

Inside this issue:

NaCRRRI socio-economists set to assess impact of Fall Army Worm

Researchers in drive to create awareness on new Striga-resilient maize varieties

TL III three years down the road...

Ugandan media, scientists discuss opportunities and challenges for public awareness on GMOs

Uganda benefits from Water Efficient Maize for Africa (WEMA) project

Africa conference confirms growing strength of plant disease research network

Contributors

Winnie Nanteza
Kibirige Abraham
Isaac Ssekawesi
Ann Likanda

Uganda benefits from Water Efficient Maize for Africa (WEMA) project



A group photo of the project team at Nairobi, Double Tree by Hilton Hotel

As partners, stakeholders and funders recently met in Nairobi, Kenya, to review the first 10 years of the Water Efficient Maize for Africa (WEMA) project, it became clear that Uganda's farmers have benefited from the partnership. Uganda already has released about 10 conventionally-bred DroughtTEGO® hybrids developed through WEMA research, according to Dr. Godfrey Asea, the project coordinator for Uganda.

This maize has the potential to give farmers an average yield of three tons per hectare in moderate drought conditions, and eight tons in well-watered conditions with good crop management, according to the nonprofit African Agricultural Technology Foundation (AATF), which is leading the public-private WEMA partnership.

Since 2013, when TEGO® was commercialized, local seed companies in Uganda have sold 985 tons of seed to more than 100,000 Ugandan farm-

ers, Asea said. The TEGO® hybrids can help farmers better respond to drought, and the associated loss in productivity, caused by climate change.

In late 2017, Ugandan researchers reported promising results from its last set of confined field trials, conducted on

genetically modified WEMA maize with drought-tolerant and insect-resistant traits. It will be marketed under the TELA® brand. However, Uganda must pass its biosafety bill before the seeds can be sold to farmers. Researchers in both Mozambique and Uganda found that TELA® maize, which was developed to deter attacks by the corn-borer pests, appeared to also successfully resist infestations by the destructive fall armyworm.

First reported in Uganda in 2016, the fall armyworm has spread across the country, devastating maize fields for 3.6 million households that depend on maize (Uganda Bureau of Statistics). WEMA products also showed strong protection against maize lethal necrosis (MLN), Asea said.

WEMA is developing TELA® hybrids that are resistant to other foliar diseases, such as maize turicum leaf blight and gray leaf spot, which can cause significant economic losses.

Dr. Ambrose Agona, who is chairman of WEMA's Executive Advisory Board and Director General of Uganda's National Agricultural Research Organization, emphasized that though the project targeted to commercialize only 25 conventional hybrids, up to 106 varieties were released across the participating WEMA countries:

Kenya, Uganda, Tanzania, South Africa, Ethiopia and Mozambique. Tracy Powell, a representative of USAID, which provided some of WEMA's funding, noted that these achievements with conventional maize are worth celebrating. "We have actually helped smallholder farmers improve their livelihoods," she said.

"We hope that the next phase of the project can make the necessary contribution to deliver even more compelling products to the farmers."

Maize research in Uganda has been tremendously boosted by WEMA, especially in terms of increased genetic gains, infrastructure and capacity development as well as fostering an enabling regulatory environment in the country.

For instance, the national maize research program has expanded testing and stress screening networks for more superior varieties.

The project also facilitated the establishment of a robust maize lethal necrosis (MLN) breeding pipeline and improved data management systems.

With support from related projects like Next Generation Cassava (<http://www.nextgencassava.org/>) and

Newest Rice, WEMA also established two new confined field testing sites in Namulonge and Kasese and renovated the Serere site, which was initially used to test genetically modified insect resistant and herbicide tolerant cotton in the early 2000s.

Since 2008, the team intensified work on development of drought tolerant, insect resistant and MLN tolerant maize hybrids because of new techniques like forward breeding and double haploids; and acquisition of breeding materials from partners like CIMMYT, Monsanto and fellow National Research Systems in other project countries.

This critical bulk of germplasm will facilitate Uganda through a couple of decades to breed better maize varieties especially now that drought and insect pests are becoming more pronounced as production challenges in less developed economies.

In fact, in a pioneering approach, Uganda's National Crops Resources Research Institute is one of the first organizations partnered with the Intergraded Breeding Platform (IBP) to utilize the breeding management system (BMS) package with the aim of managing breeding information and methods that increase effectiveness and efficiency of breeding and improvement of genetic gains during crop improvement cycles.

The transgenic research work conducted through WEMA also has been a major driver in creating and strengthening an enabling policy environment to provide a regulatory framework to facilitate the safe development, application and release of GMOs in Uganda, Asea said.

"This research contributed to building capacity of the National Biosafety Committee and Institutional Biosafety Committee, and exposed policy makers to the technology through several seeing-is-believing tours during debate on the nation's biosafety law," Asea said. "This sets the stage for related research, current and new." Parliament passed

The WEMA project aims to enhance food security and improve livelihoods of smallholder farmers in sub-Saharan Africa through development and deployment of royalty-free drought-tolerant and insect-protected maize seeds.

However, in December 2017, President Yoweri Museveni raised some questions, which Parliament is reviewing for possible amendments to the bill.

During the Nairobi meeting, the WEMA Global Project Coordinator, Sylvester Oikeh revealed that the new phase will focus on ensuring that at least four of the project countries (with the exception of South Africa) approve and initiate commercialization of genetically modified drought-tolerant and insect-protected maize by 2023.

The WEMA project has been funded by the Bill & Melinda Gates Foundation, which was joined by USAID and the Howard G. Buffett Foundation. It is led by AATF.

Other partners are the International Maize and Wheat Improvement Center (CIMMYT) and the National Agricultural Research Systems (NARS) from the participating nations: Kenya, Uganda, Tanzania, South Africa, Ethiopia and Mozambique. Monsanto offered to share its drought-tolerant and insect-resistant traits royalty-free for humanitarian purposes.