

Preface

This report is the first in a new series that takes over from our well-known *World Wheat Facts and Trends* series, which first appeared 20 years ago. Like the *Facts and Trends*, this new series contains statistical information on wheat production worldwide, especially in developing countries, and provides an overview of the world wheat situation. Similarly, it is organized around a major essay on wheat research and research policy in the developing world. Because the content of the report has developed beyond a mere reporting of trends and statistics, we felt that it was time to re-name the series to reflect the increasingly forward-looking nature of the information and analysis it presents. Hence *World Wheat Overview and Outlook*.

The theme of this report is also a departure from recent issues of *Facts and Trends*, which focused on seed and the systems through which improved seed is developed and disseminated. This report focuses on a crop management technology, no-till, and particularly on the technical, economic, and social conditions needed for a complex technology like no-till to develop and spread.

An important message of this report is that the development of appropriate complex technologies such as no-till necessitates novel approaches to research and development. Information on what makes such technologies succeed—or not—is important to enable the public and private sectors, non-governmental organizations, and international organizations to help farmers who have to produce and sell in rapidly evolving markets, and who need to integrate production and marketing strategies in an increasingly globalized world. In addition, population and income growth are inducing an intensification of agriculture, which threatens the sustainability of natural resources and livelihoods of poor farmers. These challenges are particularly acute for small-scale farmers, who lack the resources to search for the new economic and technical opportunities that will enable them to survive in more integrated markets. Technical change can play a prominent role in alleviating these problems, and no-till is one of the most promising technologies for doing so.

No-till has significant economic and environmental benefits for smallholder farmers. It reduces labor and effort invested in food production, cuts production costs, and reduces agricultural risks. It also significantly reduces erosion and has the potential to diminish pollution because in many instances fewer agrochemicals are used.

A new framework for the socioeconomic study of technical change is needed to understand the development and adoption of no-till. Part 1 of this report describes this framework, reviews the methodological difficulties involved, and highlights the factors that make an innovation network succeed for no-till: participatory research approaches, deep trust and strong communication among members, a systems approach to research, and experimentation under farmers' conditions. No-till experiences in Latin America, Asia, and Africa are reviewed in detail. While most of these experiences are related to the use of no-till in wheat cropping systems, other important crops like rice and maize are also included.

Part 2 of this report looks at advances in wheat yield potential in marginal areas and revisits questions related to the allocation of resources to research for these areas. More specifically, it asks whether the wheat yield potential in marginal areas is approaching levels attained in favorable areas, describes breeding research that improved productivity in these areas, examines crossover and spillover of wheat varieties from favorable to marginal environments, and discusses the implications for future wheat productivity growth in marginal environments.

Part 3 summarizes current and future trends in consumption, production, and trade as well as issues that play a critical role in the development of the global wheat market, including production changes in the former Soviet Union; recent policy changes in China, the United States, and the European Union; output growth in the Southern Cone; the changing relationship between carryover stocks and wheat prices; and the development and adoption of genetically modified wheat varieties.

As in previous reports, Part 4 presents the latest global statistics (at the time of publication) related to wheat production, trade, utilization, experimental yields, prices, and input use.

We trust that the information in this report will be useful, especially for individuals and organizations involved in the development and dissemination of no-till, and that it will lead to constructive debate on the development of crop management technologies. One of the best ways to achieve sustainable food production, without threatening the natural resources that farmers depend on for their livelihoods, is through the development and application of improved agricultural technologies. While no-till is a complex technology that requires new and different approaches, it could potentially go a long way in helping farmers, especially small-scale and resource-poor farmers, in an increasingly globalized and rapidly evolving world.


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