

A case against genetically modified food

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The scale of damage to the economy that could result from a decision to release GMOs was made clear by a BERL study Government released the day before Easter.

The extent to which overseas consumers said they would cease to purchase New Zealand goods due to concern about any release of GMOs is a huge warning sign to a nation contemplating GM agriculture.

While BERL states that the overall outcome for the economy ten years from now could be positive or negative depending on assumptions, the positive results depend on a series of heroic assumptions.

Literally all the positive assumptions are hypothetical and many of these are strongly favourable to GM production.

The negative influences however are verifiable today. They are the impact on New Zealand's clean green image and the strong and widening rejection of all GM food products.

The overall picture is one of demonstrable costs versus highly speculative benefits.

The study neither asks nor answers the real question: is there good reason for New Zealand to release GMOs now?

Even if New Zealand was fairly sure GM agriculture would eventually provide economic benefits, is it smart to commit to this track now? This question is completely distinct from progress in GM research and GM medical applications which do not generally trigger consumer resistance and offer the prospect of significant gains for the nation.

The BERL-led report is actually a compilation of three separate strands of work: a market research survey and two different sets of economic modelling.

The market research sets the scene. Key findings from new surveys in England, Australia and the US are:

- "Between 20% to 30% [of consumers in major export markets] state they would cease purchasing New Zealand commodities if New Zealand released GMOs".
- 47% would be "more inclined" to purchase New Zealand products if no GMOs were released in New Zealand compared to just 2% that would be "less inclined" to purchase.

These results were then fed into a trade model – one that simulates both price and quantity impacts of changes in production.

This Lincoln University model projected that:

- A 20% drop in sales of dairy, meat and horticulture industries would result in producer incomes falling 43%.
- However, should output in these industries rise due to GM by a similar percentage, this would result in just a 5% income gain.

In other words, should GM prove capable of delivering major productivity gains, the benefits from this would largely be offset by falling prices in the main commodities New Zealand produces.

The reason for this is that while New Zealand produces a small portion of total world dairy products, it nonetheless accounts for 23% of world milk powder exports, 36% of world butter exports, and 19% of world cheese exports (1997 figures). "An increase in the quantity of New Zealand exports will therefore decrease their world prices, and because New Zealand is an open economy, lower world prices result in lower farmgate prices" the report states.

Overall, the trade modelling was unequivocal across a range of scenarios, pointing away from GM agriculture. In consequence, the report observed that pursuing additional sales was a better strategy than seeking productivity gains through GM release.

However, the study also featured a BERL model of the New Zealand economy and this gave a more muted message as to the poor economic prospects for GM release. It was results from this model that Government referred to when releasing the report.

Environment Minister Marian Hobbs claimed: "The research shows that the most likely economic impact from the careful and considered release of GMOs would be a small increase in GDP over 10 years, compared to a small decrease from forgoing GMO releases."

Actually, the report does not show or say this. The BERL modeling presents a number of scenarios but argues that the uncertainties surrounding the assumptions are too great to allow meaningful predictions.

The report further states that the effect on GDP is "not very great under any scenario" and ranges from "3% higher GDP to 3% lower GDP" after 10 years. The results that do show gains in GDP assume no or very little consumer resistance.

So what the BERL modelling is saying is if New Zealand commits to a GM release track, ten years from now the expected benefits will at best be pretty small. However, the significance of the results is not appreciated until one looks at the series of heroic assumptions in favour of GM release that have been set for the modelling, mostly by Government officials.

Before examining these assumptions, it is important to understand that in essence, the model attempts to find the balance of two factors. This is the extent to which consumer resistance to GM release will be offset by productivity gains resulting from GM applications. It takes market research of consumer preferences on the one hand and a range of possible productivity gains on the other.

