



## Public Health Association of Australia:

### Policy-at-a-glance – Genetically Modified Foods Policy

- Key message:**
1. Thorough, independent research into the effects of GM foods on agronomy, health, society, the environment and the economy should be undertaken, and until this work is completed, all governments in Australia should impose an immediate and indefinite freeze on: the growing of GM crops for commercial purposes; the importation of GM foods and food components; and the patenting of genetic resources for food.
  2. A comprehensive monitoring and surveillance system to track the effects of GM foods should be instigated.
  3. The labelling system should be improved so that consumers can easily identify foods containing all ingredients originating from GM organisms, and from animals fed GM feed.
  4. There should be thorough policing of the labelling laws by Commonwealth and State health departments and an assessment of the effects of intellectual property protection measures.

**Summary:** This policy seeks to outline a series of principles and tangible actions designed to achieve these goals.

**Audience:** Australian, State and Territory Governments, policy makers and program managers.

**Responsibility:** PHAA's Food and Nutrition Special Interest Group (SIG)

**Date policy adopted:** September 2013

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## GENETICALLY MODIFIED FOODS POLICY

### The Public Health Association of Australia notes that:

1. There is considerable controversy over the production and use of genetically modified (GM) foods because of concerns over the health, environmental, social, economic, ethical and political effects of these foods<sup>1-3</sup>.
2. Most GM foods are made from GM crops. Most GM crops are made by inserting DNA from bacteria, viruses, plants or animals into a plant to get the plant to produce one or more proteins that it would not normally produce. The process is therefore very different from conventional plant breeding.
3. At present, the vast majority of GM crops eaten are herbicide-tolerant, or produce their own pesticide(s), or both. Herbicide-tolerant crops are designed to be able to withstand herbicide sprays without dying, leading to possibly higher residues of herbicides in food. Insect-protected plants make their own insecticides. More recently, GM crops designed for industrial purposes rather than for human consumption, have also been allowed into the Australian food supply<sup>4,5</sup>. Unlike agricultural sprays, these proteins have no withholding period applied to them before consumption and residues cannot be washed off by consumers as they are produced throughout the plant tissue. In a more recent development, a new type of GM crop is now being made that is not designed to make a new protein, but to make a new RNA molecule. These dsRNA molecules have important roles in cells. For example, they can silence or activate genes<sup>6</sup>.
4. Proponents of GM food argue that gene technology has the potential to be useful in enhancing the quality, safety, nutritional value and variety of food available for human consumption and in increasing the efficiency of food production and processing<sup>2,7</sup>.
5. Critics of GM food warn that there is insufficient evidence that these foods are safe for humans and the environment. In particular, the methods used to insert genes into plants could disrupt the functioning of the plant, resulting in changed production of existing substances and the production of completely novel toxic or allergenic substances<sup>8</sup>. For GM crops designed to make dsRNA molecules, there is a risk that the dsRNA could survive digestion in people and change how those people's genes are expressed<sup>6</sup>. In addition, the global economic, social, ethical and political implications of these crops are largely unknown. Some of the information which does exist points to deleterious effects on crops yields, the environment and on the social and economic milieu, particularly in developing countries<sup>6-7, 9-12</sup>.
6. Most safety assessments that are done on GM crops are done by people associated with the GM crop industry and there are relatively few independent assessments<sup>13</sup>. This is

