

Nigeria releases first generation of herbicide-resistant hybrids

The Nigerian National Variety Release Committee (NVRC) has released the first generation of maize hybrids, resistant to metsulfuron methyl herbicide, that are also endowed with resistance to the noxious parasitic weed *Striga hermonthica*.

The hybrids were developed by the International Institute of Tropical Agriculture (IITA) in partnership with DuPont Pioneer Seeds using conventional breeding with funding from IITA and the Integrated Striga Management in Africa (ISMA) project as part of strategies to control *S. hermonthica* in maize.

The hybrids were released as P48W01 and P48W02 and are recognized as IITA IR-Maize Hybrid 2 and IR-Maize Hybrid 4. The hybrids have a yield potential of up to 5 t/ha under *Striga* infestation in comparison with local varieties that produce less than 1 t/ha in such conditions.

“These hybrids are the product of introducing a single nuclear gene that confers resistance to imidazolinone herbicides, including metsulfuron methyl (MSM), into inbred lines with known field resistance to *S. hermonthica*,” Dr Abebe Menkir, IITA Maize Breeder, said.

Recent baseline studies conducted under the ISMA project showed that farmers ranked *Striga* as the number one constraint to maize production in northern Nigeria, with 50 to 100% of the households reporting *Striga* incidence in their farms. The parasitic weed infests more than 9 million ha planted to millet,



maize, and sorghum in Nigeria and severely lowers the production capacity of these crops.

Dr Menkir said yield losses in maize from damage by *S. hermonthica* varied from 20 to 80% among subsistence farmers, but 100% loss could occur in susceptible cultivars under severe infestation in marginal production conditions.

The released herbicide-resistant hybrids allow seeds to be planted that have been treated with low doses of metsulfuron methyl herbicide. This targets *S. hermonthica* before or at the time of its attachment to the maize root, killing the parasite underground before it inflicts damage on the crop. These hybrids can thus be used to deplete the *Striga* seed

bank in the soil and minimize yield losses in subsequent cereal crops. MSM-treated seeds of these hybrids can be integrated into the diverse farming systems in Nigeria because the herbicide effectively controls the parasite at a low rate of application.

The ISMA project works with the private sector to catalyze the process of producing and marketing treated seeds of herbicide-resistant maize hybrids to smallholder farmers in Nigeria to control *S. hermonthica*.

Other collaborating partners engaged in extensive testing of these hybrids include the Institute for Agricultural Research (IAR) and Agricultural Development Programs in Bauchi and Kano States.

AgResults Aflasafe™ team trains partners

The AgResults Aflasafe™ team has successfully completed a 2-day training in Ibadan for its implementers. Welcoming participants, the AgResults

Pilot Manager, Debo Akande, reiterated the project’s commitment to supporting and providing solutions to farmers for improving safety and increasing

productivity of maize.

He described the training as a unique model to advance the biocontrol of

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Participants at the AgResults meeting in Ibadan

Got a story to share? Please email it with photos and captions to Andrea Gros (a.gros@cgiar.org), Katherine Lopez (k.lopez@cgiar.org), Jeffrey T. Oliver (j.oliver@cgiar.org), Godwin Atser (g.atser@cgiar.org), Catherine Njuguna (c.njuguna@cgiar.org), or Adaobi Umeokoro (a.umeokoro@cgiar.org)

Year of Family Farming: IITA students donate a cassava shredder to a women's group



Women celebrating new cassava shredder saying: "Long live IITA School, long live IITA staff, long live IITA..."

Students from the International School of the International Institute of Tropical Agriculture (IITA) have donated a cassava shredder to the women of Anu Oluwa – a women's group involved in cassava processing in Shasa, Ibadan, Nigeria—as part of activities to mark the International Year of Family Farming.

The handover of the facility on Wednesday sparked joy in the community as the women sang praises to the School for coming to their rescue after years of using manual graters. They also offered prayers and invoked blessings for the prosperity of IITA as an institution and its staff.

The shredder which costs over \$1000 (₦160,000) is now reducing the burden associated with cassava processing – an activity usually carried out by women in the community.

Funds for the purchase were raised by the students through a Dance-a-thon that was held on Friday, 14 March, in the School Hall. This drew financial support

from parents, teachers, friends, and the entire IITA community in Ibadan.

The mobilization of resources for the project is an important component of the school's program, and the goal is to develop awareness in the students and a desire to contribute to the community.

"It also demonstrates to the students that team effort can make a difference ... To this end we involve our pupils each year

in an activity to help others," says Carole Inniss-Palmer, Head of the International School.

After raising the funds, the students worked with the Facilities Management Services of IITA under the guidance of Engineer Thierno Diallo, Postharvest Engineer, to procure and install the cassava shredder for the women's group.

Though accounting for more than 70% of the agricultural workforce in Africa, women have little access to the benefits of research and innovation, especially in the domain of food crops.

Most women still rely on manual graters to shred cassava – a process which promotes drudgery with negative emotional and health consequences and subjects the women to a vicious cycle of poverty.

Mrs Inniss-Palmer said that supporting the women with a cassava shredder would increase their efficiency in processing and make a big difference in their lives and families by increasing their incomes.

This is not the first time the IITA School has been involved in charity work. In the past, children and parents have raised funds for many projects as diverse as the Crop Diversity Trust, Wells for Villages in the Ibadan area, Pro Labore Dei, and Water Aid, Nigeria.



At the processing center: Cassava shredder in operation (left) with IITA students (in yellow)

AgResults Aflasafe trains partners

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aflatoxin to Nigerian farmers through the involvement of market players, the private sector, and other key stakeholders in maize value chain to ensure sustainability of aflasafe™ adoption.

The AgResults project seeks to promote the adoption of aflasafe™ - a biocontrol technology with a proven efficacy to reduce aflatoxin contamination in grains by as much as 90% - among smallholder maize farmers in Nigeria. The project currently works with 11 implementers from various small and micro-enterprises to disseminate the technology.

The focus of the training was to inform implementers of the project objectives and mode of operation, demonstrate method of aflasafe™ application, use of other aflatoxin management practices, maize

agronomy, and business development opportunities with low-aflatoxin maize.

Mr Akande said that since over 70% of food in Nigeria was currently produced by smallholder farmers, implementers were expected to pass on this information and demonstrate it to 5,000 farming families in 2014. This would change them from subsistence farmers to becoming farmers inclined to agribusiness. He said, "We expect that 110 t of aflasafe™ will be applied on 11,000 ha of maize fields in 2014. AgResults will also provide incentives for this group of farmers to facilitate adoption of this biocontrol technology."

Dr Joseph Atehnkeng, Coordinator for Aflatoxin Control in West Africa; Dr Silvestro Meseka, IITA Maize Breeder; and Lawrence Kaptoge, Process Engineer

Aflasafe™ Manufacturing Plant, were among the key stakeholders that made presentations during the training. They stressed the importance of good management practices while stating that bad sanitation, poor management, and improper storage were linked to high levels of aflatoxin contamination.

The AgResults project is a multilateral initiative (G-20) managed by Deloitte Monitor. The Initiative receives support from the Governments of Australia, Canada, the UK, and USA, and the Bill & Melinda Gates Foundation. It aims to use results-based cash incentives – in the form of "pull mechanisms," – to spur the adoption of innovation and technology to promote agricultural development and food security.