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Alison Henderson, C. Kay Weaver and George Cheney

Discourse Studies 2007; 9; 9

DOI: 10.1177/1461445607072105

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Discourse Studies
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 www.sagepublications.com
 Vol 9(1): 9–41
 10.1177/1461445607072105

ALISON HENDERSON, C. KAY WEAVER
 UNIVERSITY OF WAIKATO
 AND GEORGE CHENEY
 THE UNIVERSITY OF UTAH

ABSTRACT Despite the potential political impact of industry attempts to influence public policy about genetic modification, little research has focused on critical understanding of industry perspectives. This article explores the rhetorical and discursive construction of public messages about this controversial issue by two major New Zealand export industries. The kiwifruit industry advocates a very cautious public policy position, while the dairy industry has been a strong advocate for the commercial development of genetic modification. We demonstrate that these industries draw on multiple identities and rationalities to negotiate, express, and elaborate their positions on genetic modification, informed variously by discourses of risk, science, the political economy of the marketplace, and images of the 'natural' environment. We suggest that exploring how organizations seek to influence controversial socio-political issues through the management of multiple identities may facilitate greater understanding of viewpoints often represented in the media as two distinct polarities; that is as either 'for' or 'against' the issues.

KEY WORDS: *identity, genetic modification, rationality*

Introduction

Genetic modification¹ (GM) is a technology that is the subject of intense public and academic debate, both internationally and in New Zealand, with implications that may have far-reaching social, environmental, and economic effects. Organizations and interest groups seeking to influence GM public policy sometimes 'accuse' each other of positioning arguments in ways that maximize or minimize risks or future opportunities, and argue that decisions should be based on 'facts' – but whose facts? What counts as 'evidence' in relation to GM itself is contested, in addition to its conclusions being subject to considerable debate.

This article explores the values-related tensions evident in debate about GM crops and foods through case studies of the New Zealand kiwifruit and dairy

industries. We argue that communication research that fosters greater critical understanding of *corporate* and *industry* perspectives of GM is needed, given the controversial nature of public policy about GM and the potential political impact of industry arguments. In both public policy and commercial environments, interest groups seek to gain legitimacy for their own positions on GM research and development (see, for example, Motion and Weaver, 2005a, 2005b). At the same time, research demonstrates that there is significant public distrust of the agendas of corporate businesses advocating commercial development of GM products (see, for example, Henderson, 2005; Henderson and Weaver, 2003; Nielsen et al., 2003) particularly in the areas of crops and food, and in Europe, where previous food scares have provoked intense debate (Adam, 2000; Mitchell, 1999; Rogers, 1998).

To date, research about GM policy has tended to be largely instrumental, centred on public understanding of and attitudes to GM, for example, quantifying the extent of public support (Gaskell et al., 2003a, 2003b), and identifying the perceived risks and benefits (Frewer et al., 1995, 1996; Gaskell et al., 2004; Miles and Frewer, 2001; Moon and Balasubramian, 2001, 2003; Rowe, 2004).

Critical research aimed at understanding the social and cultural implications of GM has been more limited; although, increasingly, we find research that focuses on the *politics of knowledge* in debate and decision-making about GM (Bora, 1998; Harvey, 2004; Juanillo, 2001; Motion and Weaver, 2005a; Rogers-Hayden and Hindmarsh, 2002), and on facilitating public dialogue in the biotechnology/GM debate (Cronin and Jackson, 2004; Roper et al., 2004). There are few critical studies that do justice to the complexity of *corporate* or *industry* strategic positioning about GM – that discuss from an organizational communication perspective how meanings about GM are negotiated by particular industry groups, and how these groups attempt to exert influence on public attitudes and particularly on public policy (see, as examples, Bruno, 1998; Durham, 2005; Motion and Weaver, 2005b; Pelaez and Schmidt, 2004; Reisner, 2001; Vellema, 2004; Weaver and Motion, 2002). We attempt to address this gap in the present article.

We demonstrate that the New Zealand kiwifruit and dairy industries negotiate their positions on GM by engaging in a dynamic process of identity management on a variety of levels. They draw on multiple identities and rationalities to express and explain these negotiated public policy positions informed variously by discourses of risk, science, the political economy of the marketplace, and images of the 'natural' environment. Along the way, the ambiguities of key value terms are appropriated and exploited.