particularly the case for a new GM crop when it is submitted to a government regulator for a safety assessment. In addition, Australia's food regulator (Food Standards Australia New Zealand; FSANZ) does not require animal feeding studies before it rules on the safety of a GM crop, and it has determined that at least one GM crop is safe to eat without referring-to any animal feeding studies<sup>8</sup>. Moreover, if industry animal studies of any nature are done, they usually involve feeding only a single dose of the new protein that the GM plant is designed to produce and essentially watching for 7-14 days to see if any animals die. If animals are fed the actual GM plant, they are generally only fed for four weeks and measurements relevant to animal production tend to be taken, such as death rates, weight gain, and meat and milk production. Measurements relevant to human health such as measures of organ health and *in vivo* allergy studies are rarely undertaken<sup>8</sup>. Moreover, the studies are often done on farm animals such as birds, fish and cows, which have a quite different physiology to humans. If autopsies are done, they are generally only gross autopsies where organs are not inspected for damage under a microscope. Others have similarly raised concerns about the adequacy of the safety testing of GM crops in the food supply<sup>13,14</sup>. One research group re-analysed raw data from industry animal feeding studies that had been given to the European food regulator and found adverse effects<sup>15</sup>, while the relatively few, long-term feeding studies conducted by independent researchers, have shown adverse effects on animals fed GM crops<sup>16,17</sup>.

7. One of the main concerns about GM crops is that they may produce new allergens. Yet if allergy testing is done, it rarely involves any *in vivo* testing. When a rare *in vivo* allergy test was conducted, on a GM pea produced by the CSIRO, the pea was found to unexpectedly cause a strong immunological reaction in mice consistent with an allergic reaction. Mice also spontaneously developed the reaction to other substances such as eggs<sup>18</sup>. While the developers of this crop conducted a subsequent study that indicated a lack of harmful effects, there was little detail given about the materials and methods used<sup>19</sup>. There is a need for *in vivo* allergy testing to be done on all GM crops.
8. In Australia, regulation of GM crops and foods is undertaken by three regulatory bodies. The Australian Pesticides and Veterinary Medicines Authority (APVMA) approves the use of insecticidal genes present in GM crops, including those from Bt crops and registers them as an agricultural chemical product. The Office of Gene Technology Regulator (OGTR) regulates the release of GM plants into the environment and any associated human health and safety and environmental issues. It does not deal with issues such as food labelling, the use of insecticides and herbicides, segregation of crops, marketability or trade implications. Food Standards Australia New Zealand (FSANZ) regulates foods derived from GM crops in Australia and New Zealand, including the regulation of imported foods and the labelling of GM foods.
9. The Food Standards Code defines GM food, specifies the requirements for pre-market approval and labelling and prohibits the sale of GM food unless included in the standard.
10. As of June 2013, FSANZ had approved 76 GM crops to come into the Australian food supply. They include GM versions of canola, corn, cotton, lucerne (alfalfa), potato, rice, soybean and sugarbeet. The foods are widely present in breads, pastries, snack foods, baked products, oils, fried foods, confectionary, soft drinks, and sausage skins. Labelling laws do not cover foods that are prepared at bakeries, restaurants and takeaways. FSANZ has interpreted the Food Standards Code to state that highly refined products such as cooking oil, sugars and starches from GM crops contain no DNA or protein and

therefore do not need to be labelled, with very few exceptions. However, there is ample evidence in the scientific literature that this is incorrect and that therefore, these products should be labelled<sup>20</sup>. FSANZ has also written an editorial note into the Food Standards Code that states that if an animal is fed GM feed, products such as the meat, milk, cheese and eggs produced from that animal do not need to be labelled. However, there is scientific evidence that these products contain GM DNA and/or protein and hence should be labelled<sup>21</sup>. In fact, the New Zealand Commerce Commission issued a warning to a chicken producer that it risked breaching the Fair Trading Act by claiming that its chickens contained no genetically modified ingredients when those chickens ate GM crops<sup>20,22</sup>. Finally, these labelling laws also exclude foods 'unintentionally' contaminated by up to one per cent per ingredient, that are made with processing aids or food additives using GM microbes, or that contain GM flavours present at less than one per cent<sup>8,23</sup>.

