period, the government no longer addressed economic interests as openly in public debate as in the beginning of the twentieth century, and primarily put protection of public health central in public.

This analysis of the agricultural-public health relations with regard to livestock-associated zoonoses also calls for explanations. I distinguish five explanatory factors, which are closely interlinked: the nature of interests involved; the extent of agricultural and public health organisation; the Dutch political tradition; the division between public health and agricultural responsibilities; and the diminishing burden of infectious diseases in the public health domain.

In the first place, the difference in the nature of interests involved is important. Historically, agriculture and agriculture-related export have been very important to the Dutch economy. Hence, the specific and material economic interests of the Dutch agricultural sector got priority over more abstract, general public health interests (along with professional interests to secure tasks in public health protection), which were considered politically relevant only later in time. When these interests asked for more or less the same measures, this resulted in the Dutch ‘success stories’ of effective control and public health protection, as in the cases of bovine TB in the last phase of its control and BSE. Nevertheless, trade incentives were also of overriding importance in those cases. But when the interests of the agricultural and public health domains clashed, as in the case of salmonellosis, the agricultural power to delay and influence legislation and control was large. When these interests went very different and unrelated ways, as in the case of swine influenza, the disease was not claimed as a problematic zoonosis, and relatively little happened.

The background role of the consumer should also be pointed at in relation to the economic interests of the agricultural sector. Consumers influenced whether the agricultural sector would

see a certain public health danger as an economic problem. The findings on consumer behaviour in this study suggest that Dutch consumers were less likely to boycott food products because of zoonotic threats compared to British, American and German consumers. In this regard, a more extensive comparative study of the attitude and consumption behaviour of consumers in response to zoonotic diseases in different countries is needed.

A second explanatory factor is the difference in the extent of agricultural and public health organisation. Agriculture was more strongly organised than public health, with a broader societal base and stronger links to political parties, the confessional parties in particular. De Swaan's collectivising process (the development of a preference for collective solutions for individually experienced problems) took place earlier and on a larger scale in agriculture than in public health. Although agricultural organisations were 'pillarised' (*verzuild*) on the basis of religious and political ideology (liberal, Catholic and Protestant) and related to one another in a conflict model during the 1920s and 1930s, this pillarisation had little effect on something as prosaic as the problem of bovine TB. The agricultural organisations did not address bovine TB control as a major topic of pillarised ideological debate, but as a collective, agricultural-technical issue. The general consensus was initially that farmers should join control programmes on a voluntary basis, supported financially by the state. The central organisations formed one agricultural interest representative organisation after the Second World War. Shortly after, this became the private-public statutory industrial organisation (*PBO*) Agricultural Board with a structural role in livestock disease control *and* agricultural interest representation. Agricultural organisations, in particular the agricultural *PBOs*, also formed an influential media voice. The cases of salmonellosis and BSE suggest that they had an important effect on the media image and, as a result, the public image of these diseases. This idea needs more systematic research, which again would be interesting to do in comparison with the media image and public response in other countries, Germany in particular.

A third and major factor is the political tradition of the Netherlands. Its dominant liberal and later confessional political tradition in comparison with a weaker position for social-liberalism, socialism and social democracy, meant that both domains of agriculture and public health generally relied on civil society rather than on state interference. In both, the collectivising process did not necessarily mean De Swaan's 'in care of the *state*'.³ But depending on their respective interests both domains also deviated from this general preference. Agriculture put large emphasis on trade interests, and strongly preferred self-regulation rather than state coercion, but the quickly expanding agricultural state authorities (financially) supported the agricultural sector simultaneously. The Dutch public health domain in general strongly relied on private initiative also. However, this history shows it simultaneously preferred the public health government authorities to intervene in issues it had to negotiate with the more powerful agricultural domain, like zoonoses control and food inspection. Ironically enough, major

3 De Swaan, *In Care*, emphasis added.

government interference occurred earlier and on a larger scale in agriculture than in public health. The most striking comparison is that between the strongly interrelated agricultural organisations and agricultural authorities on the one hand, and the largely privately organised health care sector on the other during the first half of the twentieth century. It was also no coincidence that the height of the confessional-liberal welfare state coincided with the height of the ‘green front’ in the salmonellosis case, combining agricultural self-regulation with major state intervention in many parts of society. In this context, control of livestock-associated zoonoses depended on the will of organised agriculture. The neoliberal BSE years saw the expansion of corporate responsibilities and the withdrawal of the state, although it continued to set legal standards. Despite the disappearance of the Agricultural Board in this period, policy makers emphasised corporate responsibility, and mobilised other agricultural PBO bodies to this end. Moreover, private organisations continued to carry out formerly public tasks, also after the eventual discontinuation of the PBO system in 2012.

The division between responsibilities for living livestock (agricultural authorities) and products (public health authorities) that was created in the early decades of the twentieth century, meant that the agricultural domain also owned the start of zoonotic problems in the following decades: the fourth factor. As a result of this ‘path dependency’, problems arose when the public health domain claimed control over livestock production practices, as in the cases of milk hygiene (bovine TB) and salmonellosis. In the case of BSE, the public health responsibilities for strict animal rendering regulations did mean that BSE could spread less easily in the Netherlands than in the UK. Succeeding governments of the neoliberal period increasingly moved food safety to the agricultural authorities, starting with meat inspection in the 1980s. Opposite to the developments in the UK and the EU, the food safety authority was only shortly moved to the public health authorities in the aftermath of BSE, and moved back in its entirety to the Ministry of Agriculture in 2003. Thus, the Netherlands expanded rather than diminished the agricultural domain’s ownership of zoonotic disease control.

This expansion was also related to a decisive development in the public health domain in the latter decades of the twentieth century (factor five): the diminishing burden of infectious diseases and the lack of a powerful, centralised organisation for their control, especially in comparison with the organisation of livestock disease control. It was *individual* rather than public health (and its expanding public costs) that attracted most interest in this period. Simultaneously, the field of veterinary public health lost its former prestigious status. This enabled the remarkable continuation of agricultural dominance in the control of livestock-associated zoonoses, despite the growing public criticism of intensive livestock production’s external effects, the disappearance of the ‘green front’ and the growing importance of health in public opinion.

All in all, historians can derive two historiographical arguments from this book. First, it shows that experts and interest groups fiercely negotiated the boundaries between the policy domains of agriculture and public health in seemingly ‘technical’ discussions. Institution-based

histories of policy and the general fields of history of agriculture and public health at large often overlook that boundaries between policy domains are not self-evident. Both the domains of public health and agriculture need to be taken into account to understand fully negotiations over the control of livestock diseases as public (health) problems and the interests served in the process. This approach can be extended to the study of other public problems of concern to more than one policy domain.

Second, this study illustrates the need for historians to study the influence of organised private interests on these negotiations. This concerns the agricultural *PBO* bodies in particular, and historians should not limit their research interests to the Agricultural Board. The *PBO* archives deserve more attention for two reasons: they provide rare access to corporate documents, and the *PBOs* affected a wider area of state policies than is now recognised.

