GM: a case of good crop, bad crop

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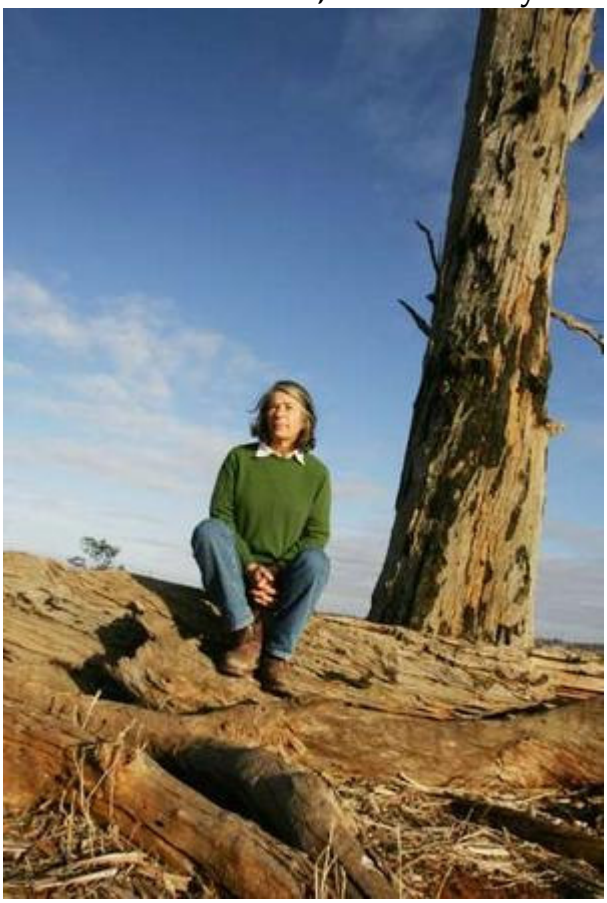
Genetically modified food has been planted in many parts of the world, but so have the seeds of fear, writes Wendy Frew.



Concerned … Juliet McFarlane, a NSW farmer, is wary of claims being made for GM crops.
Photo: *Andrew Taylor*

NEWS that Australia's canola crop had been contaminated with genetically modified material was the last thing Geoff Black wanted to hear. The manager of a small NSW oilseed crusher at Cootamundra knew his company's success rested on its reputation as a producer of cold-pressed oils free of any chemical or GM material.

The contamination was first detected in seeds held by the Victorian Department of Primary Industries at Horsham, in the state's west, last July. Initial

investigations linked the contamination to seed research being done by the Tasmanian Government.

The detection raised fears the contamination could spread to other states, opening a legal minefield for farmers who wanted to market non-GM canola and threatening exports worth hundreds of millions of dollars.

GM canola is not grown commercially in Australia and the contamination is not believed to have come from small GM canola research trials being run by private companies. It was eventually established that the contamination was only between 0.1 per cent and 0.4 per cent of the crop, but the Federal Government is still trying to find out exactly how it happened.

However, it was "a massive wake-up call for the industry", says Black. "We knew there was no GM canola grown in Australia so how did it get there? We can no longer claim with confidence that the product we produce is GM-free although it does meet the Australian regulation," he says, adding that Cootamundra Oilseeds has changed the GM description on its products.

Despite concern in rural circles, the canola contamination received little media coverage.

In recent years, the debate about the costs and benefits of the pioneering science that aims to alter the genetic material of plants and animals has fallen off the public radar. With the exception of the cotton industry, which has embraced genetic modification, the cautious attitude of state governments has stalled the technology's commercialisation, and there has been little news from the Federal Government about major policy changes or research initiatives. But that could soon change.

Australia's new Chief Scientist and longest-serving chief of the CSIRO Plant Industry division, Dr Jim Peacock, is an enthusiastic GM supporter. He told the *Herald* earlier this month that GM technology could play a significant role in preventive medicine. He says the various moratoriums on GM canola are unjustified. Changes are also taking place behind the scenes.

