

Farmers throughout the world have a history of accepting and adopting new technology as fast as it becomes available. The massive rise in food production in the last century only came about after the widespread use of new chemicals, including herbicides, pesticides and artificial fertilisers.

When genetically modified (GM) technology emerged a couple of decades ago, once again many farmers saw this scientific advance as the way of the future, a method of producing more food with less chemicals.

Recently there has been a lot of controversy over the GM food, as a moratorium on GM crop production in some parts of Australia has been introduced in the short term, due to concerns regarding agricultural trade and the impact of not having GM free status.

Study into GM Crops in the EU.

Recently a four year study of winter GM canola crops was completed in Europe and it was found that GM Canola was:

- Unprofitable;
- Interrupts the genetic variation of the crop;
- Significantly disrupts the food chain by eliminating broad leaf weeds, which provided 30% less food for insects and predatory birds.

This has led Bayer CropScience to dump their plans for a GM crop in Europe

What are the issues over GM food?

There are two main arguments over GM foods. Some scientists, backed by scientific study and trials, argue that GM crops are safe and should be used to develop more efficient agricultural systems to feed and relieve the hunger for the world, especially third world countries.

The other side of the argument is that we don't know what the GM crops are doing to the environment, over the long term. Once released into the environment, how can we stop the spread of plant drift and cross-pollination, which may lead to "super" plant hybrid species? For example, in canola, the drift of pollen can be over several kilometres, leading to possible cross-pollination with organic producers. How do we protect producers that wish to remain organic from these pollen drifts and "hybridisation" of plant species? Once released there is very little control and turning back.

Companies like Monsanto and Bayer CropScience are spending hundreds of millions of dollars on GM crops? It means that these companies have a patent on these GM crops, which virtually means the company owns that product and you have no right to replant that seed, leading to eventual monopolisation of the seed supply business, as other products are "bred out" or cross-pollinated.

Is this a wise thing to let the future of our food supply be handled by couple of corporations?

According to ABC TV Landline program (7/11/04) "Monsanto is responsible for the traits in 90% of the crops planted in American soil, and their cotton, corn and soybeans have made their way into millions of acres in more than a dozen countries, including Australia."

Monsanto also produces "Roundup" ready GM crops, which are tolerant to Monsanto's herbicide, Roundup (glyphosate), killing the weeds but not the crop plants. So Monsanto will be supplying the seed and the herbicide. Is this a conflict of interest, or very smart business practice?

The major result from monopolisation, is the loss of plant strains and varieties, as only the best, most efficient strains will be used for GM crop production. Over time, through natural selection and evolution, these limited strains and varieties will lead to decreased resistance and tolerance to pests, weeds and fungus, bringing in potentially more problems for food production. Doesn't this also mean just more herbicides, pesticides and fungicides sales for these companies?

What about the super weeds that have been produced? These are weeds that are already resistant to herbicides and may have natural genetic modification or mutation. Doesn't that just require larger doses of herbicide (i.e glyphosate), used more frequently to control the weeds? Glyphosate sales have been dramatically increasing over the past decade, as it gains more popularity. What does this indicate?

However, Monsanto's future no longer lies in chemicals. According to ABC TV's Landline program, 80% of Monsanto's business is now biotechnology and seeds.

Monsanto insists that farmers sign technological agreements that limit the reuse of seeds from one year to the next. And Monsanto takes the use and re-use of its seeds very seriously indeed, something Tennessee farmer, Kem Ralph is all too aware of.

Memphis farmer, Kem Ralph, spent three months in jail, as a result of Monsanto taking action against him for a "breach of conditions". What led to that jail sentence began six years ago. At the end of the 1998 planting season, having run out of his own saved seeds Kem Ralph went to his distributor to buy some more cotton and soy seeds.

And the distributor only had genetically modified seed. Not having a much of a choice, Mr Ralph went and bought the seed, which according to him, was "awfully expensive".

At the end of the season, Mr Ralph saved some of the seeds that came from his soy and cotton crops and planted them back the following year. "The next thing I knew this gentleman was knocking on my, was at my house here," he said. "He says that, 'You have been saving Monsanto seed'. "I said, 'How in the hell are they Monsanto seeds when they's the offsprings of mine after I plant them?'

Monsanto insists farmers sign a technology agreement when they purchase their GM seeds. Among other things, farmers agree "not to save any crop produced from this seed for planting and not to supply seed produced from this seed to anyone for planting."

Monsanto sued Mr Ralph for breaching that contract. With legal action in train, Mr Ralph burned some of his cottonseed and delivered some of the other cotton and soy seeds to friends and colleagues. He then lied to the court about what he had done with the stock.