This critical discourse analysis of two New Zealand *industry* perspectives of GM demonstrates that 'big business' is far from necessarily pro-GM. Our social constructionist approach attempts to clarify the areas of commonality and difference among protagonists in the battleground of the public debate. It contributes to an understanding of public policy decision-making about GM, helping to elucidate the changes that are occurring and the voices seeking to be heard. Our theoretical focus on discourse, rhetoric, and identity allows a consideration of how organizations seek to influence controversial socio-political issues through the

management of multiple identities (see Cheney, 1991). This theoretical perspective may facilitate greater understanding of viewpoints often represented in the media as polarized 'for' and 'against' the issues.

In the following sections of this article, we first outline the New Zealand social and political context for GM debate. We then introduce our theoretical perspective, and explain how we combine critical discourse analysis and rhetorical criticism in our data analysis. Finally, we discuss the similarities and differences in the GM policies negotiated by the kiwifruit and dairy industries.

The New Zealand social and political context

Following the recommendations of a Royal Commission on Genetic Modification in 2001, the New Zealand government has declared a commitment to biotechnology, as part of the development of a knowledge economy (*Growing an Innovative New Zealand*, 2002). Yet, at the time of the Royal Commission, the New Zealand regulatory environment for GM was considered by many business and science groups to be one of the strictest in the world. It was blamed for the potential loss of research scientists overseas, and seen as a barrier to maintaining research capability and a position at the forefront of cutting edge biotechnology research. This was perceived as adversely affecting New Zealand's primary production (Royal Commission on Genetic Modification, 2001). The economic value of GM to New Zealand has additionally been hotly contested. Saunders and Catagay commented that New Zealand is likely to have higher economic returns from 'low or zero GM food production' since there is a trend for trade to be moving away from countries producing GM food (2001: 13). However, reports looking at the impact of commercial development of GM on the economic value of New Zealand's 'clean, green' image (Business and Economic Research Limited [BERL], 2003; Knight et al., 2003) sparked intense controversy (*Bay of Plenty Times*, 2003; Stock, 2003). The debate about GM in New Zealand is, then, firmly set within a political context (see Ashwell and Olsson, 2004; Hager, 2002; Rogers-Hayden, 2004; Rogers-Hayden and Hindmarsh, 2002; Weaver and Motion, 2002), and the New Zealand government has recognized both the pace of research and the need for careful deliberation of the issues (Ministry of Research, Science and Technology, 2002).

The dairy industry and the kiwifruit industry are two primary industries that represent significant export incomes for New Zealand; their strategic positioning on GM is therefore an important economic consideration in public policy formation. Dairy products and kiwifruit are also seen as icons which assist in creating a New Zealand national and cultural identity. Consequently, these industries' GM positions have the potential to impact on overseas perceptions of this identity.

Each industry has formed a large grower cooperative with a single marketing platform and collectively represents significant industry producer groups. This study uses the term 'the dairy industry', but focuses on the largest of the New Zealand dairy co-operatives, now called Fonterra. On 18 June 2001, shareholders voted to merge the two largest dairy companies, New Zealand Dairy Group and Kiwi Dairies with the industry marketing organization, the New Zealand Dairy

Board (NZDB).² These two companies comprise over 95 percent of the dairy industry, but two small companies chose to remain independent: Tatua Co-operative Dairy Company and Westland Co-operative Dairy Company. This study does not include these small, independent dairy co-operatives, since they did not take an active role in GM debate. At the time of the study, the kiwifruit industry comprised independent growers and packhouse/supplier groups, as well as a marketing company ZESPRI International, and research company ZESPRI Innovation, wholly owned by growers as part of the ZESPRI Group Limited.³ ZESPRI currently enjoys a position as the world's leading kiwifruit brand, with major sales in Europe and Japan.

