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New USAID Lead for Climate-Resilient Cereals Portfolio Visits Heat Stress Tolerant Maize for Asia

K. Seetharam & P.H. Zaidi

Dr. Nora Lapitan, the new science advisor in the Bureau for Food Security of the U.S. Agency for International Development (USAID), and lead of USAID's Climate-Resilient Cereals portfolio, visited the maize field trials being conducted in India as part of Heat Stress Tolerant Maize for Asia (HTMA) during 17-21 June. Lapitan is the project manager and provides technical oversight.

▲ Nora Lapitan with the HTMA team at CIMMYT field trials in Hyderabad. Photo: K. Seetharam/CIMMYT-Hyderabad

Supported by USAID under the Feed the Future (FTF) initiative, the HTMA project is led by CIMMYT-Hyderabad. HTMA is a public-private alliance that targets resource-poor people of South Asia prone to face weather extremes and climate-change effects. The project connects several public sector agricultural research institutions in South Asia such as the Bangladesh Agricultural Research Institute; Maize & Millets Research Institute, Pakistan; National Maize Research Program, Nepal; Bhutan National Maize Program; and two Indian state agriculture universities – Bihar Agricultural University, Sabor and University of Agricultural Sciences (UAS), Raichur, as well as Purdue University in the U.S. Additional participants include seed companies DuPont Pioneer, Vibha Agritech, Kaveri Seeds and Ajeet Seeds.

This was Lapitan's first trip to India, which she chose to start with HTMA maize field activity visits. She visited maize trials under managed heat stress at different sites in India, starting with the trials at the Borlaug Institute for South Asia (BISA), Ludhiana on 17 June. A team of scientists from BISA, including Dr. H.S. Sidhu, Parvider Romana and Manish Koth showed her HTMA trials and explained the activities. The next day she visited the HTMA trials at DuPont Pioneer sites in Jalandhar, Punjab, where Dr. S.K. Kaushik explained project activities, including various types of hybrid trials, heat stress symptoms in the field and promising heat-tolerant hybrids. ▶

Also in this issue

After visiting the maize trials in Punjab, Lapitan traveled to southern India, visiting HTMA trials in Hyderabad and Baijenki, Karimnagar. In Hyderabad, she visited the trials planted at a CIMMYT site within the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) campus, where Dr. P.H. Zaidi, CIMMYT senior maize physiologist and HTMA project leader, explained ongoing HTMA field trials across sites in South Asia in collaboration with partners. M.T. Vinayan, CIMMYT-India maize stress specialist, discussed trials planted at the Hyderabad site. The presentation was followed by a field tour, where Lapitan could see the performance of some of the most promising heat-tolerant maize hybrids.

▲ Nora Lapitan with the HTMA team at Kaveri Seeds field trials in Baijenki, Telangana. Photo: Kaveri Seeds staff

In the afternoon, Lapitan met with CIMMYT-Hyderabad staff, where Zaidi presented the office's overall program and various ongoing projects. The next day, she and Zaidi visited HTMA trials at the Kaveri Seeds site at Baijenki, Telangana. Dr. N.P. Sarma, director of research; Dr. B.S. Dahiya, senior advisor; and Dr. Ramesh Chaurasia, maize breeder at Kaveri Seeds, explained the HTMA field trials at their site. Lapitan took a field tour, where Chaurasia explained the details of the ongoing trials and showed her a number of promising heat-tolerant hybrids. "This is very exciting for our company; to see unique products like heat-tolerant hybrids identified within two years of the project start, which we are ready to take forward in large-scale testing," said Sarma. He further explained that there are very few options for such types of maize hybrids, and that this is a newly emerging market. It is certainly a unique option for resource-poor farmers to provide food during those hot and dry months and also feed for their livestock.

After completion of the field visits, Lapitan expressed her strong satisfaction with HTMA project activities, saying "it is exciting to see that partners are ready with first wave of products for deployment within two years. This is remarkable and I congratulate the HTMA team."

