

InSide CIMMYT: Connecting Across Continents and Crops

InSide CIMMYT

Our Center

By Carissa Wodehouse

CIMMYT...

ernational Maize and Wheat Improvement Center

The CIMMYT Communications Department not only shares CIMMYT's work with the public, but also helps connect CIMMYT's own scientists, specialists and staff throughout the world. The revamped and revitalized intranet, named InSide CIMMYT, is focused on effective internal communications. You can use InSide CIMMYT to share your own work, help to organize your unit and start conversations with CIMMYT employees in any location or area of research.

InSide CIMMYT's true effectiveness will come from peer-to-peer engagement and active use of its features. The more you interact with your colleagues online, the more effectively CIMMYT can strengthen its culture of collaboration and shared knowledge.

Key information from the Center's leadership will be on the InSide CIMMYT homepage. In addition to a calendar of CIMMYT's worldwide events, the homepage will feature institutional advisories, news items and decisions that drive the Center to excellence. The intranet will offer staff a new level of insight into the Center's workings.

Explore the informational pages describing each program, research unit and service unit within CIMMYT. Each page is run by a content manager, who was selected from within the unit and has been trained to use the variety of tools available including group calendars, notice boards and repositories for commonly used documents. The



Genetic Resources Program

Seeds of Discovery Video

Maize Doctor

Obtain SeeD (wheat) Obtain Seed (maize) Seeds of Discovery Website Work begins on Arctic seed vault

'Doomsday' vault design unveiled Thousands of crop

varieties depart for

The landing page of the Genetic Resources Program.

point of contact for your unit's page is the content manager. Take a moment to thank him or her and discuss how your own work can be represented on InSide CIMMYT.

The intranet accommodates both public and private information. Sharing information and documents on the intranet will help eliminate emails and provide a central storage space. Every staff member also has a personal repository, which is called SkyDrive. From SkyDrive, you can add a document and share it with individuals or keep it private. The system for InSide CIMMYT is driven by the same database as Outlook, which makes finding colleagues on InSide CIMMYT and sharing a document with them a familiar process.

Genetic Resources Program

Programs/Projects

The Genetic Resources Program contributes to CIMMYT's overall mission by focusing on and inside the seed. We're responsible for the safe storage of CIMMYT's collections of maize and wheat genetic resources, as well as discovering and improving upon efficient ways to develop new maize and wheat varieties. Genetic resources at CIMMYT are "held in trust for humanity," abiding by the International Treaty on Plant Genetic Resources for Food and Agriculture.

Research Units

Service Units



InSide CIMMYT is a platform where you can build the communications channels that serve your needs. A good starting point is your personal employee site. On the homepage of InSide CIMMYT click "Go To My Site" and verify that your information is correct. From My Site, you can create your own blog and search for other CIMMYT staff, whose updates you can track using the "Follow" button. The intranet will become more valuable to the Center and individuals with each interaction. We look forward to seeing you on InSide CIMMYT.

There will be no Informa next Friday, 18 April, due to Holy Week celebrations in Mexico. Instead, an issue will be released on Wednesday, 16 April.

The Informa will no longer be distributed via email but can be found on inside.cimmyt.org. InSide CIMMYT, the new CIMMYT intranet, will be launched on 16 April.



Informa is moving to InSide.CIMMYT.org on 16 April 2014.

hoto: Courtesy of the Tribuna del Yaqui newspape

By Jenny Nelson

Patronato, an organization representing farmers in Sonora, Mexico, held its Annual Day of the Farmer (*Día del Agricultor*) on 8 April and awarded plaques of appreciation to the many organizations and agencies in Ciudad Obregón, Sonora, that participated in securing the safety and enjoyment of all participants at the Borlaug Summit on Wheat for Food Security, held in the city on 25-28 March. Hans Braun, Global Wheat Program director, attended the event. He expressed his gratitude to Patronato for facilitating the extensive support provided by the police, medical



Hans Braun (fourth from left), director of the CIMMYT Global Wheat Program, and Antonio Gándara (fifth from left), president of Patronato, present Borlaug statues and plaques in appreciation of those who helped with the Borlaug Summit on Wheat for Food Security.

services, fire department and the airport that created the environment for a successful event. Braun also presented a Borlaug statue to Rogelio Diaz Brown, *presidente municipal* of Ciudad Obregón, as well as to the rector of the Universidad de La Salle Noreste (ULSA), in recognition of their assistance and the warm hospitality of the Ciudad Obregón and the students, staff and faculty of ULSA.

Officials who attended the event included Fernando Isaac Apodaca Lauterio, secretary of municipal public security; José Alejandro Cervantes Flores, transit chief; Orlando Velderrain Paredes, official with the prevention police; Manuel Alejandro Velasco Villanueva, infantry colonel chief of staff of Mexican Defense; Adolfo Díaz Herrera, chief inspector and head of the police station in Ciudad Obregón, Federal Police; and Moisés Esteban Corrales Ruiz, office of conventions and visitors.



