



November 2017

**Building a more collaborative community of wheat researchers
in Ethiopia**



(l-r) Two young wheat pathologists, Belachew Bekere and Meseret Asmamaw, talk with Bekele Abeyo and Ravi Singh about the new septoria nursery established in Holetta this year.

Photo Credit: Linda McCandless

High-level officials from CIMMYT, Cornell University and ICARDA visited farmers' fields and wheat research centers of the Ethiopian Institute for Agricultural Research (EIAR) from October 30-November 3, 2017, to review activities and discuss collaborative approaches to tackling issues related to improving the genetic gain of wheat in Ethiopia.



Stopping at a farmer's field near Kulumsa, Bedada Girma (r) talks about the successful multiplication and distribution of Kingbird in farmers' fields, with funding from USAID.



(l-r) Michael Baum (ICARDA), Hans Braun (CIMMYT) and Ronnie Coffman (Cornell and DGGW) look at wheat in a farmer's field near Kulumsa in early November 2017.

Photo Credit: Linda McCandless

Over the past 10 years, one of the biggest changes is that farmers are beginning to shift from manual labor to more technologically robust methods of farming. One promising change has been the adoption of resistant varieties, the systematic increased rate of genetic gain, and increased resistance to diseases like stem rust, yellow rust and septoria. These changes are the fruit of the close collaboration and cooperation between the various partner institutions over the past decade.

[Read more about wheat research in Ethiopia on the BGRI blog.](#)

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Stem rust attacks in Sweden herald the return of a previously vanquished foe

Stem rust or black rust has long been seen as the bubonic plague of wheat farming - a once dreaded pathogen that has been neutralized and is now hardly worthy of attention, let alone concern. In summer 2017, a vast outbreak of unusually intense black rust attacks occurred in Upland in Sweden. Anna Berlin at the Department of Forest Mycology and Plant Pathology at the Swedish University of Agricultural Sciences has been studying the outbreak and its potential impact.