◀ Nora Lapitan with HTMA team members at DuPont Pioneer field trials in Jalandhar, Punjab. Photo: Parvinder Romana/CIMMYT-BISA, Ludhiana

Partner Survey Highlights Opportunities to Strengthen and Expand the Scope of WHEAT

Katie Lutz

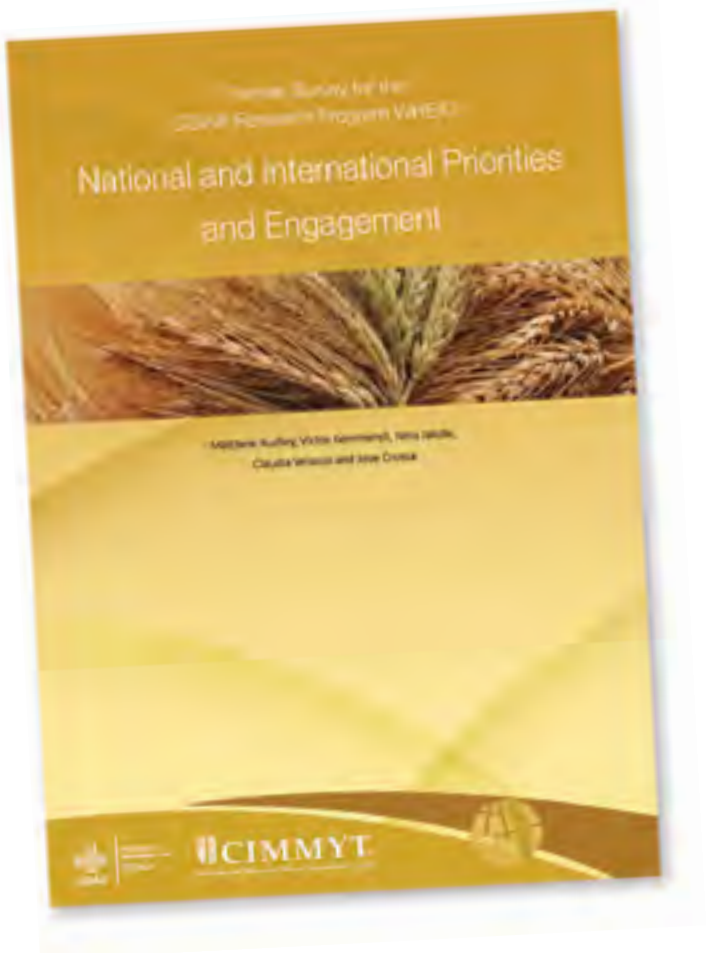
WHEAT is a CGIAR Research Program (CRP) that was established in 2012 to engage international research-for-development to improve global food security and environmental sustainability in low- and middle-income wheat-producing countries.

In September 2012, WHEAT partners were asked to fill out a survey ranking their institutional priorities, engagement and activities in different Strategic Initiatives (SIs), priorities for international agricultural research for development (IAR4D) investment and any desired outcomes from SIs. A total of 92 responses, representing 44 percent of WHEAT partners, were collected over a period of 12 months. Matthew Audley, visiting Ph.D. student from Rothamsted Research, UK, presented his findings of the WHEAT partner survey on 15 August during a presentation at El Batán.

So, what do 92 WHEAT partners want from international agricultural research and what are their main priorities?

After compiling data and answers from the 92 respondents, WHEAT discovered:

- Partners across most regions and institutions prioritized SI 4 (better wheat varieties) and SI 5 (resistance/tolerance to diseases and pests) for institutional and IAR4D investment.
- Continued investment in research to combat wheat stem rust disease (under SI 5) is a major priority in all regions.
- Partners expressed a collective desire to strengthen the capacity of WHEAT to facilitate access to training, information, decision-making tools and breeding material.
- Planned institutional investment in SIs varied by region.
- IAR4D investment rankings reveal shared priorities among regional partners, with some regions forming distinct groups, based on differing prioritization of SIs.
- Regarding "WHEAT measures of success," respondents placed the greatest importance on meeting growing food demands (food security) and expanding the capacity of agricultural research through greater engagement with all stakeholders.



