An International Research Initiative for Wheat Improvement

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Why wheat ...

- The world’s most important food crop and the second most important food crop in the developing world

- Provides 20% of all calories and 20% of all protein in developing and developed countries

- Main staple for an estimated 1.2 billion poor (< 2$ per day, “wheat-dependent”)

- Wheat is the most traded crop
Importance of Wheat as calorie source (2005-07, FAO Stats)
Why an international research initiative

- Wheat production has not met demand in 6 of the last 10 yrs and demand will increase by at least 70% in 2050.
- Annual wheat yield increases must jump from the current level below 1% to at least 1.7%.
- Investment in wheat research has been low compared to maize.
- Several new national and international initiatives.
- Opportunity to build international collaborations and contribute to food security.

Global production and yields for wheat and maize. FAOSTAT
G20 organisations currently supporting the International Research Initiative for Wheat Improvement

- Support from research groups from:
  - Argentina
  - Australia
  - Austria
  - Canada
  - China
  - Czech Republic
  - Estonia
  - France
  - Germany
  - India
  - Italy
  - Kazakhstan
  - Mexico
  - Switzerland
  - Turkey
  - USA
  - UK
  - Ukraine

- Support from international initiatives: IWGSC, ITMI
Creation of an International Wheat Research Coordination Committee

- **International coordination of wheat research**
  - a global response to the major food security challenge over the next 40 years

- **Urgent need to:**
  - avoid duplication of efforts,
  - add value to the existing national or international public and private initiatives,
  - increase economic efficiencies.
Goal: coordinate world-wide wheat improvement research efforts

- **Create a forum to encourage collaborations**
  - Add value to major national and international (public and private) funded wheat programmes

- **Update priorities for wheat research of global relevance**
  - Monitor and summarize science progress
  - Communicate to national and international funding agencies the needs of the wheat research community of participating nations

- **Facilitate open communication**
  - Exchange of germplasm, data, materials and ideas within the wheat research community

- **Develop minimum data standards and protocols for consistent and comparable analyses**
  - Support the development of publically available integrated databases and platforms
Initial tasks for IRIWI

- **Launch** of the International Research Initiative for Wheat Improvement
  - Members and chair of the International Wheat Coordination Committee
    - September 2011

- **Common vision** and **strategic plan** for the International Research Initiative for Wheat Improvement
  - January 2012

- **Launch web portal, discussion forum, and centralised wheat information system**
  - February 2012

- First **International Wheat Conference**
  - 2013
Proposed IRIWI organisation

International Wheat Research Committee (IWRC)

Management group

Existing consortia
- Genome sequencing (IWGSC)
- Genotyping (IWSWG)

New working groups (examples)
- Germplasm
- Databases and bioinformatics
- Phenotyping
- Breeding methodologies
- Agronomy
- Training & capacity building
Summary

- Wheat is our most important crop and production is falling well behind demand

**BUT**

- New investment offers the opportunity to address the low rates of yield gain
- It is important to maximise the benefits of this investment
  - Through coordination
  - By sharing resources
  - By signalling research and funding agencies that the agricultural G20 supports investment and collaboration in wheat research
Centralised information system

- Wheat web portal
  - access to databases
  - bioinformatics and statistical tools
  - descriptions of ongoing research projects
  - initiatives, news and job opportunities

- Storage and visualisation
  - genomic, genetic, phenotypic and agronomic data
  - information on genetic resources
  - tools to connect different types of data

- A simple means for directing orders and requests for information or materials to the appropriate provider;

- A central repository of protocols and methods
  - genotypic and phenotypic analysis
  - agronomic data acquisition,
  - contact details for support;

- A discussion forum for the wheat scientific community.
Management and tasks

International Wheat Research Committee (IWRC)
- Representatives from major public research programmes, national & international organisations, private companies
- Chair and Deputy chair
- Meets annually

Management group
- Chair and Deputy chair of the IWRC
- Chairs and Deputy chairs of working groups
- Coordinates annual reports
- Meets annually

Working groups
- Aim and duration determined by the IWRC
- Chair and Deputy chair
- Generate annual reports
- Regularly reviewed by IWRC
- Meet annually

G20 - 12th May 2011