Berlin says preliminary DNA-analyses indicate the

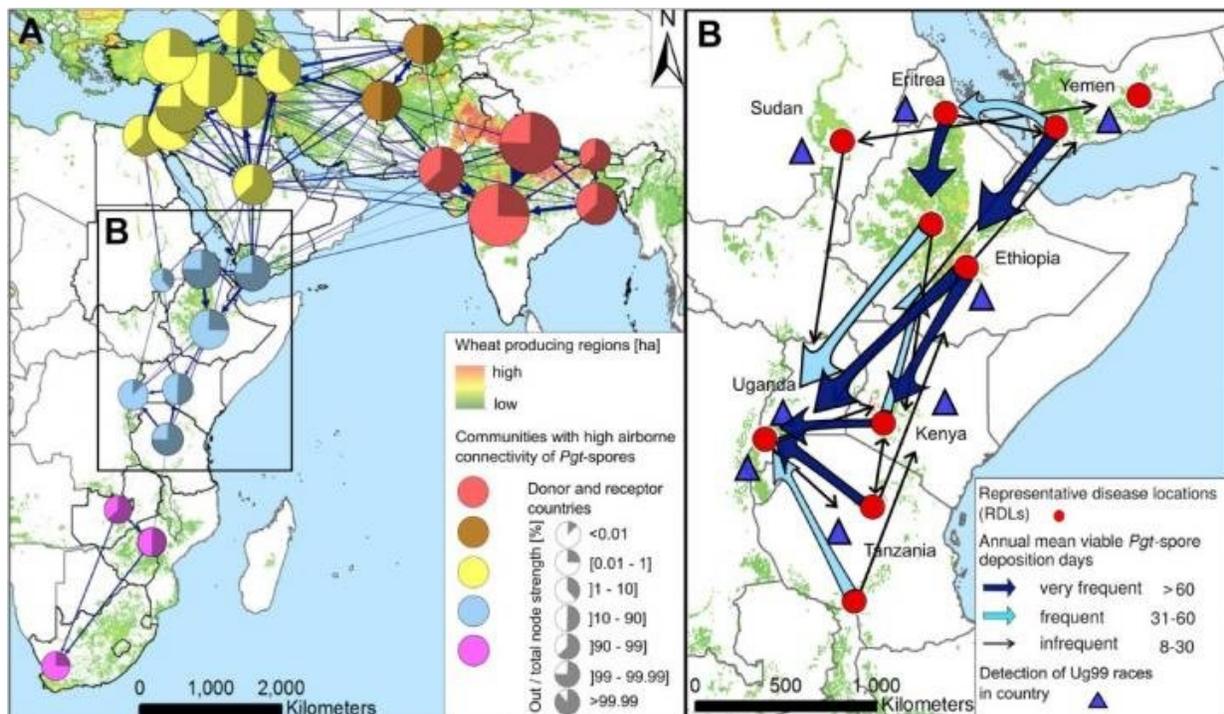


fungus may originate from barberry, the alternate host plant on which rust completes its sexual reproductive cycle. This could mean permanent re-establishment of the disease in the country.

[Read more about black rust in Sweden at the Swedish University of Agricultural Sciences blog.](#)

The stem rust attack in Almunge was so strong that the fungus even attacked the ears. Photo Credit: Anna Berlin

New research models the global movement of wheat stem rust



(A) shows the long-distance dispersal network of spores between all major wheat producing countries in Southern/East Africa, the Middle East and Central/South Asia. Nodes represent countries; communities of the same colour indicate regions with high airborne connectivity; the size of nodes indicates node-strength; pie charts show the fraction of out-strength to total node strength (indicating donor and receptor countries).

(B) shows spore transmission frequencies along principal migration routes in the Rift Valley zone for the scenario of large outbreaks.

Image credit: Matthew Hort

A team of scientists of the University of Cambridge, the UK Met Office, and CIMMYT (International Maize and Wheat Improvement Centre) have adapted modelling systems previously used to forecast ash dispersal from erupting volcanoes and radiation from nuclear accidents to predict when and how Ug99 and other such strains are most likely to spread. Researchers believe this modelling framework can also be used to analyze risks of new disease strains that may be uncovered in other geographic areas, as well as to identify where strains are likely to spread or originate from.

Read More:

- [Quantifying airborne dispersal routes of pathogens over continents to safeguard global wheat supply](#)
- [Likely scenarios for global spread of devastating crop disease](#)
- [Yemen identified as "stepping stone" to wheat stem rust's global spread](#)

Multimedia Spotlight: Gender-Responsive Wheat Breeding



L to R: Godwin Macharia, Anne Gichangi, and Bernice Ngina Waweru from KALRO.

Earlier this year, two Delivering Genetic Gain in Wheat (DGGW) teams from Kenya and Ethiopia participated in the first [Gender-responsive Researchers Equipped for Agricultural Transformation](#) (GREAT) training course for cereal grains breeding. The course focuses on familiarizing researchers with the tools and methods to ensure that agricultural research results in outcomes that equally benefit men and women. In these video clips, wheat researchers from the [Kenya Agricultural and Livestock Research Organization](#) (KALRO) explain the importance and benefits of integrating gender responsiveness into improved wheat breeding.

Watch on YouTube:

- [Godwin Macharia: The Importance of Gender-Responsiveness in the Delivering Genetic Gain in Wheat Project](#)
- [Anne Gichangi: A Gender-Responsive Transformation of Kenyan Agricultural Research](#)
- [Bernice Ngina Waweru: Creating Impact on the Ground Through Gender-Responsive Research](#)

