

Book Reviews

GERMINATION AND SEEDS

Physiology and Biochemistry of Seeds in Relation to Germination. Vol. 2: Viability, Dormancy and Environmental Control. J.D. Bewley and M. Black. Springer-Verlag, Berlin/Heidelberg/New York, 1982. 380 pp., 154 figs., DM128.00, approx. US\$51.20 (Cloth). ISBN 3-540-11656-7.

The first volume of this two-volume series was published in 1978 and contained chapters on the structure and development of seeds, the biochemistry of germination and growth, the mobilization of reserves, and control processes in the mobilization of stored reserves.

The series has now been completed with the publication of the second volume dealing with viability, dormancy, the release and control of dormancy and the environmental control of germination. This second volume is obviously the fruit of many years of painstaking and critical study of a vast amount of primary and secondary sources. About 1200 references have been included in a clearly written, coherent and well presented text with many figures. This is of importance, since the book aims at a wide audience, including advanced undergraduates, graduate students, teachers and established research workers. Although selective in the choice of references, the book has become a remarkable work; it is not a merely encyclopedic account of what has been published but is much more a stimulating, directing, up-to-date picture of an area that has shown a considerable progress in the past 20 years. The subject is treated in a critical manner, ensuring that areas of ignorance, overassumption or incomplete knowledge are fully discussed.

There are six chapters, varying in length from six to about 70 pages, a glossary, and an author and subject index. Each chapter is concluded by a list of "Some works of general interest" and "References".

The first chapter deals with viability and longevity and refers to topics such as the life-span of seeds, viability in storage, seed deterioration, respiration, protein and RNA synthesis, chromosome aberrations, metabolism of dry seeds, and membrane changes. The next chapter covers dormancy and discusses the biological significance of dormancy, dormancy in cultivated plants, dormancy mechanisms such as embryo dormancy and coat-imposed dormancy, and the onset of dormancy. The different terminologies employed by various authors to describe categories of dormancy are clearly shown in a table, which clarifies the confusion existing in literature. The release from dormancy is the subject of chapter three, where information relating to the phytochrome system, low and high temperature effects and the effects of growth regulators and chemicals on dormancy release are presented. The control of dormancy is presented in chapter four with information on metabolism, membrane properties, chilling, and hormones. The contents

of the previous chapters is shortly summarized in chapter five. Chapter six completes the book and discusses the most important environmental factors regulating germination of non-dormant seeds and discusses their operation in an ecological context and, in some cases, their effects on subsequent plant performance. It deals also with some applied aspects such as the priming of seeds.

Together with volume one, this book represents the most wide-ranging advanced text available on this subject. It is a must for all with any interests in seeds; physiologists, ecologists, as well as seed technologists. It is recommended to those engaged in teaching, to advanced students and to research workers working in the field.

It is a well produced, conveniently sized book and the hope is that its price will not limit its sales mainly to libraries.

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OILSEED CROPS

Oilseed Crops. E.A. Weiss. Tropical Agriculture Series, Longman Group Ltd., Harlow, Essex, Great Britain, 1983. 660 pp., £33.00. ISBN 0-582-46338-6.

This new addition to Longman's Tropical Agriculture Series covers ten predominantly tropical and subtropical crops. Seven, viz. castor, groundnut, rapeseed, safflower, sesame, soyabean and sunflower, are major oil crops, while crambe, niger and jojoba have been included because of their potential suitability under specific environmental or economic conditions. The author is well-known for his comprehensive book on castor, safflower and sesame, published by Leonard Hill in 1971. The present book includes an introduction, a chapter on production and trade, seven chapters covering each of the abovementioned major oil crops, one chapter covering crambe, niger and jojoba, and a chapter on processing and products. Four appendices provide information on the physical and chemical properties of the oils and oilseed meals, one defines selected terms used in the text and tables. A list of about 1000 references and an index complete the book.

Oilseed Crops is a long-needed book, covering together with the volumes on perennial oil crops (Child, 1974; Hartley, 1977) of this series the whole field of tropical and subtropical oil crops. The author's expertise and long and world-wide experience is reflected in this clearly written, generously illustrated and well-documented manual. It is evident that the first edition of a book covering the wide field of production and processing of botanically unrelated crops cannot be without imperfections. In his introduction, the author recommends to read the other chapters if additional information is required on the cultivation and protection of a specific crop. This advice