Until now, I have left one question out of consideration: what insights does this historical perspective provide as to future dealings with livestock-associated zoonoses? This book has important implications for the dominant ‘One Health’ focus on medical-veterinary collaboration: it suggests this is not going to solve fundamental problems. As we have seen, physicians and veterinarians collaborated extensively on livestock-associated zoonoses throughout the twentieth century. Disciplinary tensions often result from such collaboration rather than signify its lack. This is not to say that scientific and professional exchange lacks importance. In this regard, the increased specialisation and the emphasis on individual rather than public health in the health care sector should be of concern, like should be the weakened institutional position of veterinary public health. This is particularly important now that the actual burden of infections has decreased, while at the same time high-density human and livestock populations, globalisation and rapid ecological and environmental changes increase the risk of sudden, unexpected outbreaks of zoonotic disease.

What is more, the continuous focus on veterinary-medical collaboration runs the danger of veiling the more important tensions between the domains of public health and agriculture, which have been the focal point of this book. Interdisciplinary collaboration will not help to prevent a clash of public health and agricultural interests, nor solve associated disagreements which are essentially political. Dutch control of livestock diseases is well organised, but it is important to realise that this organisation is strongly linked to the interests of the agricultural sector and the Dutch export trade. Consequently, the outcome can be very different in a situation in which economic interests do not serve as an incentive for drastic measures. The Q fever epidemic of 2007-2010 gives an impression of the dynamics in this different scenario, in which the agricultural domain delayed quick and drastic control measures, and many people became ill. The ensuing public debate about Q fever has still not ended, and the lawsuits of Q fever patients against the Dutch state and farmers are unprecedented. These developments might indicate that the Q fever outbreak has been a larger trigger to change the power relations

between the domains of public health and agriculture in the Netherlands than BSE was, but this is for future historians (and politicians) to decide.

The more fundamental questions regarding livestock-associated zoonoses are not sheer scientific questions, but social and political ones. When is livestock a danger to public health, and who decides this? Is the agricultural or the public health domain responsible? Is action needed? And if so, what kind of action? And is the state or the private sector expected to take it? It is not my task to present answers to these questions here: they are ideally built on a well-informed and democratic foundation. Nevertheless, the Dutch technocratic and neo-corporatist approach to livestock disease control is in several ways at odds with such a foundation. After all, some social groups, like organised agriculture, other corporate parties and experts working in the agricultural domain, have more influence than others, like public health authorities, consumers and patients. Policy makers need to address economic interests involved explicitly in discussions on zoonoses control, as happened more openly around 1900 than in recent decades. Another possibility is to make research and inspection institutes more independent of specific groups' interests and short-term political changes. Those with the social roles of critically following power, like parliamentary members, journalists, academics and non-governmental organisations, are needed to publicly evaluate seemingly technical livestock disease control policies. Following political scientist Mark B. Brown, the difference in power between agriculture and public health could also be addressed by giving several groups in the public health domain organised and institutionalised roles, like politicians, interest groups and citizens / consumers, similar to the historical role of organised agriculture.⁴ What continues to pose challenges, however, is that we cannot predict which zoonosis will become a problem in the future.

⁴ Brown, *Science*, 257-260.

Schematic overview of major institutions and organisations



Quotations

All translations to English from non-English sources are my own. This list contains the Dutch original of long quotations cited in order to give a sense of actors' own words.

Chapter 1. Creating the format for zoonotic disease control: bovine tuberculosis (1898-1956)

Note 187

'Het merkwaardigste is zeker – om het woord ergerlijk nog niet te gebruiken – dat dezelfde regering, die zich zoo zorgvuldig onthoudt om iets bepaalds te doen voor zieke burgers, tegenover het vee een veel welwillender houding aanneemt.'

Chapter 2. Engaging in comparative medicine in a divided world: influenza (1918-1957)

Note 43

'Thans hebt Gij de derde [veterinair-bacterioloog] in Uw midden willen opnemen [...]. De woorden van Moore: "There is but one medicine. If there are differences they exist in the species attacked", worden meer en meer door de feiten bevestigd. Dat Gij mij tot de vervulling van deze leerstoel hebt voorgesteld, is een bewijs, dat deze zienswijze ook door U wordt gedeeld.'

Note 136

‘De verwantschap van [de influenza van het varken en de influenza van den mensch], speciaal van die twee virussoorten, is een zeer belangrijke kwestie [...]; vooral met het oog op de vraag of de varkensinfluenza afkomstig is van de menscheninfluenza en of ook een mogelijkheid bestaat dat de mensch zich besmet met varkensinfluenza.’

Note 196

‘Wanneer t.a.v. de studie in diergeneeskunde, de tijd en aandacht aan het paard besteed, wordt vergeleken met die welke wordt besteed aan het varken, dan is het de vraag of deze verhouding nog overeenkomt met het economisch belang van deze twee diersoorten.’

Chapter 3. Formalising public-private partnerships in the welfare state: salmonellosis (1951-1978)

Note 56

‘Kijk, dat onderzoek [naar salmonellosen] moet – primair moet dat vanuit de medische hoek – medisch-epidemiologische hoek benaderd worden. En niet vanuit de veterinaire hoek, hoe belangrijk dat ook is. Want uiteindelijk is – voor óns is dat secundair. Wij weten: het komt uit die slachtdieren, nou, dat is jullie pakkie-an verder, die slachtdieren, wij doen het aan deze kant wel.’

Chapter 4. Exporting public health problems on the common European market: bovine spongiform encyphalopathy (1988-2001)

Note 198

‘En nogmaals, [over] BSE hadden we eigenlijk geen enkel verschil van mening. Iedereen zei: *nooit* ook maar enig spoor van BSE in Nederland. Kijk, want ja, dat hebben wij nog steeds, hè. Ook nu ikzelf voorzitter ben [van de Centrale Organisatie voor de Vleessector]: wij zijn bezig op wereldmarkten, dus problemen kun je gewoon niet hebben. Klaar.’

Abbreviations

For abbreviations used to refer to specific archives, see the ‘Archives’ section.

<i>AID</i>	<i>Algemene Inspectiedienst</i>
<i>ARP</i>	<i>Antirevolutionaire Partij</i>
<i>BMGN-LCHR</i>	<i>BMGN-Low Countries Historical Review</i>
<i>BSE</i>	Bovine Spongiform Encephalopathy
<i>CAP</i>	Common Agricultural Policy
<i>CBS</i>	<i>Centraal Bureau voor de Statistiek</i>
<i>CDI</i>	<i>Centraal Diergeneeskundig Instituut</i>
<i>CHU</i>	<i>Christelijk-Historische Unie</i>
<i>CIb</i>	<i>Centrum Infectieziektenbestrijding</i>
<i>CJD</i>	Creutzfeldt-Jakob Disease
<i>CLB</i>	<i>Centraal Laboratorium van de Bloedtransfusiedienst</i>
<i>DG</i>	<i>Directeur-Generaal</i>
<i>DNV</i>	<i>De Nieuwe Velbode</i>
<i>EEC</i>	European Economic Community
<i>EU</i>	European Union
<i>GG&GD /GGD</i>	<i>Gemeentelijke Geneeskundige en Gezondheidsdienst</i>
<i>GHI</i>	<i>Geneeskundige Hoofdinspectie van de Volksgezondheid</i>
<i>GMP</i>	Good Manufacturing Practices
<i>GR</i>	<i>Gezondheidsraad</i>

