

BUILDING ON THE BORLAUG GLOBAL RUST INITIATIVE: Delivering Genetic Gain In Wheat

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BUILDING ON THE BORLAUG GLOBAL RUST INITIATIVE: Delivering Genetic Gain In Wheat

The BGRI is expanding its reach to battle more threats to wheat and is championing genomic selection and high throughput phenotyping to accelerate the improvement and delivery of wheat varieties.



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IN WHEAT**



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16 August 2013 | \$10

Science

Smarter Pest Control

AAAS



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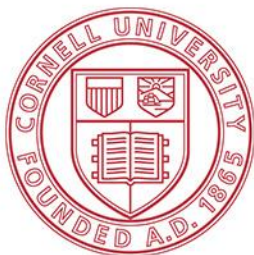
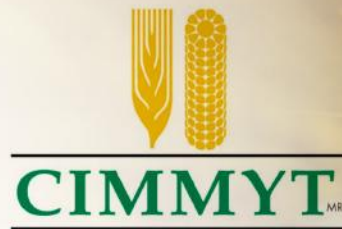


A portrait of a woman with dark skin, wearing a dark patterned headscarf and a white shawl over an orange garment. She is looking slightly to the right. The background shows a field of golden wheat under a red gradient overlay. The text "Focused on the farmer" is written in bold orange letters on the right side.

**Focused on
the farmer**







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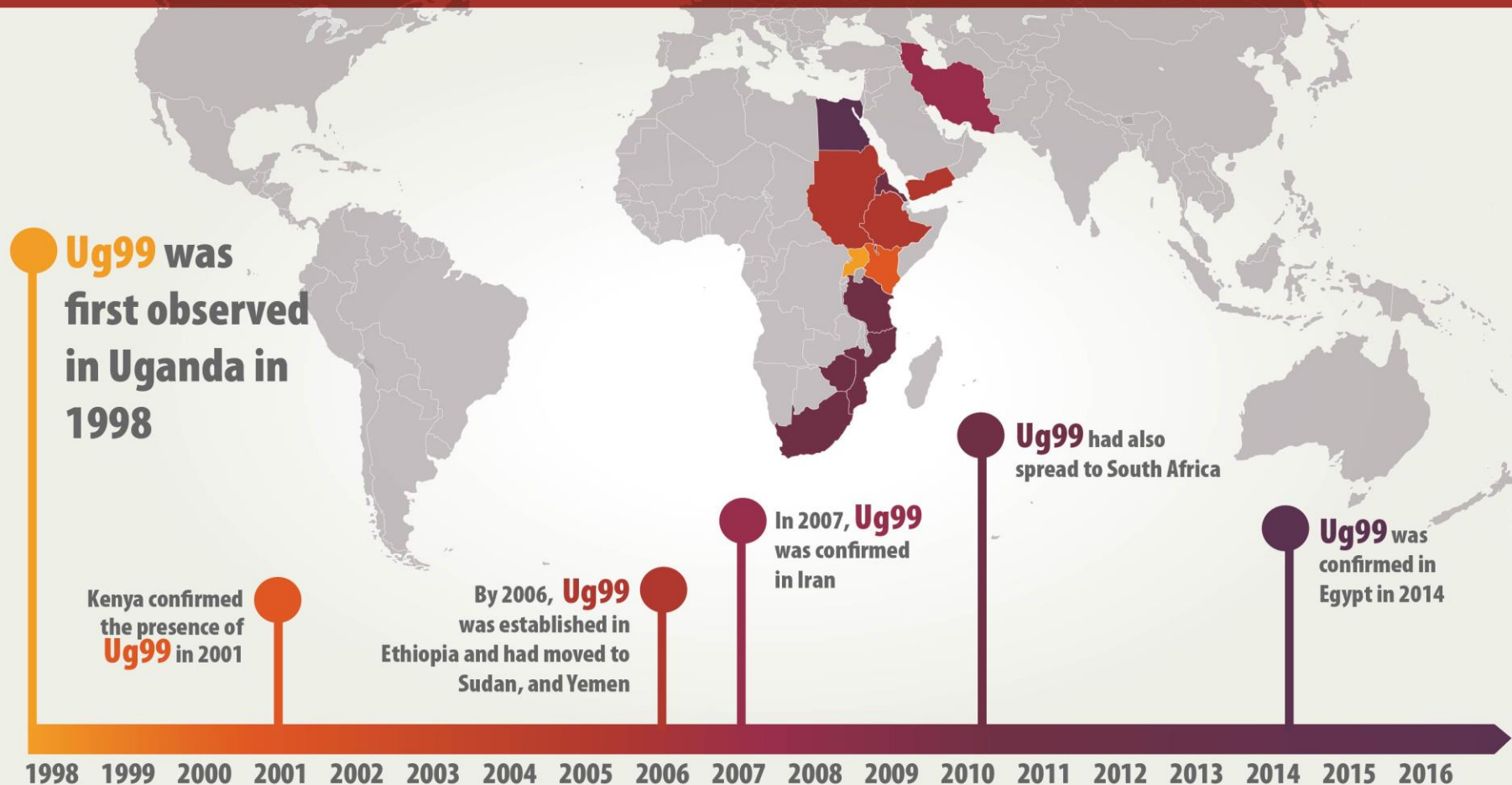


