



**Genetically modified corn.** The Philippines has planted GM crops for years, and so have Vietnam, Myanmar and Indonesia.

# Securing our food supply with GM crops

**INEVITABLE:** With increasing world population, climate change, and diminishing agricultural land, genetically modified crops will prove to be mankind's salvation

**M**ALAYSIA is the pioneer among Asean countries in having guidelines and regulations on the import of genetically modified (GM) or agribiotech (agricultural biotechnology) crops. We also have thorough guidelines and regulations on genetically-modified organisms (GMO) research through the Biosafety Act 2007 and the Regulatory Guidelines for GMO Field Release of 2013, which strictly follow the Cartagena Protocol on Biosafety and the Convention on Biological Diversity.

However, to date, only two applications were approved for confined field trials, namely the GM papaya with a disease-resistant trait in 2013, and a GM rubber plant this year. In contrast, the Philippines has been planting GM crops for years, while Vietnam and Myanmar are growing GM corn. Indonesia has followed suit with the planting and commercialisation of home-grown GM sugarcane.

Other Asian countries like India,

China, Pakistan are among the 19 agribiotech mega-countries (i.e. growing 50,000ha or more of GM crops). Even Bangladesh is catching up with the recent planting of GM brinjal.

Based on the latest statistics by the International Service for the Acquisition of Agribiotech Application (ISAAA), 18 million farmers in 28 countries planted GM crops on 181 million hectares of land in 2014 after 19 years of sustained 3 to 4 per cent growth rate.

The five Asian countries (India, China, Pakistan, the Philippines and Myanmar) account for 19.5 million hectares or 11 per cent of the total agribiotech hectareage. Major GM crops are soybean, corn, cotton and canola with a global market value of US\$15.7 billion.

The National Biotechnology Policy with agribiotech as the number one thrust has been in place since 2005 to spearhead Malaysia as a global player in bioeconomy by 2020.

We have a well established support framework and agencies such as BiotechCorp and Malaysian Biotechnology Information Centre (Mabic) which actively promote agribiotech industry in the country.

Agribiotech research in Malaysia is also of world-class standard with state-of-the-art facilities and equip-

ment for crop improvement.

But, why is there still no GM crops in Malaysia?

There is no doubt that GM crops are on the rise and will be an inevitable trend due to an exponentially increasing world population, compounded by shrinking arable land and diminishing freshwater for irrigation.

This is further exacerbated by climate change with sea levels rising and more frequent occurrences of flooding and drought. Malaysians are blessed to be sheltered from most of the natural disasters and have been complacent over our secured food supply. Perhaps, this is the main factor why there are no takers of GM crops here, as there is no urgency compared to other land-stricken countries such as Vietnam which will be greatly affected by rising sea levels.

There is yet no demand for GM crops simply because we import most of our food crops. Malaysia's net import of food products in 2013 — mainly sugar, confectionery, dairy products, cereal, vegetables and fruits — amounted to RM15.6 billion. Our farmers also rely heavily on imported seeds.

On the other hand, due to the domination of land by cash crops such as oil palm, there is limited land for large-scale isolated cultivation of GM crops. This has shifted the focus of local scientists to work on plant-made proteins (PMPs) using transgenic plants which require only a confined greenhouse for production.

The production of PMPs for pharmaceuticals or drugs is also known as molecular farming or biopharming. This exciting research area was started in the early 90s when the first plant-derived protein of human serum albumin was produced in

transgenic tobacco and potato plants. The major advantage of using PMPs is the cost-effectiveness, and the plants are free of human pathogens as compared to pre-existing microbial systems.

There is a need to raise awareness on the importance of cultivating GM crops in today's setting. There are various factors, either personal or logistic reasons why there are no GM crops in Malaysia. It is high time for us to have a public discourse on the subject. Community engagement, especially with community leaders from rural areas where agriculture thrives, is a start. We also need dialogues among all the stakeholders through public forums or focus groups. The idea is to engage the public through value-based communications and not debate about science.

There are only five years left in the 15-year road map set out by the National Biotechnology Policy. We have achieved the capacity building from year 2006 to 2010 with established infrastructure and expertise in phase 1. Phase 2 (2011-2015) ensued to reap benefits from fundamental research through the formation of biotech companies.

But, whether we can move on to global prominence in the final phase will require public support to achieve the goals.

All Malaysians should feel the urgency of this topic and not shy away from it. Agribiotech crops are of paramount importance in the global food security for the coming decades. We don't want to wake up one day to realise that we are too far behind our neighbouring countries in the agribiotech industry.

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