# CIMMYT

## ECONOMICS PROGRAM

From farmers' fields to the global
marketplace – promoting better food systems
for the poor and the environment

# WHAT do CIMMYT economists do?

CIMMYT economists ask and answer fundamental questions about CIMMYT's maize and wheat research: Do our research products help people? How do they help them? Can we design research products that are better at meeting farmers' needs? Are we conducting research efficiently? Are factors beyond research—such as public policies—helping or hindering farmers? Should we enter certain areas of research? Should we abandon others?

In other words, CIMMYT economists analyze the elements of success in maize and wheat production, from farmers' fields to the global marketplace. They also investigate the elements of success in maize and wheat research.

To learn why crop production and research succeed in some instances and not in others, economists study technology, the product of research. Technology constitutes practices and inputs—such as improved seed, labor, fertilizer, water, or crop management strategies—that are used to grow crops. Economists study how researchers design technology and how farmers use it, to learn what makes research yield good results.

# WHY is Economics Program research important?

The information and analysis provided by the Economics Program are crucial for CIMMYT and its research partners to help poor people in developing countries overcome hunger, poverty, and environmental problems.

The Economics Program develops a global perspective on food policy with specific reference to the wheat and maize sectors. Economists work closely with biological scientists to evaluate maize and wheat technologies that farmers need to increase the likelihood that farmers will use a given research product. They also help biological scientists to foresee and take into consideration the potential technical, economic, environmental, and social impacts of new technology—especially any negative effects—before they become a problem in the field.

A related role is to determine which factors limit (or may eventually limit) farmers' use of new technology.  For example, farmers may be perfectly willing to use improved seed but may be unable to obtain the seed locally.

The Economics Program also provides the hard numbers to show funding agencies whether investing in agricultural research generates attractive benefits.

# Research ACTIVITIES

### Assessing impacts of maize and wheat research and technology adoption

Impact assessment examines how improved wheat and maize technologies produced by CIMMYT affect human welfare, particularly of disadvantaged groups like subsistence farmers, impoverished consumers, people living in marginal environments, and women and children. In particular, impact assessments:

- Document impacts of maize and wheat breeding
- Document impacts of crop and resource management technologies
- Include case studies on technology adoption
- Link adoption to productivity gains, poverty alleviation, and resource conservation

### Economics of emerging technologies

CIMMYT economists analyze the potential impacts of new technologies to develop a diffusion strategy that produces the greatest benefits for farmers. This work currently revolves around:

- Assessing the impacts of emerging technologies like new plant types, new crop management practices, and biotechnology
- Analyzing farmer participatory methods for technology design and development

### Economics of genetic diversity

Crop genetic diversity—the diversity of sets of genes in a crop species—is the basis of our food supply and vital for our survival. Having crop varieties that respond well to continuous and unexpected environmental changes benefits both farmers and consumers. At CIMMYT, we:

- Examine the costs and benefits of both *ex-* and *in situ* conservation
- Assess the impact of genetic diversity on crop productivity
- Analyze farmer participatory approaches to genetic resource management and conservation

## Setting research priorities

The Economics Program provides information and analysis to research managers in CIMMYT and national agricultural research systems (NARSs) in Asia, Latin America, and Africa. This helps to determine the most important areas of research to undertake—based on criteria that include the probability of success, the numbers of poor people likely to benefit, and the extent of the research problem. In CIMMYT, this includes:

- Breeding versus crop management research
- Conventional breeding versus biotechnology
- Priority issues for breeding and crop management

Topics currently under consideration in NARSs are:

- What priority should research give to rainfed versus irrigated environments?
- What priority should research give to upland versus lowland environments?

