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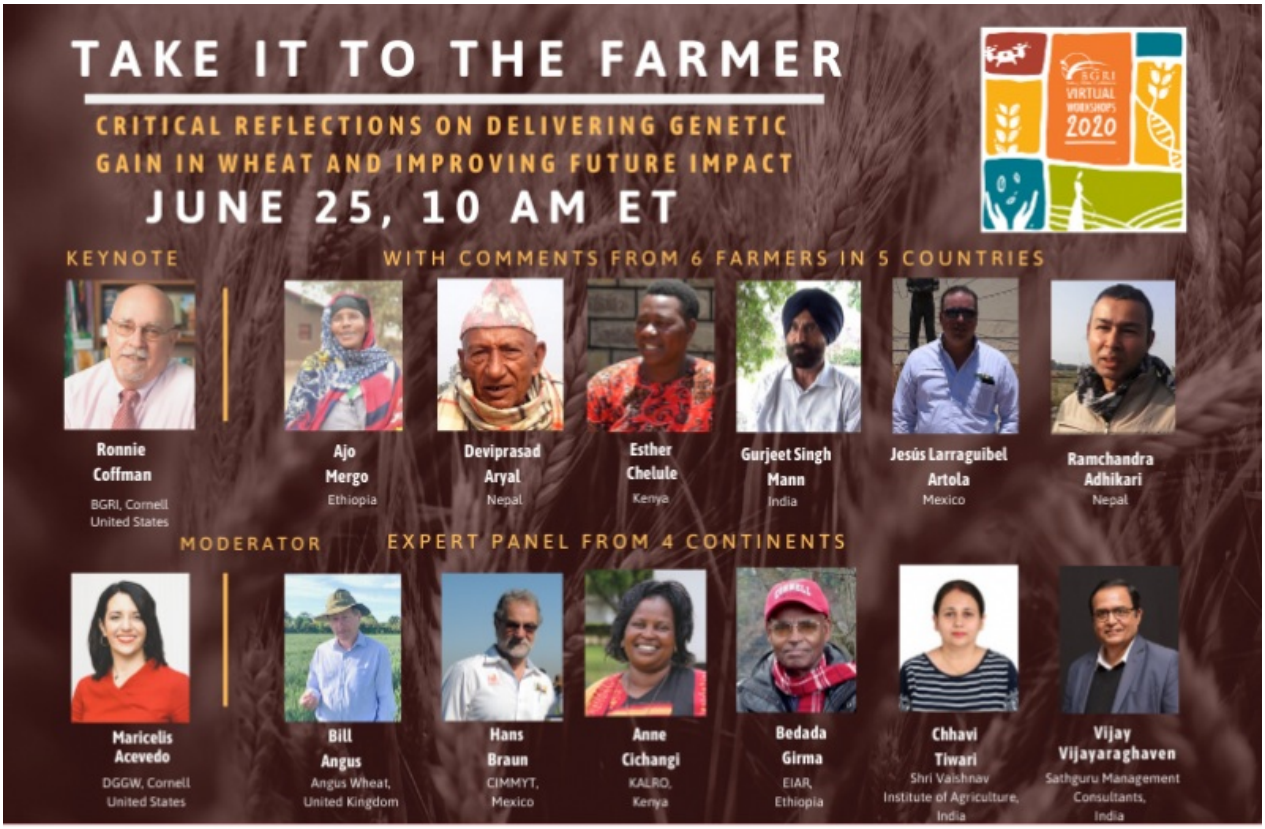
June 2020

BGRI-led coalition protects world's wheat crop



BILL & MELINDA GATES foundation

UKaid from the British people

Cornell CALS College of Agriculture and Life Sciences Global Development

In the second in its series of 2020 Virtual Workshops on June 25, the BGRI examined 12 years of wheat improvement in farmers' fields under the DRRW/DGGW projects and explored opportunities to make wheat research even more impactful in the future.

The virtual "Take It to the Farmer" event featured videos and discussion with farmers and experts from around the wheat-growing world.

Six wheat growers from five countries focused on the challenges they face - Felix Austin of F1 Seed in the UK, Ajo Mergo from Ethiopia, Deviprasad Aryal and Ramchandra Adhikari from Nepal, Esther Chelule from Kenya, Gurjeet Singh Mann from India, and Jesús Larraguibel Artola from Mexico.

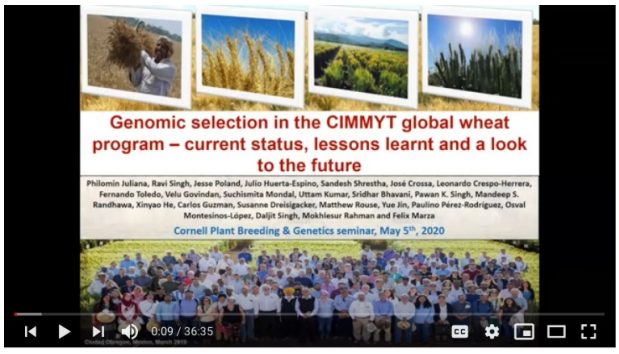
Wheat panelists discussed possible solutions - Bill Angus from Angus Wheat in the UK; Hans Braun from CIMMYT, in Mexico; Anne Cichangi from KALRO, in Kenya; Bedada Girma, from EIAR, Ethiopia; Chhavi Tiwari from Shri Vaishnav Institute of Agriculture in India, and Vijay Vijayaraghavan from Sathguru Management Consultants in India.