HUA	Het Utrechts Archief
IKB	<i>Integrale Ketenbeheersing</i>
inv. nr.	<i>inventarisnummer</i>
IPG	<i>Instituut voor Praeventieve Geneeskunde</i>
IPG Verslag	<i>Instituut voor Praeventieve Geneeskunde gevestigd te Leiden: Verslag over het jaar</i>
Jaarverslag IPG	<i>Jaarverslag over 1951 van het Nederlands Instituut voor Praeventieve Geneeskunde Leiden</i>
KNAW	<i>Koninklijke Nederlandse Akademie van Wetenschappen</i>
KNLC	<i>Koninklijk Nederlands Landbouwcomité</i>
KNMG	<i>Koninklijke Nederlandsche Maatschappij tot bevordering der Geneeskunst</i>
KNMvD	<i>Koninklijke Nederlandse Maatschappij voor Diergeneeskunde</i>
KVP	<i>Katholieke Volkspartij</i>
LCI	<i>Landelijke Coördinatie Infectieziektenbestrijding</i>
LGK	<i>Landelijke Gebieden en Kwaliteitszorg</i>
LNV	<i>(Ministerie van) Landbouw, Natuurbeheer en Visserij / Landbouw, Natuur en Voedselkwaliteit</i>
LTO	<i>Land- en Tuinbouw Organisatie</i>
LV	<i>(Ministerie van) Landbouw en Visserij</i>
MIPG	<i>Mededeelingen uit het Instituut voor Praeventieve Geneeskunde</i>
MvD	<i>Maatschappij voor Diergeneeskunde</i>
MvdV	<i>Maandblad voor de Varkensfokkerij</i>
MVN	<i>Maatschappij ter Bevordering der Veeartsenijkunde in Nederland</i>
NA	Nationaal Archief Den Haag
NCV	<i>Nederlandse Centrale Vereeniging tot bestrijding der tuberculose</i>
NLC	<i>Nederlands Landbouwcomité</i>
NMG	<i>Nederlandse Maatschappij tot bevordering der Geneeskunst</i>
NTvG	<i>Nederlandse(ch) Tijdschrift voor Geneeskunde</i>
NVWA	<i>Nederlandse Voedsel- en Warenautoriteit</i>
PBOs	<i>Publiekrechtelijke Bedrijfsorganisaties</i>
PvdA	<i>Partij van de Arbeid</i>
PvV	<i>Produktschap voor Veevoeder</i>
PvVV	<i>Produktschap voor Vee en Vlees</i>
RIV	<i>Rijksinstituut voor de Volksgezondheid</i>
RIVM	<i>Rijksinstituut voor Volksgezondheid en Milieuhygiëne</i>
RKSP	<i>Rooms-Katholieke Staatspartij</i>
RSI	<i>Rijksseruminrichting</i>
RVV	<i>Rijksdienst voor de Keuring van Vee en Vlees</i>
SDAP	<i>Sociaal-Democratische Arbeiderspartij</i>

SER	<i>Sociaal Economische Raad</i>
SRM	specified risk material
SVOI	<i>Staatveartsenijkundig Onderzoekingsinstituut</i>
SZV	<i>(Ministerie van) Sociale Zaken en Volksgezondheid</i>
TB	tuberculosis
tbc	<i>tuberculose</i>
TNO	<i>Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek</i>
TvD	<i>Tijdschrift voor Diergeneeskunde</i>
TvSH	<i>Tijdschrift voor Sociale Hygiëne: Orgaan van het Nederlandsch Congres voor Openbare Gezondheidsregeling</i>
TvV	<i>Tijdschrift voor Veeartsenijkunde</i>
UK	United Kingdom
UBL BC	Universiteitsbibliotheek Leiden, Bijzondere Collecties
USA	United States of America
vCJD	variant Creutzfeldt Jakob Disease
VD	<i>Veeartsenijkundige Dienst / Veterinaire Dienst</i>
Verslag VD	<i>Verslag van den directeur van den Veeartsenijkundigen Dienst omrent de werkzaamheden van den Veeartsenijkundigen Dienst en den gezondheidstoestand van den veestapel</i>
Verslag RSI	<i>Verslag van de werkzaamheden der Rijksseruminrichting</i>
VHI	<i>Veterinaire Hoofdinspectie van de Volksgezondheid</i>
VM	<i>(Ministerie van) Volksgezondheid en Milieuhygiëne</i>
VMV	<i>Verslagen en Mededeelingen van de Volksgezondheid / Verslagen en mededelingen betreffende de volksgezondheid</i>
VVD	<i>Volkspartij voor Vrijheid en Democratie</i>
VVZM	<i>Vereniging voor Zuivelindustrie en Melkhygiëne</i>
VWS	<i>(Ministerie van) Volksgezondheid, Welzijn en Sport</i>
WHO	World Health Organisation
WVC	<i>(Ministerie van) Welzijn, Volksgezondheid en Cultuur</i>

English translation of Dutch names

- Act on the Practice of Veterinary Medicine (*Wet op de uitoefening van de diergeneeskunde*)
Agricultural Board (*Landbouwschap*) 1954-1996
Agricultural Crisis Act (*Landbouwcrisiswet*)
Agricultural Foundation (*Stichting voor de Landbouw*)
Agricultural Research Institute for Animal Feed (*Centraal Instituut voor Landbouwkundig Onderzoek - Instituut voor de Veevoeding*)
Animal Health and Welfare Act (*Gezondheids- en welzijnswet voor dieren*) 1992-present
Animal Health Committee (*Gezondheidscommissie voor Dieren*)
Animal Health Services (*Gezondheidsdiensten voor Dieren*)
Animal Rendering Act (*Destructiewet*) 1957
Anti-Revolutionary Party (*Antirevolutionaire Partij, ARP*)
Bovine Tuberculosis Bill (*Rundertuberculosewet*) 1900
Bovine Tuberculosis Eradication Act (*Wet bestrijding tuberculose onder het rundvee*) 1952
Catholic Dutch Farmers Federation (*Katholieke Nederlandse Boeren- en Tuindersbond*) 1920-1995
Central Health Council (*Centrale Gezondheidsraad*) 1901-1920
Central Institute for Food Research of the Dutch organisation Applied Scientific Research (*TNO Centraal Instituut voor Voedingsonderzoek*)
Central Laboratory for Public Health (*Centraal Laboratorium voor de Volksgezondheid*) 1909-1934

