

Foreword

As we enter the new millennium, the pace and magnitude of change in the world around us continues to rapidly grow. No region of the world, no economic sector, no global problem of note, and—of concern to CIMMYT—no food crop is excluded from the grand transformation taking place before us. Much of what lies on the horizon gives cause for great concern. During this century the earth will be called upon to support billions more people and do it with essentially the same amount of arable land. Crushing poverty, falling largely onto the backs of women and children in the developing nations, remains a persistent, at times intractable problem. And the gap between the *haves* and the *have-nots*, the North and the South, still threatens global stability and calls out to our collective conscience for action.

At the same time, we are witnessing considerable progress on some fronts and the arrival of what were once considered futuristic possibilities. A plateau in population growth is projected, income levels in parts of the developing world, particularly Asia, are up, and the liberalization of markets and economies has brought new energy and initiative to the forces of progress in many corners of the world. For those in the international agricultural research community, the emergence of revolutionary technologies, nearly instantaneous communications, and a new era of partnerships and collaborations have brought fresh vigor as well as challenges to our work.

As seen in this *Facts and Trends*, these global trends also extend to maize demand and production. Ample trials and opportunities are afforded by the currents of change. Making the *right* strategic decisions and putting our effort where it will yield the most headway are key to riding them well. This, in essence, is the focus of Part 1 of this report. Demand for maize in developing countries is projected to surpass both wheat and rice by 2020, meaning that maize supplies for those areas must nearly double. Given the funding and logistical constraints faced by public sector agricultural research organizations, how do we meet this rising demand? Part 1 reviews and prioritizes critical constraints and appropriate technological solutions, while factoring in measures for impact on poverty, on those living in subsistence agricultural areas, and the probability of technology adoption. Following the identification of these areas of need, the authors delineate who might best respond to them—the public sector, private sector, or both working together. In conclusion, Part 1 provides a concise list

of priorities for public sector research, and CIMMYT research in particular, by region and maize ecology and by technological options.

Part 2 provides a synopsis of CIMMYT's latest study on the global impacts of international maize breeding research. Data generated by CIMMYT's work on global maize impacts have come to be recognized as definitive and have been widely used to inform research investment and research management decision-making. The study found that use of CIMMYT germplasm by both public and private sector breeding programs has been extensive. Of all publicly bred maize varieties released between 1966 and 1998, 53% contained CIMMYT germplasm. During the most recent period, 65% of all public sector varietal releases contained CIMMYT germplasm (72% when temperate materials are excluded). Use of CIMMYT germplasm by private breeding programs has also been substantial. Of all private sector maize varieties sold during the late 1990s, 58% contained CIMMYT germplasm, though the proportion varied greatly by region.

In Part 3, CIMMYT economists take a look at current and future trends in maize demand, production, and trade, focusing on the major players in this arena: the United States, the South American countries in the MERCOSUR trading alliance, and Asia, with emphasis given to China. The authors examine future trade scenarios and the complex interaction of many factors, including domestic production environments and utilization trends, domestic and international trade policies, exchange rates, commodity prices, population growth, and rates of income growth.

As usual, this edition concludes with a very informative set of regional and national consumption and production statistics, as well as statistics on CIMMYT's tropical and subtropical varieties grown under experimental conditions.

I trust that this latest *Facts and Trends*, like its predecessors, will make a positive contribution to the debate over research strategies and directions and illuminate how, working together with a full range of partners, we can best serve the interests of maize farmers and consumers throughout the developing world.



Timothy Reeves
Director General