In section one although no conclusion can be reached concerning a universal mechanism(s) of desiccation tolerance, sufficient results are presented to assess the range of mechanisms that are currently proposed and the status of the research.

There are 20 papers on dormancy in section two. While several papers involve management of dormancy on specific species, some of which border on being exotic, others are good representations of the more advanced studies on mechanisms of dormancy.

Nearly one third (12) of the papers in section three are biochemical and molecular characterizations of reactions involved in various seed stages from quiescence through priming to germination. Other papers are concerned with new methods of measuring seed quality, recipes of how to enhance seed performance, and biological changes that occur during seed enhancement.

The section on ecophysiology consists of only four papers on the subject. These papers deal mainly with germination and dispersal strategies that make it possible for certain species to inhabit ecological niches that are less than desirable for most plants.

The subject of dehydration of recalcitrant seed is emphasized in the last section. Included are studies on chemical, physical and biological changes that occur in orthodox and recalcitrant seed during aging and storage. Some of the work on the role of free radicals in seed quality is reported as well as studies on storage fungi.

This book contains a number of good papers that represent some of the more basic research approaches to developing a better understanding of some of the mystical properties of seed. Other papers add to the knowledge base and form a basis for solving practical problems. The book is a wealth of information for everyone with an interest in seeds.

S. H. West
Agronomy Seed Laboratory,
University of Florida,
Gainesville, FL 32611


Seeds Handbook is intended to serve both as a textbook for upper level undergraduate and graduate students and as a comprehensive reference for persons involved in the seed industry. The book is divided into three sections entitled ‘Seed Biology and Biotechnology,’ ‘Seed Production,’ and ‘Seed Processing and Storage Technology.’ The first section reviews seed morphology, flowering, fruiting and development; the biochemistry of seed dormancy, germination, viability and longevity; and the potential of somatic embryogenesis for the development of synthetic seeds. The second section discusses general techniques used in seed production, including breeding methods; deterioration and maintenance of genetic purity; and cultural, harvest, and post-harvest operations that influence seed yield and quality. Also included are chapters containing examples of specific production practices for over 80 agronomic and horticultural species (i.e., cereal, pulse, oilseed, vegetable, sugar and fiber crops; flowers and ornamentals; and grasses and forage legumes). The third section deals with various aspects of seed conditioning (drying; cleaning; upgrading; and seed treatment, packaging, and handling); seed storage, transportation and marketing; and seed testing, certification, and legislation.

This book was designed to assemble current, basic information on seed biology, production, and processing, as well as specific production practices for individual species, into a single, comprehensive reference. Although one of the objectives of this book was to supply updated information for all of these areas, ultimately this book disappoints because of its failure to include or sufficiently elaborate on recent technological advances within the seed industry. This book provides a good general overview of seed biology, but contains little new information. The basic seed production and processing principles described in this book are sound; however, the practices described fall short on substance and are often outdated and not currently used in more highly industrialized seed producing countries. This book contains several typographical errors and the illustrations are generally poor, particularly in the section on seed biology. A list of references is included at the end of each chapter, which is useful to anyone wanting to obtain further information on a topic included in that particular chapter. The book does not contain chapter outlines, but does include an index at the end of the book to aid the reader in finding information about a specific subject.

John R. Keiser
Mycogen Seeds,
1562 Taylor Avenue,
P.O. Box 637,
Marshalltown, IA 50158
(keiser@mycogen.com)


For those involved in planting seed production of crop plants, this book is a long-awaited reference. Many classic texts in this field are out of date (and out of print), and none cover all types of agricultural plants in a single volume. As the authors explain in their preface, the book was written as a reference and textbook for undergraduate and graduate students interested in seed production. However, it is likely to find a wider audience among researchers and agriculturists who need a single source to consult on topics related to seed production.

The book is divided into two parts, the first being the principles of seed production that are common among all types of crops. Those who are familiar with Principles of Seed Science and Technology (3rd Edition) by these authors will recognize much of the same material here, although there are differences in emphasis and coverage. The individual chapters address flowering and seed set, seed development, seed production, seed conditioning, storage and quality. Additional chapters cover the evolution of the seed industry, seed certification, seed marketing and seed legislation. The second (and larger) part of the book details seed production practices for cereals, oil seeds, forage legume seeds, cool- and warm-season grasses, grain legumes, vegetables, flowers, and trees. Within each of these major categories, individual species are described separately and comprehensively. In some cases, such as the flowers, vegetables, and trees, selected representative examples are presented because of the large number of species in these categories. The book has a large and detailed index including both topics and crops, making it easy to find specific information.

A major virtue of this book is that it is comprehensive. It compiles in one volume a vast array of information about virtually all agriculturally important plant groups. In groups