Central Laboratory of the Blood Transfusion Service (*Centraal Laboratorium van de Bloedtransfusiedienst, CLB*)
Central Organisation for the Meat Sector (*Centrale Organisatie voor de Vleessector*)
Central Veterinary Institute (*Centraal Diergeneeskundig Instituut, CDI*) 1959-1993
Chief Medical Inspectorate of Public Health (*Geneeskundige Hoofdinspectie van de Volksgezondheid, GHI*)
Chief Medical Officer of Public Health (*Medische Hoofdinspecteur van de Volksgezondheid*)
Chief Pharmaceutical Officer of Public Health (*Farmaceutische Hoofdinspecteur van de Volksgezondheid*)
Chief Veterinary Inspectorate of Public Health (*Veterinaire Hoofdinspectie van de Volksgezondheid, VHI*)
Chief Veterinary Officer of Public Health (*Veterinaire Hoofdinspecteur van de Volksgezondheid*)
Christian Farmers Federation (*Christelijke Boeren- en Tuindersbond*) 1918-1995
Commodities Act (*Warenwet*) 1919
Consumers Union (*Consumentenbond*) 1953-present
Consumption Milk Centre (*Consumptie Melk Centrale*)
Council for Animal Affairs (*Raad voor Dieraangelegenheden*) 1993-present
Crisis Pig Act (*Crisis-varkenswet*)
Dairy Industry and Milk Hygiene Association (*Vereniging voor Zuivelindustrie en Melkhygiëne, VVZM*)
Directorate of Agriculture (*Directie van den Landbouw*)
Dutch Agricultural Committee (*Nederlands Landbouwcomité, NLC*)
Dutch Cattle Herd Book (*Nederlandsch Rundvee Stamboek*)
Dutch Central Society for Tuberculosis Control (*Nederlandse Centrale Vereeniging tot bestrijding der tuberculose, NCV*)
Dutch Congress for Public Health Control (*Nederlandsch Congres voor Openbare Gezondheidsregeling*)
Dutch Federation of Agriculture and Horticulture (*Land- en Tuinbouw Organisatie Nederland, LTO*) 1995-present
Dutch Medical Association (*Nederlandse Maatschappij tot bevordering der Geneeskunst, NMG*) 1849-1949
Dutch Organisation for Applied Scientific Research (*Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek, TNO*)
Dutch Pig Centre (*Nederlandse Varkenscentrale*)
Feed Board (*Produktschap voor Veevoeder, PvV / Productschap voor Diervoeder*) 1956-2015
Food Inspection Service(s) (*Keuringsdienst(en) van Waren*)
Frisian Cattle Herd Book (*Friesch Rundvee Stamboek*)
Frisian Livestock Health Service (*Gezondheidsdienst voor Vee*)
General Audit Office (*Algemene Rekenkamer*)

General Inspection Service (*Algemene Inspectiedienst, AID*)
Health Council (*Gezondheidsraad, GR*) 1920-present
Hygienic Laboratory (*Hygiënisch Laboratorium*)
Infectious Disease Act (*Besmettelijke Ziektenwet*)
Inspectorate of Public Health on Tuberculosis Control (*Inspectie van de Volksgezondheid voor de Tuberculosebestrijding*)
Inspectorate of Health Protection, Commodities and Veterinary Affairs (*Inspectie Gezondheidsbescherming, Waren en Veterinaire Zaken*) 1997-1999
Institute for Preventive Medicine (*Instituut voor Praeventieve Geneeskunde, IPG*) 1929-1994
Integrated Chain Control (*Integrale Ketenbeheersing, IKB*)
Laboratory for Zoonoses (*Laboratorium voor Zoönosen*)
little Salmonella Bill (*het Salmonellawetje*) 1965
Livestock Act (*Veewet*) 1870-1992
Livestock and Meat Board (*Produktschap voor Vee en Vlees, PvVV*)
Meat Educational Office (*Voorlichtingsbureau Vlees*)
Meat Inspection Act (*Vleeschkeuringswet*) 1919
Medical Police (*Medische Politie*)
Medical State Inspectorate (*Geneeskundig Staatstoezicht*) 1865-1901
Medical State Inspectorate of Public Health (*Geneeskundig Staatstoezicht op de Volksgezondheid*)
Ministry of Agriculture and Fisheries (*Ministerie van Landbouw en Viss(ch)erij, LV*) 1935-1937,
1940-1944, 1959-1989
Ministry of Agriculture, Fisheries and Food Supply (*Ministerie van Landbouw, Visserij en Voedselvoorziening*) 1945-1959
Ministry of Agriculture, Nature and Food Quality (*Ministerie van Landbouw, Natuur en Voedselkwaliteit, LNV*) 2003-2010
Ministry of Agriculture, Nature Management and Fisheries (*Ministerie van Landbouw, Natuurbeheer en Visserij, LNV*) 1989-2003
Ministry of Agriculture, Trade and Industry (*Ministerie van Landbouw, Nijverheid en Handel*)
1905-1923
Ministry of Internal Affairs (*Ministerie van Binnenlandsche Zaken*)
Ministry of Labour (*Ministerie van Arbeid*) 1918-1923
Ministry of Public Health and Environmental Hygiene (*Ministerie van Volksgezondheid en Milieuhygiëne, VM*) 1971-1982
Ministry of Public Health, Welfare and Sport (*Ministerie van Volksgezondheid, Welzijn en Sport, VWS*) 1994-present
Ministry of Social Affairs and Public Health (*Ministerie van Sociale Zaken en Volksgezondheid, SZV*) 1951-1971
Ministry of Welfare, Public Health and Culture (*Ministerie van Welzijn, Volksgezondheid en Cultuur, WVC*) 1982-1994

- Municipal Medical and Health Service (*Gemeentelijke Geneeskundige en Gezondheidsdienst, GG&GD / GGD*)
- National Co-ordination Infectious Disease Control (*Landelijke Coördinatie Infectieziektenbestrijding, LCI*)
- Netherlands Food and Consumer Product Safety Authority (*Nederlandse Voedsel- en Warenautoriteit, NVWA*)
- Netherlands Society for Microbiology (*Nederlandse Vereeniging voor Microbiologie*)
- Netherlands Veterinary Association (*Maatschappij ter Bevordering der Veeartsenkunde in Nederland, MVN*) 1862-1915
- Organisation Committee for Influenza Control (*Organisatie Commissie voor de Influenzabestrijding*)
- Poultry and Eggs Board (*Produktschap voor Pluimvee en Eieren*)
- Prevention Fund (*Praeventiefonds*)
- Prof. dr. D.A. de Jong Foundation (*Prof. dr. D.A. de Jong Stichting*)
- Prophylaxis Fund (*Prophylaxefonds*)
- Health Act (*Gezondheidswet*) 1901-1956 / 1956-present
- Royal Dutch Agricultural Committee (*Koninklijk Nederlands Landbouwcomité, KNLC*)
- Royal Dutch Medical Association (*Koninklijke Nederlandse Maatschappij tot bevordering der Geneeskunst, KNMG*) 1949-present
- Royal Netherlands Academy of Arts and Sciences (*Koninklijke Nederlandse Akademie van Wetenschappen, KNAW*)
- Royal Netherlands Veterinary Association (*Koninklijke Nederlandse Maatschappij voor Diergeneeskunde, KNMvD*) 1963 – present
- Rural Area Development Program (*streekverbeteringsplan*)
- Social Economic Council (*Sociaal Economische Raad, SER*)
- Society of Importers of Fish and Animal Meal (*Vereniging van Importeurs van Vis- en Diermeel*)
- State Agricultural Testing Station (*Rijkslandbouwproefstation*)
- State Committee on the Control of Tuberculosis among Cattle (*Staatscommissie inzake de bestrijding der tuberculose onder het vee*) 1898-1902
- State Committee on Tuberculosis Control (*Staatscommissie inzake de bestrijding van de tuberculose*) 1918-1922
- State Consulting Agency for Pig Breeding (*Riksconsulentenschap voor de Varkensfokkerij*)
- State Inspectorate of Public Health (*Staatstoezicht op de Volksgezondheid*) 1901-present
- State Institute for Public Health (*Rijksinstituut voor de Volksgezondheid, RIV*) 1934-1984
- State Institute for Public Health and Environmental Hygiene (*Rijksinstituut voor Volksgezondheid en Milieuhygiëne, RIVM*) 1984-present
- State Institute for (the Preparation of) the Food Supply during War Time (*Rijksbureau voor de Voorbereiding van de Voedselvoorziening in Oorlogstijd*)