The Federal Government is working to lift an international moratorium on "terminator technology", genetically engineered seeds that shut down reproduction in a plant so that farmers have to buy fresh seed every season. To those in the anti-GM camp, terminator technology or genetic-use restriction

technology, as it is known scientifically, represents the darkest side of the GM industry: suicide seeds designed solely to protect the patents and profits of multinational corporations by forcing farmers to buy fresh seed from GM companies each year.

But for the companies developing it, genetic-use restriction technology is a type of patent that will protect their huge investment in research and development.

In 1998 a US Department of Agriculture spokesman told *The Guardian* newspaper the goal of terminator technology was to increase the value of proprietary seed owned by US seed companies and to open new markets in Second and Third World countries. Just what it will deliver to farmers is unclear. At a UN meeting in Spain in January, Australia pushed for terminator technology to be assessed on a case by case basis, in line with its regulatory approach towards all GM produce.

However, Australia's GM legislation only considers health and environment risks, not economic consequences. In other words, the risk that farmers' costs would rise if they were forced to buy new seeds every year, because terminator technology had rendered crops sterile, would not be assessed.

That narrow definition of risk goes to the heart of the issue for farmers such as Juliet McFarlane. The canola, wheat and sheep farmer from Young in NSW is wary of claims being made for GM crops. McFarlane, who is a founding member of the Network of Concerned Farmers, is worried about the costs and liability associated with contamination of non-GM crops with GM material, the possible loss of markets for agricultural produce because of consumer resistance to GM material, and what the GM industry will mean for the corporate control of farming.

"The crux of the argument for us has always been an economic one," she says. "There is absolutely no demonstration in Australia that this will give us a better return, increase our market base and give us more market acceptance."

McFarlane and others are unhappy Australia allows grain that contains 0.9 per cent of GM product or seeds that contain 0.5 per cent of GM material to be labelled GM-free.

Her network is calling for stricter labelling requirements, independent trials of GM crops and more market research. "If it's not profitable we are not interested," she says.

In the US there is growing evidence that GM crops have failed to deliver promised economic benefits, says a former agricultural adviser to the Carter, Reagan and Clinton administrations who toured Australia last year talking to farmers. Dr Charles Benbrook says Australia could lose agricultural exports and farmers could find themselves using more herbicides to control weeds if they choose to grow genetically engineered crops.

"Across the south-eastern US, where soybean and cotton farmers have relied almost exclusively on [GM] technology for several years, the system is on the brink of collapse, the volume of herbicides used is setting new records and farmers' profit margins are shrinking," he says. But those fears aren't justified, says the chairman of the NSW Farmers Association's biotechnology task force, Hugh Roberts, who believes GM crops could help farmers reduce their use of pesticides and increase their productivity. He says research and development has stalled in Australia because some state governments have moratoriums on the commercial production of GM crops.

However, he believes external market pressure or a challenge by the World Trade Organisation will break the impasse before the moratoriums lapse in 2008. "We want to take the passion out of the argument for our members. They just want the facts," he says.

Rebutting claims that non-GM farmers will lose market access if they cannot be sure their crop isn't contaminated, Roberts says there is little evidence non-GM varieties of the world's four main GM crops - soybeans, corn, cotton and canola - command significant price premiums.

The association's fears that farmers could lose if Australia doesn't join the GM rush were backed by a report released in September by the Australian Bureau of Agricultural and Resource Economics. That report estimated the moratorium on GM food crops over the next 10 years would cost the Australian economy $3 billion.

In the hotly contested arena that is GM, it is no surprise those findings were criticised by some farmers and environmentalists. But several economists also found fault with the bureau's assumptions.

Geoff Wells, an adjunct senior lecturer at the International Graduate School of Business at the University of South Australia, told *The Australian Financial Review* he was concerned about the lack of evidence supporting the bureau's assumption that consumer resistance to GM food is not an issue.

