

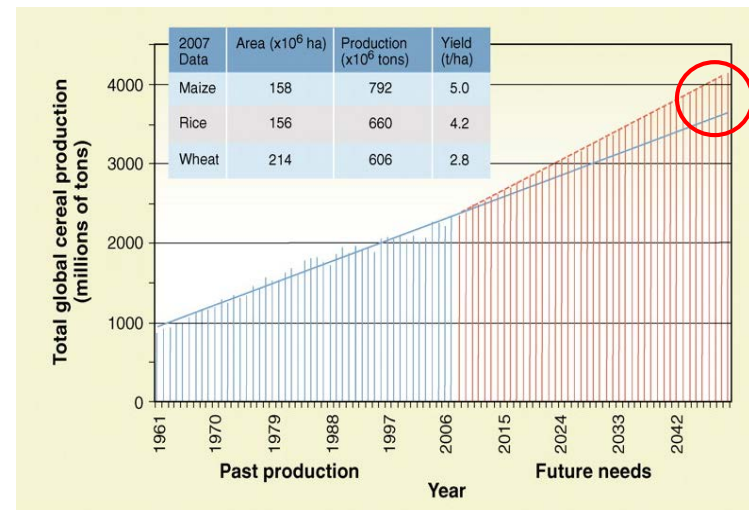
International Wheat Yield Partnership

Research to Deliver Wheat for the Future

www.iwyp.org

The Global Challenge

- Wheat provides 20% of all calories consumed by people globally
- Primary source of protein for humans and significant source for animal feed
- Human population estimated to reach more than 9 billion by 2050 (34 years)
- Global wheat production needs to increase by 60% by 2050 to meet demand
- Rate of wheat yield has slowed since 1990
- We will be unable to meet this demand without a step change in wheat breeding



Tester and Langridge. 2010. Science 327:818

**To increase the genetic
yield potential of wheat
by 50% in 20 years**

Achieving this Step Change

- Deliberately set a highly demanding research goal
- Research preferred must be creative, forward-looking and driven to discover approaches to **substantially** increase the genetic yield potential of wheat
- IWYP is seeking breakthroughs in genetic yield potential beyond what is expected to occur in ongoing breeding programs
- Requires new or different approaches and/or novel techniques with a relatively high degree of risk
- Seeking discoveries that are as durable and portable as possible

IWYP Research Targets

- Discovery / creation of genetic variation in wheat that boosts the fixation of carbon into biomass for subsequent transfer to grains
- Maximize grain yields from enhanced carbon capture and biomass through optimizing plant phenology
- Build elite lines for deployment to other breeding programs
- Exploit discoveries coming from other species
- Utilize breakthrough enabling technologies to transform cereal breeding



HUB Platform approach at CIMMYT

- A unique feature that makes IWYP different to other initiatives
- Represents the major wheat production environments
- Easier cross-referencing of research areas and more efficient use of resources
- Creates synergies by bringing all discoveries into a single location to compare and combine
- Research and breeding is conducted side-by-side streamlining and reinforcing one pipeline feeding results from discovery directly into breeding
- Leverages CIMMYT expertise in rapid release to worldwide breeding programs
- Enables IWYP to drive the discoveries/traits toward the market

First Set of IWYP Projects

- Total value of the funded research approximately US \$20 million
- Involves various institutions and research teams in:
 - UK, AUS, USA, MEX, IND, ARG, ESP
- Science areas of the funded research projects:
 - Finding and employing traits and genes to increase photosynthesis
 - Gene discovery to boost spike development
 - Reducing respiration and thereby enhancing photosynthetic efficiency
 - Optimizing canopy architecture to increase carbon capture and conserve nitrogen
 - Using selected genes to increase biomass and yield
 - Optimizing phenology leading to increased harvest index

Current IWYP Public Partners



United States Department of Agriculture
National Institute of Food and Agriculture



Agriculture and
Agri-Food Canada
Agriculture et
Agroalimentaire Canada



Public-Private Partnership

- Public-Private Partnership an essential element of IWYP
- Private sector has strong focus on delivery and impact
- Bring strengths in best practice for project and portfolio management of IWYP
- Enable opportunities to share know-how and assets in order to develop a break-through in the grain yield of wheat

Benefits of IWYP Membership

■ Standard Membership

- Early access to results and knowledge (including germplasm) from the research projects ahead of companies that are not IWYP members
- Privileged access to IWYP nurseries on an “invitation only” basis
- Opportunity to develop joint projects with IWYP
 - Leveraging a potential \$100m research fund
 - With public partners; contributions in form of know-how, cash and/or in-kind contributions
- Free registration to the annual IWYP Program Conference permitting direct access to a global network of public and private partners of IWYP
- Opportunity to provide guidance and advice to IWYP management via a private sector engagement forum
- Access to the Members area section of the IWYP web portal for information and updates on research.

Benefits of IWYP Membership

■ Executive Membership

- All the benefits of Standard Membership **PLUS**
- Invitation to have a seat on the IWYP Science and Impact Executive Board (SIEB)
 - A voice in shaping the strategic direction of the IWYP program
 - An equal scientific partner to help guide the public sector competitive grants allocation process
 - Final decisions on program funding resting with the funders

Current IWYP Private Partners



Science For A
Better Life



IWYP Next Steps

- Coordinate and integrate research projects and discoveries (HUB)
- Help drive discoveries toward delivery to breeding programs (HUB)
- Add 7 new NIFA-IWYP Research Projects announced in December 2015 to the IWYP Science Program
- Conduct 2nd IWYP Competitive Call for Research Projects
- Increase our science team with more Aligned Projects
- Increase number of funding partners
- Increase the amount of funding available, more research
- Continue to build and capitalize on public-private partnerships

Thanks!