"The survey has shown us how important it is for a global research program such as WHEAT to be aware that its partners have distinct regional priorities and preferences. We'll now use these results as a basis for discussions with partners about what should be included in the next proposal. WHEAT will only be successful if it understands and reflects the differing needs of each region," said Audley.

The results of the survey highlight opportunities to strengthen and expand the scope of WHEAT as it transitions through the 2014-2016 extension phase, moving from SIs into Flagship Projects.

Read the complete "Partner Survey for the CGIAR Research Program WHEAT: National and International Priorities and Engagement" report, available next week on wheat.org.

Bhutan Releases New Wheat Varieties After a Gap of 20 Years

Arun Joshi

Wheat is currently considered a secondary cereal in Bhutan because it is grown over an area of only 5,540 acres. However, its contribution to the Bhutanese farming system in terms of food and other requirements is acknowledged. This is particularly relevant in far-flung and remote farming communities where access to imported wheat products is limited. Wheat cultivation has been challenged by many constraints; most notably pressure from diseases (particularly rusts). Sonalika, an obsolete and disease-susceptible cultivar, is still a mega-variety, grown on a significant area. In addition, the research system has also been constrained due to a lack of trained and dedicated researchers leading the wheat program.

▲ A Bhutanese farmer standing in his field of newly released wheat variety Bajosokhaka. Photo: Sangay Tshewang, Bhutan

However, the CIMMYT Regional Office in Kathmandu has facilitated the introduction of elite germplasm recently released in South Asia (particularly in Nepal) and advanced lines from the Global Wheat Program (GWP) in Mexico. The facilitation of germplasm to Bhutan began in 2011 when promising lines already under participatory varietal selection (PVS) in South Asia were introduced along with a few CIMMYT trials such as Elite Spring Wheat Yield Trial (ESWYT) and Semi-Arid Spring Wheat Yield Trial (SAWYT). The introduction of germplasm was supplemented by support from CIMMYT, the Durable Rust Resistance in Wheat project and the Borlaug Global Rust Initative, allowing Bhutanese wheat researchers to participate in annual workshops, meetings and conferences. Their participation allowed them to obtain information and updates on wheat research and developmental activities. The Cereal Systems Initiative for South Asia (CSISA) wheat breeding program also supported the effort.

The collaborations between these different stakeholders have been very effective and fruitful. The support has greatly strengthened the technical capacity of Bhutanese wheat researchers in PVS, disease survey and surveillance, rust scoring and other activities. The most tangible output of the collaboration occurred on 13 August, when the Government of Bhutan authorized the release of two new improved wheat varieties (Bajosokhaka and Gumasokhaka) from CIMMYT. This is the first release of any wheat variety in Bhutan in the last 20 years. Bajosokhaka has the pedigree (ATTILA*2/ STAR/4/SNI/TRAP#1/3/ KAUZ*2/TRAP//KAUZ, while Gumasokhaka is developed from the cross KIRITATI//HUW234+LR34/PRINIA).

"Both varieties yielded, on average, 50 percent higher than Sonalika, the most popular variety, in three years of multi-location testing in Bhutan," said Sangay Tshewang, senior research officer and wheat co-ordinator of the Renewable Natural Resources Research and Development Sub-Centre in Tsirang. He added that the varieties also performed better than two other varieties in on-farm testing. Because of their notable performance under timely and late-sown conditions with limited water availability, both varieties are believed to have water stress tolerance. In addition to yield advantage and potential water stress tolerance, these varieties possess good resistance to yellow rust, while Sonalika was badly affected.

The release of the two wheat varieties is a major achievement, and farmers will now have alternate varieties to choose from and can cultivate a rust-free and healthy crop which can provide higher yields for the same amount of work and inputs. Hans Braun, GWP director, commented that, "the release of new wheat varieties also opens a new chapter for wheat production in Bhutan." For both varieties a pre-release multiplication program was initiated which resulted in 20 tons of improved seed for the coming year, according to Arun Joshi, CIMMYT wheat breeder. The National Seed Center of the Bhutanese Department of Agriculture has been entrusted to produce adequate seed of these new varieties for wider promotion and dissemination during the coming cropping season.

