

# GMO'S - THE FEARS & CONCERNS OF A FARMER

This is a copy of a speech David Roby gave to mainly conventional farmers interested in genetic engineering. As you read it, consider that David gave this speech after a couple of pro-genetic engineering scientists and before two more. David says of the experience that he was not just a sandwich, but a sandwich wrapped in plastic and contained in a lunchbox.

By **DAVE ROBY**

I'm not a scientist but I am interested in science. It fascinates me that they can identify a gene, isolate, remove and reinsert it.

There are many ways that genetic engineering could be used that would benefit humanity and the environment.

I question whether it is being used in that way. My view is that we are moving too fast with a technology that has too little history to travel safely at this speed. The general community seems to share my disquiet. We might all be wrong and a lot of the opposition may be due to ignorance. That said, even if we are wrong, shouldn't we still have the right to avoid it in our food and on our farms if we want to? At the moment we can't. We can avoid salt, passive smoking, we could avoid football, we can avoid dancing with our wives but we can't avoid GMO's - and we should be able to.

If the public is not well enough informed to make a valid evaluation maybe the technology should be held back until informed consent can be achieved. At the very least, unusual levels of caution should be applied. Our approach to this new tool could be the major deciding factor in our future viability. Once on that road there will be no turning back.

To feel safe about genetic engineering we need to be sure that any of the possible negative consequences are extremely minor, are known, are adequately policed and are not cumulative.

Farmers have to consider flood and drought, fire and infestation and good and bad markets. We need to know about the bad things so we can protect ourselves from them.

So as a farmer I have to look at genetic engineering as if something will go wrong and ask myself

*What can go wrong?*

*How can I avoid things going wrong?*

*Can mistakes be repaired and who will repair them?*

The method used to clean up after the Exxon Valdez disaster was thousands of people on their hands and knees wiping oil from rocks with paper towels. What technology do we have available to clean up a genetically modified accident? Has anyone seen any contingency plans?

Seeing as this is such a new tool it isn't easy to predict what could go wrong. Because of this uncertainty, it would make sense to introduce this new technology coupled with a very strong regulatory system that could be lightened with time when our understanding and ability is more complete. At the moment the opposite is happening.

It's likely that a lot of the fears about genetic engineering are groundless, but how do we tell the difference between the real and the false fears?

Scientists tell me I should judge the argument on the evidence. I don't think that works. Do we have enough evidence and who understands the evidence? This is a debate I often have about pesticides. Some farmers, conventional and organic, think they have enough knowledge to decide on the safety of specific pesticides.

The evidence about pesticides and genetic engineering can only be really understood and evaluated by top scientists. Even then they are making judgements on the available evidence. The available evidence may be only a fraction of the evidence needed to make correct assessments.

I am saying that there is a good chance that the top scientists don't have enough evidence regarding the safety of either specific pesticides or specific GMO's.

Because of this, my attitude to both is that we should be even more cautious than we normally would be.

With a pesticide if new evidence proves it to be too dangerous, the damage already done would be great but not insurmountable. With GM if new evidence showed a specific release was a mistake it would be too late to do anything and the problems could be insurmountable. There is a lot of DDT still in our environment, but it isn't breeding and growing.

I said before that if used for the benefit of humanity and the environment genetic engineering could be a great boon to all.

Is it likely to be used that way?

It has taken billions of years for the biosphere to develop the genome.

It has taken billions of public dollars to develop the technology.

At the last minute big business steps in with patents and owns the lot.

With genetic engineering the seed market is in the control of only a few companies who can use their monopoly position to unfairly extort farmers.

You may be getting good seed and good service but it also automatically reduces your control of your own activities and leaves you at the mercy of those who will profit from your dependency.

These companies owe their responsibilities to their shareholders and not to the farmers who buy their seed or to the consumers who eat the food. ▶

## About the author

David Roby was recently described as an ex-hippy who is trying to save the world one plastic bag at a time.

Dave has spent the last 30 years farming, mostly in horticulture and the last 15 years as an organic farmer. Currently he is the Secretary of the Tweed Richmond Organic Producers Organisation.

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Shareholders are the boss. Customers are the targets. Farmers are just the delivery system.

It's probable that the GMO's we get will be more connected to the companies profit line than to our needs as producers or consumers.

It is always good business to reap the profits while someone-else pays the costs. If in the case of genetic engineering an accident or a mistake creates some public costs it is likely to be the farmer and the consumer who are left to pay. Environmental damage is most likely to be in our backyard out of sight of shareholders.