11. There is considerable consumer resistance to consuming GM foods and hence there is strong demand from consumers for more thorough labelling of GM food<sup>24-26</sup>.
12. There is little policing of GM food labelling laws, probably because a DNA test to determine the GM content of various foods is expensive. Manufacturers are therefore unlikely to get caught if they do not appropriately label foods containing GM ingredients.
13. There are no surveillance systems set-up to determine the effects of GM foods on health, and no-one is paid to look in existing surveillance systems for problems.
14. GM crops are protected by patents on the genes inserted into them. Wherever these genes land, they belong to the patent owner or licence-holder. If the patented genes enter a farmer's crop via pollen, seeds spilled from passing trucks onto road-side verges or contaminated seed stocks, the farmer must still pay royalties for possessing the genes. Farmers signing Technology User Agreements to officially use these crops sign away many rights and attain liabilities. Farmers are also prevented from saving seeds from their crop. A high proportion of GM crops are dependent on the application of expensive herbicides to work effectively. There are therefore significant concerns about the effect of these crops on farmers' livelihoods, particularly in developing countries<sup>27</sup>. The patents also allow GM companies to forbid independent research on GM seeds purchased from them and to prohibit farmers from giving seeds to researchers, both of which occur<sup>28,29</sup>.
15. GM crops contain self-replicating genetically modified genes. Once they are released into the environment, particularly on a commercial scale, they cannot be recalled.

**The Public Health Association of Australia affirms the following principles:**

16. The primary objectives of food regulation are the protection of public health and safety and the provision of information to consumers to ensure informed decision making.
17. The precautionary principle should be applied in developing GM food as it is not certain whether there are serious risks to the environment or to human health involved in producing or consuming GM foods or their products.
18. Assessments of the effects of GM foods on matters such as health, agronomy and the environment should be based on thorough, independent experimental evidence rather than assumption. In particular, GM foods should not be assessed as safe to eat unless

they have undergone long-term animal safety assessments utilizing endpoints relevant to human health and conducted by independent researchers. Consequently, GM companies should unconditionally release GM seeds to any researcher who wishes to conduct research into agronomic, environmental or health aspects of GM crops.

19. The regulatory process should be evidence-based (compared to assumption-based), independent and transparent to ensure public health and consumer interests are foremost.

**The Public Health Association of Australia believes that the following steps should be taken:**

20. Thorough independent research into the effects of GM foods on agronomy, health, society, the environment and the economy should be undertaken, and until this work is completed, all governments in Australia should impose an immediate and indefinite freeze on:
  - the growing of GM crops for commercial purposes
  - the importation of GM foods and food components
  - the patenting of genetic resources for food
21. A comprehensive monitoring and surveillance system to track the effects of GM foods should be instigated.
22. The labelling system should be improved to reflect the greater sensitivity of modern GM DNA detection methods and the standards desired by consumers, so that consumers can easily identify foods containing all ingredients originating from GM organisms, and from animals fed GM feed.
23. There should be thorough policing of the labelling laws by Commonwealth and State health departments and an annual budget set-aside for this.
24. There should be an assessment of the effects of intellectual property protection measures.

**The Public Health Association of Australia resolves to:**

25. Advocate for the continuation of state-based moratoria on the commercial planting of GM crops in Australia until thorough independent studies can be done into the agronomic, environmental and health impacts of GM crops in Australia, and the results are publicly disseminated and discussed.
26. Advocate for publicly funded and independent research into the health, agronomic, environmental, social, economic and political impacts of GM crops in Australia.
27. Advocate for GM seeds being made unconditionally and freely available to any researcher who wishes to conduct research into the agronomic, environmental or health aspects of GM crops.
28. Advocate for the labelling of all foods (including fresh, processed, purified, packaged, unpackaged, restaurant and fast food) derived from genetic engineering, foods containing ingredients which are the product of genetic engineering, and foods from animals fed GM feed, regardless of whether they contain new or altered genetic material

and/or protein, and regardless of whether they contain this material below an arbitrary threshold level.

29. Advocate for the policing of labelling laws by Commonwealth and State governments.
30. Communicate with other public health and consumer groups to enhance advocacy efforts.
31. Advocate for a strong public health presence in the staff, advisory committees and Boards of the APVMA, OGTR and FSANZ to improve safety assessment procedures.

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