

Australian attitudes to GM foods and crops

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Summary While many decisions about adopting gene technology are influenced by public attitudes towards the technology, few decisions are based on good data. Enough robust data do exist however, into both community and farmer concerns and the drivers of those concerns, to make decisions that more align with community attitudes.

Keywords GMO, genetically modified, public attitude, concern, risk, consumer, farmer.

INTRODUCTION

Which of the following two statements do you think is most true?

- The Australian public are very concerned about GM crops and are unlikely to ever accept them.
- or
- The Australian public see increasing benefits from GM crops and acceptance of them is rising.

The answer is that both are true, depending on how you interpret the available data. And the more complex surveying becomes, the more complex the data received are, and the more liable it is to be selectively interpreted.

Take, for instance, the apparently conflicting findings that concerns about genetically modified (GM) foods have remained quite high in Australia over the past five years, sitting at about 75%, yet the number of people who claim they would be happy to eat GM foods is about half (49% in 2001 and 45% in 2003).

Also, a single analysis of these two figures does not reveal that there has been a significant change in the drivers of concerns. In 2001, the key reason for consumer rejection of GM foods was health and safety concerns, but in 2003 this had changed to a lack of consumer benefit being the key driver of rejection.

This paper assesses key findings on public attitudes towards GM foods and crops and determines what are the drivers of such attitudes, and what factors are likely to lead to a change of attitudes.

METHODS

Biotechnology Australia, the Government agency responsible for co-ordinating biotechnology issues in Australia, has been conducting comprehensive surveys since its inception in 1999, tracking changing attitudes to GM foods and crops as well as health and medical

applications in biotechnology. Working through both qualitative and quantitative research Biotechnology Australia has established a fairly good understanding of both what Australians think about GM issues, and how their attitudes are formed. Major surveys undertaken include the following.

- Yann Campbell Hoare Wheeler (YCHW) (1999) – Computer aided telephone interviews (CATI) of 1203 participants, representative of Australia's demographic spread, supported by 14 focus groups.
- MARS (2002) – Telephone poll of 1000 adult respondents.
- MARS (2003) – CATI survey of 500 farmers.
- Millward Brown (2001) (based upon the YCHW 1999 study) – CATI survey of 1001 people, supported by 13 focus groups.
- Millward Brown (2003) – CATI survey of 1001 people, supported by 13 focus groups.

RESULTS AND DISCUSSION

GM foods and crops are still largely two different issues for the public, and consumers have very different understandings and expectations of gene technology than do growers. Also, while adoption of new technologies, such as gene technology, tends to be made on a risk:benefit analysis, there is still a much higher perception of risk relating to GM crops, particularly GM canola, and until more benefits (or perceived benefits) are developed in GM crops, both for growers and consumers, this is not likely to drastically change.

Drivers of attitudes The correlation in the public's mind between GM foods and GM crops is fairly poor, and attitudes to GM crops and foods can be quite different. Over three years, the moral acceptability of GM crops that were modified to be pest resistant has gone from 66% in 1999, to 72% in 2001 and 69% in 2003 (see Figure 1), while the moral acceptability of using gene technology in food and drinks has dropped from 62% in 1999, to 59% in 2001, to 53% in 2003.

Of crucial importance to a better understanding of public attitudes towards gene technologies, and drivers of those attitudes, is indications that many policy decisions on GM crops or foods are made based on incorrect assumptions, as was found by the European

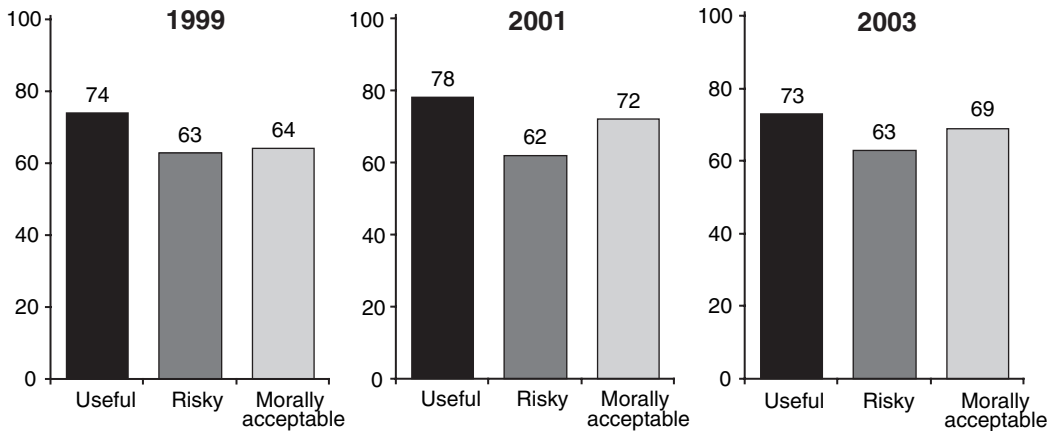


Figure 1. Making plants more pest resistant – changing attitudes towards risk, benefit and moral acceptability.