Genetic engineering ought never have been relinquished from public ownership to corporations.

This is another reason why regulators and those who elect and instruct regulators need to insist on maximum caution.

This is complicated science and we are generally ignorant in this field. How can we be sure that the regulators will protect us?

We can't be. We should start strong, and proceed slowly with maximum caution.

I want to give you some examples of problems with regulators and regulatory systems.

As part of good farm practices, American farmers slash prairie grass so that the new growth is palatable to stock. They can load the slashings into a biogas generator which produces methane to use as tractor fuel. The sludge is applied as a fertiliser. A GMO, approved by American authorities, when added, causes the biogas generator to produce liquid alcohol, a more user friendly fuel, instead of the methane, a greenhouse gas.

Purely as a courtesy, the data was shown to Dr. Elaine Ingham, a leading soil microbiologist. She immediately recognised the danger of releasing an alcohol producing micro-organism into an environment where alcohol is death to plant roots. Good luck not regulation prevented a disaster.

I grow avocados. Our main fungal problem, Anthracnose, is usually controlled with copper sprays, a great killer of fungi and bacteria. The soil in a healthy avocado orchard is host to a huge number of fungi and bacteria, many of which are killed by the copper.

Believe it or not, milk and yoghurt make good fungicides, but to get them registered as pesticides, so they can be used, would cost millions of dollars. Who would pay the costs of registration knowing the lack of profits to be made?

I'm not suggesting that standards be lowered. I am stating that some things don't fit the fixed parameters of rigid authority.

In America they let through a potentially disastrous GMO's and in Australia they restrict yoghurt.

Nearly everything we do is regulated.

Let's look at some current regulatory systems and see if we can find one that works well enough to be used as a model for genetic engineering.

A fortune is spent trying to catch athletes taking steroids. No-one doubts that some athletes get away with it. With genetic engineering, every illegal use has to be stopped before it happens. We can't have a genetic version of Shane Warnes' mum taking the mickey out of him.

A fortune is spent trying to stop people illegally bringing plant material into the country. Lots of people still do it. With genetic engineering our regulators

have to be more effective than the measures in place currently.

The internet and genetic engineering are similar because they are both new. Why don't existing publication laws work as effectively on the net as they work on magazine and book publishing?

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til they appear. If we had a moratorium on releases of GMO's we could look at the problems that manifest themselves in America and draft regulations based on their failures instead of on our intractable failures.

Is that enough examples of failures to regulate with the degree of success we need to survive GE? I could talk about HIH, PAN pharmaceuticals, churches and toxic priests, the media, insider trading, weapons on planes. I can't think of a regulatory system that works well enough to meet the degree of safety that this technology needs, especially in its earliest phases.

As an organic grower my produce, bookwork and farm practices are inspected annually. Random inspections also occur to audit our inspectors and our certification bodies. I have to pay for both levels of inspection.

I have to work within a regulatory system, as will GE farmers.

Genetic engineering may also force non-GE growers to submit themselves to an unwanted regime. For sales, they may have to prove that

their produce isn't contaminated with GM produce.

Who will pay for this unwanted regime?

An organic inspector looks at produce labelled organic and checks that the ingredients conform to standards.

With GM, auditors would have to look at everything that isn't labelled GM.

Nobody minds if some organically modified organism escapes to a conventional farm. Inspectors are concerned about pesticides entering organic farms.

Nobody minds if a bit of conventional canola pollen invades a GM canola crop. It's a very different story if GM canola invades a conventional crop. Is it the case that the conventional grower will have to continually prove his lack of contamination? Who pays for this continual proof?

In my organic experience, it has been my responsibility to keep my product isolated from conventional product. It doesn't bother conventional growers if their fruit comes in contact with my fruit. With genetic engineering, the shoe is on the other foot. Conventional growers will need to be bothered if their ▶

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# genetically modified views

product is contaminated with GMO's. It will be their job to ensure the cleanliness of harvesters, field bins, storage silos, augers, trucks etc.

Organic auditing has to be thorough and consequently is very expensive and met entirely by the organic grower. Still, it is an effective cohesive and functional system.

