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Biotechnology, farmers and the media

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ABSTRACT

This study compared information farmers and the public are given about biotechnology, using stories from *The Dominion* and *The New Zealand Farmer*. 64% of stories were in favour of biotechnology. Biotechnology benefits made up 38% of the arguments in stories, followed by threats of not going ahead with biotechnology. Farmers were not well represented as sources. Two focus groups, one of rural producers, the other urban consumers, were asked to share their views about biotechnology. Urban consumers were more concerned about biotechnology than rural producers. Urban consumers wanted to know about dangers and safety while rural producers wanted to know about benefits. The study concluded wider debate is needed; farmers need to be actively involved; reporting needs to be more conscious; biotechnology proponents have to stop threatening people; rural producers have to understand their consumers better; and we should all ask more questions.

Keywords: biotechnology; farmers; media.

INTRODUCTION

Farmers are right in the middle of the biotechnology debate: everyone wants to seduce them. Businesses representing biotechnology companies need farmers, because they often own the source of genes or have the ability to grow modified crops or animals. Researchers and scientists need farmers for the same reasons, plus they need their moral support for the work. Lobbyists for or against biotechnology need a groundswell of farmer support too.

The debate raises questions about how farmers obtain information about biotechnology. How do farmers get the best information? What are they being told? Are they being told what they want to know? Who is speaking in the biotechnology debate? If farmers are crucial to the future of biotechnology, then issues such as these need to be examined in order to understand the influences to which farmers are subjected.

This study compared the information farmers and the public have been given about biotechnology by comparing stories in two newspapers, one aimed at the general public, the other at the farming community. In addition, two focus groups, one representing rural people, the other group selected urban consumers, were used to understand what people wanted to know about biotechnology.

The term biotechnology is used as an all-encompassing word, covering a set of scientific techniques, rather than the more specific application of genetic engineering.

MATERIALS AND METHODS

The Knowledge Basket Internet site-

(www.knowledge.basket.co.nz) was used to search *The Dominion* and *The New Zealand Farmer* for articles published between January and August 2000 containing the

terms 'biotechnology' and 'genetics'. (Various authors from: *The Dominion*, 12 January 2000 – 31 July 2000, INL newspapers, Wellington. *The New Zealand Farmer*, 3 February 2000 – 27 July 2000. New Zealand Rural Press, Auckland.)

The stories were classified as being for, neutral, or against, biotechnology. The stories were then examined and subsequently checked for arguments (any assertion which was intended or could be used to support a position in favour of, or against biotechnology) according to Priest and Talbert (1994). The arguments were then classified as dealing with economic issues; benefits; regulatory and government issues; danger and safety issues; environmental issues; awareness and information; ethical issues; the time-related risks of not adopting biotechnology; other threats or risks of not adopting biotechnology, and other issues. The sources in each story: industries; universities; Crown Research Institutes; agricultural interests, including farmers, government including the Royal Commission on Genetic Modification, activists, and others were noted.

Two focus groups were used to assess what people wanted to know about biotechnology. One group (n = 22) comprised the participants of the Kellogg Rural Leadership Course held at Lincoln University in 2000, of which the author was a participant. This group was chosen since they were representative of rural producers. The second group comprised customers (n = 16) of Chantal Foods, a Napier organic food retailer, chosen as being representative of a select group of discerning urban consumers. Both groups were asked to complete a questionnaire weighting the relative importance of knowing about each listed aspect of biotechnology identified in the analysis of the newspaper articles (using a scale of 1 to 10, where 1 = most important, 10 = least important). Respondents were also asked what benefits they associated with biotechnology.

RESULTS

Forty-eight newspaper articles mentioning biotechnology and genetics were identified, (24 from each newspaper). These contained 378 arguments, 181 from *The Dominion*, and 197 from *The New Zealand Farmer*. The majority of articles in both publications were positive about biotechnology, (*The Dominion* 15/24, *The New Zealand Farmer* 16/24) with few articles rated as negative (*The Dominion* 4/24, *The New Zealand Farmer* 3/24) or neutral (both 5/24). Only two articles, both in *The Dominion*, presented both positive and negative aspects. The stories came from a variety of sources, (Table 1) though half of *The Dominion* coverage came from the Government. *The New Zealand Farmer* had an average of 1.1 sources per story compared with 1.5 in *The Dominion*. Only one farmer and one activist were represented in these stories.

The analysis of the arguments, summarised in Figure 1, shows the predominance, in both newspapers, of arguments portraying the benefits of biotechnology. While

FIGURE 1: The arguments portrayed in *The New Zealand Farmer* and *The Dominion* regarding biotechnology

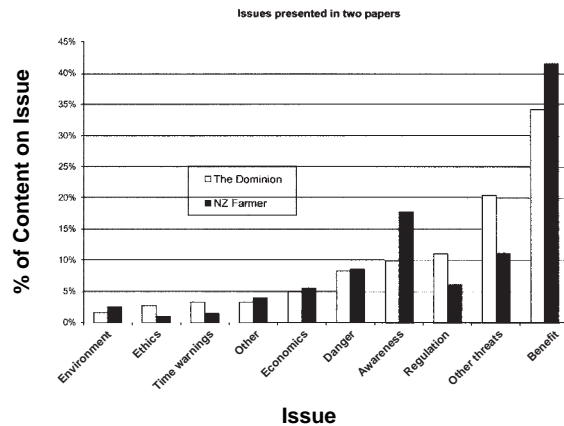


TABLE 1: The sources of stories about biotechnology reported in two New Zealand newspapers

Source	<i>The Dominion</i>	<i>The NZ Farmer</i>
Industry	10	5
University	2	4
CRI	4	6
Agriculture	1	5
Government	19	6
Activist	1	0
Other	1	1
TOTAL	38	27

The Dominion reported fewer ‘benefits’, more ‘other threats’ and less awareness’ than *The New Zealand Farmer* (Figure 1) the two publications presented remarkably similar coverage overall. Arguments supporting time warnings and other threats were a major part of both newspapers’ coverage.