Now consider the following:

- The three GM applications chosen for study are entirely hypothetical. They are simply development prospects and may never be commercialised. "It would be wrong to imply that there are now available substantially-developed GM technologies which could be applied in pastoral agriculture should New Zealand decide to adopt GM technology" the report states. Each of GM ryegrass for animal feed, a therapeutic protein, and a GM mechanism for possum control still face serious challenges before they are proven.
- More importantly, they have not been developed to a point where actual performance data can be utilised. The potential for productivity gains is thus a matter of speculation.
- The potential for productivity gains is set at 2.5% per annum over ten years which is very high by comparison to what has been achieved by GM varieties released to date.
- It is however assumed that the GM technology that makes any such gains possible will be available only to New Zealand for between 5 years and 10 years, depending on the scenario. That is, the technology would need to be invented in New Zealand, not licensed to other nations during that period, and no other nation would make similar improvements by a parallel mechanism.
- The assumed productivity gains make no explicit allowance for the costs involved in keeping GM production separate from non-GM production. While the report states that the gains are net of these and other possible costs, the lack of reference to any studies of such costs is a concern. A Danish Government study for example estimated that the extra cost of segregating the growing of GM grasses would be up to 21%.

The other major inbuilt advantage for GM production is the way adverse consumer reaction is modelled. While the report raises questions about the extent to which consumers will in fact not purchase New Zealand goods

following the release of GMOs, the 20% to 30% fall in demand surveys recorded may well be an underestimate of the effect.

As the report also notes, wholesale purchasers and major retail chains are the centres of power in the food market and perform a gatekeeper role. Their assessment of customer tolerances dictates what actually makes it to the tables. If 20% to 30% of their ultimate customers even indicate that they are GM intolerant, that could well be enough to deter them from purchasing any level of GM linked product.

Changes in Producer Incomes from Changes in Productivity and Demand

Demand Fall	Productivity Increase			
	None	25% increase	40% increase	60% increase
None	0.8%	5.1%	8.1%	10.5%
20% discount for all New Zealand meat, dairy, and fruit	-43.3%	--	--	--

The above represents scenario studies of productivity gains from introducing a GM grass to 50% of New Zealand's pastures.

There are already clear signs of this effect in action. A group of major European supermarket chains and food processors that have rejected GM foods has formed a consortium to source non-GM ingredients.

Even more stark are responses to the proposed release of GM wheat in America. When North American wheat exporters consulted their major buyers as to the acceptability of GM wheat, the responses were clear cut across Europe and Asia. Not only was there near universal refusal to take any GM wheat, many stated they would reject shipments that contained even trace GM contamination - including all Japanese importers surveyed where Japan is the biggest purchaser.

"The European milling industry will simply not buy one more kilo of any U.S. wheat at all if GM wheat is commercialised" said Grand Molini, the largest miller in Italy, told US Wheat Associates.

These responses highlight the real scope of the GM food issue. The downside risk is not that a minority of farmers decide to go GM and lose their markets. It is that if some go GM, then all other like farmers are affected. For example, while only a minority of US corn production is GM, virtually all US corn exports to Europe have been lost - sales equivalent to about US\$1 billion to date.

Buyers are refusing to take not only the GM product but also the non-GM crop because they have no faith that the two types will be kept completely separate.

New Zealand has much more at stake than other nations in considering GM food production. Half the nation's export income, some \$16 billion a year, is derived from primary production. This is five times the OECD average of 10%.

In other words, the stakes are five times higher than average for New Zealand. The decision is also largely irreversible. Once a commitment has been made to large scale GM plantings, there is essentially no going back.

There is no obvious demand for uptake of the existing GMO varieties by New Zealand farmers in the near future. "New Zealand grain growers see little of value for them in the current range of modified crops" Federated Farmers has stated. New GM products of significance are five to ten years away from commercialisation.

So why open the gates to GM release now? Why not wait and see what emerges from the pipeline that could offer economic benefits when consumer responses are taken into account?

At least until the minimum economic conditions for GM release are satisfied, there is every reason for New Zealand to retain its status as a GM free food producer.

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