Durable Rust Resistance in Wheat



Ug99 DISCOVERY AND SPREAD

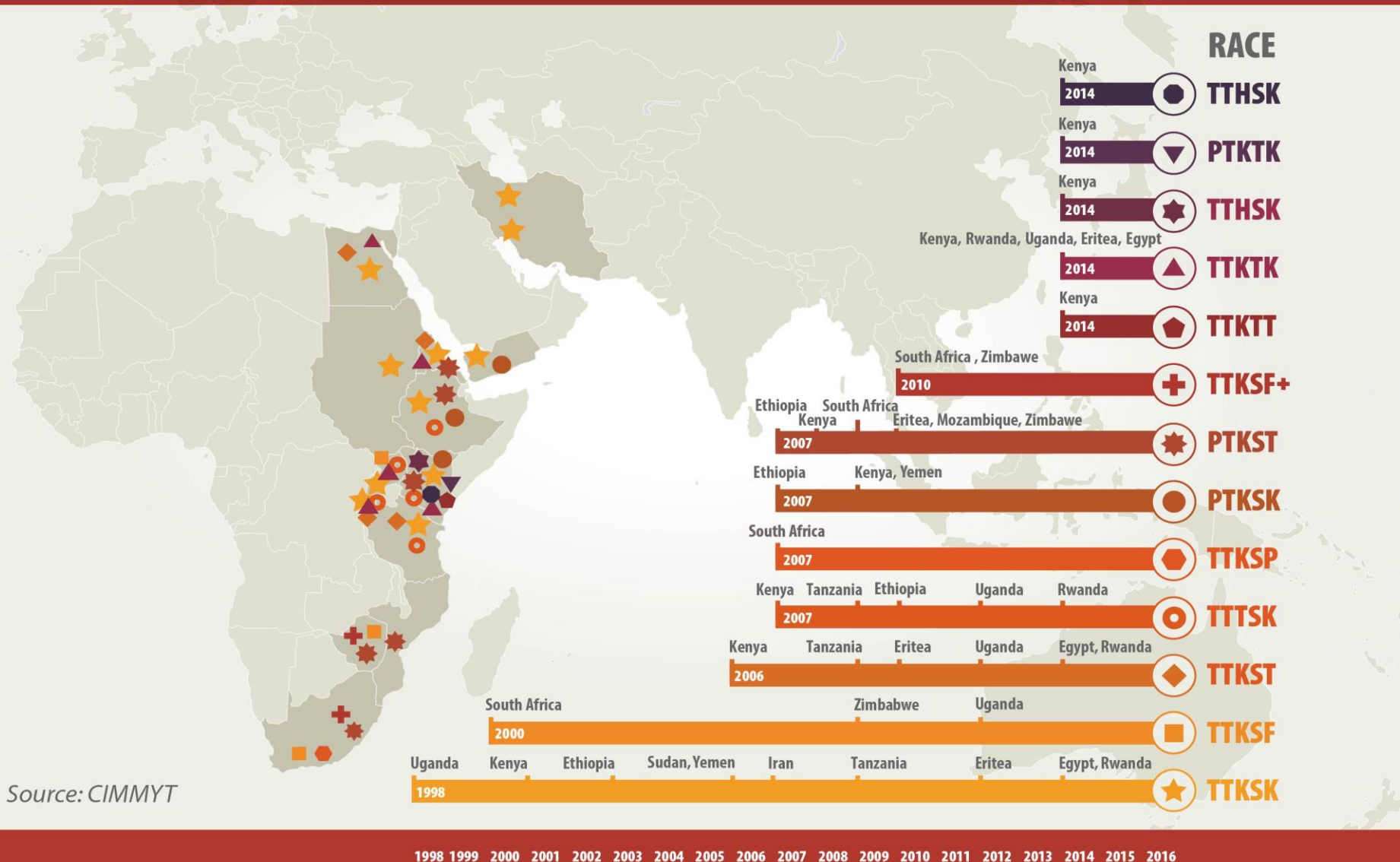
In 1998, a new race of stem rust was discovered which threatened 80% of the world's wheat