More than 80 farmers in Punjab, India, celebrated the 100th anniversary of Dr. Norman Borlaug's birth on 25-26 March by reflecting on his achievements and legacy. Malwinder Malhi, a representative of Syngenta working with CIMMYT, submitted this photo.

CIMMYT Strengthens Partnerships in South America

By SAM STORR



A delegation from Bolivia and Ecuador visited CIMMYT on 7-9 April to discuss possible collaboration.

Representatives from the national agricultural systems in Bolivia and Ecuador visited CIMMYT at El Batán, Mexico, from 7-9 April to lay the framework for future collaboration to improve maize production. The meeting was preceded by a visit from Colombian officials and will be followed by a visit of officials from Peru at the end of April, completing initial talks between CIMMYT and the four South American countries.

"We are determining how CIMMYT can work more quickly and concretely to help feed populations in alliance with these countries. Bolivia is self-sufficient in maize, but it could become an exporter," said Luis Narro, plant breeder for CIMMYT in Colombia. "Ecuador is importing more, but the government has decided to achieve self-sufficiency in two years. So they want to know how CIMMYT can be more involved in solving the problem of production in these countries, and we hope to improve the lives of producers."

Visitors included Nemesia Achacollo, Bolivian minister for land and rural development; Gabriel Hoyos, executive director general of the National Institute of Agrarian and Forestry Innovation (INIAF, Bolivia); and José Luis Zambrano, director of research at Ecuador's Autonomous National Institute of Agrarian Research (INIAP). Presentations on advanced maize research at CIMMYT, including an introduction to MasAgro work in sustainable intensification were conducted for the delegation. After learning more about the extent of work undertaken by CIMMYT, Achacollo was impressed by the challenges facing Bolivia in establishing its own international quinoa center.

The delegation members also visited the Agua Fría Experimental Station in Puebla, where Achacollo announced that the Bolivian government would create policies for young Bolivian researchers to train in similar facilities. "We must invest in future generations so that they can provide the foundation of agricultural knowledge," she said. "We cannot be left behind."

Ph.D. Perspective: Nematode Research with CIMMYT an 'Inspiring Opportunity'

By Samad Ashrafi

Ashrafi is a Ph.D. candidate from Iran working with CIMMYT under Amer Dababat on a project funded by Germany's Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH.





Samad Ashrafi works in a lab in Eskisehir, Turkey.

Plant parasitic nematodes in Iran threaten the production of agricultural commodities and cause significant economic hardships for farmers whose crops are damaged. Cyst-forming nematodes, in particular the *Heterodera* and *Globodera* species, cause similar problems throughout the world.

In Iran, national research institutions, universities, nongovernmental organizations and private companies study and monitor wheat pathogens with the aim of disseminating information. With my Ph.D. project, I hope to work with researchers involved in wheat disease investigations to share my results and outcomes and raise awareness on the role of biological control agents in controlling cereal cyst nematodes (CCNs). Wheat and wheat-based products are among the most important agricultural products in Iran and, along with rice, form the staple diet. In 2012, wheat production reached approximately 14 million metric tons, making Iran the 12th largest wheat producer in the world.

The potential for improving wheat farming systems in Iran is enormous. There are several governmentsupported programs to encourage farmers to grow more wheat. Farmers, however, face challenges from pathogens.

The use of chemical pesticides has increased over the past several years. Iranian specialists warn about the residue of chemicals in agricultural products; therefore the government introduced legislation to set maximum residue limits for pesticides. Using biological control agents – which rely on natural enemies to control plant parasitic nematodes – will lessen the hazards of pesticides to human health and the environment.

The findings from my research will help me gain insight into the biological control of CCNs in the Middle East, where climatic conditions and abiotic factors – especially water stress – can severely increase yield losses. My research will also promote understanding of the role of biological control in food safety.

This, ultimately, will help plant protection research institutes in Iran motivate new students to study biopesticides and endemic bio-control agents for controlling plant parasitic nematodes.

During the project period, I will learn to isolate nonpathogenic fungi and bacteria from wheat roots and from cysts; study the hospitality of the different wheat genotypes, ranging from resistant to susceptible, to host



Samad Ashrafi (middle) samples for cyst nematodes in the field.

endophytes; study the mode of action present in resistant lines against CCNs; and genotype endophytes associated with wheat roots and cysts to species level by using molecular tools.

CIMMYT, with its network of partners, scientists and farmers, uses the latest agricultural research findings to fight hunger and increase food security around the world. Collaborating with others, helping farmers and sharing our ideas is an honor.

