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Peri-urban agriculture as quiet sustainability: Challenging the urban development discourse in Sogamoso, Colombia

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ABSTRACT

This article advances academic and policy debates on peri-urban agriculture (PUA) by examining the phenomenon in the city of Sogamoso, Colombia. Planners, developers, and local authorities in Sogamoso have explicitly framed PUA as a barrier to development: a backwards, localized, low-tech and economically poorly performing activity that needs to make space for a more 'productive' 'modern' economy. Based on a survey of 160 peri-urban farming and gardening households, this study identifies PUA forms of food self-provisioning and exchange (FSPE) and further characterizes the practice's social embeddedness, barriers, and opportunities as perceived by peri-urban farmers. The article combines scholarship on PUA and 'quiet sustainability' (Smith and Jehlička, 2013) to propose a novel perspective that could help transform the terms of discourse on the role and future of PUA in urban sustainable development from arguments founded in productivity metrics to the appreciation of FSPE as an environmentally sustainable practice that strengthens the social fabric of local communities, thus contributing to their sense of purpose, meaning, and resilience. This study has implications not only for Sogamoso, but also for many other cities in Latin America and the Global South, where the role of PUA in relation to sustainable urban development is being actively contested.

1. Introduction

This article aims to advance academic and policy debates on peri-urban agriculture (PUA) by employing scholarship on 'quiet sustainability' to uncover an usually overlooked dimension of this phenomenon: the existence of 'normal' practices of food self-provisioning and exchange (FSPE) in peri-urban spaces. Such practices do not result from governmental or non-governmental initiatives with any environmental, social, economic, or other set purpose, but rather are independently initiated by local communities and contribute to creating a sense of purpose and strengthening the social fabric. When understood as a form of quiet sustainability (Smith and Jehlička, 2013), PUA can be appreciated as a 'normal' yet socially valuable practice that challenges productivist and developmentalist conceptions of this practice in relation to cities and urban development. Accordingly, this study employs scholarship on quiet sustainability to propose a novel perspective on PUA that could help change the terms of discourse on the role and future of PUA, particularly in the Global South.

Urban agriculture can be defined as "[a]gricultural production (crops and livestock) in urban and peri-urban areas for food and other uses, the related transport, processing and marketing of the agricultural produce and non-agricultural services provided by the urban farmers (water storage, agrotourism, urban greening and landscape management, among others)" (de Zeeuw, 2004: 2). Urban agriculture is highly diverse; it can appear in different forms such as community gardens, home gardens, rooftop gardens, urban farms, guerrilla gardens, backyard gardening, poultry and livestock farming, and aquaponics farms (de Zeeuw, 2004; Lin et al., 2015). Urban agriculture may occur within city boundaries (intra-urban agriculture) or—as is the focus of this article—in the spaces immediately surrounding them (peri-urban agriculture).

Urban agriculture has attracted the attention of academics, policymakers, and practitioners alike as a potential measure to address the food needs of growing city populations and counter some of the negative environmental and economic effects of urbanization (Mougeot, 2005; van Veenhuizen, 2006; Orsini et al., 2013). The benefits of urban agriculture include its contribution to food security and nutrition (Eigenbrod and Gruda, 2015; Poulsen et al., 2015; however, also see cautionary notes by Zezza and Tasciotti, 2010; Warren et al., 2015). In cities in the Global South, where estimates indicate up to 60% of

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dwellers can be full- or part-time farmers (de Zeeuw and Dubbeling, 2009; Drechsel and Keraita, 2014), urban agriculture also contributes to income generation (Zezza and Tasciotti, 2010; Orsini et al., 2013; Poulsen et al., 2015). Moreover, urban agriculture can promote connections between people and their food culture (Sahakian et al., 2016), community-building, civic engagement, youth, women and minority empowerment, physical and psychological relaxation, environmental education, and the provision of care for people with psychological disorders (van Veenhuizen, 2006; Orsini et al., 2013; Poulsen, 2017). Finally, urban agriculture can contribute to environmental management through the reuse of urban organic waste, the creation of green belts, the improvement of the urban microclimate, landscape conservation, the provision of ecosystem services, and the reduction of 'food miles' and their associated carbon footprint (Galluzzi et al., 2010; Pearson et al., 2010; Drechsel and Keraita, 2014; Lin et al., 2015; however, also see Goldstein et al., 2017).

However, in the Global South, where old and new (e.g., Sustainable Development Goals) imperatives of development are highly pressing, urban agriculture is often seen as a barrier to development. When development is defined in terms of technological and infrastructural 'progress', productivity, economic growth, and 'modern' and global cultural connections, urban agriculture is often 'othered' discursively and in practice as a backwards, localized, low-tech and economically poorly performing activity—a legacy of past underdevelopment that should be abandoned in order to make space (land) for a 'productive' economy (e.g., Nadal et al., 2018; Ayambire et al., 2019). Specifically, such attitudes are particularly evident in peri-urban spaces, which are most often conceptualized in planning and policy processes as being subject to an inevitable spatial and temporal transition towards urban 'modernity' (Tacoli, 2003; Mehta and Karpouzoglou, 2015). However, as borderlands, peri-urban spaces are highly dynamic (Marshall et al., 2009); they are economically multifunctional, socially diverse, and ecologically complex. In that context, Pérez Martinez (2016; also see Madaleno and Gurovich, 2004; Lerner and Eakin, 2011) has called for a decidedly relational approach to peri-urban spaces that would reject rural/urban dichotomies and rather allow for appreciating the multiple actors, scales, networks, and organizational forms that characterize the diversity of activities, social groups, and biophysical configurations that characterize peri-urban spaces.

Researchers, policy makers, and practitioners have struggled to make sense of peri-urban spaces. Representations of peri-urban spaces as marginal, socially excluded, vulnerable, and characterized by housing and economic illegality compete with those characterizing such landscapes as 'green' spaces home to 'rural' elements such as farming and forestry (Mougeot, 2005; Marshall et al., 2009; Zoomers et al., 2017). Some authors have observed and discussed mismatches between discursive representations of urban agriculture in planning documents and its reality on the ground (Ives and Kendal, 2013; Mackay, 2018). The diverse range of actors in peri-urban spaces makes it difficult to know who benefits from urban agriculture (Contesse et al., 2018); and a range of food production forms are practiced in these spaces, most of which are often not acknowledged or fully understood (Ives and Kendal, 2013; Mackay, 2018; Feola et al., 2020).

The above-described challenges in making sense of peri-urban spaces and PUA have resulted in difficulties to measure its social, ecological and economic impacts and sustainability (Pearson et al., 2010). For example, researchers have struggled to capture the practice's less tangible effects on cultural identities (Mougeot, 2005; Rodríguez-Alonso and Simón-Tenorio, 2016), as well as identify factors that encourage biodiversity and how they interconnect with cultural diversity and the sustainable food agenda (Mougeot, 2005; Galluzzi et al., 2010; Lin et al., 2015). Both those who oppose and defend urban agriculture often measure its impacts solely in terms of material productivity (Neilson and Rickards, 2017), and assessments limited to monetary values have clashed with less easily quantifiable contributions such as the symbolic capital of food self-provisioning and its attachment to and reinvention of peasant heritages and identities (Mendez et al., 2005; Cantor, 2010; Sahakian et al., 2016). In turn, challenges in measuring urban agriculture have contributed to its invisibility in planning documents and in the policy-making arena, particularly from a social and cultural perspective (Ives and Kendal, 2013; Nadal et al., 2018; Feola et al., 2019).

