In Uganda, anti-GMO scare tactics even taint conventional hybrid crops

Heading into the final days before Christmas, the Ugandan city of Kampala was busy with people from all walks of life crowding the markets to purchase food for holiday festivities.

At the Nakawa market, a stall displays bunches of cooking bananas. And on this day, a woman named Nalongo Nakisseka stopped to criticize the offerings, accusing the vendor of “selling GMO bananas” from the National Agricultural Research Laboratories in Kawanda. The evidence? “The bunches are extra ordinary giant,” she said angrily.

Mary Nabukera, another shopper, joined in: “We are doomed; every food item sold in this market is GMO. Look at the size of tomatoes, onions, cabbages, Irish potato and oranges.”

Their criticisms drew the attention of bystander John Obuku, who pointed out that the various bananas on display were either conventional or hybrids, since Uganda doesn’t allow the sale of GMO bananas. In fact, no GMO crops are approved for sale in Uganda.

The exchange illustrates one of the problems facing Uganda as the nation considers whether to allow the cultivation of GMO crops. There is considerable confusion among the Ugandan public over the status of GMOs—with many people believing they’re already being grown and sold commercially, and many believing they are harmful.

Food insecurity

It’s unclear when or if Uganda will grow GMO bananas or any other genetically engineered comment. The nation’s president, Yoweri Museveni, is refusing to sign the recently-approved National Biotechnology and Biosafety Bill, which seeks to pave the way for GMOs.

Scientists in Uganda, working under the National Agricultural Research Organization (NARO), are conducting trials with several major crops. Those include the East African highland banana, designed to resist the black sigatoka; a banana fortified with Vitamin A and iron nutrients; and cassava resistant to Cassava Mosaic Virus and Cassava Brown Streak Virus.

One of the scientists involved in breeding GMO bananas fortified with vitamin A and iron explains the breeding process. By Lominda Afedraru.

There are efforts underway to improve food security in countries throughout Africa. One of the international goals is for countries which are still food insecure, including Uganda, to end hunger by 2030. A key to reaching that goal is through improved and sustainable methods of agricultural practices of plant breeding, said Dr. Tituts Alicai, head of root crops at the National Crop Resources Research Institute.

A recent report from the World Food Programme noted that 795 million people in the world don't have enough food to lead a healthy active life. Alicai argued that agricultural scientists around the world need to breed GMO crops if the planet's food needs are going to be met.

Historically, GMO crops have been opposed in Africa, though countries such as South Africa and Sudan have commercialized cotton and corn. Others are conducting field trials—Ghana and Nigeria, for example, are testing cow peas designed to resist Maruca vitrata pest.

Over the years, African scientists have conducted field trials of a range of hybrids (including rice, bananas and cassava) but there have been no GMO crops put into farmers' fields in Uganda.

Why the confusion?

As far as Alicai is concerned, the confusion is the result of a communication breakdown. The scientists carry out breeding at the research institutes and produce seeds that are distributed to farmers by the Ministry of Agriculture and its partners.

But as those seeds flow from the research stations to the farmers, they aren't accompanied with enough educational information to help everyone understand exactly what's being planted—and the key differences between GMO and hybrid crops. He worries that by the time GMO crops are ready for

commercialization, they will struggle to gain acceptance by a confused public. Things aren't helped by the presence of anti-GMO campaigns being waged by activists.

What the nation needs is a concerted effort to better educate the public, said Dr. David Kalule Okello who heads the program on groundnut improvement at the National Semi Arid Resources Research Institute (NaSARRI) in Eastern Uganda.

The effort should be far-reaching, with help from breeders, extension workers, civil society and seed companies. But it's critical for scientists at the research institutes to set up demonstration farms in different ecological zones where hybrid plant varieties should be planted alongside GMO trials, he said.

These farms could act as education sites for farmers and those engaged in the agriculture supply chain. They could collect data about growth rates, yields and pest/disease concerns.

A visiting journalist from Ghana examines GMO bananas at a field trial site operated by the National Agricultural Research Laboratories (NaRL). By Lominda Afedraru.

The Ministry of Science, Technology and Innovations could also work to educate the general public about the Biosafety Law and what it could mean for the country. Okello said:

The law has been passed what next, when will it become operational and how soon can farmers access GMO crops whose trials have been concluded. If these questions are not availed to the public then the law will become idle. The public will continue to cause confusion in referring hybrid plants as GMO's.

Why hybrids?

Agricultural experts usually encourage farmers to grow hybrids because of their higher yields. But this comes with higher purchasing costs.

Hybrid maize varieties have existed in the US since 1926 and in Africa since the 1960s, the year Ugandan scientists got involved in breeding, said Dr. Geoffrey Asea, director of the National Crop Resources Research Institute. Hybrids are a result of crossing parental traits of two individual plants using conventional breeding methods. It is advisable to make the crossing only once because the traits will disintegrate if done repeatedly.

A farmer who recycles hybrid maize seed could experience a 30 percent yield loss because of the disintegration in the parental make up. This does not occur to vegetative propagated plants such cassava and Banana.

What next?

While much of Uganda's GMO research work is in its final stages, the release of these new seeds is expected to be a gradual process, said Alicai, from the National Crop Resources Research Institute.

The Biosafety Law, if approved, enables the assessment of which crops can be safely commercialized. Right now, it's in limbo after the president, under intense pressure from anti-GMO activists and the skepticism of his wife, sent the bill back to legislators for 'clarification.' The final piece of the regulatory puzzle will be handled by a committee designed by the Ministry of Science, Technology and Innovations. It will be tasked with approving seeds for release and for drafting regulations surrounding their use.

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