Working with CIMMYT is an inspiring opportunity that helps us better understand the needs of farmers and make scientific research relevant to their needs. CIMMYT symbolizes hope for a world without hunger and poverty where we can trust our collaboration, our knowledge and our efforts to make a better life.

Indian Farmers Reach Policy Makers and Researchers

By Raj Gupta and Raj Kumar Jat





J.S. Sandhu (center) and M.C. Diwakar (left) discuss the merits of the mid-October planting of wheat genotype CSW-18 (in foreground) with Raj Gupta, Raj Kumar Jat and I.S. Solanki.

A three-day agricultural festival held in India allowed farmers to articulate their production technology needs in the presence of policymakers, researchers and extensionists.

The Rajendra Agricultural University (RAU) organized FarmFest from 8-11 March in Pusa, India, and a field day in Mathlupur. The theme of the FarmFest was "Making Agriculture Profitable under Changing Scenarios."

FarmFest interactive sessions were attended by Gurubachan Singh, chairman, Agricultural Scientists' Recruitment Board (ASRB); Mangla Rai, agriculture advisor to the chief minister, Government of Bihar; J.S. Sandhu, agriculture commissioner, Government of India; N.N. Singh, former vice-chancellor, Birsa Agriculture University, Ranchi; M.C. Diwaker, director, Directorate of Rice Development, Ministry of Agriculture, Government of India; R.K. Mittal, vice chancellor, RAU; Gopalji Trivedi, former horticulture commissioner, RAU; and H.P. Singh former vice chancellor, RAU. Raj Gupta, team leader for the Borlaug Institute for South Asia (BISA) Research Station Development and Raj Kumar Jat, cropping systems agronomist, gave a tour of the conservation agriculture hub and briefed the visitors about agricultural research for development activities at BISA, Pusa. Participants collected information on innovative soil-water-crop management practices being developed for smallholder and resourcepoor farmers.

Interactions between policymakers and farmers on the BISA farm helped the officials understand the farmers' needs and how to make agriculture profitable under changing socioeconomic and climatic scenarios and the competing end-use of natural resources.

Discussions focused on the contributions Bihar farmers can make to sustainable ecosystem intensification by shifting from conventional agriculture to conservation agriculture, replacing low-value crops with high-value commodities and further intensifying existing cropping systems practiced in irrigated and rainfed upland and lowland ecologies with appropriate crop cultivar choices.

Sandhu's speech focused on crop diversification and conservation agriculture, especially the permanent raised bed system of crop planting. He also asked the farmers to plant long-duration, water-logging tolerant



Mangala Rai talks with farmers and researchers about the importance of cultivar choices in different agro-ecologies for improving wheat productivity.

pigeon pea and to develop intercropping systems. He told farmers to visit the BISA farm and take advantage of the innovative crop production technologies evolving there.

Gubachan Singh was concerned about declining farm holding size and factor productivity. He asked scientists to reorient their research to focus on the needs of smallholder farmers. Rai reminded farmers of the power of cooperative efforts in procuring farm inputs and marketing their produce. Without policy corrections such as buying in retail and selling in bulk, it is difficult to make agriculture profitable, but collective efforts can help.

Maize Germplasm Displayed at Asia Field Day

By Kartikeya Krothapalli

The International Maize Improvement Consortium-Asia (IMIC-Asia) held a maize field day on 15 March in conjunction with CIMMYT-Asia on the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) campus in Hyderabad, India. The 900 germplasm entries on display included inbred lines of early and advanced generations along with some breeding populations and hybrids. This germplasm was bred for IMIC priority traits such as high seed yield, good standability, yellow and orange color, resistance to common foliar diseases and tolerance to drought and heat. Some promising hybrid combinations, along with their component inbred lines, were part of this demonstration.

Participants in the IMIC-Asia Field Day. Photo: CIMMYT



The field day was attended by IMIC partners from both the public and private sectors. Swapan Datta, deputy director general of crop science for the Indian Council of Agricultural Research, was the chief guest. Other dignitaries included O.P. Yadav, director, Directorate of Maize Research; B.M. Prasanna, director, CIMMYT Global Maize Program; Etienne Duveiller, CIMMYT regional representative and director for South Asia; and Vibha Dhawan, deputy director of research partnership and coordination, Borlaug Institute for South Asia.

After hearing a brief introduction to the demonstration by the CIMMYT team, including B.S. Vivek, P.H. Zaidi and A.R. Sadananda, participants spent the rest of the morning making selections. Of the 90 participants, 55 were from private companies and 35 from public institutions. In total, 20 public institutions participating in the All India Coordinated Research Project on Maize and 31 private companies were represented.