In summary, dominant developmentalist interests and discourses, the hybrid nature of peri-urban spaces, the consequent challenge to govern them to achieve progress towards sustainability, and disputes over sustainability or impact assessments have all contributed to the invisibility of PUA, whether it be deliberate or unintentional.

This study links current debates on PUA, the governance of peri-urban spaces, and sustainable development with scholarship on quiet sustainability. The concept of quiet sustainability has been especially applied to denote longstanding food practices that appear to significantly reduce environmental impacts (Smith and Jehlička, 2013; Smith et al., 2015; de Hoop and Jehlička, 2017; Jehlička and Daněk, 2017; Vávra et al., 2018), but are not identified as examples of sustainability by the people involved. These practices are 'quiet' in that they are not actively labelled or valued as examples of sustainable development and in that they take place in the informal geography of households, social networks, and relations. Originally examined in former Socialist countries in Central and Eastern Europe, these practices have been ignored or met with disdain by many in the environmental policy community as an embarrassing cultural remnant, an economic coping mechanism, or a survival strategy of the poor (Smith and Jehlička, 2013; Pungas, 2019). However, quiet sustainability practices such as FSPE have been shown to be widespread, to cut across social classes (Smith et al., 2015), to contribute to environmental sustainability (Vávra et al., 2018), and most importantly, to strengthen the social fabric of local communities, thus contributing to their sense of purpose, meaning, and resilience in the face of post-Socialist 'restructuring' (Smith and Jehlička, 2013; Jehlička et al., 2018; Pungas, 2019). Importantly, the scholarship on FSPE and other forms of quiet sustainability has argued that they should not be intended as an implemented sustainability program, or a response to unsustainability. Rather, these practices are the norm for a large portion of the population in countries such as Poland and Czechia. Davies et al. (2017) showed that food exchange systems exist in cities worldwide and considered them to be everyday forms of diverse community economies. Therefore, policy implications should concern ways of acknowledging, protecting, and promoting these already existing practices, such as through planning policy, taxation, or media representation (Smith and Jehlička, 2013; Jehlička et al., 2018), or through the construction and protection of the skills, spaces, and 'stuff' of food exchange[1] (Davies et al., 2017).

This study builds on the illustrative case study of the city of Sogamoso, Colombia, where the contrast between the urban and rural worlds —a chronic and extreme gap that has been widening rather than closing in Colombia in general (Parra-Peña et al., 2012)—can be observed in all its contradictions in the peri-urban space (Feola, 2017; Feola et al., 2019). In Sogamoso, PUA has been explicitly framed by planners, developers, and local authorities as a barrier to economic progress (Feola et al., 2019); however, alternative urban imaginaries exist that claim a role for the practice in the city's sustainable development.

Against this backdrop, this paper asks the following research questions:

- how do peri-urban agriculture and quiet sustainability practices interconnect in the city of Sogamoso?
- how can such interconnections help refine or advance theorizations

[1] The term 'exchange' is used in this paper to denote non-monetary, non-market exchange of produce.

of both peri-urban agriculture and quiet sustainability?
- what are the implications of such interconnections for urban development in the city of Sogamoso and other Colombian cities?

This paper advances the academic and policy debates on PUA by characterizing the practice in Sogamoso, identifying its connections with FSPE, and exploring its social embeddedness, barriers, and opportunities as perceived by peri-urban farmers.[2] Ultimately, by employing scholarship on quiet sustainability, this study suggests a novel perspective on PUA that could contribute to changing the terms of the debate on the role and future of PUA not only in Sogamoso, but also possibly in many other cities in Latin America and the Global South, where the role of PUA in relation to urban development is being intensively contested.

2. Methodology

2.1. Data collection and analysis

Data for this study were collected through a survey of 173 farming and gardening households selected according to a stratified non-random sampling design in eight peri-urban sectors of Sogamoso (Fig. 1). The selected sectors, which lie within the municipality's border, are characterized by large portions of land designated for mixed (rural-urban) use or for urban expansion. Nevertheless, the sectors differ in respect of dominant economic activities. Commercial agriculture is an important economic activity in Siatame and La Manga, while industry and mining are dominant economic sectors in Pantanito and Ramada. Monquirá, and the southern sectors of Universitario, Manitas and Vanegas are all characterized by mixed land uses and the presence of farming and gardening, but the southern sectors have been targeted by urban developers for real estate complexes more than Monquirá, where urbanization has rather occurred to a lesser extent and mostly through more sparse families' investment in second homes.

The survey was conducted between September 2017 and April 2018. All sectors are classified as socioeconomic level (*estrato*) 1 (very low) or 2 (low) according to the Colombian Statistical Office, although new residential properties for socioeconomic strata up to level 4 (middle) have been developed, particularly in the southern peri-urban sectors (*Universitario*, *Manitas* and *Vanegas*). The questionnaire was structured into thematic sections covering basic household sociodemographic information, house and land characteristics, agricultural production (two separate sections for plant and livestock produce, respectively), opinions on PUA, challenges and opportunities for PUA, and household economic data. Standard ethical and informed consent procedures were applied, and all participants' identities remain confidential. The interviewers were trained in advance of administering the questionnaire in the field.

The data were analyzed using IBM SPSS software using descriptive statistics. The analysis involved an initial exploratory analysis of the dataset to identify important sample characteristics and obtain a general overview of PUA in Sogamoso, which was followed by a more detailed analysis of PUA based on the identification of patterns within the sample. Specifically, as informed by earlier typologies of urban farming proposed by Cantor (2010), four broad types of farming and gardening households were identified based on two variables: (i) the percentage of income received from agriculture; and (ii) the percentage of household members who work in agriculture (as a primary or secondary activity). It was hypothesized that households of varying types would engage with PUA differently, as well as face distinct challenges and envision different opportunities due to uneven levels of dependency and engagement with agriculture in peri-urban spaces.

Type A (N = 32) comprises households of commercial farmers for whom income dependency on agriculture equals 75% or more, regardless of the percentage of household members who work in agriculture. Type B (N = 38) is composed of households for which income dependency on agriculture is more than 0% but less than 75% and more than 50% of members are involved in agriculture. Type C (N = 54) represents households for which income dependency on agriculture is more than 0% but less than 75%; however, less than 50% of members are involved in agriculture. Finally, type D (N = 36) comprises households for which income does not depend on agriculture, regardless of the percentage of household members who are involved in such activity. Thirteen cases were excluded from the analysis because data regarding any or both of the two above-mentioned variables were missing.

This study is part of a larger research project (see Acknowledgments) in which 38 semi-structured key-informant interviews were additionally conducted. Key informants comprised members of civil society (social, cultural, and/or environmental non-governmental organizations, journalists), public servants, local authorities and members of the construction, education (universities, social enterprises), and agricultural sectors (self-provisioning farmers, commercial farmers, leaders of farmer organizations, retailers). The interviews were structured into four sections that focused on the following themes: 1) agriculture, food sovereignty and sustainable development in Sogamoso; 2) the FARC (Revolutionary Armed Forces of Colombia) peace agreement and the expected impact of outlined rural development reforms on Sogamoso; 3) agricultural governance in the city's peri-urban spaces; and 4) envisioned policy directions and possibilities to support and expand the benefits of PUA. Some of the larger research project's findings are provided herein as background information for this article (section 3).