State Livestock and Meat Inspection Service (*Rijksdienst voor de Keuring van Vee en Vlees, RVV*)
1984-1999

State Serological Institute (*Rijks-Serologisch Instituut*) 1919-1934

State Serum Institute (*Rijksseruminrichting, RSI*) 1904-1958

State Veterinary Research Institute (*Staatveeartsenijkundig Onderzoekingsinstituut, SVOI*)
1930-1958

State Veterinary School (*Rijksveeartsenijsschool*) 1821-1918

statutory industrial organisations (*Publiekrechtelijke Bedrijfsorganisaties, PBOs*)

Veterinary Association (*Maatschappij voor Diergeneeskunde, MvD*) 1916-1961

Veterinary College (*Veeartsenijkundige Hoogeschool*) 1918-1925

Veterinary Faculty (*Faculteit der Veeartsenijkunde / Faculteit der Diergeneeskunde*) 1925-1955 /
1956-present

Veterinary Police (*Veeartsenijkundige Politie*)

Veterinary Service (*Veeartsenijkundige Dienst, VD*) 1906-1970

Veterinary Service (*Veterinaire Dienst, VD*) 1970-1995

Veterinary State Inspectorate (*Veeartsenijkundig Staatstoezicht*) 1870-1992

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dr. W. (Willem) Edel (April 10 and 17, 2014)
prof. dr. J. (Joop) Huisman (March 4 and 28, 2014)

Chapter 4 (BSE)

drs. J. (Jos) Goebbel (April 12, 2016)
prof. dr. A.D.M.E. (Ab) Osterhaus (April 21, 2016)
prof. dr. E.J. (Joost) Ruitenberg (March 23, 2016)
prof. dr. B. (Bart) Sangster via e-mail (May 2016)
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Samenvatting (Summary in Dutch)

Onderhandelen over zoönosen. De omgang met door mens en vee gedeelde infectieziekten in Nederland (1898-2001)

Dit boek analyseert hoe men in de periode 1898-2001 omging met door mens en vee gedeelde infectieziekten (zoönosen) in Nederland. Het is geschreven voor twee groepen lezers: historici en hedendaagse bestrijders van zoönosen, zoals beleidmakers en deskundigen. Het boek richt zich daarom niet alleen op het verleden, maar wil daarmee ook inzicht bieden in de hedendaagse en toekomstige zoönosenbestrijding. Daarom besteedt het ook aandacht aan de op dit moment populaire *One Health* beweging, die velen zien als oplossing voor ondervonden problemen rond zoönosen, zoals tijdens de uitbraak van Q-koorts in 2007-2010. Deze beweging pleit voor intensievere samenwerking tussen verschillende disciplines, vooral tussen de disciplines diergeneeskunde en geneeskunde.

De historische onderzoeksvragen die in het boek centraal staan zijn: hoe onderhandelden de domeinen landbouw en volksgezondheid over het probleemeigenaarschap van zoönosen van productiedieren gedurende de twintigste eeuw? Wie mocht ze als (publieke) problemen definiëren en beslissen over de aard van interventies? En hoe verhielden de disciplines diergeneeskunde en geneeskunde zich tot elkaar binnen deze bredere context? Om deze vragen te beantwoorden behandel ik vier voorbeelden van door mens en productiedieren gedeelde zoönosen, ieder in een eigen periode: rundertuberculose (1898-1956), influenza (1918-1957), salmonellosen (1951-1978) en boviene spongiforme encefalopathie (1988-2001). Deze

casussen laten zien dat de omgang met zoönosen van productiedieren in Nederland gedurende de twintigste eeuw opmerkelijk continue is geweest.

Hoofdstuk 1 laat zien hoe de omgang met zoönosen van productiedieren in de vroege twintigste eeuw vorm kreeg rond rundercervicale tuberculose (rundertbc). Aan het einde van de negentiende eeuw definieerden hygiënisten deze runderziekte als volksgezondheidsprobleem, terwijl de georganiseerde landbouw haar tegelijkertijd vooral als economisch exportprobleem definieerde. Mijn analyse laat zien dat vooral de laatste probleemdefinitie bestrijdingsmaatregelen inspireerde, anders dan de nadruk op het volksgezondheidsperspectief in de bestaande geschiedschrijving over rundertbc. De landbouwautoriteiten ontwierpen bovendien door de overheid gesubsidieerde bestrijdingssystemen op basis van *vrijwilligheid*. De georganiseerde landbouw gaf hier de voorkeur aan, in tegenstelling tot de hygiënisten die juist overheidsbemoeienis prefereerden. Dit paste in een tijd waarin de overheid zich met steeds meer aspecten van het maatschappelijk leven ging bemoeien en dit eerder en op grotere schaal met landbouw dan met volksgezondheid deed. Dit patroon herhaalde zich tijdens en na de Tweede Wereldoorlog. Ditmaal startten de landbouwautoriteiten in nauwe samenwerking met de georganiseerde landbouw (het ‘groene front’) een dwingend bestrijdingsprogramma van rundertbc zonder dat het volksgezondheidsdomein een rol speelde. De Duitse bezetting, de geallieerde bevrijding en de Amerikaanse Marshallhulp waren hierin belangrijke externe factoren. In 1956 was Nederland nagenoeg vrij van rundertbc. Het volksgezondheidsdomein verkreeg slechts secundair probleemeigenaarschap via de invoering van landelijke, verplichte voedselkeuring tijdens de golf van sociale wetgeving na de Eerste Wereldoorlog. Tijdens de Tweede Wereldoorlog breidde de Duitse bezetter dit uit met verplichte melkpasteurisatie en destructie van Nederlands dierlijk afval. De kunstmatige scheiding tussen ziektebestrijding onder levend vee (landbouwautoriteiten) en productkeuring (volksgezondheidsautoriteiten) creëerde gedurende de twintigste eeuw een invloedrijke – en problematische – verdeling van verantwoordelijkheden.