Study Shows Climate Change Could Negatively Impact Maize and Wheat Yields by 2030

Jennifer Johnson

Global demand for food is expected to grow rapidly leading up to 2050, and the ability to meet such demand is of the utmost importance in order to maintain food security. However, a recent study shows projected climate change threatens to compromise the world's ability to meet this demand – especially in global cereal yields – as soon as the next 10 years, given that the bulk of the demand will occur in the next two decades. The authors emphasize the importance of this information for organizations that deal in international food prices, stability and peace.

The study "Getting caught with our plants down: the risks of a global crop yield slowdown from climate trends in the next two decades," published in *Environmental Research Letters*[1] by David Lobell, an associate director at Stanford University's Center on Food Security and the Environment, and Claudia Tebaldi, a research scientist at the National Center for Atmospheric Research, used computer models to examine the potential impact of climate change on food yields in the next 20 years, particularly of wheat and maize. The models combined global climate trends with data on weather patterns and crops in order to estimate the likelihood that global agriculture would be able to keep up with increased demand under a changing climate.

According to the study, under natural climate shifts the likelihood that agricultural production will take a downturn in the next 20 years is very low, but when projected climate change is factored into the equation the results are quite different. "Climate change has substantially increased the prospect that crop production will fail to keep up with rising demand in the next 20 years," stated Tebaldi. The study found that "because of global warming, the chance of climate trends over a 20-year period causing a 10 percent yield loss has increased from a less than 1 in 200 chance arising from internal climate variability alone, to a 1 in 10 chance for maize and 1 in 20 chance for wheat."

Photo: A. Yaqub/CIMMYT

Maize faces a greater threat from climate change than wheat due to the fact that its main production areas are more geographically concentrated, meaning that "large regional trends can have more influence on global maize than wheat."

It is important to remember that one of the major assumptions of the study is that methods to adapt to climate change are not implemented on a large scale in the next 20 years, i.e. "the locations and seasons of maize and wheat production do not change." The study suggests that shifting production to cooler regions could help to offset the impacts of climate change on yield, but implies that at the present moment these shifts "are not occurring fast enough to significantly alter the global pattern of maize or wheat production."

While the likelihood of climate change having a devastating impact on wheat and maize yields is not very high, at one in 10 and one in 20 respectively, it is a concern that the odds are considerably higher under "human-induced global warming" than under "natural climate shifts." It is for this reason that the authors recommend that anyone concerned with food security or international stability be aware of the potential risk climate change poses to global food production.

The full article is available at IOPscience.

[1] Lobell, D. B., & Tebaldi, C. (2014). Getting caught with our plants down: the risks of a global crop yield slowdown from climate trends in the next two decades. Environmental Research Letters, 9(7), 074003.

University of Wisconsin Students Experience Mexico's Maize and Culture

Luis Castilla Zetina

On 9 August CIMMYT-El Batán welcomed a group of 22 students and three teachers from the University of Wisconsin for a week-long stay.

The students are enrolled in the university's course for a Global Health Certificate, which introduces students to a preventive, population-level, interdisciplinary approach to health promotion. According to organizers, the trip to CIMMYT served to "open the eyes of the students to the importance of agriculture and nutrition."

During the last six years, Dr. Sherry A. Tanumihardjo has visited CIMMYT with students to expose them to the realities of Mexican maize and wheat production systems, as well as how the Center's research is helping smallholder farmers increase their productivity and improve their livelihoods.

▲ The University of Wisconsin students met smallholder farmers in Toluca to view their practices first-hand.

During the program's first day, CIMMYT specialists presented the work being done at the Wellhausen-Anderson Plant Genetic Resources Center and the Seeds of Discovery initiative, as well as the objectives and strategies being pursued by the Maize, Wheat and Conservation Agriculture programs. Genetic Resources Director Dr. Kevin Pixley led a discussion to help the students make sense of the different areas seen during the day and how they all work together to fulfill CIMMYT's mission.

