

# Biosafety Act will help address GMO technology gaps

*Standard Digital, Sunday, 28 October 2012*

So close yet so far best sums up the Genetically Modified Organisms or (GMOs) scene in Kenya since the introduction of the technology in the early 1990s. Viewed scientifically as the panacea for bridging the drought and food deficit gaps in many parts of the country, the GMOs is also a fertile ground for controversy, debate, and counter-debate.

First, there is the dearth of information among the public about what GMOs are really about, albeit the media have often tried to educate the public on the subject. Then, scientists do not seem to agree on certain critical issues about the technology – throw in the so-called activists, the Greenpeace and lopsided media – and the debate gets murky. The latest controversy about GMOs was stirred after a team of French scientists published findings in the US journal Food and Chemical Toxicology that raised serious questions about the safety of GM foods and the assurances offered by biotech companies and governments.

Essentially, the study conducted by Caen University in France, and peer reviewed by independent scientists claimed that rats fed a lifelong diet of one of the best selling strains of genetically modified corn suffered tumours and multiple organ damage – including raised incidences of breast tumours, liver and kidney damage.

Although the study has attracted fierce condemnation worldwide, including from our own scientists, for lack of professionalism, it still leaves a bitter taste in the mouth for millions of Kenyans who had hoped this technology would come in handy especially faced with unpredictable weather, depleted soils, and poor investments for agricultural production.

More worrying is the fact that scientists can read from different GM scripts at a time when the country is testing various plant materials in different parts of the country with the view to introducing the genetically modified materials to the general public.

Whether the French findings were authentic or not is neither here nor there. It is the duty of the Government, our research institutions and scientists to convince the public that what we are dealing with here is not a potential recipe for disaster. Save for a few journalists who have been educated about the concept behind GMOs, the Kenyan public in general is still insufficiently knowledgeable about the technology.

It is for this reason that the Biosafety Act should be put in full force to address any existing and emerging gaps about the technology. In this respect the National Biosafety Authority (NBA) which was established by the Biosafety Act No 2 of 2009 to exercise general supervision and control over the transfer, handling and use of genetically modified organism should kick into action and chart the path for adoption or otherwise of the technology. The adoption of the technology would potentially cut

the average maize crop loss by 15 per cent or 500,000 tonnes annually through stalk borer invasion and save the country some Sh6 billion. But what exactly are GMOs?

Ideally, GMOs are products of modern biotechnology that involve the manipulation of the genetic material of organisms through genetic engineering procedures. In Kenya, trials are on going for Bt maize varieties. Bt maize has been genetically modified to produce an insecticide – Bt toxin – that kills certain insects that destroys the crop.

The gene transferred to the maize comes from the soil bacterium *Bacillus thuringiensis*, which is where the abbreviation Bt comes from. The bacterium has long been known to possess an insecticide effect. Unlike many chemical insecticides, Bt toxin is harmless to humans – this is why Bt preparation is frequently used as biological plant protectants.

The toxin in Bt plants and in Bt preparation has similar effect. In both, the toxin is present in a precursor form (protoxin) that is converted into active toxin only in the presence of certain enzymes in the gut. The difference, scientists, say, is that Bt genes introduced into the plant have been shortened and adapted to the plant. In the plant, the protein is present in a dissolved form, rather than as crystal, and therefore harmless to humans.

But it is this detailed, yet seemingly complicated science that needs to be simplified and communicated to the public in a manner in which they can understand it as well as create positive awareness to disabuse the public of the fear, misinformation and half-truths being bandied by opponents of the technology.