Deze verhoudingen tussen de landbouw- en volksgezondheidsdomeinen vormden een belangrijke context voor de relatie tussen de disciplines diergeneeskunde en geneeskunde. Voor een veterinaire elite van dierenartsen-hygiënisten was het definiëren van rundertbc als *volksgezondheidsprobleem* belangrijk in de maatschappelijke verheffing van hun discipline. Maar tegelijkertijd moesten dierenartsen in de discussie over rundertbc balanceren tussen hun vroege en stevig geïnstitutionaliseerde positie in het landbouwdomein en retorisch belangrijke, maar zich uiteindelijk vooral tot vleeskeuring beperkende positie in het volksgezondheidsdomein. Voor de radicale hygiënisten waren dierenartsen-hygiënisten belangrijk in hun (vergeefse) pogingen om invloed op de losgekoppelde en snel uitdijende landbouwautoriteiten te behouden. In de internationale discussie waren Nederlandse hygiënisten het dan ook oneens met Robert Koch, die in 1901 stelde dat rundertbc geen betekenis had voor mensen. Wel vonden artsen tot in de jaren 1930 dat rundertbc slechts van secundair belang was voor humane tbc – tot ergernis van dierenartsen – en achten zij voedselinspectiemaatregelen voldoende.

Hoofdstuk 2 behandelt de casus van influenza (1918-1957). Anders dan in het hoofdstuk over rundercbc is de overheid in deze casus veel minder aanwezig: het hoofdstuk is een nadere illustratie van het sterk op het private initiatief steunende Nederlandse volksgezondheidsbeleid in vergelijking met een grotere rol van de overheid in de landbouw. Na de machteloosheid van artsen tijdens de grote influenzapandemie van 1918-1919 en de Amerikaans-Engelse ontdekkingen van influenzavirussen werd onderzoek naar influenza in de vroege jaren 1930 ook in Nederland een *hot topic*. Anders dan in de Verenigde Staten en het Verenigd Koninkrijk vond het Nederlandse onderzoek op kleine schaal plaats aan het private Instituut voor Praeventieve Geneeskunde. Maar net als in de Angelsaksische context onderzochten wetenschappers influenza in een cultuur van ‘vergelijkende geneeskunde’ van mensen en dieren: de mogelijkheid dat influenza een zoönose was, trok de aandacht. Voor dierenartsen was dit een goede omgeving om hun eigen positie en hun discipline verder te verheffen in de medische wetenschap. Tegelijkertijd – dit heeft nog niet eerder aandacht gekregen in de geschiedschrijving van influenza – waren Europese landbouwkringen ook geïnteresseerd in het varkensinfluenzavirus van de Amerikaanse influenzaonderzoeker Richard Shope. Varkensinfluenza werd gezien als één van de mogelijke oorzaken voor economische schade door onbekende varkensziekten waar varkenshouders mee kampen. *Ondanks* de onderzoeks cultuur van vergelijkende geneeskunde leidde het in verband brengen van humane en dierlijke influenza’s in Nederland echter niet tot structurele aandacht voor influenza als zoönose. De domeinen benaderden influenza vooral vanuit hun domeinspecifieke perspectief en binnen de discipline diergeneeskunde was een onderscheid ontstaan tussen landbouw- en volksgezondheidsdierenartsen. Deze casus laat dus zien dat een cultuur van interdisciplinaire samenwerking tussen artsen en dierenartsen niet automatisch ook zorgt voor het bij elkaar brengen van de domeinen landbouw en volksgezondheid. Het waren externe factoren die in 1957 zorgden voor meer onderzoek naar influenza als zoönose: de influenzapandemie van 1957 en het daarop gekoppelde onderzoek van de Wereldgezondheidsorganisatie van de Verenigde Naties naar het influenzavirus onder varkens en paarden in verschillende landen.

Hoofdstuk 3 laat een kampen strijd over de bestrijding van de voedselinfektie salmonelloze (1951-1978) zien, tijdens de hoogtijdagen van het ‘groene front’ en de gelijktijdige uitbreiding van de volksgezondheidstaken van de overheid in de verzorgingsstaat. Het volksgezondheidsdomein achtte zijn verantwoordelijkheid voor voedselinspectie onvoldoende om *Salmonella*-infecties van vee adequaat te bestrijden. Volksgezondheidsdeskundigen pleitten voor door de overheid opgelegde sterilisatie van met *Salmonella*’s besmette veevoerbestanddelen. Maar dit drukte in tegen het belang van het landbouwdomein om de opkomende intensieve varkens- en pluimveehouderij (‘bio-industrie’ gedoopt door critici) te voeden met grote hoeveelheden goedkoop, geïmporteerd veevoer. Het landbouwkamp won deze strijd al snel. De georganiseerde landbouw had een nieuwe vorm gekregen in de publiek-private publieksrechtelijke bedrijfsorganisaties (PBO’s), zoals het Landbouwschap en het Produktschap voor Veevoeder. Deze PBO’s konden de *Salmonellabestrijding* zelf organiseren en

deden dit grotendeels langs vrijwillige lijnen. De invloed van de volksgezondheidsautoriteiten bleef beperkt tot het informeren van het publiek over keukenhygiëne. Opnieuw maakt deze casus duidelijk dat de relaties tussen de disciplines diergeneeskunde en geneeskunde niets met de kern van het probleem te maken hadden: beide kampen kenden intensief samenwerkende dierenartsen *en* artsen.

Ten slotte laat hoofdstuk 4 zien dat het landbouwdomein dominant bleef in de maatregelen tegen bovienne spongiforme encefalopathie (BSE), beter bekend als ‘gekkekozieziekte’ (1988-2001). Dit hoofdstuk speelt zich af in een neoliberale politieke context, waarvan flinke bezuinigingen in het publieke domein, de invoering van de interne vrije markt van de Europese Unie en het uitbesteden van voormalig publieke taken aan private partijen belangrijke componenten waren. Het ‘groene front’ viel langzaam uit elkaar. Dit hoofdstuk laat echter ook zien dat dit idee genuanceerd moet worden. Andere landbouw-PBO’s bleven nog lange tijd na het opheffen van het Landbouwschap veel invloed houden en ook private groepen kregen eerder meer dan minder invloed op de veeziektebestrijding en het voedselveiligheidsbeleid. In de late jaren 1980 zagen de landbouw-PBO’s en landbouwautoriteiten BSE vooral als economisch gevaar dat de exportpositie van de Nederlandse rundveehouderij vanuit het buitenland bedreigde. Om deze reden voerden de PBO’s snel zelfregulerende maatregelen in. Vroege volksgezondheidszorgen van belangrijke afzetlanden, met name Duitsland, vormden wel een belangrijke aanleiding voor dit beleid, maar tegelijkertijd betwijfelde men in Nederland een verband tussen BSE en volksgezondheidsproblematiek. De vondst van ‘binnenlandse’ Nederlandse BSE gevallen in 1997 kwam als een grote schok en was aanleiding voor nog drastischer en door de landbouwsector gesteunde maatregelen. Anders dan in de *Salmonellacase* ging het volksgezondheidsdomein mee met het landbouwprobleemeigenaarschap van BSE. Aandacht voor mogelijke volksgezondheidsimplicaties van BSE vond tot 2000 versnipperd en op basis van individuele en privaat georganiseerde initiatieven plaats. Bovendien gingen de strenge maatregelen om de exportpositie te beschermen aan meer prominente volksgezondheidszorgen vooraf: er waren geen belangenconflicten en het gezamenlijk beleid verliep harmonieus. Dat deze harmonie niet vanzelfsprekend was, laat het gelijktijdige debat over de inrichting van de voedselinspectie zien. De dwingende EU bestrijdingsmaatregelen tijdens de grote Europese (in plaats van Britse) BSE crisis van 2000 kwam als een grote schok voor het landbouwdomein: voor het eerst kwam er een einde aan decennia van zelfregulering. In het Verenigd Koninkrijk en de EU was BSE aanleiding om de verantwoordelijkheid voor voedselinspectie en zoönosenbestrijding te verplaatsen van de landbouwautoriteiten naar die voor de volksgezondheid en consumentenbescherming. Maar in Nederland gebeurde eerder het tegenovergestelde.