3. Case study: land conflicts in Sogamoso (Colombia)

Situated on the Cordillera Oriental of the Andes at ca. 2600 masl, the city of Sogamoso is the capital of the Province of Sugamuxi in the Department of Boyacá, Colombia. Sogamoso is a city of ca. 120,000 inhabitants (DANE, 2018).

Sogamoso's economy is mostly based on industry, mining, trade and services, and agriculture.[3] Peasant and smallholding agriculture in the region has faced a crisis in the last two decades due to low productivity, competition from national and international markets, outmigration of younger generations, and lack of government support (e.g., Feola et al., 2015; Feola, 2017). The socio-economic decline of the rural areas is indicated by the multidimensional poverty index, which measures almost three times higher in rural than in the urban area of Sugamuxi (61.6% versus 24.5% in 2013 data of the Departamento Nacional de Planeación, cited in Alcaldía de Sogamoso, 2016). As a result of this imbalance, a substantial migration from rural to urban and peri-urban areas has been observed and is expected to continue in the future.

With only ca. 4748 inhabitants per square kilometer, Sogamoso is among the country's least densely populated cities with at least 100,000 inhabitants (Departamento Nacional de Planeación, 2016). Nevertheless, a housing deficit of about 4000 units has been registered (Departamento Nacional de Planeación, 2016), which is characterized as a quantitative and qualitative deficit of ca 2300 and 1700 units,

[2] In this paper, we use the term 'farmer' to denote food producers for either commercial and non-commercial purposes. The latter is often referred as gardening in the literature.

[3] Besides urban expansionism and agriculture, which compete for land in virtually all of Sogamoso's peri-urban sectors, parts of the peri-urban spaces are also contested by mining (coal, clay, phosphorus, turf and sands) interests and efforts to conserve the high mountain *páramo* ecosystem (Feola et al., 2019). However, the main land conflict in the urban sectors examined in this article is between agriculture and urban expansionism. Accordingly, the focus herein is on the conflict between those two land uses.

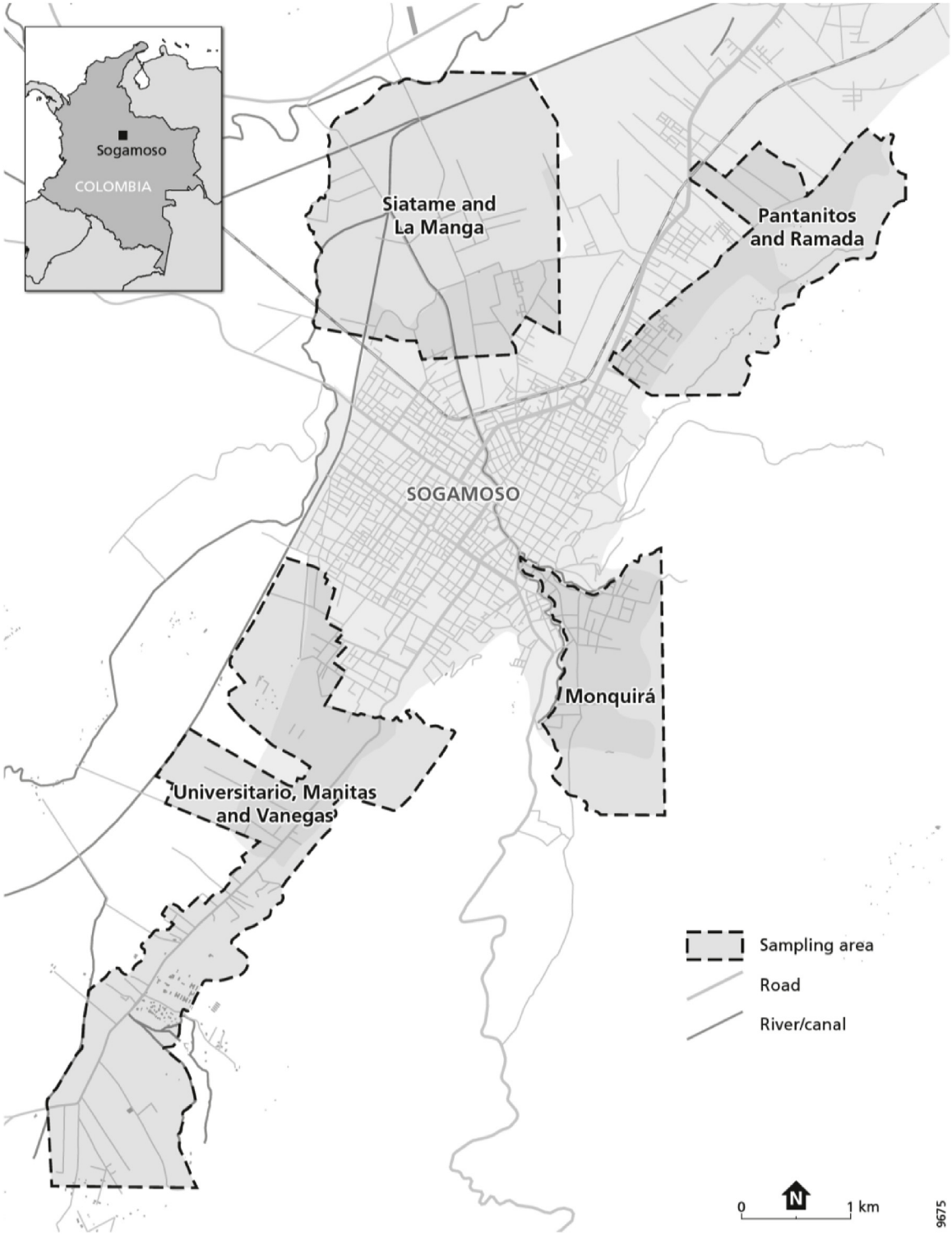

Fig. 1. Map of Sogamoso showing the peri-urban sectors surveyed in this study.

respectively (Alcaldía de Sogamoso, 2016). In the year 2017 alone, the Municipality of Sogamoso approved 427 residential construction licenses, most of which were for housing in the peri-urban fringe (Cámara de Comercio de Sogamoso, 2017).

Urban development is largely operated by local and regional companies that target the middle and upper middle classes wishing to move out of the city center to enjoy a less congested and 'greener' environment in relatively high standard, often gated community housing (Feola et al., 2019). Urban expansionism is also promoted by individuals—both locals or those from larger Colombian cities (who often have family roots in Sogamoso)—who build family homes not for sale, but rather for themselves as primary or secondary residences. Both developers and individual buyers, including younger generations of former farming families, use either informal channels or the formal participatory process that is part of the elaboration of the territorial planning document (*Plan de Ordenamiento Territorial* - POT) to influence land designation.[4]

The expansion of the city's urban areas into peri-urban spaces[5] has

largely occurred at the expense of agriculture. Agriculture is still practiced in Sogamoso's peri-urban spaces, where soil is highly fertile, in vacant lots between residential developments as well as back gardens and *patios*. For example, besides the commercial farms that operate within the urban perimeter, the Municipality of Sogamoso reported over 630 households that engage in food self-production (Alcaldía de Sogamoso, 2016). The local authorities have documented repeated cases of contamination of vegetables produced by farms in the western peri-urban sectors due to the use of polluted wastewater (Alcaldía de Sogamoso, 2016); this issue is well known among local grocery managers, who if possible avoid supplying their stores with vegetables from those farms (personal communication).

