



**Debate: What's wrong with GM?** [\(/global/article-series.whats-wrong-with-gm.html\)](http://global/article-series.whats-wrong-with-gm.html)

# Arab countries need better GMO detection systems

*Image credit: Wikimedia Commons/ National Cancer Institute/ Linda Bartlett*

## Speed read

- Most Arab countries lack regulations to detect genetically modified organisms
- Many people believe GMOs pose serious threats to human health
- Countries need to establish fast, efficient and low-cost tests to detect GMOs

### **The Middle East and North Africa need fast, effective, low-cost tests for GMO detection, says Tarek Kapiel.**

Genetic engineering

[\(http://www.scidev.net/global/enterprise/engineering/\)](http://www.scidev.net/global/enterprise/engineering/) has been — and continues to be — marketed as humanity’s solution to hunger and deadly disease. It was imposed upon humans under the guise of opening boundless horizons for saving humanity. It was also touted as being technologically capable of producing huge amounts of food that would satisfy billions of hungry people, with no need for pesticide use and with reduced need for fertilisers, while at the same time prolonging the expiration date of products, thus facilitating their trade and storage.

Genetically modified [\(http://www.scidev.net/global/agriculture/gm/\)](http://www.scidev.net/global/agriculture/gm/) organisms (GMOs) are now available in most markets around the world, and, before long, conventional food that has not been exposed to genetic engineering techniques may be a thing of the past.

However, foods derived from these techniques may have hidden risks and dangers that could take many years to transpire. Opponents of GM products — being dubbed ‘Frankenstein foods’ by some — voice their scepticism by saying it may take years to scientifically prove the dangers they pose.

These opponents, including anti-GMO consumer groups in developed countries, have forced major GMO producing countries such as the US, Canada and Australia to defend GMO technology [\(http://www.scidev.net/global/enterprise/technology/\)](http://www.scidev.net/global/enterprise/technology/) against these claims.

## Scarce regulation

Most concerning for us is the fact that when the Centre for Food Safety and the International Forum on Globalization published its genetically engineered policy (<http://www.scidev.net/global/governance/policy/>) map concerning genetically-engineered food laws in April 2013, it was apparent that the majority of MENA countries, with the exception of Saudi Arabia and, to a lesser extent, Tunisia and Jordan, lacked any laws restricting the entry of these foods. [1]

Saudi Arabia is the region's leading country when it comes to the adoption of monitoring mechanisms on the import of genetically engineered agricultural (<http://www.scidev.net/global/agriculture/>) products to ensure the legal frameworks needed for consumer protection.

Controlled studies concerned with consumer opinions in the Middle East and North Africa with regards to GMOs are lacking. However, the Federation of Arab Scientific Research Councils conducted, by the end of 2011, a two-month study in which a random sample of 700 Egyptians were polled on their opinions regarding GMOs. The results revealed that 52 per cent of the study population was opposed to GM foods; 64 per cent believed they pose a health (<http://www.scidev.net/global/health/>) risk; and 50 per cent believed that GM crops are harmful to the environment (<http://www.scidev.net/global/environment/>). [2]

In spite of spending the past 25 years teaching and studying GM technology and tissue culture, I will not take part in defending this technology without discussing its pros and cons. Meanwhile, a number of influential international companies leading the market in GM products are interested solely in profit. These companies interfere in relevant scientific research and might even work to block the publication of certain scientific results perceived as disadvantageous to their interests.

Such companies had the power — by way of their scientists — to withdraw an article published in *Nature* in September 2012 concerning a study showing that mice fed on GM maize developed tumours. This shocking article sparked much controversy over the safety of GM foods, and was withdrawn following much criticism and investigations that took place over the period of one year, under the pretext that its results were scientifically invalid. [3]

## Probable harm, possible benefit

The phrase goes “the absence of evidence is not the evidence of absence”. In other words, the failure to observe evidence that genetically modified foods are harmful does not mean they are safe, as it is very likely that they are associated with long term problems. For instance, according to the European Union’s Scientific Committee on Veterinary Measures Relating to Public Health, consuming beef and milk from cows injected with growth hormones could lead to the development of breast and prostate cancers.

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Furthermore, in a comprehensive survey that I did during one of my latest research projects in Al-Baha University in Saudi Arabia, in all published scientific data concerning the safety of genetically modified foods, only a few studies were based on experimental evidence and the majority of researchers had pointed to a personal belief that these foods are safe.

In my opinion, genetic modification involves potential risks and problems. These include the possibility of gene transfer from genetically modified plants to humans, animals, or wild plant varieties of the same species; potential increase in insect resistance to toxins produced by GM plants

and the potential harm of these toxins on non-target organisms; not to mention the loss of the original taste and smell of many indigenous crops.

Furthermore, the harm caused by these plants on individuals does not appear immediately after consumption but takes years to become apparent. These problems continue to stir much controversy between GMO producers and health advocates.

There is a strong belief that genetically modified foods represent a serious threat to humanity. A number of studies link these foods to certain diseases, such as autoimmune diseases and allergic reactions. The Austrian Ministries for Agriculture and Health sponsored a study showing that mice fed on genetically modified foods suffered lower body weight and fertility rates, and that their rate of death was five times higher than normal. The study also found that the mice had lower birth weights, reproductive failure and altered young sperm cells in males. [4]

### **Lack of action, abandoned solutions**

The passage of laws regulating the presence of genetically modified organisms in crops and food ingredients in different countries around the world has dictated the development of reliable and sensitive detection methods. Unfortunately, no wholly reliable methods have thus been approved due to the lack of standard sampling techniques or reliable control standards.

Many of the issues that need to be resolved in this regard require the analysis and labelling of foods produced through genetic engineering. GMO test laboratories have to deal with more than 150 commercialised GMOs and various countries need to develop mechanisms that can deal with this complex situation.

Therefore, MENA countries need to establish fast, efficient and low cost standard tests for detecting and evaluating the safety of genetically modified foods and animal feed. I believe this will enhance local skills, and that the exchange of information in the field of biosafety will eventually lead to the establishment of a regional platform for handling and managing the detection of GMOs, as well as for standardizing detection and analysing procedures.

Weighing the benefits and hazards of genetic modification may take a relatively long period of time in order to conduct adequate studies. Until then, genetically engineered products should not be placed on the market before passing a test period similar to that which pharmaceuticals must pass before being marketed.

Experience has shown that the solution to hunger is not genetically modified foods as people starve as a result of poverty rather than a shortage of food. There are better ways than genetic modification to solve the problems of hunger and malnutrition.

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*This opinion has been produced by SciDev.Net's Middle East & North Africa desk for SciDev.Net's global debate: What's wrong with GM?. Click here to see the debate page.*

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## References

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- [3] Rat study sparks GM furore (<http://www.nature.com/news/rat-study-sparks-gm-furore-1.11471>), Nature 2012.
- [4] Genetically-engineered food potential threat to fertility: Study shows that genetically engineered maize affects reproductive health in mice (<http://www.greenpeace.org/international/en/press/releases/ge-threat-to-fertility-11112008/>), Greenpeace International, 2008.

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