BOOK REVIEW

Breeding Field Crops.

Here is the fifth iteration of this worldwide standard textbook for undergraduate agronomy, plant science, and beginning plant breeding students. It is useful as a reference for graduate students and professional plant breeders, as well. Most teachers of an introductory plant breeding course are probably familiar with this text. The first edition was written by John Poehlman and published in 1959, with the second through fourth editions released in 1979, 1987, and 1995, respectively. John Poehlman, who died shortly after the fourth edition was published, was a small grains breeder from 1936 to 1980 at the University of Missouri. David Sleper, a soybean breeder at the University of Missouri, also coauthored the fourth and fifth editions.

The fifth edition, like earlier editions, is organized into 23 chapters in 10 sections, but really there are two main parts: The first part of the book, Sections I to V (Chapters 1–13), consists of “What Is Plant Breeding?” (Section I, Chapter 1), “The Genetic Basis of Plant Breeding” (Section II, Chapters 2–4), “Tools of the Plant Breeder” (Section III, Chapters 5–8), “Methods in Plant Breeding” (Section IV, Chapters 9–12), and “Germplasm Resources for Breeding Crop Plants” (Section V, Chapter 13); the second part of the book focuses on the applications of plant breeding: “Applications: Breeding Field Crops That Are Self-Pollinated” (Section VI, Chapters 14–16), “Applications: Field Crops Utilizing Hybrid Breeding Strategies” (Section VII, Chapters 17–18), “Applications: Field Crops Utilizing Breeding Strategies” (Section VIII, Chapters 19–22), and “Applications: Breeding Field Crops That Are Clonally Propagated” (Section IX, Chapters 23). The book concludes with “Maintenance and Seed Production of Improved Cultivars” (Section X, Chapter 23). The book concludes with “Maintenance and Seed Production of Improved Cultivars” (Section X, Chapter 23). The book concludes with “Maintenance and Seed Production of Improved Cultivars” (Section X, Chapter 23). The book concludes with “Maintenance and Seed Production of Improved Cultivars” (Section X, Chapter 23).

The most significant shortcoming, however, is the treatment of the advances in molecular genetics and molecular breeding. Plant breeding is in transition and changing rapidly. The incorporation of molecular aspects of genetics into plant breeding programs is an essential part of the new breeders’ toolbox. Molecular marker-assisted selection, for example, is critical to understanding plant breeding strategies. If these techniques are not fully integrated, the breeder will be at a disadvantage.

In conclusion, the fifth edition of Breeding Field Crops is highly readable, with many good examples and illustrations. It is suitable for an introduction to the field of plant breeding, as well as a reference for graduate students and professional plant breeders.