Approved in 2016, the latest POT formalized the city's expansion into areas of unauthorized residential developments—areas formerly designated as 'rural', but also responded to local pressures to increase land values and allow further construction. The new POT also aimed to respond to significant numbers of legal disputes concerning land use allocations as well as social conflicts arising from residential uses in non-residential designated areas at the urban fringe (Alcaldía de Sogamoso, 2013, 2016). However, the changes did not necessarily reflect actual land uses, given that most of the areas for urban expansion are still occupied by rural activities such as agriculture. As a local development officer described the situation:

> "[...] in these sectors [...] there is big conflict in my view, because we can say that there have been residential areas in those sectors for a long time, but simultaneously people's livelihood was located there, either based on agriculture or mining [...] the same happened towards the southern sector. There are already a lot of constructions with utilities and absolutely everything, but since the previous POT nobody is [supposedly] allowed to build there; they were areas of agricultural expansion then there is that conflict."

Changes in the POT rather reflected the aspirations of planners, builders and residents to expand the urban area for urban development. Developers have actively engaged in influencing the urban zoning process, including resorting to legal disputes to expand urban zoning through the POT in some areas in the southern peri-urban fringe of Sogamoso. Furthermore, an informal coalition of planners, developers, and local authorities, among others, has tended to project peri-urban spaces as 'empty' and devoid of productive or valuable activities. The city's peri-urban space has been depicted as an unproductive, marginal, backwards, static, informal, pre-modern space that is ready to be built upon and developed:

> "[...] we incorporated 745 ha of urban expansion land and urban land to give dynamism to the territory." (city councillor, emphases added)

> *"There are some cases in which people like to grow crops at least for their consumption [...], but there should be more agricultural production to use the soil more. They are using it for a few sheep, for a cow, and much is* abandoned *there."* (journalist)

> *"[...] we had very good people to work [in agriculture]. Unfortunately [...] for the peasant it was never good [...] for the peasant, in my view, never wanted to grow and* remained [stuck]. *[...] a very tenacious and unfortunate culture is that of our peasant."* (planner, emphases added)

> *"any plot of land in Sogamoso, anywhere you like, becomes more* valuable *building houses than growing crops."* (developer, emphases added)

> *"The peripheries of the cities [like] Sogamoso are very ugly; they are cordons of hunger, of misery […]. [W]hat you have to build is pretty houses, so that at least those pretty* houses generate development*, generate resources. A farm. This was a farm; all this was a farm. I paid 650, 700 [pesos] of property taxes. Today it is paying more than 6,000000 […] we put the land to work, […], we sacrificed an area where we there were [only] 10–11 cows; there were not more in the whole farm."* (developer, emphases added)

Such developmentalist discourses are not shared by all social actors in Sogamoso. Various members of the local scientific and civil society communities (university researchers and teachers, non-governmental organizations, citizen groups) contest urban expansionism and identify the phenomenon as the main driver of the fragmentation of the environmental, productive, and social fabric and the cultural loss associated with the disappearance of agriculture in the areas around the city. This includes the loss of traditional gastronomy, knowledge and skills, autonomy, and organically produced, healthy diets. Similarly, various key informants remarked on the negative environmental consequences of urbanization, the loss of fertile soil to residential developments, and infrastructural inadequacies (Feola et al., 2019). In other words, for these observers, PUA is not a barrier to development, but rather a practice whose loss signals cultural impoverishment and environmental degradation associated with 'modern' urban development.

> "[…] we are a region that can […] take back its agricultural vocation." (member of a local trekking group)

> "Well, in my view this [peri-urban] space is the place where we were born and have lived; it's our land, the site where we want to keep living, and we want to improve it to obtain what we need to live, such as our food, our home…and how do we take care of it and how we are going to improve it to avoid to harm the environment […] how can we live in harmony with nature and how do we conserve [it]; therefore it's important for us, or for me, this place, this site, this soil." (artisan and gardener)

These civil society actors share urban imaginaries of sustainable development for Sogamoso that are inseparable from the renaissance of PUA and peri-urban spaces. From their perspective, the peri-urban space is not empty, but rather 'full' of both cultural and environmental meaning, and the worth of the activities conducted therein is not measured according to economic criteria, but rather in terms of social belonging, affiliation, and attachment. In contrast to developmentalist discourses of progress, these imaginaries emphasize the need and opportunity to recover pre-modern traditions, particularly indigenous crops, cultivation, and irrigation practices, as well as the autonomy, dignity, and agency of the peasantry and citizenry.

In addition to discursive disputes, the peri-urban space in Sogamoso is also characterized by land conflicts. Earlier studies have associated land conflicts in Sogamoso's peri-urban space with policy-incoherence and governance problematics (Feola et al., 2019). The former includes a fragmented policy landscape and contradicting policies within and across sectors (e.g., agriculture, trade, housing, industrial development) and at multiple levels ranging from the local to the national. This situation generates normative uncertainty, a sense of vulnerability for target populations, and frustration about the operations of municipal authorities. In turn, the uncertainty further justifies citizens' and social groups' informal strategies to defend their interests or pursue their own self-defined goals through both formal and informal governance systems. Governance problematics include poor technical capacity and the lack of reliable data on the state of the city, public servants' pursuit of personal interests over the common good, the lack of strategic leadership, and a poor participatory culture (Feola et al., 2019). The injustice resulting from the effects of policy incoherence and governance problematics is evident, with peasants, farmers and other marginal citizens

[4] The 388 law of 1997 created a governance system for municipal planning of territorial ordering with the objective to identify strategic actions for the socioeconomic development and management of natural resources (Arias Arbelaez and Vargas, 2010).

[5] These are spaces within the municipal border which were designated for urban expansion, mixed (rural-urban) use or rural use.

Table 1
Characterization of four household types engaged in farming and gardening in Sogamoso.[a]