It was feared that the disease could spread to the breadbaskets of Asia, Europe, and Australia, threatening the livelihoods of hundreds of millions of farmers.

RUST DISEASES ARE EVOLVING AND SPREADING

Detection of Ug99-related stem rust races in East-Africa (1998-2016)



Source: CIMMYT

DRRW: A multifaceted approach to fight stem rust Ug99



THE NEXT 50 YEARS...

- 9 billion people ...
- 70% more food will be needed
- Natural resources will be stretched thin...
- Sustainable development



DELIVERING GENETIC GAIN IN WHEAT (DGGW)

GOAL: Increase the rate of genetic gain and reduce the world's vulnerability to wheat diseases and abiotic stresses through an international collaboration of substantial scale and scope



DELIVERING GENETIC GAIN IN WHEAT (DGGW)

- **Modernize breeding programs** at CIMMYT and national programs in Ethiopia and South Asia
- Modernize and **expand surveillance** of the host and diseases (especially rust diseases)
- **Advocate for** and facilitate global **investments** in wheat
- Provide opportunities for **human capacity building** to strengthen wheat breeding and pathology national programs

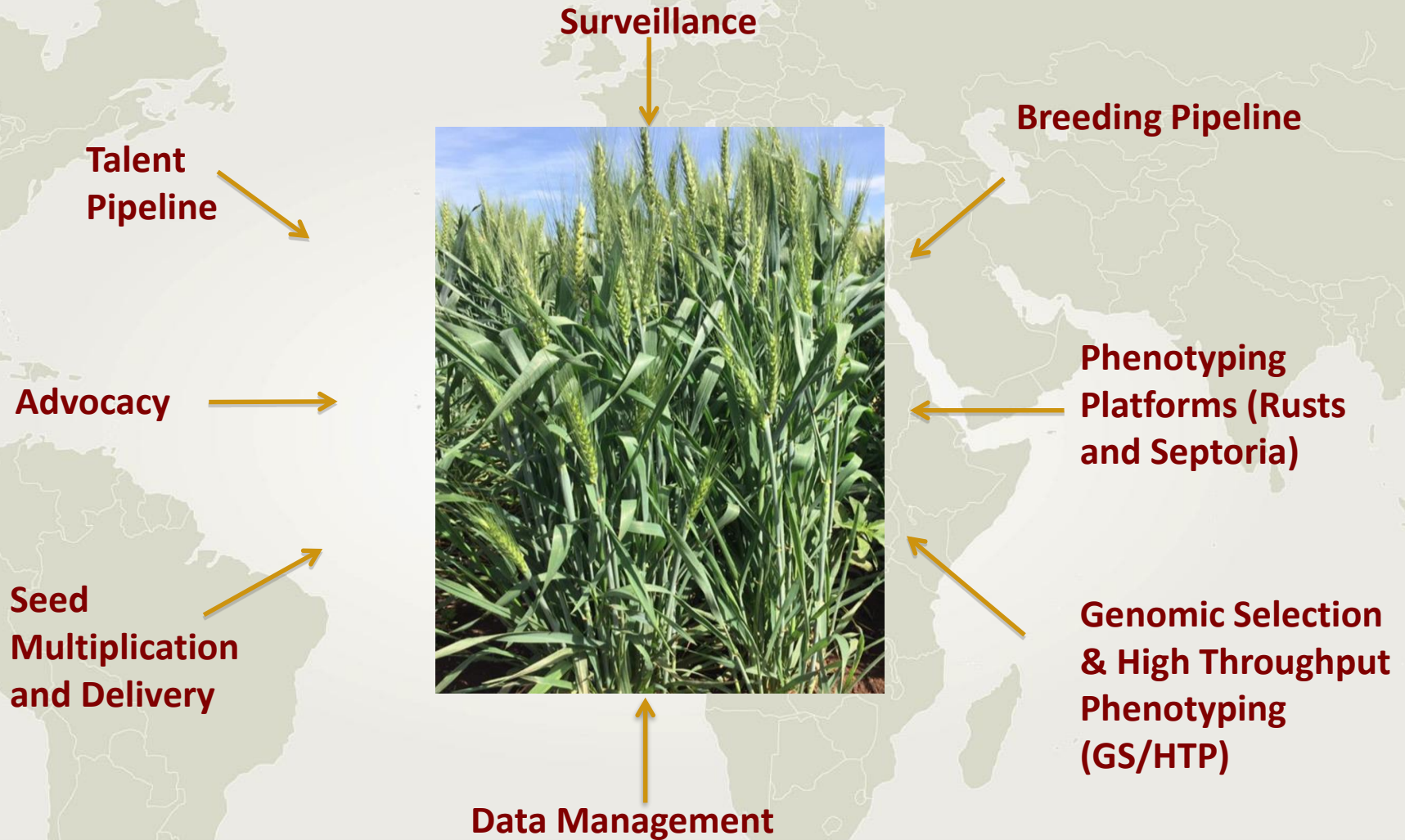


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Multifaceted objectives in the DGGW



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Surveillance and Monitoring

DRRW partners developed the world's largest international crop disease monitoring system.



More than 23,000 rust surveys
have been conducted in 37 countries

CIMMYT senior scientist Dave Hodson teaches field
survey protocols to SAARC trainees.

The surveillance system provides early warning
of potential rust epidemics to scientists and farmers.

Global Breeding Pipelines



- Expand DRRW wheat breeding activities
- Focus on spring bread wheat in Ethiopia in Sub-Saharan Africa and eastern Gangetic Plains in South Asia
- Improve spring durum wheat with major emphasis on Ethiopia