De casussen leiden tot twee conclusies. Allereerst is de dominantie van het landbouwdomein over het volksgezondheidsdomein gedurende de hele twintigste eeuw van groot belang voor het begrijpen van conflicten over het beleid jegens zoönosen van productiedieren. Vijf met

elkaar verbonden factoren verklaren deze dominantie. In de eerste plaats werden de concrete en financiële belangen van de Nederlandse landbouwsector van eerder en zwaarder politiek gewicht geacht dan de meer abstracte, algemene volksgezondheidsbelangen. Vooral de handelsbelangen gaven de doorslag. Ten tweede was het landbouwdomein sterker georganiseerd dan het volksgezondheidsdomein, met een bredere maatschappelijke basis en sterkere banden met politieke partijen, met name de confessionele partijen. Dit mondde uit in het krachtige ‘groene front’ waar geen volksgezondheidsequivalent van was. Een derde belangrijke factor is de politieke traditie van Nederland. Die kende een afwisselend sterke liberale en confessionele dominantie in vergelijking met een zwakkere positie van het sociaalliberalisme, het socialisme en de sociaaldemocratie. Dit betekende dat zowel het landbouw- als het volksgezondheidsdomein over het algemeen steunden op het maatschappelijk middenveld en het particuliere initiatief in plaats van op staatsinterventie. Maar de verstrengeling tussen staat en maatschappelijk middenveld nam tegelijkertijd ook toe. Zo is het geen toeval dat het hoogtepunt van de confessioneel-liberale verzorgingsstaat samenviel met het hoogtepunt van het ‘groene front’ in de *Salmonellacasus*. De vierde verklaringsfactor voor de landbouwdominantie in de omgang met zoönosen van productiedieren is de taakverdeling tussen levende dieren (landbouw) en producten (volksgezondheid) die in de vroege twintigste eeuw gecreëerd werd en vanaf dat moment zowel invloedrijk als bron van conflicten werd. Het landbouwdomein had hierdoor zeggenschap over de start van zoönotische problemen. Een vijfde factor is belangrijk om te begrijpen waarom zelfs in de periode van BSE het landbouwdomein dominant bleef, terwijl het beschermen van humane gezondheid inmiddels als een vanzelfsprekende overheidstaak gezien werd en het ‘groene front’ afbrokkelde. Deze factor is de afnemende ziektelelast door infecties in het volksgezondheidsdomein en het gebrek aan een centrale, krachtige organisatie voor de bestrijding ervan in de late twintigste eeuw. In deze context verloor ook de veterinaire volksgezondheid haar geïnstitutionaliseerde positie (en hoge status).

Ten tweede laten de casussen zien dat de scheidslijn tussen de disciplines diergeneeskunde en geneeskunde niet precies overeenkwam met de belangrijker scheidslijn tussen de domeinen volksgezondheid en landbouw, die hierboven geschetst is. Dierenartsen en artsen werkten veel met elkaar samen aan zoönosen (zelfs binnen beide domeinen) en bleven die samenwerking tegelijkertijd problematiseren. Dit kwam ten eerste doordat artsen en dierenartsen juist wanneer ze elkaar veel tegenkwamen scherpere disciplinaire grenzen trokken. Daarnaast gaven dierenartsen en artsen disciplineloyaliteit voorrang op domeinloyaliteit (of althans in retorische zin), om zo de spanning tussen hun eigen toegenomen politieke werk en het wetenschappelijke ideaal van objectieve onafhankelijkheid op te lossen. Bovendien was het samenwerkingsargument om verschillende redenen nuttig voor verschillende groepen in veranderende omstandigheden. In het begin van de twintigste eeuw waren dit bijvoorbeeld de maatschappelijke en wetenschappelijke verheffing van de diergeneeskunde en de wens van hygiënisten om zeggenschap te houden over het snel groeiende beleidsdomein van landbouw. En aan het einde van de twintigste eeuw was de gekelderde status van de veterinaire

volksgezondheid bijvoorbeeld een belangrijke reden voor dierenartsen om tot meer medisch-veterinaire samenwerking aan zoönosen op te roepen.

Voor historici bevat deze geschiedenis van zoönosen twee historiografische argumenten. Ten eerste laat dit boek zien dat het in de geschiedschrijving van landbouw en volksgezondheid, maar ook van beleid in zijn algemeenheid, belangrijk is om grenzen tussen beleidsdomeinen niet als vanzelfsprekend over te nemen. Historici kunnen deze grenzen historiseren en aandacht besteden aan hoe actoren over het trekken van die grenzen onderhandelden. Ten tweede illustreert dit boek het belang van historisch onderzoek naar de invloed van georganiseerde private belangen op deze onderhandelingen.

Dit boek biedt ook inzichten voor beleidsmakers, zoönosendeskundigen en andere geïnteresseerden in zoönosen en *One Health* problematiek. Het suggereert sterk dat de populaire nadruk op medisch-veterinaire samenwerking binnen de *One Health* beweging fundamentele problemen rond zoönosen van productiedieren niet zal oplossen. De continue nadruk op dit soort samenwerking kan zelfs belangrijkere problemen tussen de domeinen landbouw en volksgezondheid aan het zicht onttrekken. Het gaat dan met name om botsingen van belangen en de daarmee gepaard gaande inherent politieke discussies. Eenduidige antwoorden op dit soort politieke vragen geeft dit boek niet. Maar de historische analyse van de neo-corporatistische en technocratische Nederlandse traditie geeft wel aanleiding tot een oproep om alle (potentieel) geraakte maatschappelijke groepen in deze politieke discussies over zoönosen te betrekken, zoals historisch gezien vooral gold voor de georganiseerde landbouw.

Acknowledgements

Writing a dissertation is a far less solitary occupation than it often seems to be. Many people have contributed to my research and this book. Indeed, more people than I can acknowledge by name here.

In the first place I want to thank my team of supervisors, professor Frank Huisman, professor Peter Koolmees and professor Roel Coutinho, for their support and trust. I will miss our numerous meetings. Frank, thank you for your personal commitment, cheerfulness and intellectual inspiration: you have been the best possible ‘daily’ supervisor imaginable. Peter, thank you for your enthusiasm, for sharing your extensive knowledge about the topics of this book, and for your generosity with your personal library. Roel, university rules do not allow me to list you as my third *promotor* on the title page of this dissertation, but this does not represent reality at all. You have been a great supervisor in every sense of the word (and without you this book would have been even longer): thank you.