Variables		Type A (N = 32)	Type B (N = 38)	Type C (N = 54)	Type D (N = 36)	Total (N = 160)
Average household size[b]		3.81 (1.76)	3.11 (1.78)	4.07 (1.73)	3.61 (1.70)	3.68 (1.74)
Average/median size of agricultural land in square meters[b]	Crops and herbs	4214/1500 (4918)	580/200 (1218)	1531/168 (3031)	468/100 (1238)	2620/200 (12056)
Number of respondents by location	Siatame and La Manga	18 (56.3)	18 (47.4)	12 (22.2)	2 (5.6)	50 (31.3)
	Pantanitos and Ramada	2 (6.3)	3 (7.9)	11 (20.4)	5 (13.2)	21 (13.1)
	Monquirá	6 (18.8)	11 (28.9)	13 (24.1)	17 (44.7)	47 (29.4)
	Universitario Manitas and Vanegas	6 (18.8)	6 (15.8)	18 (33.3)	12 (31.6)	42 (26.3)
Number of respondents by occupation	Average proportion of household members for whom agriculture is the only occupation[b]	0.25 (0.34)	0.07 (0.24)	0.11 (0.17)	0.10 (0.26)	0.12 (0.25)
	Average proportion of household members for whom agriculture is the primary occupation[b]	0.23 (0.36)	0.17 (0.34)	0.9 (0.16)	0.07 (0.20)	0.12 (0.26)
	Average proportion of household members for whom agriculture is the secondary occupation[b]	0.7 (0.18)	0.56 (0.36)	0.20 (0.23)	0.36 (0.29)	0.31 (0.33)
Number of households by highest educational level achieved by any household member	No schooling or primary school	7 (21.9)	11 (28.9)	12 (22.3)	10 (27.8)	40 (25.0)
	Secondary school	18 (56.3)	11 (28.9)	18 (33.3)	10 (27.8)	57 (35.6)
	Technical	3 (9.4)	11 (28.9)	8 (14.8)	7 (19.4)	29 (18.1)
	Graduate or higher	3 (9.4)	5 (13.2)	15 (27.8)	9 (25.0)	32 (20.0)
Number of households by agricultural land tenure	Owned	17 (53.1)	29 (76.3)	42 (77.8)	21 (58.3)	109 (68.1)
	Rented	14 (43.8)	8 (21.1)	10 (18.5)	7 (19.4)	39 (24.4)
Number of households by type of land exploitation	Individual	18 (56.3)	31 (81.6)	35 (64.8)	18 (50.0)	102 (63.7)
	In partnership	12 (37.5)	4 (10.5)	18 (33.3)	12 (33.3)	46 (28.7)
Number of households that use chemicals in agriculture		21 (65.6)	9 (23.7)	14 (25.9)	8 (22.2)	52 (32.5)
Number of households sowing native species		12 (37.5)	13 (34.2)	24 (44.4)	14 (38.9)	63 (39.4)

[a] Percentages are calculated within groups, and reported in brackets unless otherwise indicated. Missing values and modalities with low frequencies are not reported in this table.
[b] Standard deviation in brackets.

losing land, income, and access to resources in a peri-urban space that is being functionally configured for more political and financially powerful and better connected collective or individual actors (Feola et al., 2019).

4. Results

4.1. Characterization of peri-urban agriculture

Among the four types of farming and gardening households identified in this study, type A was characterized by the highest proportions of members involved in agriculture as the only or principal occupation. In contrast, types B, C, and D presented higher proportions of household members for whom agriculture was a secondary occupation (Table 1).

Whereas types A and B tended to be located in two peri-urban sectors (Siatame and La Manga), this study found peri-urban farmers in all four selected sectors (Table 1). Members of households in types C and D, for which income depended least or not at all on agriculture and were therefore likely to be employed in other economic sectors, generally had attained higher educational qualifications than those in types A and B (Table 1). Overall, these figures not only indicate the dominance of agricultural production as a secondary or complementary activity, but also suggest a broad geographical and social diffusion of PUA in Sogamoso.

The majority of interviewed farmers exploited their land individually rather than in association with other farmers. Farmers in types B and C more frequently tended to be land owners, whereas farmers in type A were more commonly tenant farmers (Table 1).

A wide range of crops were cultivated across the four household types. Crops included vegetables (chard, chili pepper, celery, borage, broccoli, pumpkin, cauliflower, potatoes, spinach, beans, broad beans, lettuce, maize, turnip, radish, cabbage, tomatoes, cucumbers, carrots), fruit (apples, pears, figs, plums, passion fruit, peaches, feijoas, *lulos* ('little oranges'), blackberries, *papayuelos* ('mountain papaya'), tamarillos, elderberries), tobacco, and herbs (parsley, calendula, coriander, guascas, *limonaria* (lemon grass), chamomile, pennyroyal, peppermint, melissa, rue, and other aromatic herbs). Type A households produced a smaller range of crops, whereas those of types B, C and D produced more crops on average but also showed greater variations of the number of crops within groups. Regarding livestock, 33.5% of the surveyed households kept poultry, 26% had cattle, 11.4% kept sheep or goats, and 4% had rabbits. A small minority of households across the four types produced eggs, milk, wool, cheese, and/or meat.

The households that sold all or part of their produce sold it to a range of buyers which included middlemen, wholesalers, retailers, supermarkets, local markets cooperatives and final consumers (Table 2).

FSPE practices were evidenced in that 83.1% of respondents (valid answers) consumed at least part of their self-produced food (either animal products or vegetable/fruit/herbs). The self-consumption percentage was higher among households engaged only with vegetable/fruit/herb production. Percentages were very high across all household types; however, they were higher among household types B, C, and D than those of type A, which were more engaged in food production for commercial purposes (Table 3). The median proportion of food consumed within the household of the total food produced ranged between 0.5 and 1 across the four types. Household types C and D showed the highest rates of self-consumption, whereby 38% of the households that self-consumed all the food they produced belonged to type D and 32.1% belonged to type C (Table 3).

Table 2
Sell of produce by destination.[a]

Buyer	Animal produce	Crop produce	Total
Local middleman	20	22	42
Cooperative	0	2	2
Wholesaler	3	24	27
Retailer	5	12	17
Local market	6	38	44
Supermarket	2	0	2
Final consumer	34	69	105

[a] Figures are number of times a buyer was mentioned. Multiple answers were possible.

The results of survey items concerning food exchange practices showed that 26.3% of respondents exchanged self-grown produce. This is a substantial part of the sample, albeit a minority. As in the case of FSPE, food exchange rates were higher for household types B, C, and D than for type A (Table 3). Overall, the percentages of households that engaged with either food exchange or self-consumption of vegetables/fruit/herbs were higher than those that engaged with food exchange or self-consumption of animal products (Table 3). The median rate of food exchanged compared with the total food produced ranged from 25% to 33% for most types of produce. Household type A showed the lowest rate of food exchange, whereas types B, C, and D tended to exchange higher proportions of their produce (Table 3).

4.2. Agriculture in the peri-urban socioecological space: barriers and opportunities

Farmers across the four household types identified in this study had an overall strongly positive perception of the role of PUA in Sogamoso and particularly highlighted the role of peri-urban agriculture in the supply of healthy food to the city (Table 4). In relation to this point, types B, C, and D, which had higher engagement rates in FSPE (Table 3), tended to use fewer chemical inputs than type A (Table 1).

Respondents across the four types also by and large agreed that agriculture fosters a sense of community; however, types C and D expressed the highest degrees of agreement with this positive contribution of PUA. Similarly, farmers shared the view that PUA contributes to a quality landscape and supports social ties and the improvement of skills and knowledge (Table 4).

Despite their positive perception of the role of PUA in Sogamoso, respondents across all four household types had a negative outlook on PUA's future in the city. Farmers were concerned about formal recognition and protection of their agricultural land in the planning process, and many feared losing possession of their land (Table 4). Those who felt more pressure on their land from other uses were household types A and B (Table 4), which engaged in more commercial agriculture and more frequently rented the land they worked (Table 1).

Type A households, which were mostly located in a sector that was associated with water contamination in the past (section, 2.2), relatively more frequently perceived a negative reputation of PUA among the local authorities and consumers (Table 4). Respondents of type A households also more commonly reported facing economic barriers (e.g., lack of funding for farmers, costs of production, small profit margins from agricultural production) than did respondents of household types B, C, or D. Technical (cultivation) difficulties such as poor soil quality, poor access to water, or pesticides, were faced by farmers across the four household types (Table 5).