Participants also attended the IMIC-Asia general body meeting with discussions on a proposed centralized doubled haploid facility for Asia, public sector perspective on public-private partnerships (PPP), private sector outlook on maize in Asia, germplasm enhancement of maize (GEM — which is a model of germplasm enhancement, evaluation and exchange through PPP) and strengthening IMIC activities and functioning through multi-location testing, better trait prioritization and site selection. The meeting concluded with the election of a new steering committee.

Capacity to Analyze Quality Protein Maize Enhanced in Ethiopia

By Adefris Teklewold

The Nutritious Maize for Ethiopia (NuME) project recently donated key laboratory equipment to the Ethiopian Institute of Agricultural Research (EIAR) to help analyze new quality protein maize varieties.

Institutional capacity building is a cross-cutting feature of NuME, which aims to disseminate quality protein maize (QPM) varieties in Ethiopia to improve nutrition. In addition to promoting QPM varieties already released, NuME has set targets to develop more productive QPM germplasm that are resilient to biotic and abiotic stresses and adapted to the project area and beyond.

Identifying QPM varieties easily adopted by farmers is a demanding task for breeders. The long-term QPM breeding program run by CIMMYT and EIAR fosters the cheap, fast and reliable screening technique of germplasm for quality protein traits.



The NIRS machine is installed and ready to operate at EIAR's laboratory in Addis Ababa.

To help with these efforts, NuME donated a near-infrared spectroscopy (NIRS) sample transport reflectance only (TR-3752-C) 6500 system, accessories and supporting equipment, valued at US\$ 103,000 to EIAR, CIMMYT's major partner in executing the project.

The machine can be used to determine the quality of different agricultural products, including ground and coarse samples, with a wavelength range of 400 to 2,500 nanometers. Specifically, the machine will enable EIAR to undertake timely analysis of tryptophan, lysine and protein content for breeders, seed companies and the food and feed industry. The EIAR laboratory will serve as a national focal point to ensure that QPM seed and grain meets established definitions and standards for QPM.

EIAR provides NIRS analysis on a cost recovery basis to ensure the sustainability of services for non-EIAR service users involved in QPM production, certification and trade. About 2,000 to 3,000 maize samples will be analyzed each year when the machine becomes fully operational.

Experts installed the machine and led a hands-on training on 6-7 March given to 10 trainees drawn from public and private institutions and CGIAR centers. The training focused on installation and operation of NIRs and developing calibration equation. Two researchers who are assigned by EIAR to work on the machine will be sent to Mexico for a two-week training on how to operate and develop calibration equations of tryptophan, lysine, protein and other QPM quality traits.



Participants attend orientation and training sessions.

During the presentation of the machine, Solomon Abate, EIAR director for quality control, said that CIMMYT has taken significant steps to enhance the capacity of the Ethiopian national agricultural research system to undertake QPM analysis within the country, which has largely been executed at CIMMYT headquarters in Mexico.

In a letter to CIMMYT-Ethiopia, Fentahun Mengistu, director general of EIAR, wrote the NIRS machine is essential not only for use with QPM but for determining the quality of other crops and will enhance EIAR's technology endeavors, which enable smallholder farmers to produce competitive products that can fetch better market prices. He underscored EIAR's commitment to strengthening its partnership with CIMMYT for enhanced maize research and development in the country.

Government of Zimbabwe Promises to Support Grain Storage Project

By Wandera Ojanji





Ringson Chitsiko, the permanent secretary for Agriculture, Mechanization and Irrigation Development, Zimbabwe, addresses the participants.

Ringson Chitsiko, Zimbabwe's permanent secretary for Agriculture, Mechanization and Irrigation Development, has reiterated his government's commitment to support the Effective Grain Storage for Sustainable Livelihoods of African Farmers Project (EGSP-II). The project is improving food security and reducing the vulnerability of resource-poor farmers in eastern and southern Africa through the dissemination of metal silos and super grain bags.

"The Government of Zimbabwe fully appreciates the fact that complementary policy and institutional innovations that enhance development, deployment and adoption of effective post-harvest management practices at various points in the maize value chain is not only an effective strategy for fighting hunger and food insecurity, but also essential for enhancing the incomes of smallholder farmers," said Chitsiko when he officially opened a training workshop for extension staff and agro-dealers.

"The government is, therefore, committed to make this project a success by developing both the institutional innovations and enabling policies that can ensure adoption of effective post-harvest management practices and bring the benefits to producers, agro-dealers and farmers," he added. "Accessibility and affordability are the key driving factors in the adoption of metal silos and hermetic bags technology."

The workshop was organized by EGSP II in collaboration with Zimbabwe's Ministry of Agriculture. The project is funded by the Swiss Agency for Development and Cooperation (SDC).