Commission's Public Perceptions of Agricultural Biotechnologies in Europe research project as early as 2001. This is particularly significant when many decisions relating to the planting or banning of GM crops cite consumer attitudes as a key issue.

It is also important when seeking to understand the nature of consumer concerns to understand their relativity. A comparative analysis of four major environmental concerns in 2003 showed that GM foods was a less concern (11%) than pollution (35%), nuclear waste (26%) and greenhouse issues (17%).

It is also significant to note that attitudes amongst metropolitan-dwelling Australians and regional Australians can differ quite substantially, with a 2002 study by Market Attitude Research Services (MARS 2002) finding that metropolitan-dwelling Australians were more likely to believe that GM crops would have increased crop yields, better food condition and less use of chemicals than regional-dwelling Australians. Regional Australians also felt that there were more risks with GM foods and crops than metropolitan-dwelling Australians, but they felt that they had greater potential for the future than those living in cities.

In early 2003, Biotechnology Australia conducted a specific study of Australian farmers, to better understand the drivers of their attitudes. Five hundred farmers from around Australia were interviewed and the key findings included:

- 49% of farmers were opposed to GM crops; and
- 74% were not considering using GM technology at this stage.

However, if the three major perceived problems with GM crops were resolved, which were overseas markets,

agronomic benefits and consumer concerns, then 57% of growers would consider planting them.

Also, about 60% of farmers surveyed believed GM crops were likely to deliver benefits, which included:

- reduced use of chemicals (63%);
- increased effectiveness of weed and insect control (60%); and
- increased yields (64%).

The survey also examined 'top-of-head' attitudes versus more considered attitudes, and found that after having considered both the risks and benefits of GM crops, the numbers who supported the technology rose from 23% to 42% while those opposed stayed almost the same at 48% (down from 49%).

A separate study conducted of farmers in the Wimmera region, by Laity (2003), was much more robust than the majority of politically-driven surveys undertaken in the last few years. Laity (2003) found that farmers had a low to medium understanding of gene technology and were generally not well informed. Laity also found that attitudes to GM crops were highly specific, depending on the perceived risk and benefits, with a GM crop such as fungal resistant chickpeas having a much higher level of acceptability than a GM crop such as herbicide resistant canola.

Herbicide-tolerant GM canola had a low level of acceptance by farmers, and the development of herbicide-resistant weeds was cited by over 70% as a high concern relating to GM crops.

Australians' attitudes to GM foods and GM crops and regulation, tend to sit somewhere between those of the more-accepting USA and less-accepting UK, which also tend to be characterised by divergent

awareness and trust in their regulators, as found by Moon and Balasubramanian (2002).

In the 2001 Eurobarometer study conducted by the European Commission (16,029 people, roughly 1000 people for each member state of the European Union), 70% of Europeans did not want GM foods, with 59.4% believing that they had adverse effects on the environment. By comparison, a 2002 study of 1203 people by the US Food Policy Institute found that 74% of people approved of GM foods which were less expensive or tasted better. While the two surveys are not entirely comparable, they do illustrate the general trend that more US consumers are willing to accept GM foods and crops than Europeans.

A basic measure of public acceptance, or rejection, of gene technology, is the extent to which the public perceive benefits from the technology relative to its risks. As a comparative ratio, attitudes to GM crops in Australia have moved from 63%:77% risk:benefit in 1999, to 62%:78% in 2001 to 63%:73% in 2003.

Qualitative findings Focus group studies, used to complement quantitative studies, have been very useful in delving deeper into the way people form their attitudes. There were two major findings from focus group studies conducted for Biotechnology Australia. Firstly, people are concerned about the processes by which new technologies are developed (which goes against the consequentialist ethics argument that something is valued, regardless of process, if the outcomes are beneficial). Secondly, there are five key factors of influence in determining acceptance or rejection of GM foods and crops. They are:

- information – a level of understanding of the technology and what it can and cannot do, which has to be provided from a credible source;
- regulation – a level of confidence that effective regulation exists to protect humanity and the environment;
- consultation – a feeling that the public has had some input to the development of the technology;
- consumer choice – the ability for an individual to accept or reject each application of the technology; and
- consumer benefit – a clear individual and societal benefit from each application.

Very few applications of biotechnology currently fulfil all five criteria well and contentious applications, like GM foods and crops, fulfil none of them well—bearing in mind that public perceptions of the factors are more important than reality.