Interestingly, the kiwifruit and dairy industries take differing positions in the GM debate. The kiwifruit industry has said 'no' to GM and advocates a very cautious public policy position. For example, in a *Kiwifruit Journal*⁴ article discussing the kiwifruit industry position on GM, a ZESPRI Innovation spokesperson commented:

Government policy on GM food production is critical to prevent potential severe erosion of the New Zealand kiwifruit export market through barriers to market access from adverse consumer opinion. New Zealand's status of GM Free food production needs to be maintained until global debate resolves the acceptability of the technology in food production. (Lancaster, 2000: 24)

In contrast, the dairy industry has been a strong advocate for GM, including the commercial development of GM products. In a media statement making its position on GM clear, Fonterra stated:

Fonterra must be allowed to conduct research in New Zealand in a responsible manner. We simply must have the ability to make sensible choices about the commercial application of genetically-modified organisms in the future. (Fonterra, 2001a: 1)

As major exporters of primary produce to international markets, the kiwifruit and dairy industries' ability to sell competitively to those markets is paramount. They share the common goal of maximizing their business opportunities. However, given the contested nature of GM public policy in New Zealand, the political environment in which these industries must operate is also of crucial concern, and each industry rhetorically and discursively constructed both its own and New Zealand's preferred position on GM differently.

Although the study focuses solely on New Zealand data, the global exports of the New Zealand kiwifruit and dairy industries and their involvement in international advisory groups, such as those dealing with food regulations, mean that New Zealand research and the outcomes of debate and decision-making have the potential to significantly influence the GM debate internationally. Equally, a number of international agreements have wide implications for the development of GM, both in New Zealand and in other national contexts, for example, the Cartagena Protocol on Biosafety, and Earth Summit and World Trade Organization (WTO) agreements. Yet, agreements that will establish international frameworks for decision-making about GM (for example, Codex Alimentarius) are still in the development stage.

Discourses of GM and rhetorical strategies of influence

One prevalent discourse constructs GM as a 'cutting edge' technology representing 'progress' that will bring economic and scientific benefits for society (see, for example, Davis, 1991; Enriquez and Goldberg, 2000; Mannion, 1999; Oram, 2000). Business and technical/scientific perspectives of risk are increasingly privileged as a result of the continuing industrialisation of society (Beck, 1992), and in western cultures, being 'rational' is usually equated with being 'reasonable' and 'systematic', as opposed to being 'irrational', 'unpredictable', 'intuitive' and 'emotional' (Cheney et al., 2004). Technical/scientific rationalities frequently represent political and social concerns as myth or superstition, and separate these concerns from scientific and technical approaches to issues (Latour, 1993). From such perspectives, the 'facts' generated by GM research are represented as 'truths' that form the basis for decision-making about GM technologies. However, a growing number of studies take a social constructionist approach to risk and GM – that is, a relativist position that recognizes the multiple understandings of risk derived from value systems which draw on knowledge discourses privileged by different social, cultural, and political groups (see, for example, Ehrlich and Ehrlich, 1998; Hindmarsh and Hindmarsh, 2002; Ho, 1999; Rifkin, 1999; Shiva, 1997, 2000; compare also Maguire's [2004] discussion of the social construction of the pesticide DDT).

Organizations can also be said to draw on particular discourses to create and maintain their organizational identities; they participate in a political environment where social movements, lobby groups, and activist groups may influence public policy (see, for example, Cheney, 1991; Cheney and Frenette, 1993). In doing so, they use rhetorical strategies to manage meanings about public policy issues in their organizational communication (Conrad and McIntush, 2003). As Leitch and Neilson (2001) also noted, 'expert' organizations have opportunities to lobby government, government advisory bodies, and regulatory authorities directly. They act as consultants, conduct research, and provide reports which impact directly on government decision-making about public policy. Decision-making on public issues may then reflect the opinion of the most influential and involve a re-shaping of the 'truth' through the shaping of the majority public opinion.

Cheney (1991) described the nature of contemporary organizational rhetoric as the management of multiple identities, both individual and collective, and suggested that 'similarity and difference mutually implicate one another, exist in ongoing dialectical tension, and provide the formative context for what we call our "identity"' (1991: 13). In organizations, collective identity refers to expressed, shared interests; individuals draw on such symbolic resources as they seek to belong – to identify – as a way of coping with the divisions within society and their own search for meanings.