GM auditing should be much more thorough and much more expensive and probably not be met by the GM grower but by the non-GM grower and the community who don't want it in the first place. Regulation of GMO's is divided amongst the Food Authority, the Office of the Gene Technology Regulator, the Chemical company controlling the seed and the use of the legal system by anyone claiming to be damaged. There are enough holes in the system to drop a canola harvester through. GM regulation needs to be fool-proof. It's hard to visualise the enormity of the burden. I hope I don't have to pay for it.

I would like to see a long moratorium on releases of any GMO's that have any ability to go wild. This would lead to a delay in our use of the technology in favour of our continuing ability to produce wholesome food and fibre in an environmentally friendly way. I am not calling for a ban on research, just a moratorium on releases of GMO's that can go wild.

If the community's fears turn out to be groundless then we still would have benefited by having grown different varieties to our international competitors. There's no reason for us to grow exactly the same produce as our competitors. Food security is increased if a greater diversity of seed is grown. Researchers would be up to date with world's best practices and we could easily slip into using the new inputs with international experience to make use of.

Look at the advances in computer technology in 20 years. Imagine how much more subtle and safe genetic engineering will be with 20 years more research and development.

A Qantas pilot told me that the computers and software in Jumbo jets are a mini-

mum of 7 years old when they are first used. That's when the bugs are considered to have been removed. Genetic engineering is more complex than aeroplanes - perhaps 20 years would be more appropriate.

If the community's fears have some basis or even if consumer demand rewards non-GM production we will be ahead. In Europe consumer demand is indeed rewarding non-GM production.

What is the real value of jumping in on this technology? Is being first cab off the rank worth the risk for growers or consumers?

Karl Popper, the science philosopher, said that every action has unintended consequences. The larger the action, the complexity and the time involved all add to the scale of those consequences. Genetics in itself is very complex and we still have a lot to learn. Soil ecology is very complex. Half the micro-organisms in a handful of healthy soil have yet to be named.

What scale of consequences should we expect when releasing barely known genetics into barely known ecology?

We should be prepared for some disastrous consequences. We need more than paper towels.

Extreme caution is called for.

I have been talking about genetic engineering and agriculture. If we look to genetic engineering and medicine I think we can find a more acceptable model.

Insulin is produced using this technology. The end product is supposedly cheaper and better. When diabetics use this engineered insulin they are using a finished product that has no reproduction characteristics. The insulin can't escape. To me this seems to be a safer use of the technology. Once again if something is later discovered to be faulty or dangerous with the product it can be recalled.

Compare this to the damage that would occur if herbicide resistance jumped to weed species. It can't be recalled and we may not be able to control it.

I also have a fear that genetic engineering is being used and is going to be used to side-step problems that really need to be solved. When problems are avoided rather than solved they often come back to bite us.

You often hear the argument that we need genetic engineering to feed the world. If that argument were true it would still only be a stop-gap.

If we need genetic engineering to successfully feed 6 billion, how will we feed 12 billion?

So the problem is really that we either have, or someday will have, more people than we can feed. Genetic engineering isn't the answer to this problem. It is an immoral way of allowing us to enjoy the benefits while transferring the costs to our children and grandchildren.

Farm viability is a huge problem. Some farmers are looking at growing GM crops in an attempt to increase their viability. I think the real problem is that consumers don't pay the real price of production. If switching to GM crops does improve farm viability, the eventual result will be cheaper food for consumers and farmers having viability problems. In other words, the benefits always find their way to someone other than the farmer.

We owe it to future generations to make sure we aren't lumbering them with the consequences of our too fast and incautious handling of this new tool.

A 20-year moratorium will find us better placed to handle the technology with little downside. Let other countries make the mistakes (or preferably other planets).

In WW2 scientists built the atomic bomb. Politicians used it.

Scientists have built this technology. The people need to decide how it is to be used.

The technology is good. I think the present applications and regulations are deficient.

We will all benefit if we add an extra layer of time and caution. ■

## IN SUMMARY, DAVE'S ENVIRONMENTAL CONCERNS ABOUT GENE TECHNOLOGY ARE:

1. We already have enough feral pests. We don't need any genetically modified pests.
2. We are good at identifying and moving genes. We are poor at understanding ecology especially soil ecology. Doesn't that sound like a dangerous combination?
3. At the moment, the main use of genetically modifying organisms is to enrich shareholders of chemical companies.
4. The new technology can be used to side step the problems we really need to be confronting
5. We need a regulatory system that can protect us from genetically modified mistakes before they can harm us but nowhere in the canon of current human endeavours can we find a satisfactory model.

An added layer of time and caution will cost us little but benefit us greatly.