Wheat Science and Trade

Wheat Science and Trade provides an in depth review of wheat biology, production, breeding, processing, and trade. The book is organized in four sections. “Making of a Wheat Plant” reviews domestication, evolution, development, and molecular control of flowering. “Making of a Wheat Crop” considers management, diseases, pests, and weeds. In “Making of a Wheat Cultivar,” crop improvement is examined across the spectrum from conventional breeding, to creation of synthetic wheats, to transgenic approaches. The final section, “Making of a Wheat Industry,” looks at grain quality, novel uses, and marketing. The 23 chapters were authored by experts from 10 countries, notably the U.S., Australia, and Canada. The content is clearly written and current through 2007, with a few citations from 2008. A notable feature is the extensive inclusion of information from molecular biology.

As with any compendium, issues can be raised concerning balance and completeness of coverage. Chapters varied in whether the content primarily had a global or U.S. focus. In many cases, it would have been interesting to compare among major wheat regions, especially China, India, and Pakistan. The review of physiology was largely limited to development and control of flowering. Viral diseases are only mentioned in relation to vectors and interactions with other diseases. The chapter “Grain yield improvement in water-limited environments” dealt largely with breeding strategies, yet it preceded the chapter that introduced conventional breeding.

The material largely employs a graduate-level terminology for phytopathology, genetics, molecular biology, and biochemistry. Individual chapters might be suitable as course material, but the main use of the book would seem to be as introductory or refresher material for the wheat research community. Obvious cases would be for a researcher recently assigned to work on wheat or a researcher who feels a need to review their field to understand how modern technologies, especially from molecular biology, might affect their work. An unresolved issue is whether such a compendium still has value in an era when knowledge is evolving rapidly. The Internet provides authors the ability to update information as needed and to rely extensively on color diagrams and photos or even provide animation or videos. However, the Internet still lacks the quality of editing that is apparent in Wheat Science and Trade and lags in ease of access if one is fortunate enough to have the right book on the shelf. Of course, this raises a second issue: at $250, the book is more likely to reside in a central library than on every researcher’s bookshelf.

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