

# TheNational



## New hope to end scourge of drought

Matt Brown, Foreign Correspondent

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NAIROBI // *Bacillus subtilis* is a lowly bacteria that lives in cold, dark soil. It is invisible to the naked eye and not very sexy as far as organisms go. However, this rod-shaped microbe may hold the key to ending famine in Africa.

Scientists from Missouri to Johannesburg are intrigued by one of *B. subtilis*'s 4,100 genes: *cspB*.

When this particular piece of DNA is injected into an ordinary maize seed, an interesting event occurs; the leaves of the fully grown maize plant curl up in dry conditions thus losing less water to evaporation and making this mutant staple crop virtually resistant to the crippling droughts that have plagued Africa for centuries.

A consortium of genetic engineers, biotech companies, philanthropists and policy makers are working to make this technology widely available and affordable to small-scale African farmers. Meanwhile, opponents of genetically modified food are questioning the safety of the product and the motives of the companies involved.

Researchers with the Water Efficient Maize for Africa (Wema) project are currently testing drought-resistant genetically modified maize seeds in Kenya, Tanzania, Uganda, Mozambique and South Africa.



Malnourished children were among the 4.5 million Ethiopians who needed food aid during a drought in the country last year.  
Jose Cendon / IFRC / AFP



More than half the population of sub-Saharan Africa depends on maize as the main food source. Across much of Africa, subsistence farmers and their maize crops are vulnerable to changing weather patterns. Three out of every four significant droughts in the world have occurred in Africa, according to the African Agricultural Technology Foundation, which is overseeing the Wema project.

The genetically modified seeds are expected to increase yields by 20 to 35 per cent translating into two million metric tonnes of maize during drought years or enough to feed 14 to 21 million people.

"The idea is that, if there is a drought, we will have enough food to feed the people," said Sylvester Oikeh, the Wema project manager. "It's going to be a huge benefit if we are talking about all of Africa."

The biotechnology used to make the seeds resistant to drought is being developed by the Mexico-based International Maize and Wheat Improvement Centre and

Monsanto, the world's largest agricultural biotech company, based in St Louis in the United States.

The Bill and Melinda Gates Foundation and the Howard G Buffett Foundation are financing the project, essentially underwriting the research and development of the genetically modified seeds so that they will be as cheap as conventional seeds. For Monsanto, this could open markets in Africa.

"This technology will be given royalty-free to small-scale farmers in sub-Saharan Africa," said Kinyua M'Mbijewe, a spokesman for Monsanto's Africa division. "We're not here because of charity. If you help small farmers, today they may not be good customers. But in 10 years, they may be good customers."

The project is not without critics. Genetically modified food has been embraced in most of North America but rejected in much of Europe. In Africa, where the technology is still new, the technology is gaining a foothold. South Africa already produces genetically modified maize that is resistant to pests.

"Wema is a strategic way of making the acceptance of GM [seeds] more palatable on a continent that sees little value in the current two-trait GM technology," said Mariam Mayet, director of the Johannesburg-based African Centre of Biosafety. "The field trials pose the most immediate biosafety threats including the risk of gene flow via cross pollination."

Also controversial is Monsanto's involvement. To organic farmers, it is an evil corporate giant and an easy target for criticism. Monsanto owns the patent to the genetically modified seeds it creates.

"Monsanto's prominent role in the project ... is a disingenuous attempt to paint a pretty picture of benevolence when really what it has also set its sights on is a potential market in Africa to peddle its GM seeds," Ms Mayet said.

Monsanto said farmers in Africa will be able to save seeds to replant, but the company recommends they buy new seeds each season.

The genetically modified seeds are currently being developed in laboratories in South Africa. Drought-tolerant seeds, which are created using conventional breeding and are not as efficient as the genetically modified seeds, are now being field tested. The genetically modified seeds could be tested during this year's dry season once government regulations are in place and be on the market within five years.

[mbrown@thenational.ae](mailto:mbrown@thenational.ae)

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