

East African Farming Genetically Transformed

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Kenya has become the first African country other than South Africa to plant genetically modified maize in open fields.

The seeds, altered to resist insect pests called stem borers, were planted in the first of a series of confined field trials at the Kenya Agricultural Research Institute station in the Kiboko district at the end of May.

Romano Kiome, director of the Kenya Agricultural Research Institute, hailed the move as an example of using science to address the needs of the people. He pointed out that the amount of maize Kenya loses to stem borers each year - about 400,000 tonnes - is nearly the same amount that the country imports annually.

Experiments with the insect-resistant maize have been taking place at the institute's Biotechnology Center in a new top-of-the-range biosafety greenhouse that opened last year.

Stephen Mugo, one of the project leaders, said the field trials would determine how effective the insect-resistant maize is at reducing the damage made by stem borers. If successful, the genetically modified plants will be interbred with Kenyan maize lines to produce varieties adapted to local growing conditions.

According to Odhiambo MakOloo, a Nairobi-based environmental lawyer, Kenya should not be starting the open field trials until it has adopted laws to control genetically modified organisms.

MakOloo claims that introducing genetically modified crops without a regulatory framework could be dangerous both to human beings and the environment.

But Musyoki Joseph, a farmer from Machakos district, says that the move could help to address food security in Kenya.

"We must embrace technological advancements taking place in agriculture as result of cutting edge science."

Joseph said stem borers were a major issue for maize growers and if the trials succeed, the transgenic maize could stop farmers losing large sums of money.

The 'open quarantine' field trials that began last week are being undertaken by the Insect Resistant Maize for Africa project, a joint research project with the International Maize and Wheat Improvement Center, supported by the Rockefeller Foundation and the Syngenta Foundation for Sustainable Agriculture.

Meanwhile, confusion reigns over whether neighbouring Tanzania has also begun field trials of genetically modified crops.

Tanzania's agriculture minister says that genetically modified nicotine-free tobacco is already being grown in the East African country for research purposes, although the planned regulatory framework has yet to be debated by parliament and there are no laws in place governing genetically modified crops.

Field trials of nicotine-free tobacco have been underway for several months on a small farm in Moshi District in the Kilimanjaro region "on a very small scale," agriculture minister Charles Keenja told

SciDev.Net. "We are seeing the possibilities of eradicating tobacco containing nicotine," said Keenja.

"We have decided to produce genetically modified tobacco that is free of nicotine... we target the future market."

In 2003, field trials of genetically modified tobacco seed produced by US-based Vector Tobacco were conducted in Tanzania, although there is widespread belief that such experiments were stopped at the end of the year.

However the company declined to respond to repeated requests to comment on the minister's statement that genetically modified tobacco is once again under trial in Tanzania.

Keenja said government was likely to delay draft legislation on genetically modified crops because 2005 is an election year in Tanzania, and the legislative calendar is overcrowded.

"We are not likely to have a law in place before 2006," he said. However he added that Tanzania could not afford to be left behind. "To date, not a single study has proven genetically modified foods to be harmful to human beings," said Keenja.

"It is only unfounded fear."

At the same time, Keenja also said the government may suspend plans to test cotton genetically modified in the laboratory to resist attack by insect pests, including a caterpillar known as red bollworm that feeds on cotton and causes bollworm disease.

"Tanzania cannot afford to be left behind by technologies that increase crop yields, reduce farm costs and increase profits," protested Wilfred Ngirwa, permanent secretary for the Ministry of Agriculture and Food Security.

The government-run trials were expected to begin before October under the supervision of researchers from Sokoine University of Agriculture in Morogoro, whose laboratory studies have shown that the genetically engineered cotton kills caterpillars feeding on it.

The research will be conducted in Tanzania's southern highlands, where cotton production was suspended in 1968 in an effort to stop the bollworm spreading to the rest of the country.

Since then, farmers in the region have largely grown sunflowers to sell to processors who extract oil from the plants. But the growers have complained that the industry offers little financial security due to the small local market for their crops.

Genetically modified cotton would be good news for farmers in southern Tanzania, said Paul Ntwina, the Member of Parliament for Songwe constituency. "Technology is likely to be our liberator," Ntwina said.

Job Lukonge of the Tanzania Farmers Association told SciDev.Net it was good that the government had decided to start its genetically modified trials with cotton instead of a food crop, as it would avoid the contentious issue of having genetically altered products in the human food chain.

Farmers were glad that genetic technology was within reach, but was concerned that Tanzania does not have the necessary skills to handle it if it proves to be harmful, Lukonge said.

However, the non-governmental organisation known as Participatory Ecological Land Use Management (PELUM-Tanzania), alleges that genetically modified crops - whether cotton or tobacco - would harm the environment and human health, and make poor farmers dependent on costly seeds.

The organisation's advocacy officer, Donat Senzia, fears that GM crops could create 'super weeds', which later may be uncontrollable and disturb the natural vegetation. Senzia claims that Tanzania needs more than ten years to prepare for any GM product.

By starting its genetic modification trials, Tanzania will become the seventh African country to do so, following Burkina Faso, Egypt, Kenya, South Africa, Tunisia and Zimbabwe. Of these, South Africa is the only country producing genetically modified crops commercially.