

HORIZON

## Gene from Japan for local maize



Chairman of Kenya's Parliamentary Committee on Science and Technology, David Koech (right) and Agriculture Secretary Dr William Songa (left) visit Mr Molatsi Musi at his GM maize farm in Gauteng, South Africa. PHOTO/CORRESPONDENT

By BERNARD MUTHAKA  
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The ammonia-like smell and slimy texture of soybeans fermented with bacteria is a combination that is craved by many Japanese, as this dish, known as natto, is said to nourish the brain, prevent high blood pressure and to keep the skin young.

It is said hungry Japanese warriors once resorted to eating rotten soybeans when, exhausted from war, they found that the cooked soybeans they had wrapped in straws and brought as battle rations had gone bad.

With time, natto became a staple in the breakfast diet of millions of Japanese people.

While many in Africa may find the dish unpalatable, years of biotechnology research now indicate that the natto bacterium may be key to one of Africa's biggest problem – food insecurity.

### Varieties

Research has shown that the natto bacterium known as *Bacillus subtilis* has a gene that helps plants to cope with the stress of drought.

The beneficial gene was discovered by a leading biotechnology firm Monsanto, and in a partnership of private and public players, the company has licensed it to national institutions in five countries to develop drought-tolerant maize varieties.

The partners are supported by the Bill and Melinda Gates Foundation in a project known as Water Efficient Maize for Africa (WEMA) that is being carried out in South Africa, Mozambique, Uganda, Tanzania and Kenya.

Researchers from the five countries met in Johannesburg last week where they announced that the first varieties of the maize, developed from conventional breeding technology, are likely to be released in two years' time.

Apart from the conventional breeding approaches such as tissue culture and marker-assisted selection, WEMA is also testing genetically-modified varieties that are expected in the market in about seven years.

Apart from Monsanto, the other partners in the project include national research institutions such as KARI and CIMMYT who are experts in plant breeding.

### Royalties

The project is coordinated by the African Agricultural Technology Foundation (AATF), a non-profit institution mandated to look for and deliver privately-owned technologies to smallholders African farmers without royalties.

South Africa has already had open trials for the genetically-modified variety, but regulatory formalities in the other countries have still to be completed for field trials.

Conducting a tour on his farm where he plants some genetically-modified maize varieties, South African farmer Molatsi Musi could not understand why African farmers are slow to embrace biotechnology.

"This is the fifth time I am getting visitors from Kenya, but the story is always the same, leaders are still talking and people are still hungry", he told the delegation that included the chairman of the Parliamentary Committee on Science and Technology David Koech and the Agriculture Secretary in the Ministry of Agriculture, Dr. Wilson Songa.

Mr Musi, a former labourer on a white man's farm, now harvests about eight tons of maize per hectare. The GM varieties on his farm contain the herbicide-tolerant and insect-resistance traits.

Due to a combination of poor seed varieties, poor soils and unhelpful weather, a farmer who gets two tons per hectare in Kenya is doing very well.

### Income

"I will stop planting GM maize the day it becomes a crime to do so", declared Mr Musi.

According to Mr Koech, the Government has no objection to science-backed technology such as GM, but regulations need to be followed in each step towards their commercialization.

“Kenya has already established a National Biosafety Authority (NBA) which is now operational, so everything is going according to schedule,” said Mr Koech.

Dr Songa was emphatic that Kenya has the potential to feed its population. “It is obvious that when Kenya fully adopts these technologies, there will be no need to import maize”, he said.

**Additional**

WEMA project manager Dr Sylvester Oikeh said that under moderate drought, the maize varieties are expected to increase yields by 20–35 per cent over current varieties.

“This means an additional two million metric tons of maize will be available during drought years, to feed between 14 and 21 million people,” he says.

While genetically-enhanced medicines have been accepted without controversy, the development of genetically-modified food varieties is still dogged by strong lobbying.