

HORIZON

GM maize for local trials by 2010

By BERNARD MUTHAKA Posted Wednesday, June 17 2009 at 17:28

Kenya will soon start confined field trials of drought-tolerant transgenic maize variety in a project spearheaded by Kenya Agricultural Research Institute. The project funded by the Bill and Melinda Gates Foundation is in the process of seeking regulatory approval for the confined field trials from the National Biosafety Committee (NBC).

The project, known as the Water Efficient Maize for Africa (WEMA) project, is being implemented in five African countries – Kenya, Uganda, Tanzania, Mozambique and South Africa. It is a public-private partnership led by the national agricultural research systems in the respective countries.

The Nairobi-based non-profit organization African Agricultural Technology Foundation (AATF) is coordinating the project. Other institutions involved include the International Maize and Wheat Improvement Center (CIMMYT) and Monsanto.

Varieties

The request to conduct the confined field trial comes in addition to the Kari testing of Bt maize on a trial basis in confined field trials. Bt maize varieties provide hope for conquering the stem borer, a moth that is mainly responsible for on average 15 per cent loss of maize yields.

Bt is the abbreviation for *Bacillus thuringiensis*, a bacterium that commonly occurs in soils. Bt maize has been genetically modified to produce a protein – Bt protein – that kills certain chewing insects.

While the borer has caused extreme anguish to farmers, inadequate rainfall has been the biggest constraint of African agriculture, making drought tolerance one of the most important targets of crop improvement programmes.

Three-quarters of the world's severe droughts during the past 10 years have occurred in Africa. While poor farmers account for 60 per cent of global agriculture, they only manage to produce about 20 per cent of world's food.

As it is, agriculture needs a whole lot of water: one kilogram of rice needs up to 5,000 litres of water while a kilogram of maize needs 630 litres. In this project, AATF, CIMMYT, and Monsanto have signed a legal agreement so that drought-tolerant maize varieties developed through this project will be licensed to AATF.

AATF will identify local seed multipliers to make the seed available to smallholder African farmers at the regular price of maize seed without royalty. WEMA seeks to develop drought-tolerant maize for Africa using conventional breeding, marker-assisted breeding, and biotechnology.

The long-term goal is to make drought-tolerant maize varieties available royalty-free for the drought-tolerant trait to small-scale farmers in Sub-Saharan Africa. Conventional breeding can eventually be used to develop drought-resistant varieties, but the process is laborious and takes years.

Green houses

In the WEMA project, Monsanto will accelerate the breeding process through what is known as marker-assisted breeding, which allows researchers to find and track genetic material associated with drought tolerance and focus on developing those lines.

CIMMYT, for long involved in conventional breeding and testing for drought tolerance, will provide high-yielding maize varieties that are adapted to African conditions.

Usually field trials for plants developed through genetic engineering should be contemplated only after research has taken place in specially equipped, safety-controlled laboratories and greenhouses.

Other similar initiatives are on the way.