

HORIZON

In search of new maize variety

By BERNARD MUTHAKA Posted Wednesday, July 22 2009 at 17:24

Like virtually all Kenyans at this time, Dr James Gethi is disappointed that three seasons in a row have been very dry in almost all maize growing areas.

However, the irony is that most of his crop is doing very well, despite being grown in the arid plains of Emali where he and other scientists are working with various maize seeds to come up with a variety that can withstand the devastating drought that has consigned the country to long periods of hunger.

Kiboko is a dry area where field research led by the Kenya Agricultural Research Institute (KARI) and the International Maize and Wheat Improvement Centre (CIMMYT) are seeking to develop drought-tolerant maize varieties through both conventional breeding and genetic engineering.

It is the site that has been chosen for the country's very first confined field trials for drought tolerant genetically enhanced maize, under the Water Efficient Maize for Africa (Wema) project.

Over the years, it has been established that this area goes for up to four months (June-September) without a drop of rain, making it the perfect setting for the drought-tolerant maize trials.

"It would be a disaster were it to rain during the time the trial is running, as we would have to start all over again," says Dr Stephen Mugo, the Wema Product Development Lead at CIMMYT.

Nutrients

The Wema project seeks to find maize varieties for Africa that weather the regular bouts of drought episodes which make African farming a risky undertaking.

Arable land in Africa is so overworked that cultivated land has been losing nutrients faster than they can be replaced. The average use of fertiliser in Africa is nine kilograms per hectare compared to the international average of 100 kilograms.

Yields per person have fallen over the last 40 years and experts warn that if soil depletion continues unabated, they will decline by up to 30 per cent over the next 15 years.

With inadequate rainfall and only about five per cent of the arable land under irrigation, the outlook is bleak especially for small-scale farmers.

It is a race against time for people like Dr Gethi, the KARI national maize research coordinator and Country Coordinator for Wema Kenya, as they search for genes that can enhance the drought tolerance trait.

Through the use of tools such as molecular markers, their assignment is to screen large populations of plants for those that possess the genes which will make maize farmers assured of higher yields under moderate drought.

The transgenic approach effort will add to the arsenal being assembled to fight drought, that include drought tolerance, which are currently being used by researchers.

Wema

According to Wema Project Manager Dr Sylvester Oikeh, the partners in the project estimate that the maize products developed will increase yields by 20 to 35 per cent under moderate drought, compared to current varieties.

This increase would translate into about two million additional tonnes of food during drought years in the participating countries, meaning 14 to 21 million people would have more to eat and sell.

Supported by the Bill and Melinda Gates Foundation and the Howard G. Buffet Foundation, Wema is being implemented in five African countries.