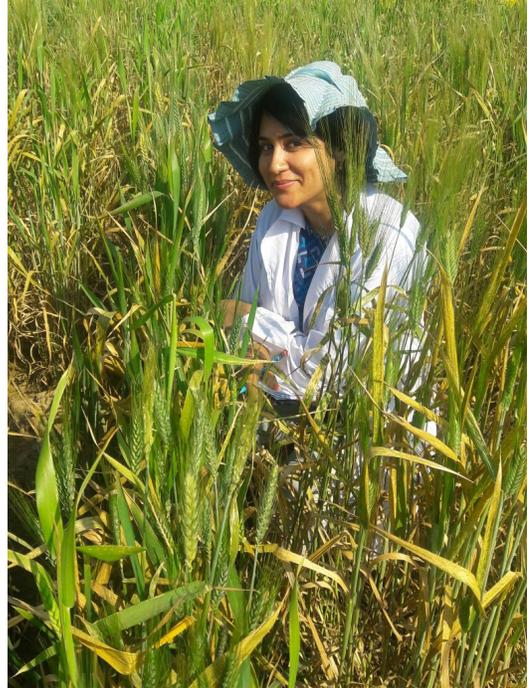
Women in Triticum Spotlight: Naeela Qureshi

This month, we caught up with Naeela Qureshi. She is currently finishing her PhD in wheat and genetics at the University of Sydney.

"Winning the WIT award was a momentous step forward in my professional career. It provided me the opportunity to connect with international scientists and gave me greater insight into efforts to combat the threat of rust disease for global food security," Qureshi said.

"My work will help breeders with the selection of rust resistance genes and to improve and develop new wheat varieties that will ultimately benefit the farming community." She added, "The most important investment is training to farmers regarding disease awareness and crop health."

[Read more about Naeela at the BGRI blog.](#)



Naeela Qureshi, 2014 WIT Early Career Award winner.

Wheat in the News

Godwin Macharia promoted to Centre Director of KALRO

Godwin Macharia has been promoted as the new Centre Director at the Kenya Agricultural and Livestock Research Organization (KALRO), Food Crops Research Centre, Njoro. He will be replacing Immaculate Maina.

Dr Filippo Bassi wins the 2017 Olam Prize for innovation in Food Security

Dr Filippo Bassi of ICARDA (the International Centre for Research in the Dry Areas) and his team have developed wheat that can withstand temperatures of up to 40C. This discovery could transform the lives of smallholder farmers in the Senegal Basin.

India bans wheat cultivation along Bangladesh border districts

The Indian state government of West Bengal has banned cultivation of wheat within five km of the Bangladesh border to prevent the spread of deadly wheat blast disease.

First blast resistant, biofortified wheat variety released in Bangladesh

As wheat farmers in Bangladesh struggle to recover from a 2016 outbreak of a mysterious disease called "wheat blast," the country's National Seed Board (NSB) released a new, high-yielding, blast-resistant wheat variety.

Upcoming Events

4^a Conferencia Latinoamericana de Cereales (LACC4) - 4th ICC Latin American Cereals Conference

11-17 March 2018 (*Mexico City, Mexico*)

<http://www.cimmyt.org/event/4a-conferencia-latinoamericana-de-cereales-lacc4-4th-icc-latin-american-cereals-conference/>

CIMMYT Visitor's Week (*Ciudad Obregon, Mexico*)

19-23 March 2018

<https://www.icc.or.at/node/2870>

BGRI Technical Workshop

14-17 April 2018 (Marrakesh, Morocco)

REGISTRATION IS OPEN: <http://www.globalrust.org/tech-workshop/bgri-2018>

Research Updates

Identification and characterization of *Sr13*, a tetraploid wheat gene that confers resistance to the Ug99 stem rust race group

[\[LINK \]](#)

Large-Scale Atmospheric Dispersal Simulations Identify Likely Airborne Incursion Routes of Wheat Stem Rust Into Ethiopia

[\[LINK \]](#)

Genome-Wide Association Mapping of Stem Rust Resistance in *Hordeum vulgare* subsp. *spontaneum*

[\[LINK \]](#)

Contribute to the BGRI Newsletter and Social Media

If you have any news of interest to the BGRI community, please send us a message and we will try to include it in subsequent BGRI newsletters! We also publish and share stories on our [Twitter](#) and [Facebook](#) accounts. Use [@globalrust](#) to tag any contributions.

Events, career and educational opportunities, photos, and new publications are especially welcome.

Contact BGRI newsletter editor [Samantha Hautea](#) or [the BGRI](#).

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