## Sector and policy analysis

By planning carefully and devising appropriate policies, governments can ease adjustments to the evolving food supply and demand situation. To plan well, decision makers need accurate information and practical recommendations for strengthening rural people's welfare and protecting the environment. The CIMMYT Economics Program looks at how current research directions or policies influence national maize or wheat production, whether it is economically beneficial to promote wheat and maize production, and the efficiency of collaborating on specific aspects of research. More specifically, the program:

- Monitors developments in global markets and the global policy environment
- Projects implications for CIMMYT crops
- Generates information for research managers and policy makers



# Research SUPPORT

Through collaborative research, networking, and training (both formal and informal "hands-on" training), the Economics Program strengthens the institutional and human capacity of NARSs and facilitates greater public awareness of maize and wheat research.

# WHERE do CIMMYT economists work?

The Economics Program collaborates closely with researchers from developed and developing countries to further common research agendas. A number of activities such as impact assessment and economics of genetic diversity are led from CIMMYT headquarters in Mexico, whereas others are led by economists posted to specific regions.

## Asia

### East and Southeast Asia

**In China, India, Indonesia, Nepal, the Philippines, Thailand, and Vietnam—**Affiliate scientists and researchers from local universities and research organizations are looking at problems and constraints related to intensifying maize production in upland and marginalized areas. The information will be used in maize intensification programs that consider the needs of farmers and are environmentally responsive.

**In China—**CIMMYT economists and research partners are gathering wheat diversity data at the aggregate and household levels. Research themes include the relationship between productivity and genetic diversity, and how household decisions related to wheat technologies affect diversity levels.

### South Asia

**In Nepal, Bangladesh, India, and Pakistan—**CIMMYT economists provide socioeconomic support to the consortium that conducts research on long-term productivity of South Asia's rice-wheat rotation.

### Central Asia and the Caucasus

**In Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan, and Azerbaijan—**With local researchers, CIMMYT economists examine possibilities and constraints in wheat production, with particular attention to the role of current and future wheat technologies and regional interaction in terms of research spillovers and trade.

### West Asia and North Africa (WANA)

**In Turkey—**CIMMYT economists are conducting research on household variety choice decisions in wheat production and their relationship to *in situ* conservation of wheat genetic resources and distributional equity among households and regions in Turkey.

## Africa

### Eastern and Southern Africa

**From our base in Nairobi, Kenya and Harare, Zimbabwe—**CIMMYT economists work across Eastern and Southern Africa in collaborative research, networking, and training to strengthen the priority-setting capacity of national research programs and to strengthen communications between national research programs, policy makers and national program socio-economics.

## Latin America

### Mexico

**In the Central Valleys of Oaxaca, Oaxaca, Mexico—**CIMMYT economists and research associates from the Mexican National Institute of Forestry, Agriculture, and Livestock Research (INIFAP) explore ways to work with farmers to conserve diverse maize landraces.

### Central America

**In Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama—**CIMMYT economists work with a network of local social scientists and researchers to identify and characterize competitive maize areas in each country.

### Southern Cone

**In Brazil and Argentina—**CIMMYT economists look at the impact of zero tillage on small-scale farmers and seek to determine the conditions that enable them to increase their income through this technology.

# FACTS and TRENDS

The Economics Program produces *Facts and Trends,* an annual publication that provides comprehensive data and analysis of global and country-level trends in wheat and maize demand, production, and trade. The report, which covers maize and wheat in alternate years, is widely recognized for its theme articles, which explore major issues related to wheat and maize research and production in developing countries. Recent reports have addressed such wide-ranging themes as measures and assessments of genetic diversity in wheat, the potential of maize research for marginal (especially drought-prone) environments, and the evolution and adoption of conservation agriculture in developing countries.

*Facts and Trends* is a key CIMMYT publication that reaches thousands in the developed and developing world. It is produced by CIMMYT economists in collaboration with researchers from CIMMYT's Wheat and Maize Programs as well as other researchers worldwide.

Starting in 2001, this popular series will have a new name: *Overview and Outlook.*



## Contact Information:

**Prabhu Pingali, Director,**
**CIMMYT Economics Program**
**(p.pingali@cgiar.org)**

**C I M M Y T** MR

INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER

**www.cimmyt.org**