The first two, information and regulation, are where most strategies concentrate, and work by Paul

Slovic from the University of Oregon, USA, has shown that risks are perceived to be highest if something is seen as ‘unknown’ and ‘uncontrollable’ (Slovic *et al.* 1980). No surprise that they are the factors most targeted by anti-gene technology groups. Yet the more a person knows about a particular application of biotechnology, and the more they know there are controls governing it, the less likely they appear to be concerned about it. But information must be in a language accessible to the public, must address their concerns, usually needs to be balanced, and must come from a credible source. Trust can act as a substitution for knowledge in communications.

It is also important to recognise that information alone can rarely change an attitude if that attitude is predisposed to a certain way of thinking. Once formed, attitudes change very slowly and are persistent in the face of contrary evidence—which will be agreed with if it is consistent with one’s initial attitudes and beliefs, but disagreed with as ‘unreliable’ or ‘wrong’ if it goes against them.

Essentially, with regulation, to effectively lessen public concerns, there needs to be a high degree of understanding of the regulatory process and greater trust in the regulator. In Australia, while awareness of the main regulators is moderate to low (Food Standards Australia New Zealand (FSANZ) rated 61% and the Office of Gene Technology Regulator (OGTR) rated at 13%), trust is quite high. FSANZ was rated as trustworthy by 82% of respondents, and OGTR was rated as trustworthy by 73% of respondents.

Consultation must be perceived to be genuine and must again address root concerns in the language of those concerned, and must be seen to be having some effect. It is also best done before the development of an application, rather than after its development. How different might the debate about GM crops have been if the full supply chain from farmer to consumer had been consulted early in their development?

Consumer choice and consumer benefit are often judged by an individual’s perspective, and can be demonstrated through GM medicines having general high acceptance and GM foods having general lower acceptance. Agronomic benefits, such as better weed control, are not generally perceived by consumers as a benefit, however environmental benefits sometimes can be.

Fulfilling all five criteria well is a problem for the development of a perfect strategy in Australia since, as in most countries, there is no one agency or body responsible for all five. Government can best address information and regulation, and also consultation and consumer choice to some extent – but consumer benefit can only be achieved by those developing the technologies.

The most recent study into farmers' attitudes towards gene technology in agriculture, Kleffman Australia (2003), found that 30% of 483 canola growers had considered growing GM canola, and there was a higher correlation of those considering growing GM canola linked to larger farm size and use of technologies.

The percentages that had considered growing GM canola were fairly consistent across all states, but there were higher percentages considering growing amongst younger farmers and those who farmed full-time.

Of the farmers who had considered growing GM canola, when asked the unprompted question as to the main impediments in their mind to growing it, the highest response was the moratoriums in place in most states of Australia (39%). This was followed by the performance of the GM crop not yet being proven (18%), market access issues (17%) and the potential for herbicide resistance to occur in weeds (16%).

However, when correlating the unprompted responses with the prompted responses, potential herbicide resistance in weeds rose to the highest concern (74%), followed by market access (72%), moratoriums (72%) and consumer concerns (61%).

The findings were similar, but with a few significant differences, for growers who had not considered growing GM canola, with the highest unprompted concerns being the unproven performance of GM crops (32%), moratoriums (24%), market access issues (23%) and potential for herbicide resistance to occur in weeds (20%).

And unprompted and prompted responses correlated were, potential herbicide resistance in weeds (83%), market access (77%), performance of GM crops not proven (74%) and the ability of the grain handling system to segregate GM and non-GM grain (73%).

And when correlating the response, unprompted and prompted from all growers surveyed, both those considering growing GM canola, and those not considering it, the highest single impediment to growing the crop was the potential for herbicide resistance to develop in weeds. Clearly this remains a significant concern amongst growers in relation to the adoption of GM canola.

CONCLUSIONS

Enough data now exists to make some fairly solid conclusions about drivers of public concerns relating to genetically modified foods and crops, and the

first conclusion is that GM foods and crops are still largely two different issues, and the general public as consumers have very different understandings and expectations of gene technology than do growers.

Also, while the potential for GM canola to lead to herbicide resistance to develop in weeds is a considerable issue for farmers, it does not rate highly with consumers, whose concerns are much more personal. As a general rule, the closer to home the potential impact of a GM crop is likely to be, the higher it will be a concern – and conversely, the closer to home a benefit is, the higher it will be perceived as a benefit.

While adoption of new technologies, such as gene technology, tends to be made on a risk:benefit analysis, there is still a much higher perception of risk relating to GM crops, particularly GM canola, and until more benefits (or perceived benefits) are developed in GM crops, both for growers and consumers, this is not likely to drastically change.

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