Photos: Luis Castilla Zetina/CIMMYT

▲ Óscar Bañuelos demonstrates maize pollination.

On their second day, the group traveled to the Tlaltizapán experiment station, where Dr. Oscar Bañuelos explained the work being done in the Tripsacum *ex situ* conservation garden, while Thanda Dhliwayo described in detail the work that is being conducted with biofortified maize. Later, the group travelled to Cuernavaca to learn about the work being done to reduce Mexico's obesity and malnutrition problems by Dr. Salvador Villalpando, director of the National Institute of Public Health.

On Wednesday, the group continued their cultural tour, visiting the National Museum of Anthropology and the Mexico City Historic Center. Previously, María Elena Campos had taken them to the pyramids in Teotihuacán so the visitors could get a better sense of Mexico, its origins and its rich history. The day ended at the Palace of Fine Arts (*Palacio de Bellas Artes*), where everyone had a chance to relax and enjoy a production of the *Ballet Folklórico de México.*

On Thursday, the students visited the Toluca experiment station and were welcomed by Fernando Delgado, senior station superintendent. After briefly explaining what CIMMYT does in Toluca, Delgado took them to meet local farmers, where the students had the opportunity to watch, listen and talk to some of the people that CIMMYT serves, and to gain a better understanding of their problems and needs.

On their last day, the group visited the Santa Catarina field with Arturo Reyes Ramírez and learned about the nixtamalization process from Estela Flores. The experience had a strong impact on the students, who learned first-hand about Mexican maize production and consumption processes, from the fields to the dining table. They left with a greater understanding of how important maize is, not only as food, but also as a cultural phenomenon.

Visits like this raise awareness about the importance of the research and work being done at CIMMYT. The students from the University of Wisconsin take home a powerful memory of the work that CIMMYT does to help the world's poor farmers.

CIMMYT-BISA Advances Moong Seeding in Standing Wheat

Harminder Singh Sidhu, Pankaj Singh, Parvinder Singh

The Ludhiana team of CIMMYT-BISA has used a high clearance tractor and seeder to advance the seeding date of short-duration moong (SML 668/SML 832) among standing wheat by 20 to 30 days. Colleagues from Punjab Agricultural University (PAU) observed the conservation agriculture (CA) team's work.

Photos: Mandeep Singh/CIMMYT

▲ Relay seeding of moong in standing wheat.

The following steps were followed:

- Wheat was sown flat in paired rows, to facilitate the high clearance tractor movement with narrow tires (this can be done on beds also).
- An eight-row, high clearance seed drill was adjusted and calibrated in order to seed two rows of moong between wheat rows.
- Wheat was mechanically harvested using three methods:
  - BCS reaper binder – to save wheat straw
  - Combine harvester – no loose straw
  - Combine harvester – keeping all loose straw but using a spreader

An equal wheat yield was obtained with this method of paired row wheat planting as in normal planting, while 325 kilograms (kg) to 400 kg of moong was harvested per acre. The team observed that relay seeding of moong can be advanced by 25 to 30 days in standing wheat, without any damage to the wheat crop. Relay seeding also eliminates the risk of crop loss if monsoons arrive early during the harvest of summer moong.

Theodor Friedrich, representative of the Food and Agriculture Organization of the United Nations in Cuba, said: "This is excellent stuff – well done. I had seen this type of high clearance relay crop no-till seeders in Argentina and I am very glad to see the concept advancing also to some more affordable low-cost technologies. With such an approach the benefits of CA can even be extended. The global CA community can be proud to have people like you (the authors of this article) and ML Jat on board." The findings were also posted to the Global Community of Practice on Conservation Agriculture listserv, where it was well received.

A detailed investigation is in progress, and the same trial will be repeated in the coming season in collaboration with PAU.

