

GENETICALLY MODIFIED FOOD

By Kerry Cochrane

EARTH FIRST ARTICLE

The genetic modification of food is a complex issue. There are numerous stakeholders in the debate including farmers, seed merchants, medical practitioners, and ethicists all putting their particular spin on the story. As an educator who works in the domain of ecological agriculture and education of students at the university level, I find it an ever perplexing maze of claims and counter-claims to the point where in the end I have decided on a simple formulae for determination of what should prevail. The first element in the formulae is this – Will the resultant product of a genetic modification affect our health? If the answer is no, then I go to the second component of the formulae – Is there any risk of the species so developed adversely affecting the natural environment? If the answer is no, then my conclusion is positive for GM (genetically modified) seed release.

Let's look at the health issue. On May 19 this year the American Academy of Environmental Medicine (AAEM) called on "physicians to educate their patients, the medical community, and the public to avoid GM foods when possible and provide educational materials concerning GM foods and health risks". They called for a moratorium on GM foods, long-term independent studies, and labelling. AAEM's position paper stated, "Several animal studies indicate serious health risks associated with GM food," including infertility, immune problems, accelerated aging, insulin regulation, and changes in major organs and the gastrointestinal system. They conclude, "There is more than a casual association between GM foods and adverse health effects – there is causation," as defined by recognized scientific criteria. That is worrying news. Before I examine the second simple test it is worth looking at what GM is.

What is GM?

According to CSU Orange-based Senior Lecturer in Agricultural Ecology Dr Raman, two main practices in plant breeding exist. The traditional practice involves selection of superior germplasm (e.g. pollen grains of that germplasm) and crossing it with another germplasm (usually within the same species limits) and this practice has remained completely harmless and to an extent mimics nature. The newer form of plant breeding involving GM-technology is far more complex and involves ethically challengeable processes. According to Dr Raman, the walls in the cells of the receptive areas of the female sex organ part of a plant – the stigma – responds to complex sugars in the pollen wall. If the stigma receptors are able to recognize that the right pollen has arrived, then fertilization eventuates. If it is the pollen from a wrong source – therefore wrong sugars – the stigma cells become unreceptive and no fertilization would occur. The nature-dictated trick is in the cell walls that either 'recognizes' or 'rejects'. What GM-technology does is remove the cell wall (by enzymatic treatments) without killing the protoplasm and fuse even non-reproductive cells between different species. In effect, scientists are overriding what

nature prefers as a dictum with an assumption that the outcome will benefit humankind and will enhance biological life.

Environmental issues

Having weighed up the evidence from the sources stated I am of the understanding that the second element in my formulae – its effect on the environment - seems redundant. I will however cite one example of concern. Perhaps the best example of this comes from Canada where GM Canola is the only Canola able to be grown given the level of infestation across farm boundaries between those who grew GM and those who preferred the conventionally bred Canola varieties. Normal Canola varieties no longer exist and all this has happened in the last 10 years.

From my perspective the formulae works. Not enough is known about GM food and its effect on humans AND in the case of GM Canola its presence leads to infestation of the environment to the point where it completely dominates. If readers of this article want a steady stream of free information on GM, I recommend the website of <http://www.madge.org.au/>. This is run by a group of mothers from Melbourne who are so alarmed at the risk of GM that they put heart and soul into this marvellous information service to the community. Do take a look.

Green dates for the calendar

Sunday August 2: National Tree Day community planting event.
Location: Jack Brabham Park (time TBC).