TABLE 2: Kellogg and Chantal group weightings for biotechnology issues

Issue	Kellogg	Chantal	Average
Awareness	2.8	3.1	2.9
Benefit	2.6	4.1	3.3
Danger	3.9	1.8	2.8
Economics	3.8	5.0	4.4
Environment	4.3	2.3	3.3
Ethics	5.3	3.0	4.1
Regulatory	5.8	4.6	5.2
Time Threats	4.7	6.0	5.3
Other Threats	5.1	6.5	5.8

The focus groups wanted to know about four main issues (Table 2) of biotechnology: first dangers; then information; then environmental information and then benefits. Table 2 shows the average weightings for each group for each issue, using a scale of 1 to 10, where 1 = most important, 10 = least important. But there was a difference between the two groups: the Kellogg group wanted to know about benefits most of all, followed by information, economics and danger, while the Chantal group was most concerned to find out about danger, then environmental information, followed by ethics and awareness. Neither group was very interested in regulatory/government issues, and also put time and other threats well down their lists. The biggest difference between the two groups was on the issue of ethics, where the Chantal group was much more interested to read about ethics than the Kellogg group. The group results

showed the Chantal group weighted more issues more highly than the Kellogg group, indicating a greater level of concern. Thirty per cent of the Chantal group responses were weighted 1, which was most important, while only 12% of the Kellogg responses rate this high. Both groups saw the main benefits associated with biotechnology were medical: 59% of the Kellogg group and 50% of the Chantal group listed health benefits associated with biotechnology.

DISCUSSION

Both papers’ coverage was heavily biased towards benefits of biotechnology, followed by the risks of not going ahead with biotechnology, then information. This bias towards benefits is echoed in the limited range of sources used and the lack of opposing or dissenting views sought. Limiting sources reduces the quality of the coverage. If people are to understand biotechnology issues, the quality of the media coverage must improve as single-source stories may reflect the science community’s bias. This study shows scientists do get a major say, in contrast to farmers, who only have a small voice in the debate, being almost non-existent in *The Dominion*, and almost a fifth of *The New Zealand Farmer* sources.

What the newspapers offered and what readers received were two totally different things: readers wanted a wider range of information spread across all categories, rather than a focus on benefits and the risks of not going ahead. Priest and Talbert (1994) also found a similar discrepancy, with US coverage focusing on economics and benefits. This indicates many issues of concern to the public appeared to be seriously under-reported – both here and during the US study.

The study found Chantal group members were more concerned overall with issues surrounding biotechnology (particularly danger and safety issues), and weighted them more highly than Kellogg group members. This shows while the Kellogg group relates more to biotechnology, there is still a difference in opinion between consumers and producers. Producers need to understand this difference better. Medical aspects of biotechnology drew the greatest agreement between the two groups. People who disagreed with biotechnology use for food or agricultural benefits still supported it for medical reasons.

Meanwhile the issue of using threats in order to get support for biotechnology is dubious, and all the more interesting for its blatant nature. One of the main sources of threats was a story in *The Dominion* on July 31 headed “Scientists see many benefits from genetics” (Samson, 2000). Reporting on a study by the Association of Crown Research Institutes, the story contained 18 different threats if New Zealand did not go ahead with biotechnology.

Why would so much coverage be devoted to the perverse idea of threatening people with perceived problems if we don’t adopt biotechnology? Isn’t this issue diverting people away from the real risks? The Independent Biotechnology Advisory Council’s (IBAC) public consultation report (2000) notes that not much research is occurring into potential risks of biotechnology. “Whilst bland claims were made by some researchers there was no possibility of harms from viral vectors, for example, others were more reticent and admitted there were areas of ignorance here which called for attention.” Surely part of science’s credibility is

built on the perception university scientists in particular are disinterested and not self-serving. The continuous stream of one-sided messages about biotechnology may erode this.

The Chantal group's needs are very similar to the public's order of priority as IBAC noted in its public consultation report (IBAC, 2000): safety of GM foods, environmental issues, corporate control, issues for NZ, philosophical issues, patenting genes, and then regulation in NZ. This study has used the Chantal group as the public, while the Kellogg group is different from that. While both groups agreed on the benefits of medical applications, when it came to the issue of food they were different, showing just how far apart consumers and producers are: clearly they have to understand each other more.

What solutions are there for the issues outlined above? A wider debate is needed and farmers need to be actively involved. A greater level of investigation is needed, as is more conscious reporting. Biotechnology proponents promoting benefits above information, and the risks of not going ahead before dangers, risk losing support from the people they need the most. They have to listen to what the public wants – and respect the public's opinion. Otherwise they will alienate themselves still further. Rural producers have to understand consumers better – consumers in this study were much more concerned than producers about the possible risks associated with biotechnology. Summing up the issue, one Kellogg participant noted: "There are exciting benefits to come from biotech, but there are also huge untapped economic benefits to be gained in NZ agriculture from improving on what we already have. Average sheep and beef farmers are making a 1-2% return, and top farmers are making a 15-20% return."

We have many farmers who could make huge improvements without resorting to biotechnology. Perhaps this is our real challenge.

ACKNOWLEDGEMENTS

Thanks to those people who helped with this project, including the Kellogg and Chantal groups, Dr Mark Fisher, Dr Charles Lamb, Dr Jon Hickford, Professor Tony Zwart, Vicki Hyde, Susan Wylie and Richard Croad.