Likewise, respondents often identified low governmental support and institutional assistance as a barrier. In effect, participants reported very low levels of technical assistance (8.1% received technical assistance in the past year) and credit for agriculture (10.4% obtained credit for agricultural production in the past year) (not shown in a table). However, household types C and D reported relatively higher frequencies of technical assistance, which might be explained by the reskilling programs offered by the technical training institution SENA (Servicio Nacional de Aprendizaje, National Training Service), which are open to the public and often attended by non-professional farmers. Moreover, respondents from type A households reported relatively higher frequencies of obtaining credit than those from other types (Table 4). Nevertheless, the many cases of missing values for this

Table 3
Food self-provisioning and exchange in Sogamoso.[a]

Variables	Type A (N = 32)	Type B (N = 38)	Type C (N = 54)	Type D (N = 36)	Total (N = 160)
Number of households that consumed at least part of own animal production[b]	8 (25.0)	21 (55.3)	16 (29.6)	5 (13.9)	50 (31.3)
Number of households that consumed at least part of own vegetable, fruit and/or herbs production[b]	23 (71.9)	31 (81.6)	40 (74.1)	26 (72.2)	120 (75.0)
Number of households that consumed at least part of either own animal production, and own production of vegetable, fruit and/or herbs[b]	23 (71.9)	36 (94.7)	46 (85.2)	28 (77.8)	133 (83.1)
Number of households that exchanged own livestock and/or animal production[b]	0 (0.0)	3 (7.9)	5 (9.3)	4 (11.1)	12 (7.5)
Number of households that exchanged own vegetables, fruit, and/or herbs[b]	4 (12.5)	10 (26.3)	15 (27.8)	11 (30.6)	40 (25.0)
Number of households that exchanged own livestock and/or animal production, and/or own vegetables, fruit, and/or herbs[b]	4 (12.5)	10 (26.3)	16 (29.6)	12 (33.3)	42 (26.3)

[a] Percentages are calculated within groups, and reported in brackets unless otherwise indicated. Missing values are not reported in this table.
[b] Standard deviation in brackets.

question may indicate a generalized pessimism about the future of PUA in Sogamoso, which contrasts with the opportunities identified by a minority of respondents.

In the face of these barriers and challenges, respondents across the four household types identified various opportunities, which also signal different motivations to engage with distinct forms of PUA (Table 5). For example, some farmers saw PUA as an economic opportunity, often as a complement to other family income sources to achieve greater financial stability. The accessibility of PUA to the city was often mentioned, particularly by respondents of household types A and B, who more frequently produced for the market. Food security (e.g., access to food, access to healthy food) and improved environmental quality were also seen as opportunities to develop PUA, particularly among type D households, which may indicate a strong orientation towards environmental quality among those participants (Table 5).

5. Discussion

This section discusses the study's empirical contribution to ongoing debates on PUA in Sogamoso, its theoretical contribution to the wider literature on PUA and quiet sustainability, and policy implications for protecting and promoting PUA and FSPE in peri-urban spaces in Colombia.

5.1. Peri-urban agriculture in Sogamoso

This study characterized the diversity of PUA in the city of Sogamoso, Colombia. Peri-urban households in Sogamoso involved in agriculture depended on this activity for their subsistence to different degrees. Alongside farm households that produced mainly for the market, there was a majority of households for which agriculture was neither the primary occupation nor the main source of income. Among other factors, land size and tenure, production levels, market orientation, agricultural practices (e.g., chemical use, water resources and use), forms of land exploitation (individual, collective), and experienced difficulties distinguish different PUA types (Tables 1–5). Therefore, this study suggests that as in other cities worldwide (de Zeeuw, 2004; Lin et al., 2015; Mackay, 2018), PUA in Sogamoso is by no means a homogeneous phenomenon. Such diversity has important practical implications, which are discussed in later sections of this article.

This study found substantial evidence of FSPE in relation to PUA in Sogamoso. Although not all peri-urban farmers engaged in FSPE to the same extent and in identical forms, such practices were very widespread across all PUA types and, as discussed in other studies (Smith and Jehlička, 2013), involved vegetables, fruit, and herbs more than livestock or animal products. Food exchange was less widespread than self-provisioning; however, it was practiced by approximately a quarter of this study's participants, with higher proportions of involvement for household types B, C, and D than for type A (the latter being generally more market-oriented farmers). This study cannot confirm the spread of FSPE across social classes, which was observed elsewhere (Smith et al., 2015), because all of Sogamoso's peri-urban urban sectors are mostly populated by low income households.

Peri-urban farmers across the four household types identified in this study had an overall strongly positive perception of the role of PUA in Sogamoso. Participants noted PUA's positive contribution as a source of income as well as a source of healthy, 'clean' food (however, see issues with water contamination as reported by Alcaldía de Sogamoso, 2016), which contributed to their food security. These findings align with those reported in earlier studies on PUA as well as those on quiet sustainability (e.g., Orsini et al., 2013; Smith and Jehlička, 2013; Poulsen et al., 2015). Additionally in line with earlier studies of FSPE in Central and Eastern Europe (Jehlička et al., 2018), these practices were found to be associated with higher levels of land ownership and low use of chemicals (Table 1). In summary, this study indicates the existence of a lively social network of food exchange and an even stronger practice of growing at least part of one own's food supply in Sogamoso's peri-urban space.

Critically, this research provides evidence that contrasts with the dominant urban development discourses in this city (as reported by Feola et al., 2019, and summarized in section 3 above), which have tended to overlook such diversity in their attempt to portray the urban fringe as an 'empty' space in waiting for productive urban use. This situation is consistent with findings of other studies, which reported similar mismatches between homogenizing discursive representations and diverse realities of PUA on the ground (e.g., Mougeot, 2005; Ives and Kendal, 2013; Mackay, 2018). Furthermore, these results provide a basis for alternative imaginaries that envision the persistence of PUA in Sogamoso (section 3).

Despite the widespread practice of FSPE, various barriers were reported, the most frequently cited of which was pressures on agricultural land, particularly among more market-oriented farmers (type A). Such pressures on agricultural land use in peri-urban spaces, which competes with urban expansion, have been documented in depth by Feola et al. (2019). Similarly, the extent to which peri-urban farmers reported an overall negative public perception of agriculture and poor levels of technical and financial assistance also confirmed findings of earlier studies (e.g., Feola, 2017). The latter issues are inscribed in the difficulties of a sluggish agricultural sector and a more general restructuring of this sector in Colombia towards international opening and modernization through competition (Feola et al., 2015; Marín-Usuga et al., 2016). These findings show how even as PUA is situated in the specific peri-urban space of Sogamoso, it is necessarily embedded and dependent on broader, multi-level socio-cultural and economic processes, which are only partly governed and governable at the local level.

