## Burkina Faso renews commitment to GM crops with Bt cowpea

Burkina Faso scientists and farmers say their country has not abandoned crop biotechnology, despite challenges that prompted it to shelve genetically modified (GM) cotton in 2016.

Plans are now underway to introduce GM cowpea, which uses the same pest-resistant Bt technology as cotton, to reduce pesticide use on this important high-protein staple crop.

Dr. Edgar Traore, coordinator of the Open Forum on Agricultural Biotechnology in Burkina Faso, said processes to develop GM cowpea that can resist the destructive pod borer pest have been ongoing for about half a decade now and will soon come to a successful end.

"The product is very ready in Burkina," Traore told the Alliance for Science in an interview. "You know, for more than five years now, we are conducting confined field trials to assess the efficiency of the product. And now I think ... we are ready to go to open field trial."

Traore said scientists have transferred the Bt gene, which provides resistance to the pod borer, into local cowpea varieties that farmers prefer because they can resist the striga weed and have the desired seed size and color.

<u>Bt</u> (*Bacillus thuringiensis*) is a naturally occurring bacteria that has the capacity to control a range of pests, including maruca pod borer, and is widely used in organic farming. A gene from the bacteria has been introduced in maize, cotton, cowpea and other crops to give them inherent pest resistance. Bt crops are popular in South Africa, the United States, South America and other countries, with a 100 percent safety record.

In 2008, Burkina Faso became the first West African country to commercialize Bt cotton, which provides inherent resistance to the destructive bollworm pest. Farmers were able to dramatically reduce their use of pesticides, going from spraying their conventional cotton fields 15 times every season to <u>spraying only</u> twice with Bt cotton.

Bt cotton became hugely popular and by 2014, more than 70 percent of all cultivated cotton in Burkina Faso was GM. But cotton companies expressed concern the length of fiber from the new variety was too short and they were having difficulty getting premium prices on the international market. The government suspended its production in 2016.

Though farmers' calls for a return of Bt cotton have fallen on deaf ears, scientists say Burkina Faso is not walking away from the technology entirely. They say the introduction of Bt cowpea will revive public confidence in GM technology. Bt cowpea has already been approved for cultivation in Nigeria.

Traore, who also runs the Smallholder Agriculture Productivity Enhancement Program in Burkina Faso, said that "all farmers in Burkina need this product, especially because cowpea cultivation is so important in our country."

Cowpea is a leguminous high-protein crop that is a staple food for about 200 million people in West Africa. Because it is early maturing, the majority of Burkina Faso residents rely on it as their primary source of protein. Pests, including the *Maruca* pod-borer, are estimated to reduce yields by up to 80 percent.

"Maruca is becoming a key pest in several cowpea cultivation areas in Burkina and farmers don't have any option other than spraying," Traore observed, noting that farmers often fail to use the pesticides that are recommended to control the pest and may use the pesticides improperly.

"That is very dangerous," he said. "So, if we can provide a product for farmers which will not necessarily require spraying, fine. So, that is why it's important for research to find this biotech solution for them where they will be using very less pesticide because this is a food crop. Using less pesticides in cropping Bt cowpea will be a good solution for our environment as well."

Burkina Faso farmer Wiledio Naboho said farmers are in dire need of the Bt cowpea to cut down on pesticide use.

"As a farmer, Bt cowpea will help reduce the use pesticides and increase our income because the variety we use now is always destroyed by the pod borer, which causes 80 percent of our yield loss," he said. "Our country's researchers are moving ahead to get the Bt cowpea introduced. We farmers are waiting.

Naboho added: "We need other GMO crops like Bt maize and [drought-tolerant, pest-resistant] <u>TELA</u> <u>maize</u>. And [vitamin A-fortified] <u>Golden Rice</u>, we have heard of that too. It will be helpful for our farmers in Burkina Faso."

Dr. Hamadou Sibide, a plant breeder and coordinator of the protein program at the Institute for the Environment and Agronomic Research (INERA), said improved varieties of cowpea, including Bt cowpea, are important to ensure good health and better income for farmers.

"Cowpea trade flow is a source of foreign exchange and job creation," he told <u>FasoPiC in an interview</u>. "In terms of cowpea production, Burkina comes in third place after Nigeria and Niger. It should be noted that good quality seed contributes 40 percent to the yield. Cowpea varieties can help fight against food insecurity in Burkina Faso."

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Sibide is encouraging the public to support GM cowpea varieties. "It could take seven to eight years to develop a variety with conventional breeding. But with the tools of biotechnology, the development time is at most four years for cowpea," he explained. "So, the selection time is reduced as well as the volume of work and it is the Burkinabè consumer who wins. Given the scarcity of rains, their poor distribution and cowpea production constraints, improved varieties are a solution to these various constraints."

Regulators are keeping a keen eye on the scientists developing the varieties to ensure they are safe,

Sibide said. "Currently, the work of the National Biosafety Agency is much more focused on genetically modified organisms (GMOs). The agency has an eye on what the researcher is doing in terms of experimentation on GMOs so the consumer does not doubt the quality of the product," he said.

"I do not doubt the capacity of our research and our researchers to meet the challenges of the moment because no country in the world has developed without its scientific research," Sibide added. "As a result, producers must adopt improved varieties — and especially improved varieties of cowpea — which will lift them out of poverty and achieve food self-sufficiency."

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