- Focus on winter/facultative wheat breeding program in Central & West Asia

Screening Nurseries

The DRRW established world-class wheat rust screening facilities in Kenya and Ethiopia.



The scientists at Njoro have evaluated the disease resistance of more than 400,000 wheat, rye, and barley accessions from 25 countries since 2007.



**The International Stem Rust Screening Nursery
Kenya Agricultural and Livestock Research Institute (KALRO)
Njoro, Kenya, 2014**

The screening data is used to ensure that the world's wheat is resistant to the Ug99 family of stem rust races.

Data Management / Open Access



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Seed Multiplication & Distribution



Advocacy



Talent Pipeline



Jeanie Borlaug Laube Women in Triticum Mentor Award



Dr. Silvia Germán, 2017 WIT mentor awardee



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Gene Stewardship Award



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More information at:
<http://globalrust.org/opportunities-awards>



Deadline: October 30, 2017



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Training New Scientists

The DRRW community has built new learning platforms for the next generation of hunger fighters.



More than 450 scientists from DRRW partner countries have been trained in rust pathology and plant breeding through DRRW-sponsored workshops.



2018 BGRI+ Technical Workshop



Morocco April 2018!



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BILL & MELINDA
GATES foundation



Department
for International
Development



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Ethiopian Institute of Agricultural Research
(EIAR)



USDA  Agricultural
Research
Service



ICARDA
Science for Better Livelihoods in Dry Areas



University of
New Hampshire



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**...TO TAKE IT TO THE
FARMER**



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