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Expert Elicitation Training to Collect Wheat and Maize Varietal Adoption

Vinod Hariharan, Subash S.P, Christian Boeber, Surabhi Mittal

CIMMYT was first among the CGIAR Centers to conduct a training workshop on expert elicitation as part of Strengthening Impact Assessment in CGIAR (SIAC), an initiative of the CGIAR Standing Panel on Impact Assessment (SPIA). The training was conducted in Kathmandu, Nepal from 11-13 August. This initiative is led by CIMMYT's Socioeconomic Program (SEP)-India for maize and wheat as well as other CGIAR Centers for their mandated crops.

Photo: CIMMYT

▲ NARS country partners from South Asia, MSU representatives and CIMMYT SEP team members gather during day one.

Expert elicitation is an alternative to long, detailed household surveys and is a tested method to collect varietal adoption data at a lower cost than others. This method has been tested previously in the Tracking Improved Varieties in South Asia (TRIVSA), and Diffusion and Impact of Improved Varieties in Africa (DIIVA) projects. In expert elicitation, experts from different disciplines and domains discuss varietal adoption estimates based on their field experience to reach a consensus on varietal adoption.

The 2.5-day training was organized by the SEP team with support from CIMMYT-Nepal. It was attended by scientists from national agricultural research systems (NARS) and country partners from Afghanistan, Bangladesh, China, India, Nepal and Pakistan. The training was facilitated by Sushil Pandey, consultant from Michigan State University (MSU) who acted as the resource person, and Mywish Maredia, from MSU and SPIA, who participated as an observer. After initial discussions about databases and theoretical framework on day one, a live demonstration with 15 wheat experts from Nepal was conducted on day two. The experts went through the actual process of expert elicitation for wheat and came up with variety and zone wise adoption numbers for Nepal. CIMMYT wheat breeder Arun Joshi participated as an expert along with breeders, socio-economists, agronomists, extension agents from Nepal, representatives from private seed companies and farmers.

Photo: Vinod Hariharan/CIMMYT

▲ Wheat experts from Nepal's national system, private sector representatives and progressive farmers gather during day two.

The final estimates of experts on the adoption of modern wheat varieties were very close to the national estimates, and this helped to reinforce confidence in the expert elicitation process. On the last day of the training exercise, participants spent time to better understand the methodology and plan for its implementation. The methodology will be used in other countries of South and East Asia as part of the project activity for both wheat and maize in the coming months.

The 15 August edition of Informa incorrectly cited Bibiana Espinosa as the author of the article "GRIN-Global Training at CIMMYT." Espinosa provided some information to CIMMYT staff about the training taking place at the gene bank, but did not write the article. That and other facts have been corrected and are published here. We apologize for the errors. The Informa staff welcome comments, suggestions and submissions at CIMMYT-International-Communications-Department@cgiar.org.

GRIN-Global Training at CIMMYT

Since 2011 CIMMYT's Wellhausen-Anderson Plant Genetic Resources Center has been working in the implementation of a program called GRIN-Global (www.grin-global.org) to ease the management of the maize and wheat genetic resources kept in its collection of more than 180,000 accessions.

This program is an updated version of the Germplasm Resource Information Network (GRIN) system that was used by the United States Department of Agriculture's Agricultural Research Service (USDA/ARS) to manage its germplasm collections distributed to different U.S. locations. GRIN-Global provides germplasm banks with a flexible, easy-to-use tool to improve efficiency and effectiveness of the global genetic resources network, thus helping to safeguard theses resources which are vital to food security.

The GRIN-Global database platform was developed jointly by USDA/ARS, the Global Crop Diversity Trust and Bioversity International. GRIN-Global has a web application that has allowed CIMMYT germplasm bank users (breeders, students, researchers in different areas) to search accessions and request seed from the website for maize (http://mgb.cimmyt.org/gringlobal/search.aspx) and for wheat (http://wgb.cimmyt.org/gringlobal/search.aspx).

CIMMYT's germplasm bank was the first CGIAR gene bank to promote and implement GRIN-Global in its daily activities. From 4-8 August CIMMYT and International Center for Tropical Agriculture (CIAT) staff participated in a GRIN-Global training course. The facilitator was Marty Reisinger with Bibiana Espinosa's translations. This was one of the last steps towards implementing the system. The people in charge of the implementation are Thomas S. Payne, Denise Costich, Jens Riis-Jacobsen and their respective work teams. We wish them success in the implementation of the project!