The training was organized to impart information and skills to extension staff and agrodealers on the management of metal silos and hermetic grain bags, said Tadele Tefera, CIMMYT entomologist and coordinator of EGSP-II. Other reasons for the training included creating awareness of the



Tirivangani Koza (right), deputy director, Department of Agricultural Mechanization, Ministry of Agriculture, demonstrates the proper use and handling of the metal silo.

importance of grain post-harvest management, helping extension workers and agro-dealers gain insights into different factors affecting post-harvest management and explaining traditional and improved post-harvest technologies and their use in grain loss reduction. It was also meant to create investment opportunities for agro-dealers, and also link artisans, extension staff and agro-dealers for a common purpose.

Since EGSP II was launched in 2012, 250 metal silos have been distributed to households in the pilot districts of Shamva and Makoni for research, demonstration and training. Chitsiko lamented that while maize is Zimbabwe's staple food, its production is severely affected by frequent droughts and the effects of climate change, leading to crop failure, hunger and poverty. Between 20 and 30 percent of harvested grain is lost annually to insects, rodents and damages from poor post-harvest handling.

Zimbabwe loses US\$ 56.7 million worth of maize annually during storage. "Surely, you can agree with me that this level of loss is unacceptable if we want to be food secure," Chitsiko said. "I have no doubt that the metal silo technology will go a long away in providing solutions aimed at mitigating the effects of grain post-harvest losses considering its effectiveness against the major storage pests, particularly the larger grain borer that can cause losses up to 100 percent."

More than 50 participants attended the training, representing government extension officers, agrodealers, artisans and civil society organizations from the Shamva and Makoni districts. Facilitators of the training included Tadele Tefera; Addis Tishome, CIMMYT entomologist; Jones Govereh, CIMMYT policy economist; Tirivangani Koza, deputy director, Department of Agricultural Mechanization, Ministry of Agriculture; and Rabson Gumbo, EGSP national coordinator and director, Department of Agricultural Mechanisation, Ministry of Agriculture.



Participants attend a training workshop for extension staff and agro-dealers.

Partners Recognize Achievements in Insect-Resistant Maize Delivery

Wandera Ojanji



Photo: Wandera Ojanji

The Insect Resistant Maize for Africa (IRMA) project received praise for significant progress on field and post-harvest insect pest research at its conclusion last month.

"Several new maize hybrids and open pollinated varieties with substantial insect resistance have been produced that will greatly benefit maize growers in eastern and southern Africa," said Mike Robinson, program officer for the Syngenta Foundation for Sustainable Agriculture (SFSA) at the IRMA End-of-Project Conference in Nairobi, Kenya, from 24-26 February. Robinson congratulated CIMMYT and project partners and wished the participating organizations continued success.

The purpose of the conference was to share experiences, achievements and lessons from IRMA III and discuss future prospects in the release, dissemination and use of insect-resistant maize in eastern and southern Africa. It drew more than 80 participants from CIMMYT, national agricultural research systems, national universities, donors and the seed industry.

The Developing Maize Resistant to Stem Borer and Storage Insect Pests for Eastern and Southern Africa project, known as IRMA III Conventional Project 2009-2013, was managed by CIMMYT and funded by SFSA. Building on progress and breakthroughs of IRMA I and II, IRMA III contributed to food security by developing and availing field and post-harvest insect-resistant maize varieties in Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe. Collectively, these countries produce about 26 million tons and consume 32 million tons of maize annually.

Relatively low maize productivity in the countries – about 1.3 tons per hectare (t/ha) compared to 4.9 t/ha worldwide – can be attributed in part to stem borers, according to Stephen Mugo, CIMMYT principal scientist and IRMA project leader.

Stem borers destroy as much as 15 percent of maize crops, while maize weevils and the larger grain borer destroy 20 to 30 percent of harvested maize. Hugo De Groote, CIMMYT economist, estimated the losses from stem borers at 13.5 percent, or 4 million tons, and those from storage pests at 11.2 percent, or 3.5 million tons, with the total value of these losses estimated at just over US\$1 billion in the region.

"Addressing the challenges that farmers face in producing and storing maize is vital to the future food security of the region," Robinson said. "Minimizing such losses in an economically sustainable way will significantly contribute to nutrition and food security."

IRMA III addressed these challenges through identification and commercial release of major insect-resistant maize cultivars; identification of new germplasm sources of resistance to stem borer and post-harvest insect pests among landraces, open pollinated varieties (OPVs) and CIMMYT lines (CMLs); and development of new insectresistant germplasm.

Kenya released 13 stem borer-resistant (SBR) conventional maize varieties (three OPVs and 10 hybrids) and four storage pest-resistant (SPR) hybrids. Kenya has also nominated nearly 10 stem borer- and four postharvest-resistant hybrids to national performance trials. Three insectresistant varieties — two hybrids (KH 414-1 SBR and KH 414-4 SBR) and one OPV (Pamuka) – were commercialized in Kenya by Monsanto, Wakala Seeds and the Kenya Agricultural Research Institute Seed Unit.