5.2. Contributions to the literature on peri-urban agriculture and quiet sustainability

This study expands both the literature on PUA and that on quiet

Table 4
Social dimension of peri-urban agriculture in Sogamoso.[a]

Statements		Type A (N = 32)	Type B (N = 38)	Type C (N = 54)	Type D (N = 36)	Total (N = 160)
The institutions in Sogamoso have a good opinion of farmers in this sector	Agree	3 (9.4)	9 (23.7)	16 (29.6)	7 (19.4)	35 (21.9)
	Neither agree nor disagree	4 (12.5)	7 (18.4)	14 (25.9)	9 (25.0)	34 (21.3)
	Disagree	23 (71.9)	21 (55.3)	23 (42.6)	15 (41.7)	82 (51.2)
The consumers have not a good opinion of farmers in this sector	Agree	14 (43.8)	12 (31.6)	17 (31.5)	6 (16.7)	49 (30.6)
	Neither agree nor disagree	6 (18.8)	8 (21.1)	14 (25.9)	7 (19.4)	35 (21.9)
	Disagree	7 (21.9)	16 (42.1)	21 (38.9)	19 (52.8)	63 (39.4)
The farmers in this sector have an important role for food security in Sogamoso	Agree	27 (84.4)	33 (86.8)	40 (74.1)	24 (66.7)	124 (77.5)
	Neither agree nor disagree	2 (6.3)	1 (2.6)	6 (11.1)	2 (5.6)	11 (6.9)
	Disagree	1 (3.1)	3 (7.9)	7 (13.0)	7 (19.4)	18 (11.3)
Agriculture in this sector facilitates access to food in Sogamoso	Agree	26 (81.3)	33 (86.8)	44 (81.5)	25 (69.4)	128 (80.0)
	Neither agree nor disagree	4 (12.5)	2 (5.3)	7 (13.0)	5 (13.9)	18 (11.3)
	Disagree	1 (3.1)	3 (7.9)	1 (1.9)	6 (16.7)	11 (6.9)
The young people see a future as farmers in this sector in Sogamoso	Agree	6 (18.8)	4 (10.5)	4 (7.4)	6 (16.7)	20 (12.5)
	Neither agree nor disagree	3 (9.4)	2 (5.3)	13 (24.1)	2 (5.6)	20 (12.5)
	Disagree	21 (65.6)	32 (84.2)	35 (64.8)	24 (66.7)	112 (70.0)
Agriculture in this sector does not provide healthy food	Agree	6 (18.8)	6 (15.8)	10 (18.5)	8 (22.2)	30 (18.8)
	Neither agree nor disagree	7 (21.9)	8 (21.1)	7 (13.0)	2 (5.6)	24 (15.0)
	Disagree	18 (56.3)	24 (63.2)	35 (64.8)	26 (72.2)	103 (64.4)
Agriculture in this sector does not allow wellbeing for farmers	Agree	5 (15.6)	9 (24.3)	12 (22.2)	6 (16.7)	32 (20.1)
	Neither agree nor disagree	5 (15.6)	5 (13.5)	15 (27.8)	6 (16.7)	31 (19.5)
	Disagree	20 (62.5)	22 (59.5)	26 (48.1)	22 (61.1)	90 (56.6)
Agriculture in this sector fosters my sense of community and belonging to the territory	Agree	23 (71.9)	29 (76.3)	45 (83.3)	30 (83.3)	127 (79.4)
	Neither agree nor disagree	4 (12.5)	2 (5.3)	5 (9.3)	1 (2.8)	12 (7.5)
	Disagree	3 (9.4)	6 (15.8)	2 (3.7)	4 (11.1)	15 (9.4)
Agriculture in this sector strengthens my social ties	Agree	25 (78.1)	33 (86.8)	41 (75.9)	25 (69.4)	124 (77.5)
	Neither agree nor disagree	3 (9.4)	3 (7.9)	6 (11.1)	2 (5.6)	14 (8.8)
	Disagree	2 (6.3)	2 (5.3)	6 (11.1)	6 (16.7)	16 (10.0)
Agriculture in this sector does not facilitate knowledge exchange	Agree	7 (21.9)	8 (21.1)	16 (29.6)	13 (36.1)	44 (27.5)
	Neither agree nor disagree	3 (9.4)	1 (2.6)	13 (24.1)	4 (11.1)	21 (13.1)
	Disagree	21 (65.6)	29 (76.3)	24 (44.4)	15 (41.7)	89 (55.6)
Agriculture improves my skills and knowledge	Agree	21 (65.6)	33 (86.8)	44 (81.5)	20 (55.6)	118 (73.8)
	Neither agree nor disagree	6 (18.8)	2 (5.3)	6 (11.1)	10 (27.8)	24 (15.0)
	Disagree	4 (12.5)	3 (7.9)	3 (5.6)	3 (8.3)	13 (8.1)
Agriculture in this sector guarantees the quality of my landscape	Agree	24 (75.0)	33 (86.8)	47 (87.0)	31 (86.1)	135 (84.4)
	Neither agree nor disagree	5 (15.6)	3 (7.9)	4 (7.4)	2 (5.6)	14 (8.8)
	Disagree	2 (6.3)	2 (5.3)	2 (3.7)	2 (5.6)	8 (5.0)
My land is protected and recognized by territorial planning	Agree	17 (53.1)	21 (55.3)	33 (61.1)	15 (41.7)	86 (53.8)
	Neither agree nor disagree	5 (15.6)	4 (10.5)	2 (3.7)	4 (11.1)	15 (9.4)
	Disagree	9 (28.1)	10 (26.3)	17 (31.5)	9 (25.0)	45 (28.1)
I am not worried about losing possession of the land	Agree	5 (15.6)	7 (18.4)	8 (14.8)	6 (16.7)	26 (16.3)
	Neither agree nor disagree	2 (6.3)	2 (5.3)	3 (5.6)	1 (2.8)	8 (5.0)
	Disagree	24 (75.0)	28 (73.7)	42 (77.8)	24 (66.7)	118 (73.8)
My land is under pressure to be used for other activities	Agree	12 (37.5)	12 (31.6)	11 (20.4)	9 (25.0)	44 (27.5)
	Neither agree nor disagree	1 (3.1)	6 (15.8)	7 (13.0)	3 (8.3)	17 (10.6)
	Disagree	18 (56.3)	18 (47.4)	34 (63.0)	19 (52.8)	89 (55.6)

[a] Percentages are calculated within groups, and reported in brackets unless otherwise indicated. Missing values, and modality 'Does not know/Declines to respond' are not reported in this table. **Standard deviation in brackets.

sustainability in at least three ways. First, it connects this literature for the first time to ongoing debates on the impacts and sustainability of PUA. The dynamic, hybrid, multifunctional, and complex nature of peri-urban spaces (e.g., Marshall et al., 2009; Lerner and Eakin, 2011; Pérez Martínez, 2016) facilitates the contestation of food growing practices and visions of agriculture in such environments (e.g., Mougeot, 2005; Mackay, 2018; Feola et al., 2019). Furthermore, many PUA impacts are intangible, such as its contribution to cultural identities (Mougeot, 2005; Rodríguez-Alonso and Simón-Tenorio, 2016), as well as its role in maintaining interconnections of bio- and cultural-diversity (Galluzzi et al., 2010; Lin et al., 2015). Specifically, this study shows that the quiet sustainability perspective applied to peri-urban spaces helps to identify otherwise hidden forms of PUA and highlights the role of FSPE in strengthening local food security and the social fabric of local communities living at the urban fringe, thus contributing to their sense of purpose, meaning, and resilience (Smith and Jehlička, 2013; Jehlička et al., 2018; Pungas, 2019).