The financiers of this project are, in alphabetical order: the Faculty of Veterinary Medicine of Utrecht University, the Julius Center of the University Medical Center Utrecht, the Ministry of Economic Affairs, and the Ministry of Health, Welfare and Sport of the Netherlands. Illustrating the One Health approach in this generous way, they have made the project financially possible with equal amounts and have allowed me to work in complete academic freedom.

Several (and often overlapping) groups of scholars have inspired me. The Utrecht University Descartes Centre for the History and Philosophy of the Sciences and the Humanities has been my intellectual home. I want to thank the Centre’s scientific director, Bert Theunissen, in

particular, and I also want to thank its former and current business managers Annemarieke Blankesteijn and Ariane den Daas. Moreover, I am indebted to Jesper Oldenburger and Steven van der Laan for our animal history reading group (*Beestenleesclub*); and to Timo Bolt, Roland Bertens, Nele Beyens, Frank Huisman, Hieke Huijstra and Noortje Jacobs for our medical history reading group – and to the members of both groups for numerous other inspiring occasions. Thank you, Bert Nederbragt, Babke Aarts and other Utrecht (University Museum) veterinary history colleagues.

I also want to acknowledge the community of cultural historians and fellow PhD students (especially my 2012-2013 cohort) affiliated to the Huizinga Research Institute and Graduate School of Cultural History. In particular, I want to thank professor Selma Leydesdorff for teaching me oral history, and professor Leen Van Molle for acting as my reviewer during the *promovendisymposium* in 2015. I am indebted to conversations with Joris Vandendriessche, Kaat Wils and the other authors and editors of the 2017 *BMGN-Low Countries Historical Review* theme issue on the history of medicine. Erwin Karel and Frank van der Most, thank you so much for sending me important books and publications. Thanks to the group of PhD students working on the history of the sciences and the humanities in the Netherlands for our conferences in Rolduc and Utrecht. Being one of the Shells&Pebbles editors has been truly wonderful. I mention the ‘early group’ in particular: Jeroen Bouterse, Ivan Flis, Noortje Jacobs, Hans Schouwenburg and Constance Sommerey. Other inspirational communities have been those of the Gewina Woudschoten history of science conferences; the Netherlands Society for Veterinary History; and the *Nederlandse Vereniging voor Medische Geschiedenis* (thanks to Jan Huurman in particular). Moreover, I want to thank the Utrecht University Middle Dutch medievalists for guiding me on the path towards the history of the sciences, especially professor Paul Wackers.

I am grateful for having had the opportunity to meet so many scholars working on the history of animals, (veterinary) medicine, science and environmental history in an international context. Professor Susan D. Jones, dear Susan, thank you so much for teaching me about the history of zoonotic diseases and human-animal relations (in the Twin Cities in 2011 and in Vienna in 2014), mentoring me as a young scholar, and revealing the world of environmental history to me. I am very proud and grateful that you will cross the Atlantic Ocean to join my defence committee. I also want to thank the professors and students of the 2014 VISU Vienna International Summer University on ‘Humans/Animals: a Contested Boundary’ (Chip Burkhardt, Susan Jones, Georgina Montgomery and Emmie Miller in particular); the ‘One Medicine?’-group (Abigail Woods, Michael Bresalier, Angela Cassidy and Rachel Mason Dentinger), Anne Hardy and Tatsuya Mitsuda for their warm welcome and support during my visit to King’s College in 2014 and at later occasions; and many scholars I met during the inspiring and fun conferences of – among others – the European Association for the History of Medicine and Health, the European Society for Environmental History, the History of Science Society and the World Association for the History of Veterinary Medicine.

I thank the people I interviewed for their professional and personal histories of *Salmonella* and/or BSE: Wim Edel, Jos Goebbelz, Joop Huisman, Joost Ruitenberg, Ab Osterhaus, Bart Sangster (via email conversations), Bram Schreuder and Jim van Steenbergen. It is sad that Joop Huisman and Wim Edel passed away during this project's time frame, but I am grateful to have had the opportunity to include their stories in this book. Moreover, Wim Edel, Joost Ruitenberg and Bram Schreuder generously provided me with material from their personal archives. I also thank all the librarians and archivists who make the work of a historian so much easier. Xavier Fourt taught me how to draw maps.

My physical workplace during this project has been in the Julius Center of the University Medical Center Utrecht. Thanks in particular to all my Medical Humanities colleagues, and to Coby van Rijn, Henk ter Keurs and Abdel. I also want to thank my office mates in the Stratenum building room 6.118 and the Van Geuns building room 5.10 (and the corridor) for sharing our daily dissertation-writing experiences and our breaks. Thanks to Henok Tadesse Ayele in particular for our friendship. I thank my students and the fellow-teachers of the courses Medical Humanities I and II, One Health, Science and the Dilemma's of Modernity and numerous guest lectures. Thanks to the teachers and other participants of the excellent UMC Utrecht University Teaching Qualification programme for everything I learned about teaching.

My visits to operating farms during this project have been unforgettable experiences. I thank Steven van der Laan, Gijs Klous, One Health student Jolien Jacobs and the Utrecht Faculty of Veterinary Medicine for the opportunities to visit pig and poultry farms. Veterinarians Wietske Dohmen, Arie van Nes and Marije, and Barneveld farmers Henk and his wife have been great guides during those visits.

Thank you so much, my dear friends, family and house mates, for your friendship, love and support. Alejandra Peña and Hans van der Mispel did not leave my side as *paranimfen*. Kelly Goris has been essential for slowing me down. Krina Huisman, thank you for our conversations and your proofreading of parts of my work. Grietje Henken, thank you for the graphic design of the organisation chart. I dedicate this book to my father, Wim Haalboom, my mother, Marianne Dagelet, and my brother, Daan Haalboom. Your love and encouragement throughout my life is such an important foundation. On top of that, Wim proofread the manuscript and designed the cover with me, and Marianne proofread my Dutch. *Dank*, Fred, for the loving and cheerful way in which you support me in doing my work and for our life together.

Curriculum Vitae

Floor Haalboom was born in Tilburg in 1987, but mostly grew up in the Frisian countryside. After her secondary education at the Stedelijk Gymnasium in Leeuwarden, she completed a Bachelor of Science in Biology (2009), a Bachelor of Arts in Dutch Language and Literature (2011, *cum laude*), and a Master of Arts in Historical and Comparative Studies of the Sciences and the Humanities (2012) at Utrecht University. As part of the latter research master, she spent a semester at the University of Minnesota to specialise in the history of zoonoses and human-animal relations. In October 2012, Floor Haalboom started her PhD research on twentieth-century dealings with livestock-associated zoonoses in the Netherlands at the Julius Center (University Medical Center Utrecht) and the Descartes Centre (Utrecht University). This research was funded by the Faculty of Veterinary Medicine of Utrecht University, the Julius Center of the UMC Utrecht, the Ministry of Economic Affairs, and the Ministry of Health, Welfare and Sport. Floor Haalboom has presented papers at numerous international conferences and has published several articles, book reviews and blog posts. She also is a dedicated teacher. Since June 2017, Floor Haalboom is a post-doctoral researcher at Utrecht University, working on the recent history of livestock diseases. Since July 2017, she also works as a post-doctoral teacher and researcher at the Erasmus Medical Centre's history of medicine department.