De Groote estimated the annual value of project benefits at between US\$ 19 million and US\$ 388 million. He put the benefit-cost ratio at 94 in the optimistic scenario, meaning that for each dollar the project spent, farmers would gain 95, indicating very good returns. "These results justify the important role that breeding for resistance could play in reducing maize losses, and the high potential returns to such programs in the future," De Groote stated.

Looking to the future, Mugo emphasized the need to ensure farmers have access to the insectresistant varieties. "We must, from now on, engage in variety dissemination and commercialization of the new SBR and SPR varieties," Mugo said. "We need a more targeted breeding program that incorporates drought, nitrogen use efficiency and maize lethal necrotic disease tolerance."

Breeders Trained on Molecular Markers Data Analysis in Tanzania

By Kassa Semagn



Participants attend a training course in Tanzania.

A training course held in Tanzania provided maize breeders with handson experience in using molecular markers for quality control analysis (genetic identity, genetic purity and parentage verification), germplasm characterization, marker-assisted backcrossing and marker-assisted recurrent selection.

The Water Efficient Maize for Africa (WEMA) project organized the workshop for 25 breeders from the national agricultural research systems (NARS) of Kenya, Mozambique, Republic of South Africa, Tanzania and Uganda from 16-21 January. The trainees used simple sequence repeats (SSRs) and single nucleotide polymorphism (SNP) markers of different density and a wide range of statistical software for exercises.

The participants found the training useful. "This molecular markers data analysis course was the best course that I have ever attended since I started my career," said Eric Ndou, a maize breeder from the Agricultural Research Council (ARC), Republic of South Africa.

"My mind is now very clear and convinced when and how I should use molecular markers," added Julius Serumaga, a maize breeder with the National Agricultural Research Organization (NARO), Uganda. "I don't have any excuse for not using them in my breeding program, at least for quality control analysis purposes."

The training was organized and facilitated by Kassa Semagn, CIMMYT maize molecular breeder; Yoseph Beyene, CIMMYT maize breeder; Stephen Mugo, WEMA CIMMYT leader and maize breeder; Sylvester Oikeh, African Agricultural Technology Foundation (AATF) WEMA project manager; and Barbara Meisel from WEMA Monsanto.

CIMMYT, Monsanto and the NARS of the five countries are partners in WEMA, a public-private partnership coordinated by AATF to develop drought-tolerant and insect-protected maize using conventional breeding, marker-assisted breeding and biotechnology, with the goal of making these varieties available royalty-free to smallholder farmers in Sub-Saharan Africa. WEMA Phase II is funded by the Bill & Melinda Gates Foundation, the United States Agency for International Development (USAID) and the Howard G. Buffett Foundation.

Behind the Science:

The Art of Seeding Hope By Ma Concepción Castro

In March, CIMMYT celebrated International Women's Day and lauded the efforts of many. At CIMMYT, we are lucky to work with outstanding female colleagues. Perla Chávez Dulanto, associate scientist for the Global Wheat Program's (GWP) physiology team, which is led by Matthew Reynolds, is one of those colleagues.

Chávez came to CIMMYT in 2012, inspired by the legacy of Dr. Norman Borlaug, who she describes as "a man who devoted his life and his science to help the poorest but was guided by his heart —a characteristic feature of great scientists and true human beings." She was also motivated by the opportunity to be part of an interdisciplinary group working to improve food security and livelihoods.



After earning a BSc in agricultural engineering at La Molina National Agricultural University in Lima, Peru, she worked for large-scale farm export enterprises and agribusiness, nongovernmental organizations and education-extension institutions. Yet Chávez, who is inspired by the landscapes she admired during her childhood, wanted to develop good crops for poor farmers.

"Though I was raised in Lima, my mother was from Chancay, a coastal city nearby and the largest provider of field crop commodities to Lima. From Chancay, you could see endless maize and potato crop fields with long rows almost reaching the beaches, listen to birds tweet and see whales or sea lions jumping into the water far beyond," Chávez said.

She knew she needed to learn about soil, physics, ecology, pathology and animal life. Chávez has had enough contact with farmers, both wealthy and poor, to realize there are large differences between their livelihoods.

Peru produces wheat, barley and sorghum in mountainous areas. Wheat is important to smallholder and subsistence farmers but yields are only 2 to 3 tons per hectare due to the lack of improved materials and the prevalence of pests, disease damage and abiotic stresses like drought. Chávez said Peru and the Andean region could benefit from research, motivating her to continue with science.