Photo: Xochiquetzal Fonseca/CIMMYT

Photo: CIMMYT

Dr. Mujeeb Kazi, CIMMYT Distinguished Scientist, spoke about his experience working with Dr. Sanjaya Rajaram, winner of the 2014 World Food Prize. Kazi speaks to Rajaram's life-changing question: "So what?" The video interview series is available on CIMMYT.org.

Photo: CIMMYT

Dr. Hans-Joachim Braun, director of the Global Wheat Program, wrote about the misperception that wheat is a crop grown only in rich countries. The opinion piece was published on 21 August at cimmyt.org as part of the #WheatMatters campaign.

Longest Maize Ear in the World Contest

Denise Costich, head of the CIMMYT maize germplasm collection, served as a judge again this year in the Largest Maize Ear in the World contest. The contest takes place annually in Jala, Nayarit, near the Pacific coast of central Mexico. This year's winning ear measured 43 centimeters (cm), beating last year's 39 cm winner. This Jala landrace produces the longest maize in the world.

Costich remarked, "This year there were quite a few ears that were longer than last year. My friend, colleague and fellow judge, Dr. Victor Vidal (INIFAP-Nayarit) thinks the increased size is due to the abundant rain this year. The same farmer who won last year won again this year. Two of his sons and a nephew also came in among the top 10, indicating that this family is growing some of the best Jala landrace germplasm."

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1 The winner holds up his champion Jala maize ear.
2 Costich with the sole woman farmer who entered the competition in 2013 and 2014.
3 Costich displays this year's winning ear of Jala maize, the longest in the world.
4 Dr. Victor Vidal of INIFAP also judged the competition. Judges shucked the corn and measured the ears for the audience.
5 Costich's son, Dennis Baldwin, is at CIMMYT on summer break from the University of Pittsburgh, where he studies anthropology and archaeology.

◀ Translation of the text box: "The International Maize and Wheat Improvement Center (CIMMYT), headquartered in Texcoco, State of Mexico, improves and develops modern maize varieties. Maize is the main crop in Mexico, where its annual consumption is more than 30 million tons. The largest maize producers are the United States, China and Brazil. Mexico is ranked fifth."

CIMMYT is featured in a *National Geographic* photo series located on Álvaro Obregón, in the Roma neighborhood of Mexico City. The exhibition "*El Futuro de la Comida*" ("The Future of Food") is a collection of 28 photos to promote the *National Geographic* series of the same name exploring food production and consumption. More information is available in Spanish on the National Geographic website (www.ngenespanol.com/comida). The social media hashtags are #PiensoLuegoComo and #NatGeoComida.

The August-September edition of "EnlACe: The Magazine of Conservation Agriculture" is now available in Spanish from the Sustainable Modernization of Traditional Agriculture in Mexico (MasAgro) project. The introduction states:

2014 is the International Year of Family Farming, a special occasion that offers us an opportunity to highlight the role of family farmers in agricultural development and strengthen their capacity to combat hunger and poverty.

In this context, CIMMYT has joined forces with the Food and Agriculture Organization of the United Nations through its Regional Office for Latin America and the Caribbean, governments in the region, other international organizations, as well as farmers' organizations and society to carry out joint actions in planning, complementing and implementing this strategy.

As part of these efforts, we dedicate this edition of EnlACe magazine to family farming. In the issue the context of this type of agriculture in Latin America is described, as well as the activities that have taken place in Mexico, especially in relation to the National Campaign Against Hunger. The Campaign is a social strategy that combines different efforts and resources from the government, society, the private sector, educational institutions and the general interest to fight hunger.

