Global Partners for Impact

Launched in 2012, the CGIAR Research Program on Wheat is led by led by the International Maize and Wheat Improvement Center (CIMMYT), with the International Center for Agricultural Research in the Dry Areas (ICARDA) as a primary research partner. Other key partners include the Australian Centre for International Agricultural Research (ACIAR), the British Biotechnology and Biological Sciences Research Council (BBSRC), the Indian Council of Agricultural Research (ICAR), and a community of more than 200 public and private organizations worldwide, among them national governments, companies, international centers, regional and local agencies and farmers. Funding for WHEAT comes from CGIAR and generous donors including national governments, foundations, development banks and other public and private agencies, in particular Australia, China, the UK's Department for International Development (DFID) and USAID.

CIMMYT MR
International Maize and Wheat Improvement Center

Australian Government
Australian Centre for International Agricultural Research

BBSRC bioscience for the future

ICARDA Science for Better Livelihoods in Dry Areas

ICAR

Working to Achieve The Global Goals

WHEAT will contribute to the achievement of eight Sustainable Development Goals (SDGs) outlined by the United Nations:

We would like to thank all donors who supported this research through their contributions to the CGIAR Fund.
http://on.cgiar.org/CGIARFundDonors

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CGIAR RESEARCH PROGRAM ON Wheat

http://wheat.org

CGIAR RESEARCH PROGRAM ON Wheat

Photo: J.Cumes/CIMMYT

An unprecedented global alliance for productive, climate-resilient and profitable wheat agri-food systems in lower and middle-income countries.

- Some 2.5 billion consumers in 89 countries depend on wheat as a staple food.
- A key source of starch and energy, wheat also provides protein, vitamins, dietary fiber, and other nutrients.
- Demand for wheat will rise 50% by 2050, with a world population of 9 billion or more and as many as 6.3 billion city dwellers buying convenience foods.
- Wheat grain markets are easily destabilized by extreme weather and defensive trading, causing price spikes that especially harm the poor.
- Higher temperatures will pose a rising constraint to wheat harvests in major breadbaskets like South Asia.
- Currently-sown wheat varieties are increasing susceptible to new and rapidly-evolving pests and diseases

Impacts by 2022

- 100 million more farm households will have adopted improved wheat varieties and crop management.
- Wheat yields will be increasing by an average 1.5 percent each year.
- 30 million people (half of them women) will have been helped to escape poverty.
- 30 million more people (half of them women) will be meeting minimum daily requirements for carbohydrates.
- There will be a 10 percent improvement in water and nutrient use efficiency in wheat cropping systems and a 0.2 billion ton per year reduction in carbon dioxide emissions from wheat farming.

Genetic Diversity for High Yields and Resistance

Wheat varieties derived from Wheat CRP breeding research cover more than 100 million hectares worldwide, based on a study of global wheat research impacts for 1994-2014. The yearly value of the added grain produced from farmers' use of those varieties is as much as $3.1 billion -- a return of 103:1 on WHEAT's annual budget of approximately $30 million.

Photo: P.Lowe/CIMMYT

Photo: CSISA/CIMMYT

India Farmers Put Aside the Plow and Fight Pollution

To improve South Asia's rice-wheat cropping systems, which cover more than 13 million hectares and provide food and livelihoods for over 300 million people, WHEAT researchers and partners have actively promoted use of zero tillage to sow wheat directly into unplowed soils and rice residues following rice harvest. Besides significant savings to farmers through reduced plowing, the practice conserves soil and water, raises yields, and helps to combat New Delhi's noxious seasonal smog, partly a by-product of the widespread burning of rice stubble in India's northern states. In response to the smog alarm, state and local policymakers have joined promotion efforts. The practice is now used by farmers on at least 1.8 million hectares.

Research

- World-class breeding research to reach farmers faster with wheat varieties improved for yield, disease resistance, heat and drought tolerance, as well as nutritional and processing quality.
- Use of novel diversity and technology to improve genetic gains and breeding efficiency.
- Sustainable intensification of wheat-based farming systems, including more precise use of fertilizer and water, conservation agriculture practices, and appropriate farm mechanization. Socioeconomic research for widespread adoption and impact, gender and social inclusiveness, and value chain opportunities for smallholder farmers.

- **South and East Asia**
  Including China and India, this region alone is home to fully half of the world's poor. Wheat consumption is high and set to rise dramatically with changing life styles. Challenges include rising temperatures and rapidly declining ground water. About half of all spring bread wheat varieties in South Asia are direct releases of WHEAT breeding lines.
- **Central and West Asia**
  Food insecurity remains a challenge, despite major social and economic advances since 1992. Wheat-based foods are the major staple in the region. Four-tenths of all crosses by national wheat breeding programs involve lines developed by WHEAT, and work of the CGIAR Research Program has contributed to the adoption of zero tillage for wheat on 1.2 million hectares in Kazakhstan.
- **North Africa**
  The major source of food and livelihoods, durum wheat is the main crop and is used for flatbreads and dishes like cous cous. More than 70 percent of the world's spring durum wheat varieties released during 1994-2014 are derived from WHEAT breeding lines.
- **Sub-Saharan Africa**
  Urbanization, a growing middle class and changing lifestyles, including women who work, are driving a rapid rise in demand for wheat, but production in the region falls short and consuming countries draw on foreign reserves to import at least US $12 billion-worth of grain each year. Ethiopia and South Africa lead the region in wheat production, but there is great potential to grow wheat in other countries.
- **Latin America**
  More than 70 percent of all spring bread wheat varieties feature WHEAT breeding in their pedigrees.

WHEAT works with advanced research institutes in Europe, North America and Oceania.

Wheat Matters - Today and Tomorrow

Wheat is the grain at the center of (Indo-European) civilization.

- Rachel Laudan, renowned author on food history

- Nearly **US $50 billion-worth** of wheat is traded globally each year

215 million hectares

215 million hectares-
the area on which wheat is grown each year, worldwide.
- Equivalent to Greenland.
- Sown from Scandinavia to the Southern Cone of South America, more regions than any other staple crop

Wheat consumers worldwide = **2.5 billion people in 89 countries**

30% reduction in wheat

As much as 30 percent-
the reduction in South Asia's wheat yields forecast by climate change experts, if farmers continue to use current varieties and practices.