In his keynote speech, Ronnie Coffman, vice-chair of the BGRI, described efforts and impact of the DRRW and DGGW projects, and the long-running scientific work to combat wheat disease.

Watch the entire event here.

Harnessing the potential of state-of-the-art genomic technologies for accelerating the rate of genetic gain in wheat

Philomin Juliana, bread wheat breeder, CIMMYT, 2015 WIT winner



Juliana's seminar & slides offer a detailed summary of genomic selection under the DGGW from 2016-2020

Genomic breeding technologies offer exciting opportunities for wheat improvement amidst escalating challenges like changing climates, unpredictable temperatures, reduced precipitation and biotic stresses.

Recognizing the need for accelerating the rate of genetic gain in wheat, the Delivering Genetic Gain in Wheat and the USAID Feed the Future projects have contributed extensively to the phenotyping and genotyping of an impressive number of 74,403 CIMMYT wheat breeding lines, generating more than a million phenotyping datapoints and 3 billion marker datapoints.

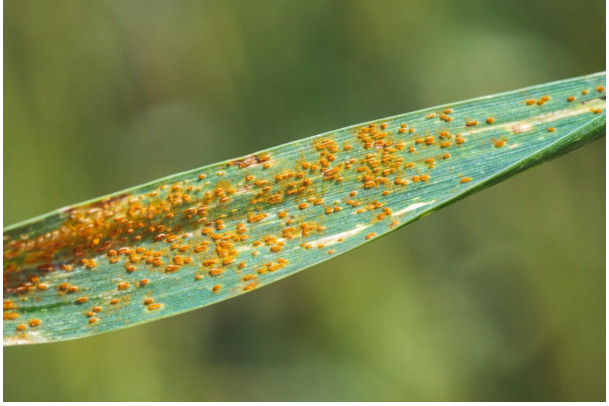
"Our results have provided strong evidence that genomic selection will be a very powerful tool for end-use quality related traits like alveograph, mixing time, grain protein, flour yield, flour sedimentation, loaf volume etc. and some diseases, that were well predicted using historic training populations," said Philomin Juliana, reporting on "Genomic selection in the CIMMYT global wheat program," in a seminar offered virtually at Cornell University on May 5.

Read Philomin Juliana's accompanying article about genomic technologies here.

Watch Philomin Juliana's May 5 seminar on genomic selection here.

USDA awards $650K grant to 2Blades Foundation to study wild wheat

A field of emmer wheat.
Credit: KSU Wheat Genetics Resource Center



Stem rust
Credit: KSU Wheat Genetics Resource Center

The 2Blades Foundation and collaborators at the University of Minnesota, Kansas State University and the John Innes Center will study wild emmer wheat to discover genes that can help farmers combat devastating wheat rust diseases which are estimated to cost farmers and consumers nearly $3 billion per year.

The project team includes: Jesse Poland, a wheat geneticist at Kansas State University's Wheat Genetics Resource Center, which maintains extensive collections of wild wheat relatives including wild emmer wheat; Brian Steffenson, a plant pathologist at the University of Minnesota, with extensive expertise in cereal rusts and specialized facilities for conducting resistance assays; and Brande Wulff, from the John Innes Centre in the United Kingdom, who has developed the methodology to quickly identify resistance genes through association genetics.

Read more here.

In the News

Wheat Success for Early Career Researcher.
European Seed writes about 2020 WIT Winner Anna Backhaus. 1 May 2020.

Profile: Ron DePauw, New Borlaug Foundation Board Member.
By Linc Thomas. 1 June 2020. DePauw was the 2016 WIT Mentor awardee.

Seed vaults, field experiments and being evacuated, a PhD adventure.
John Innes Centre blog on WIT Winner Anna Backhaus. 3 June 2020.

Recent Publications

Identification of CIMMYT spring bread wheat germplasm maintaining superior grain yield and quality under heat-stress.
María Constanza Fleitasa, Suchismita Mondal, Guillermo Sebastián Gerarda, Nayeli Hernández-Espinosa, Ravi Prakas Singh, José Crossa, Carlos Guzmán, Journal of Cereal Science, May 2020.

Genome-Wide Association Studies in Diverse Spring Wheat Panel for Stripe, Stem, and Leaf Rust Resistance.
Deepender Kumar, Animesh Kumar, Vinod Chhobar and others from ICAR, Frontiers in

Plant Science, 2 June 2020.

Genome-wide mapping and allelic fingerprinting provide insights into the genetics of resistance to wheat stripe rust in India, Kenya and Mexico.
Philomin Juliana, Ravi Prakash Singh, Julio Huerta-Espino, Sridhar Bhavani, Mandeep S. Randhawa, Uttam Kumar, Arun Kumar Joshiu, Pradeep Kumar Bhati, Hector Educardo Villasenor Mir, Chandra Nath Mishra, Gyanendra Pratap Singh. Nature Scientific Reports. 2 July 2020.

Events

A roadmap for gene functional characterization in wheat.
15 July, 2020, 11 am EDT (5 pm CET). Webinar presented by Cristobal Uauy, from the John Innes Center, UK, with IWGSC.
Register here.

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 Linda McCandless or the BGRI.

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