EnlACe is distributed to 18,000 farmers and agricultural groups connected to MasAgro hubs across Mexico. The full magazine is available online at conservacion.cimmyt.org. (http://conservacion.cimmyt.org/index.php/es/revista-enlace)

Risk Management Unit Conducts Emergency Drills at Toluca Experiment Station

Marisa de la O

As part of its program of drills and visits to CIMMYT's experiment stations, the Risk Management Unit (RMU) organized two training events in Toluca on 5 August, facilitated by César Reyes and his team from Global Emergency.

The day started with a first aid course, which provided participants with action elements and procedures to respond quickly and properly to an emergency situation while waiting for a rescue team.

Fernando Delgado, Toluca senior station superintendent, welcomed 22 enthusiastic colleagues to the emergency brigades at the Toluca station. Some of them had already participated in previous drills to form emergency brigades.

During the training, participants learned to care for wounds, hemorrhages, burns and fractured bones. The brigade also learned how to help choking victims and when to perform cardiopulmonary resuscitation (CPR).

Photos: Gerardo Hurtado/CIMMYT

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Next, the group performed a drill called Incident Command, in which different emergency brigades were defined and organized for a rescue and evacuation, to put into practice their recently acquired knowledge. At 4:09 p.m., a fire was staged at a facility where crop machinery is kept. A siren alerted staff in the main buildings, and the emergency brigade members sprung into action.

The firefighting brigade arrived first, followed by the brigade for evacuation and rescue. Later, the communication brigade counted the number of evacuated employees, the total wounded and the number of brigade members participating. A final report was submitted to Delgado.

There were 27 participants, including brigade members, staff and those performing as wounded people whose lives were saved thanks to the timely intervention of the different brigades.

RMU is thankful for the support of the Toluca experiment station staff, especially Delgado and Dr. Enrique Autrique, for their contributions to the success of both events.

RMU has concluded its drill program in Agua Fría, Tlaltizapán and Toluca, in addition to the training activities organized at CIMMYT's headquarters. New training courses will take place in coming months.

1 Toluca experiment station staff members participate in a first aid class.
2 A fire is staged during the Incident Command drill.
3 Brigade members learn to administer aid to accident victims.
4/5 A person is carried to safety by brigade members.

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Recent Publications by CIMMYT Staff

Lucía Segura

Association of digital photo parameters and NDVI with winter wheat grain yield in variable environments. 2014. Morgounov, A.I.; Gummadov, N.; Belen, S.; Kaya, Y.; Keser, M.; Mursalova, J. *Turkish Journal of Agriculture and Forestry* 38:624-632.

First report of bacterial stalk rot of maize caused by Dickeya zeae in Mexico. 2014. Martinez-Cisneros, B.A.; Juarez-Lopez, G.; Valencia-Torres, N.; Duran-Peralta, E.; Mezzalama, M. *Plant Disease* 98(9):1267

Genetic analysis of resistance to leaf rust and stripe rust in wheat cultivar Francolin#1. 2014. Caixia Lan; Singh, R.P.; Calvo-Salazar, V.; Herrera-Foessel, S.A. *Plant Disease* 98(9):1227-1234.

Measuring the impact of agricultural research: The case of new wheat varieties in Turkey. 2014. Mazid, A.; Keser, M.; Amegbeto, K.N.; Morgounov, A.I.; Bagci, A.; Peker, K.; Akin, M.; Kucukcongar, M.; Kan, M.; Semerci, A.; Karabak, S.; Altikat, A.; Yaktubay, S. *Experimental Agriculture*. Online first.

The changing structure of the maize seed industry in Zambia: Prospects for orange maize. 2014. Smale, M.; Simpungwe, E.; Birol, E.; Kassie, G.T.; De Groote H.; Mutale, R. Agribusiness. Online first.

Weekly Photo Contest

José Luis Barrios González, research assistant at CIMMYT-El Batán, submitted this photo from 15 August with the note: "A meteorological phenomenon close to El Batán which, fortunately, did not completely form."

Informa is published by CIMMYT Communications Department. We welcome your input, preferably in both English and Spanish. The deadline for submissions is 9 a.m. on the Wednesday before publication. We reserve the right to edit all contributions. Please send proposed material to CIMMYT-International-Communications-Department@cgiar.org