She earned a master's degree in entomology with complementary studies in integrated pest management and horticulture at La Molina and the Wageningen Agricultural University (WAU), The Netherlands. She earned a Ph.D. from the University of the Balearic Islands, Spain, and conducted research for the International Potato Center (CIP) in Peru on a project using remote sensing to detect biotic and abiotic stresses in potatoes. Chávez worked at CIP for eight years, where she had the opportunity to travel across Peru.

Chávez brings this expertise to the wheat physiology group and she says she is lucky for the support of her GWP colleagues. During her tenure at CIMMYT she has organized two courses on plant physiology for national staff at Ciudad Obregón, and edited and coordinated the English-Spanish translation of the manuals *Fitomejoramiento Fisiológico volumen I y volumen II*. She has also supported Amor Yahyaoui and Pawan Singh during field days in Toluca and coordinated visits by students and children at Ciudad Obregón.

"I am happy to do collaborative research within GWP and CIMMYT as a whole, which involves breeders, pathologists, physiologists, conservation agriculture experts and more," Chávez said. "If we all work together we can move faster to discover and select genotypes with a very good combination of characteristics. Those genotypes after several steps — can be released for farmers. We can make an impact on people's lives."

Chávez will soon start a new stage in her life when she becomes a mother in May. She looks forward to sharing some of her other talents, such as drawing, painting and sculpture, with her baby boy.

Rain Storm Causes Extensive Damage in Zimbabwe

By Amsal Tarekegne



On 20 March, a storm resulted in the destruction of property at the CIMMYT offices in Harare, Zimbabwe. The hail storm and accompanying strong winds caused extensive damage to trials and nurseries in the research field. Late-maturing hybrid trials and a high-density

demonstration planted for the Water Efficient Maize for Africa (WEMA) product development team tour was seriously damaged, just two days prior to the beginning of the tour.

One of the damaged buildings was the recently inaugurated "Mulu Building." Its roof was damaged after a tree fell on it. Rainwater soaked the offices and damaged documents extensively. Researchers were temporarily housed in a conference room while the offices were repaired.



A recent storm in Harare, Zimbabwe damaged CIMMYT offices.

Changing the Throwaway Culture at El Batán

By Ma Concepción Castro

At CIMMYT, a commitment to good environmental practices must go beyond the field. Proper disposal of garbage is a complicated and costly procedure.

As part of a waste separation program implemented at El Batán by the Facilities Unit last year, bins of different colors and diverse uses were placed at strategic sites across the campus. As a result of the program, properly separated products were sold to different companies last month.

Totals of recyclables collected included:

Carton	750	kg
PET bottles/containers	28	kg
Iron	574	kg
Aluminum	12	kg
Recycled paper	196	kg

"This is a first step to create awareness among the CIMMYT community to properly dispose of paper, food leftovers, wrappers or packages of products we use every day," said facilities manager Francisco Peñafort. "But there's still a long way to go."

Peñafort explained that separating garbage is not an easy task. After the cleaning crew

collects garbage, it is taken to a central depository behind the maintenance building, where, three days a week, maintenance staff members inspect the collected material and separate all recyclable materials. "We invite staff and residents at the campus to help us to avoid duplicate selection by placing plastic bottles, food, carton and aluminum in the bins allocated for that specific purpose," he said. Peñafort also explained that plastics are not all the same; a plastic food container is not made of the same material as a plastic water or soda bottle.

A second component of the waste separation program will be announced soon. Please be part of the success of the first stage of the program by following these recommendations:

- Do not throw recyclable paper into the trashcan but rather deposit it in the proper bin.
- If you drink bottled water, set aside empty bottles and place them in the appropriate plastic bins.
- Do not contaminate plastic bottles by introducing food leftovers or any other substance, as this makes them unrecyclable.
- Do not place glass bottles or jars in bins allocated for other uses.

Bins are placed at the following locations and can be identified by color:

Atrium exit, towards the germplasm bank Behind the Rincón Mexicano, next to House 4 Grey: aluminum cans Blue: plastic bottles (PET)

Bins at the atrium and roadways Green (organic residues): food and fruit leftovers, plants Grey (inorganic residues): glass, rubber, styrofoam Yellow: paper and cardboard – blank sheets, newspapers, cardboard pieces or boxes Blue: plastic – wraps or boxes



For more information, contact Francisco Peñafort (f.penafort@cgiar.org).

Snack Bar to be Remodeled

By Daniela Cantera

The snack bar in the basement of CIMMYT headquarters will be closed from 15-22 April due to remodeling. Normal services will be offered in the main *Comedor* cafeteria. Service hours at the *Comedor* will remain the same:

Weekdays Breakfast 7:00-7:30 a.m. Lunch 12:00-14:30 p.m. Dinner 18:30-20:30 p.m. Weekends Breakfast Breakfast 8:00-9:30 a.m. Lunch 12:00-14:00 p.m.