Second, this research extends the quiet sustainability literature by

Table 5
Barriers and opportunities of peri-urban agriculture in Sogamoso.[a]

Variables		Type A (N = 32)	Type B (N = 38)	Type C (N = 54)	Type D (N = 36)	Total (N = 160)
Barriers	Technical (cultivation) difficulties	24	35	36	26	88
	Lack of institutional assistance	13	11	40	17	81
	Lack of knowledge of agriculture and prejudice	4	9	3	8	24
	Aging farmer population	0	8	3	0	11
	Economic barriers	21	18	29	13	81
Opportunities	Improved environment and land quality	1	7	10	10	28
	Food security	3	12	16	20	51
	Accessibility (proximity to the city)	23	23	17	7	70
	Economic benefits	14	16	32	11	73
	Improved quality of life	4	11	6	4	25

[a] Figures are number of times a type of barrier/opportunity was mentioned. Multiple answers were possible.

applying this perspective to a geographical context and sociopolitical status—a provincial city in a developing country in Latin America—that differs in many respects from the Central and Eastern European contexts where quiet sustainability was originally studied. This study not only shows that FSPE is 'quietly' practiced in other geographical contexts, but also more interestingly indicates that widespread practices of quiet sustainability need not only be acknowledged in societies that are transitioning from centrally-planned to market-oriented economies, but also in many places in the Global South, where people are facing hardly escapable, often externally imposed imperatives of development intended to 'Westernize' society (Escobar, 1995; Mignolo, 2007). In contexts like that of Sogamoso and Colombia, where developmentalist discourses inform national and local environmental management strategies across sectors (Carrizosa Umaña, 2008; Cárdenas and Rodriguez, 2013), the pursuit of development risks sweeping away existing, socially meaningful, and well-functioning modes of organizing everyday life that exist below the radar of larger socio-political structures and endangers the reproduction of shared meanings and social networks. Thus, to reveal practices of quiet sustainability contributes toward the appreciation of existing modes of living as well as the refutation of discourses of underdevelopment and the 'emptying' of space employed by those pushing for land appropriation for exclusionary, urbanely, and Westerly 'modern' development models (Feola et al., 2019). In this light, like the gardeners of Central and Eastern Europe, the peri-urban farmers of Sogamoso may be seen as pioneers of already existing sustainable practices to be rediscovered and promoted rather than relics of a past to be forgotten to give way to modern, urban, 'developed' forms of living (de Hoop and Jehlička, 2017).

Third, based on the above points, this study provides novel arguments for the protection and promotion of PUA, particularly in the Global South. Although urban agriculture is often measured in terms of productivity both by those who oppose and defend it (Neilson and Rickards, 2017), this study provides evidence in support of crucial non-economic and less easily quantifiable impacts of PUA on building local communities' sense of purpose, social fabric, and resilience. Furthermore, and importantly, these outcomes are not the result of environmental or food activism or policy interventions, but rather emerge from widespread 'normal' practices in local communities. Whereas governmental or non-governmental PUA initiatives such as civic projects and collective urban gardens have been associated with community building (e.g., Poulsen, 2017), the quiet sustainability perspective reveals cases in which community building is not a stated goal of an agricultural initiative, nor even the outcome of emergent collective initiatives, but rather a positive side-effect of widespread FSPE practices that require no steering, set-up, or ad-hoc organization or governance, although official support and governance may be needed to protect against those seeking to eradicate such practices in promoting other, more monetary forms of development.

5.3. Supporting peri-urban agriculture and quiet sustainability

This study's findings call for a reflection on urban development models, policies, and interventions that can best facilitate PUA. PUA has been shown to be robust and adaptable in various contexts (Clark et al., 2007; Lerner and Eakin, 2011; Elhadary et al., 2013); however, governance is a critical factor in its persistence and outcomes (Prové et al., 2016; Tacoli, 2003; Feola et al., 2019). To protect PUA implies providing guidance to rather than halting urban development (Ligrone-Fernández, 2016). Following Davies et al. (2017), it can be suggested that such guidance may be usefully informed by a better understanding of the 'stuff, spaces and skills' of PUA and FSPE; that is, how PUA and FSPE are performed by peri-urban farmers.

It is beyond the scope of this study to provide full-fledged policy recommendations, the formulation of which would require a more extensive empirical basis as well as socially embedded processes of deliberation and decision-making. However, some reflections can be shared to inform possible lines of social and political intervention. For example, access to some of the 'stuff' of PUA, such as equipment and seeds, could be supported through fiscal incentives (Smith and Jehlička, 2013), which may facilitate engagement with these practices. The legal protection of informal seed exchange systems, which is a contested topic in Colombia (Gutiérrez Escobar and Fitting, 2016), would enable the circulation of native and non-native varieties across urban gardens and farms.

The spaces for food production in Colombian cities have traditionally been backyard gardens (solares, patios) and vacant lots (Molina, 2015). Recent urban developments such as the apartment blocks and gated communities that have appeared in Sogamoso prevent food production by residents (Feola et al., 2019). The protection, expansion, and support of spaces for PUA entail the defense of not yet developed urban spaces, as well as the promotion of public space planning and private housing models that leave room for productive gardens and farming spaces for individuals and communities (Smith and Jehlička, 2013; Ayambire et al., 2019).

As is the case in most Colombian cities, the influx of rural migrants in Sogamoso make food production skills available, particularly in peri-urban spaces; however, the stigmatization of peasantry and the rural world and the desirability of 'modern' life often motivate citizens to unlearn their food production skills (Feola, 2017). The re-evaluation of traditional food production skills could play a role in combatting this trend, such as through mass media (Smith and Jehlička, 2013), but also in the form of a broader social movement to increase the desirability of such skills and promotion their reproduction. The already existing training courses can complement the above, especially for those who do not have a farming background or access to food production skills via their social network; however these are subject to cuts and are often disconnected from local needs.

6. Conclusions

In cities such as Sogamoso in the Global South, PUA can be associated not only with market-oriented production or civic or social programs designed by governmental or non-governmental organizations, but also with 'normal', culturally and socially embedded FSPE practices.

The stakes of urban development are high: the expansion of the urban built environment in the peri-urban space does not in fact trade empty and unproductive land for modern housing and development but rather drives the loss of PUA and FSPE as socially and culturally meaningful sources of social cohesion, alternative income, food security, and social resilience. Rather than encouraging complacency and further withdrawal of the public sector from the provision of social integration and resilience, this study shows that there is a scope for facilitating and supporting already existing practices. However, for this to happen in ways that are consistent with the social and cultural meanings attached to those practices, a reconsideration of urban development visions is in order, which includes a reassessment of the compatibility of urban expansion and other social objectives such as food security and social integration.

In Colombia, where most middle and large cities have received influxes of voluntary migrants and forcibly displaced citizens from rural areas, who have often settled in those cities' peri-urban spaces, there may be an undervalued opportunity to pursue alternative visions of development. The not-too-distant agrarian past embodied in these migrant populations and the need to promote social integration in peri-urban fringes make already existing quiet sustainability practices a potentially powerful force for strengthening sense of purpose and the social fabric.

In Latin America and other parts of the Global South where cities face the need to build resilience to environmental change, the recognition, protection, and support of quiet sustainability PUA practices represent a form of culturally sensitive and endogenous intervention that leaves spaces open for plural visions of urban development, which may be complementary, and to an extent alternative to other exogenous, private, or state-led interventions.

Declaration of competing interest

The authors declare no conflict of interest.

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