"The market reaction to the product with which we have had longest experience, GM soybean, suggests opposite assumptions are more reasonable," Wells says. "The majority of the relevant market research studies - of which there is a considerable body - indicate significant consumer resistance to GM foods. And there has been very little modification of this opposition, not only in Europe but in other developed countries where research has been carried out."

In the grains industry, the greatest resistance to GM has come from the wheat sector. Two years ago, the NSW Government abandoned a proposal for Australia's largest-ever genetically modified canola crop trial after the wheat marketer AWB expressed concerns modified canola crops could compromise overseas wheat markets.

Last year, the Canadian Wheat Board said it opposed the unconfined release of GM wheat and barley in western Canada unless stringent conditions could be met, including widespread market acceptance, the establishment of achievable tolerance levels and the development of a system to segregate GM wheat from non-GM wheat.

Australian consumers hold confused and complex attitudes towards genetically modified organisms and produce, according to market research by a federal government agency, Biotechnology Australia. Few consumers totally reject or accept genetic modification in food, says the agency's spokesman, Craig Cormick. The type of food often dictates the reaction, he says, with many people happy to eat a GM-modified doughnut (because it's junk food, anyway) but far fewer willing to eat GM fruit and vegetables.

Many consumers also seem not to understand GM material is not just another ingredient like, say, artificial additives, but a process that changes the genetic make-up of the organism or product. "It is important to understand where GM fits in the [consumer's] food chain," says Cormick.

While the debate in Australian rural circles is mostly about the risks of contamination and the possible damage to overseas markets, there are many

other unanswered questions about the far-reaching consequences GM technology could have on what the world's farmers grow, and its impact on the wider environment and human health.

Greenpeace is one of many non-government organisations that believe GM organisms should not be released into the environment until we know more about them. As living organisms, GM crops can reproduce and once released are very difficult to control or recall, says Greenpeace's Jeremey Tager.

After last year's canola contamination scare, Greenpeace called for comprehensive testing of seed stocks, a protection fund to cover farmers' costs, and strict liability for GM products so that holders of the patent are held responsible for harm and contamination caused by their product.

"The GM industry insists that we must all accept this sort of contamination, when it is a direct result of their incompetence and lack of care," says Tager. "They want to convince us that we can 'be a little bit pregnant'. In reality, any level of contamination threatens Australia's GM-free status."

THE STORY SO FAR

THE US Government and US biotechnology companies have been driving the commercialisation of genetically modified crops, which began in 1995.

Progress has been dogged by debate and controversy.

With the strongest hold-outs in Europe, US companies have been concentrating on Asian and African markets, promising higher yields and lower costs for farmers.

The commercial take-up has been fastest with soya beans, corn, cotton and canola, and GM varieties now represent about 29 per cent of the world's total planting of those four crops. Most of that has been planted by the US, Argentina, Brazil and Canada.

In Australia, GM crops are regulated by the Office of the Gene Technology Regulator.

So far, only six licences to grow GM crops have been approved as safe and suitable for humans, animals and the environment: two varieties each of canola, cotton and carnations. Only the cotton market has taken off, and as much as 80 per cent of Australia's cotton crop is believed to be grown from GM seeds.

But that doesn't mean you might not be eating GM produce. As of June last year, 25 GM foods sourced from corn, soya beans, sugar beet, potatoes, cotton and canola had been approved for use in Australia by Food Standards Australia New Zealand.

Most of these foods have come from plants that have been genetically modified to improve their growing characteristics, protecting the crop from pests or making it tolerant to herbicides, for example. They are mostly imported from other countries to be used in Australian food production or are present in imported food such as corn chips or oil made from soya beans.

If a food, food ingredient, additive or processing aid contains novel DNA or protein that has come from an approved GM food, it must be labelled with the words "genetically modified". Foods that do not need to be labelled in this way include highly refined foods such as oil made from GM soya beans and foods in which GM ingredients are present accidentally and make up less than 1 per cent of the final product.

Wendy Frew