Book reviews

Forage seed production Volume 1: Temperate species

Edited by D.T. FAIREY and J.G. HAMPTON. Published by CAB International, 1997. 432 pp. Price £65. ISBN 0 85199 190 4.

Seed science and technology are, without doubt, two of the least understood and neglected areas of plant science. Few scientists see value in working in these areas and it is not easy to obtain funding for research and development projects on other than issues of immediate practical significance. Projects addressing basic and fundamental problems are rare.

Seeds are frequently treated in a casual and careless manner by many people and, in most instances, are not accorded the respect that they deserve as living entities. Unfortunately, to most people, including many members of the plant-science fraternity, seeds are simply inanimate objects that are purchased or obtained in a container on which there is a name or some other form of identification. It is reasonable to state that the limit of most people's knowledge about seeds is that, when a seed is sown, a plant results (assuming that the seed is capable of germinating and the seedling survives). Similarly, the majority of people have little or no knowledge or understanding, even in the broadest sense, of the sequence of events that take place to permit seed germination, seedling development, vegetative growth, floral initiation, flowering and seed production, let alone seed harvesting, processing and storage procedures and requirements.

Seed of herbage species is produced by specialist seed growers who sow crops specifically to produce seed or by opportunistic growers who harvest pastures that have been allowed to flower and develop mature inflorescences.

The production of high quality seed requires attention to detail and a reasonable, preferably in-depth knowledge and understanding of the plants involved. The newly published book *Forage Seed Production Volume 1: Temperate Species* has, via many authors from many world countries, assembled an enormous quantity of information about forage-seed production.

This new book has contributions from 43 authors and was compiled only as a result of "considerable international collaboration between personnel from CAB International (CABI) and the International Herbage Seed Production Research Group (IHSPRG)". All authors have specialist knowledge in their respective areas of herbage-seed production and supporting plant-science disciplines.

The book is organised into two parts, the first dealing with forage-seed production (yield components, seed maturation, seed-crop management, pollination and breeding for seed yield), seed processing, storage, quality and seed marketing and trading. Part 2 comprises 11 case studies, each dealing with one of the forage species described as being of international significance. In a world context, the editors claim that only 12 grass and 8 legume genera are used as temperate forages (a sobering thought that forage production in temperate areas is dependent on such a relatively small number of plants). Internationally, trade in forage seed is dominated by only a few genera (grasses: *Lolium, Dactylis, Festuca* and *Poa* spp.; and legumes: *Trifolium, Lotus* and *Medicago* spp.) on which this book focuses.

Each chapter, including some case studies, has two or more authors, and other than having an introduction, is different in layout and style and reflects the approaches of the authors in addressing their topics. It also reflects the widely differing subject matter covered by each chapter. The varying styles and structures add interest and reinforce the fact that there are many facets to seed production. The book presents a complete story with reasonable chronology from chapter to chapter, beginning with vegetative growth stages and culminating with seed harvesting, processing and marketing. There is a degree of overlapping and cross-referencing between some chapters, which serves to reinforce the information being presented.

This book represents, for the most commonly produced species, the most complete and up-to-date review of world knowledge about temperate grass and legume-seed production that is currently available. Each chapter has an excellent list of references and this alone makes the book worth owning.

Gaps and deficiencies in current knowledge are noted in many chapters. For scientists pursuing a career in seed science, areas requiring attention are identified and numerous post-

graduate project opportunities are readily apparent.

A very pleasing aspect of this book is that it has a chapter devoted to seed quality. Seed quality is frequently ignored, or is poorly understood by many seed producers and members of the seed trade. It also receives only superficial coverage, if at all, in most seed-production publications. However, its importance is becoming more widely recognised for its influence on pasture and crop production (*e.g.* germination potential, seed vigour), minimising weed (physical purity), pest and disease (seed health) spread and so on for other quality parameters. The roles of Seed Testing Stations and the purpose of having internationally recognised rules for seed testing are set out clearly and are simple to understand. Equally importantly, the less-than-subtle differences between physical and genetic purity are clearly explained. All involved with seed production and trading should read this chapter to improve their understanding of the importance of seed quality. Those who buy seed to sow should also develop an understanding of quality parameters so that it is clear why it is sensible to purchase only high quality seed rather than to base decisions on price, the parameter most commonly used. Such a change would help to remove poor quality seed from the marketplace.

In most chapters, the balance between the presentation of principles and detail is good. Clearly, in a book of this size which has covered such a range of topics, full detail on all topics could not be presented. Some readers might be critical of this lack of detail and full explanation. However, additional information and detail will be accessible through the quoted references and other sources of information.

Some chapters present information about herbicides, insecticides and fungicides which, for some countries, will not be applicable because of product unavailability or lack of registration. Such information is still useful as it often provides guidelines for other world areas if pesticides for certain purposes are presently not available in those areas.

Some chapters will test the plant-anatomy knowledge of many scientists and will be beyond the understanding of most non-tertiary-trained persons. This should not detract from the value of the book to all persons involved with temperate seed production. All who read this book will broaden their knowledge and this will benefit the seed industry.

A significant deficiency is the absence of a glossary of terms, which would have made the book much more reader-friendly, *e.g.* for seed growers or other persons without detailed botanical and/or biological training. None-theless, the principles and most of the facts presented will be clear to most readers, including specialist seed growers.

The case studies are interesting and informative. Each presents: an outline of the development and importance of each species as a herbage plant; production statistics; a brief overview of crop culture and management; plus other information perceived as relevant by the authors. The case studies generally reinforce the information presented in the main chapters and are written in the context of the country of the authors. Persons with experience in other countries will realise that there are many subtle differences between countries, particularly in the agronomy and management of particular crops. Understanding that such differences exist will simply serve to improve the scope and depth of the reader's knowledge.

The book is very well produced, with few but relevant and informative illustrations, is strongly bound and has a hard cover.

Forage Seed Production Volume 1: Temperate Species makes a very significant and important contribution to seed science in its broadest perspective. Although the focus is on temperate plants, a lot of information presented applies to the seed of all plants, including tropical species. It is commended to all seed scientists and technicians, seed traders and seed producers as well as to all who teach any aspect of seed biology and seed science. It will sit comfortably on their bookshelves and would be used regularly by them. It also needs to be available in biological/agricultural science libraries and public reference libraries.

R.S. Smith
Mt Pleasant Research Laboratories