How Africa is paying the price for rejecting crop biotechnology....

With the exception of South Africa and Burkina Faso the continent of Africa has so far failed to take advantage of biotechnology (*Crop Scene, September 2015*). Despite the desperate state of agriculture in many African countries, which is expected to get worse from the impact of climate change, politicians have adopted totally entrenched positions. The scientific community in several African countries has argued the case for adopting the technology (*Crop Scene, January 2016*). However, there are now signs that, with instances of crop failures on the rise, the need for new technologies is becoming more urgent and a few farmers are beginning to raise their voices. The stumbling block is with the politicians.

Zimbabwe is an extreme example where crops are failing. For example, cotton production in 2015/16 is estimated to be only a third of that achieved in the previous year (*Harare Gazette, 13 October, 2016*).

Zimbabwe has banned both GM crop production and importation. Poultry production is one area where Zimbabwe could benefit. South Africa relies on GM maize for its chicken production and exports chicken to many African markets. With Zimbabwe now facing severe drought and food shortages a number of experts are recommending that government lifts the ban on GM stockfeed. However, Agriculture, Mechanisation and Irrigation Development Minister Joseph Made, has reiterated: "The position of the government is very clear, we do not accept GMOs as we are protecting the environment…."

Within the last few weeks a high-level stakeholder validation workshop on agricultural policy was held in Harare. The workshop was organised by the National Economic Consultative Forum (NECF) in conjunction with the United States Agency for International Development (USAID). The meeting demonstrated that GM crops, especially in cotton production, would increase national income by $50 million.

Idah Sithole-Niang, associate professor in biochemistry at the University of Zimbabwe, said that the national saving for bollworm control could be $12 million and, with yield increases of 400 kg/ha, the national income benefit could reach $90 million. It would also be possible to export cotton as most of the leading cotton producing countries adopt *Bt* cotton.

The Nigerian government is also reported to be getting tough on the subject of imported GM foods. Following reports that some supermarkets were selling food containing imported GM products, the director-general of the National Biosafety Management Agency (NBMA), Dr Rufus Ebegba, called a meeting with representatives of supermarket managers in Abuja. The outcome was a directive that the federal government has ordered all supermarkets in Nigeria to withdraw all GM products from their shelves within the next seven days (from 16 October) or face sanctions.

Mr Ebegba added "There is a law in place. We do not want any segment of the society, out of ignorance, to act in manners that will infringe on the existing law." He noted that the idea that Nigerian laws are not enforced and implemented by government agencies should be completely ruled out because the NBMA would not hesitate to shut down any supermarket that contravenes the Act.

A farmer from Uganda, Michael J Ssali, recently wrote an article describing how he believes that policy makers are not listening to the needs of farmers in the country (*A case for Uganda's use of biotechnology, The Daily Monitor, 12 October 2016*). He was responding to an article that appeared in the same journal in August which emphasised the problems with GM crops but did not put the farmer's viewpoint. Michael Ssali stated: "I write this article from the stand point of a Ugandan farmer that has seen acres of my coffee farm destroyed by the incurable coffee wilt disease (CWD) and has also lost half of the banana and cassava crops due to the banana bacterial wilt disease (BBWD) and the cassava brown streak disease (CBRD) respectively both of which have no known chemical cure."

With coffee he observed: "The losses ordinary farmers like me make ultimately translate into the losses of the entire nation." He quoted that in 2014/2015, the country produced only 3.24 million 60kg bags. Coffee is Uganda's main traditional cash crop, contributing 18-20% cent of foreign exchange earnings but for several decades, coffee exports have stagnated at around three million bags a year.

He presented a similar story with bananas. "Uganda has always been Africa's biggest producer of bananas, but we risk losing that position due to BBWD." He quoted that the average yield loss of bananas attributed to BBWD is 71%, which leads to an annual loss of just short of $300m. Bananas are also a major domestic food crop grown by about 75% of farmers and consumed by more than 13 million Ugandans.

Banana plant destroyed by the banana bacterial wilt disease

If more farmers such as Michael Ssali make the case there could yet be a new approach to biotechnology on the African continent. Uganda could be one of the first countries to switch.