GM Food Newsletter

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GM Food in Our Food Baskets

"This must be genetically modified (GM)!" Have you ever said so when you encounter fruit with sweet and juicy taste, fancy colours, or even special shapes?

People often wonder what GM food items we come into contact with in our daily life or even think that many of them are in our food basket. Before answering this question, let's understand why GM food is made.

Intention of producing GM food

GM food is created for specific aims and mostly for economic benefits such as higher crop yield, targeting at farmers and food manufacturers, etc. The figure below shows some beneficial characteristics of GM food and their main target segment.

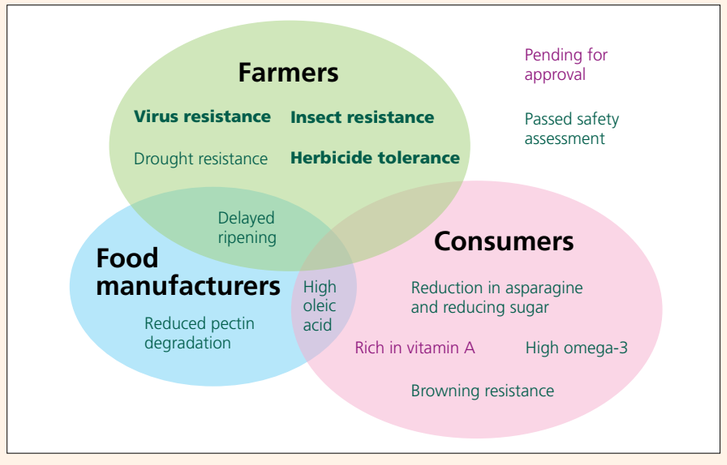

Figure 1: Examples of beneficial characteristics of GM food targeted for farmers, food manufacturers and consumers.

Most GM foods are modified to increase the crop yield by adding properties like insect resistance, herbicide resistance, or virus resistance. These are the most common characteristics of GM foods in the international market and aim to attract farmers. Consumers usually cannot distinguish GM food by its appearance, taste and shape, while most beneficial characteristics of GM food are not aimed to attract consumers. That said, the saved cost for farmers or manufacturers as a result of the engineered characteristics may lead to cheaper food for consumers.

Currently, the main focus of developing GM food is still on trade benefits, yet, there are GM food items developed or under development which have benefits to attract consumers. For example, soya bean has been modified to produce soya bean oil rich in omega-3 fatty acid and golden rice has been modified to contain high levels of vitamin A. These products have fortified nutrients and may have potential health benefits for consumers. Certain GM potatoes have been modified to reduce the formation of black spot bruises by lowering the levels of certain enzymes, and to reduce the levels of asparagine and reducing-sugars resulting in less acrylamide, a carcinogen in experimental animals, formed during high temperature cooking. As for the appearance, certain varieties of apples are modified to resist browning associated with cuts and bruises by reducing levels of enzymes that can cause browning. These examples may show that GM food developers are trying to gain the acceptance of consumers. The features added may shift the consumer's attitude on choosing GM food in the future.

GM foods locally available

Around the world, the most common GM crops are soya bean, corn, cotton and canola (in the order of the size of planting areas). As for Hong Kong, various types of prepackaged food were detected with GM soya bean (e.g. prepackaged tofu, prepackaged soya beverage, vegetarian food), GM corn (e.g. tortilla chips, corn grits) and GM canola (e.g. cup noodle), in previous studies conducted by the Centre for Food Safety (CFS) and/or the Consumer Council.[1] Some of them were detected at low levels (i.e. less than 5%, which was possibly due to adventitious mixing in the food chain), while some were found at higher levels. For example, several corn snack samples imported from the United States (the U.S.) were detected with GM corn exceeding the threshold value (5%), i.e. GM corn ingredient is likely to be used. As GM crops are widely planted in the U.S. it is not unexpected to find GM ingredients in food imported from the U.S. Following the U.S., other countries that have wide planting of GM crops include Brazil, Argentina, India and Canada (in the order of the size of planting areas).[2]

On the other hand, imported and locally grown crops available from local markets and farms in Hong Kong are regularly surveyed by the Agriculture, Fisheries, and Conservation Department (AFCD). (http://www.afcd.gov.hk/english/conservation/con_gmo/gmo_edu/gmo_edu_survey.html) Among the food samples collected by the AFCD, GM papaya has been found in imported fruits and local produce every year. It appears that GM papaya is not uncommon in Hong Kong. In addition, more than half of the papaya imported from mainland China and the U.S are GM.[3] Some people may keep the seed of GM papaya for cultivation without being aware that the papaya is GM.

Picking GM food out from food baskets

Consuming GM food or not is a personal preference and not about food safety as GM food available on the international market has generally passed safety assessment and is unlikely to be a safety concern. However, we will likely find more food with GM ingredients in our food baskets due to the economic benefit obtained from the planting of GM crops. The planting of GM crops has increased from 1.7 million hectares in 1996 to 181.5 million hectares in 2014.[2] It is unlikely that the trend will reverse; however, there may be increased planting of other varieties of GM crops with beneficial features to consumers in the future.

1 Sources of information:
- *Evaluation on the Effectiveness of the Guidelines on Voluntary Labelling of Genetically Modified Food in 2008*
- *The CFS and Consumer Council joint study in 2012*
- *Consumer Council studies on GM foods (2000, 2003 and 2011)*
- *AFCD 's survey results on GM organisms*

2 International Service for the Acquisition of Agri-Biotech Applications. URL: http://www.isaaa.org/resources/publications/briefs/49/toptenfacts/default.asp (Accessed Mar 2015)

3 URL: http://www.legco.gov.hk/yr11-12/english/hc/sub_leg/sc12/papers/sc120529cb1-2017-4-e.pdf (Accessed Mar 2015)

For more information on GM food, please visit our website

http://www.cfs.gov.hk/english/programme/programme_gmf/programme_gmf.html

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