Recent Publications by CIMMYT Staff

By Lucía Segura

Breeding progress in the pasta-making quality of durum wheat cultivars released in Italy and Spain during the 20th Century. 2014. Joan Subira; Peña Bautista, R.J.; Alvaro, F.; Ammar, K.; Ramdani, A.; Royo, C. Crop and Pasture Science 65(1):16-26. Conservation agriculture in southern Africa: advances in knowledge. 2014. Thierfelder, C.; Rusinamhodzi, L.; Ngwira, A.R.; Mupangwa, W.; Isaiah, N.; Kassie, G.T.; Cairns, J.E. Manuscript Draft. Renewable Agriculture and Food Systems. Online first. Molecular mapping across three populations reveals a QTL hotspot region on chromosome 3 for secondary traits associated with drought tolerance in tropical maize. 2014. Dias Almeida, G.; Nair, S.; Borem, A.; Cairns, J.; Trachsel, S.; Ribaut, J-M; Banziger, M.; Prasanna, B.M.; Crossa, J.; Babu, R. Molecular Breeding. Online first. Nutrient management and use efficiency in wheat systems of South Asia. 2014. Jat, M.L.; Bijay-Singh; Gerard, B. Advances in Agronomy 125:171-259. Variation at glutenin subunit loci, single kernel characterization and evaluation of

grain protein in East African bread wheat varieties. 2014. Macharia, G.K.; Peña Bautista, R.J.; Simsek, S.; Anderson, J.A. *Euphytica*. Online first.

Staff Changes

By Diana Gómez

Newcomers

Juan Antonio Carrillo Hernández, Maintenance Technician, CS/Maintenance, 01 March José Alejandro Piñeiro Gutiérrez, Head of Cafetería, CS/Comedor, 01 March Edgar Chávez López, Cook B, CS/Comedor, 08 March Eduardo Miguel Velázquez Romero, Fixed Assets Administrator, CS/Finance, 08 March Ricardo González Hernández, Maintenance Technician, CS/Maintenance, 15 March Floricel Hernández Muñoz, Research Assistant A, Conservation Agriculture, 19 March Demetrio Hernández Pérez, Maintenance Technician, CS/Maintenance, 29 March Md. Shamim Khondokar, Chauffer, Conservation Agriculture /Bangladesh, 01 March Anu Raswant, Executive Assistant, BISA/India, 18 March Abdul Raqib Lodin, Assistant Hub Coordinator/ Research Assistant, Global Wheat Program/ Afghanistan, 16 March Kasirayi Gwezuva, Research Technician, Global Maize Program/Zimbabwe, 01 March Fawad Ali, Office Boy, Global Wheat Program,

17 February **Gopal Bahadur Khadka**, Chauffer, Conservation Agriculture Program, 01 February

Sandhya Yergatla, Associate Finance, Global Maize Program, 01 January

Departures

Raqueline de la Rosa Montoya, Biotechnology Assistant II, Global Wheat Program, 06 March

Laura Marisa Delgado Sánchez, Biotechnology Assistant II, Genetic Resources Program, 07 March

José Luis Maldonado Massoud, Logistic & Accounting Manager, Conservation Agricultural Program, 10 March

John MacRobert, Principal Scientist, Global Maize Program/Zimbabwe, 23 March

María Dolores Mir Rodríguez, Program Assistant A, Global Wheat Program, 31 March

Alamgir Akter, Technical Officer, Conservation Agriculture Program/Bangladesh, 18 March

Joel Michalski, Post-Doctoral Fellow, Socioeconomics Program/India, 31 March

Birthdays 13-20 April

Violeta Calvo 13; Fidelis Owino 13; Cecilia Alonzo 14; Rosemary Shrestha 14; Máximo Flores 14; Zia Ahmed 14; Ma. Antonieta Rodríguez 15; Wilfred Mwangi 15; Peter Wenzl 15; Gloria Martínez 16; Menale Kassie Berresaw 16; Emma Quilligan 16; Rodolfo Bastida 17; María de Jesús Santillán 18; Efraín Conde 18; Lone Badstue 18; Rodney Lunduka 18; Ana Luisa Ordaz 19; Adolfo Coss 20; Miguel Ángel López 20; Ismael Barrera 20; Santiago López Ridaura 20; Eustina Mwani 20; Kasirayi Gwezuva 20.



CIMMYT 14 Informa

Weekly Photo Contest Winners



Sivakumar Sukumaran submitted this week's winning photo from Ciudad Obregón, Sonora, Mexico. The photographer writes: "When everybody was busy with the Borlaug Summit on Wheat for Food Security, one guy was still supervising the fields of Ciudad Obregón."

Runner Up: Crop Diversity

This photo shows crop diversity in Bangladesh: the same farmer is growing three cereals in the same season. Mahesh K. Gathala submitted this photo.