In July 2003, he was jailed for three months for what was, in effect, perjury and destroying evidence. Mr Ralph did act improperly, there is no doubt about that, but there is one key issue here. A profit-making company is telling farmers they can't do what they have been doing for generations. That is, save seeds from their crops to plant out the following year. This is quite common for farmers to traditionally do this from generation to generation.

One thing complicates his case is Kem Ralph says he didn't sign the technology agreement that Monsanto says he breached. He says his signature was forged.

It isn't unheard of for seed dealers to sign for customers. "Any idea who did sign the agreement?" Mr Ralph was asked. His reply: "Don't have any idea, it doesn't look anything like my signature." The writing Mr Ralph said: "looks like chicken mess. I mean I write, my hand's not that good but it ain't look nothing like my handwriting." However, he failed to convince the US Court of Appeals, who described his assertions of the signature being forged as "unpersuasive".

Which comes down to the argument, do these companies wield too much power over agriculture?

There are some 380,000 growers in the United States that are licensed to use Monsanto's GM products

So why does Monsanto insist on farmers signing technology agreements? Kerry Preete is the vice-president of US crop production for Monsanto and is quick to defend his company's approach.

"There's several aspects to that technology agreement and one of those is to ensure that growers understand the stewardship and use standpoint and we ask the farmers to use the seed appropriately from an intellectual property standpoint and that's the purpose of the agreements," Mr Preete said.

He says it takes five to 10 years to get a small plant from one of these growth chambers through the breeding cycles and many regulatory hoops to the commercialisation stage. Tens of thousands of these experiments will not stack up to that. Only the best will see the light of day.

A single plant taken to commercialisation stage will have cost up to \$100 million to get it there. Companies insist that they have to be able to recoup their investment. It does that by charging a technology fee when farmers purchase their seed, and claiming damages against farmers who re-use seed with the Monsanto GM traits.

In the U.S, there have been just under 100 cases where negotiation has broken down and Monsanto has taken legal action.

In Australia although we have moratoriums in most states regarding GM crops, however GM cotton has been grown for the past 6-7 years.

The fact that Australia this year will plant around a quarter of a million hectares to GM cotton this year, makes something of a mockery of the GM free status of particularly New South Wales, according to the University of California's Dr Rick Roush.

We don't eat cotton as such but we certainly do eat animals that have eaten cotton seed meal and we eat cotton seed oil. About 40 per cent of cooking oil comes from our cotton.

So does this mean we are already eating GM foods in Australia?

A report commissioned for Biotechnology Australia - found there has been a dramatic decline in the number of Australians who say they'd eat food derived from gene technology.

Just over half the respondents in 2003 believed they were already eating such foods and was also creating confusion in consumers due to our limited labelling laws.

In Australia our labelling laws allow the marketing of foods that were derived

from genetically modified crops to go unlabelled if there is no detectable GM DNA in the final product.

What you probably didn't realise is that every time you get your fish and chips at the takeaway shop, or even if you purchase a bottle of vegetable oil, the chances are you are eating an oil made from genetically modified cotton. Until a couple of years ago, Australia produced more cottonseed oil than any other oil type. It's only just been overtaken by canola oil. Cotton seed oil is often used in fast foods and is also sold as vegetable oil in the supermarket.

It doesn't have to be labeled "gm" because it is highly refined and no longer contains any detectable GM DNA or protein.

Benefits of GM crops

So what are the benefits of using GM crops?

1. Companies can design a crop that is pest and disease resistant such as downy mildew resistant roses, gala apples that won't get black spot and corn that is resistant to rootworm
2. Beyond that is biopharmaceuticals - crops that produce vaccines for diseases like pneumonia. Currently there is no vaccine for this disease and there is an effort to get a vaccine for this viral pneumonia disease into a plant based product, like a tomato.
3. Scientists are now developing corn that can thrive in the cold and soybeans that can tolerate drought.
4. There's also a range of foods that can be made tastier and more nutritious.
5. Some products may have increased yields, however the main saving comes from the reduced use of hazardous herbicides and pesticides. Herbicides such as Trizine, (a known residual, aquatic pollutant and banned in the EU), as in the case of Canola, to non-residual herbicides, such as "Roundup" ready Canola.

Now that you have some facts, the choice is up to you to determine the real benefits and weigh them against the associated risks of GM products.

The argument for genetically modified crops is as varied as its end uses. However, what is certain is the more research needs to be carried out, about the long-term effects of these crops.

Did we know that the internal combustion engine was going to change the world's climate, through global warming, when it was invented 150 years ago? How could we have possibly known at that time?

Source: ABC TV Landline program Oct/Nov 2004

For further information check www.abc.net.au/landline