As Cheney et al. (2005) explain, the concept and field of rhetoric are concerned with the possible impacts of symbolic communication in context and on processes of influence in situations that may contain uncertainty and ambiguity. Rhetoric may thus be strategic, purposive and deliberate; however, it may also be seen as detached from intention; as diffused throughout a broad discourse; and as affecting

multiple, overlapping, and not-so-clearly bounded audiences. Organizations may use a variety of rhetorical strategies that are at times reactive to their operating environment, and at other times, proactive in an attempt to shape the future. Rhetoric may be used in discrete messages or to frame wider policy debate; that is, in both specific campaigns and in the wider positioning of an organization in terms of its identity and culture. This study focuses on such largely intentional messages from identifiable sources to targeted audiences. In addition to the use of ambiguity, such strategies may include identification or differentiation (linking one issue with another, or separating issues), the use of juxtaposition (aligning one thing with another regardless of connection) or substitution (attempting to change the focus of an issue), and dismissal or propaganda (the denial of opposing viewpoints or the assertion that one position is the only position [Cheney et al., 2005]).

It is also important to stress that the rhetoric used by an organization in issue management is likely to impact not only on specific bounded messages to external publics but also on the daily working life of the organization. Cheney with Lair (2005), for example, argued that organizations are significantly constituted by rhetoric in the sense that much of what an organization is or does finds a basis in persuasion and identification. When we move beyond the boundaries of the organization, rhetoric is powerfully evident in both overt and explicit debates and in the more subtle construction of trends, management issues, and diffusion of what counts as 'knowledge'. For example, in the GM debate, the rhetoric of technical/science discourses privileges expert scientific knowledge and scientific/technical risk assessment in relation to GM. An organization's management of meaning can, then, impact on internal and external organizational outcomes at a micro level and contribute to macro-level discourses and the production of societal trends (Cheney with Lair, 2005). The struggle within New Zealand to define the terms of the debate about GM is, in these terms, a rhetorically contested site of power, focusing on how values are represented and expressed as the organization attempts to influence both internal and external stakeholders.

Conrad and McIntush cited Schattschneider (1960) in explaining the importance of rhetoric in framing issues: 'All forms of political organization have a bias in favour of the exploitation of some kinds of conflict and the suppression of others because *organization is the mobilization of bias*' (2003: 406, original emphasis). They emphasized that organizational rhetors can use strategic ambiguity (see also Eisenberg, 1984; Ulmer and Sellnow, 1997) to reconcile ambivalences in policy. Such ambiguity enables the development of ad hoc decision-making that relies more on retrospective rationalization of decisions than on the definition of problems and pursuit of solutions.

Organizational members make decisions, or accept organizational decisions, through processes of identification prioritising one alternative over another; and decisions are made as a result of multiple identifications with value premises at an individual level, at a group or organizational level, or because they are socially desirable (Cheney, 1983; Simon, 1976; Tompkins and Cheney, 1985). An individual or group may then literally 'see' the alternatives most closely associated with their identifications, and fail to 'see' other equally valid alternatives. For example,

a conventional farmer might 'see' GM crops as a way of reducing the use of pesticides, while an organic farmer might 'see' GM crops as disrupting the natural lifecycle of the soil.

A theoretical perspective examining the role of communication in the management of multiple identities yields nuanced understandings of how organizations rhetorically position themselves on controversial public issues. We take the perspective that organizational identity is dynamic, and that individuals and organizations may simultaneously negotiate multiple, possibly conflicting organizational identities, and may in fact hold multiple conflicting positions on an issue. These multiple positions result from stakeholders' identification with different value premises espoused by the individuals, groups, and networks they associate with, and may exist in tension with each other. For example, within the kiwifruit industry, growers identify strongly with value premises about the environment, and concerns expressed about food safety by their international customers in Europe, but at the same time, they hold value premises about efficiency and have pragmatic business concerns about the economic impact of environmental audit procedures, such as Euregap, that kiwifruit production is now subject to. These multiple positions result in the use of multiple rationalities to justify an organization's strategic positioning on controversial issues. Identity, rationality, and values are thus three reference points that provide a useful lens with which to examine an organization's strategic positioning, as it negotiates with controversial public policy issues.

Method

The methodology chosen for this study extends the work of Heracleous and Barrett (2001). Heracleous and Barrett conceptualized two inter-related levels of analysis focusing on the subjective meanings understood through social actors' interpretive schemes, and the rules and resources on which actors draw. They suggested that discourses exhibit structural properties that are implicit, textual, trans-temporal and trans-situational. Themes in communicative actions can influence structures over the long term, which then re-influence communicative actions. The methodology thus involves a combination of rhetorical criticism – drawing on the work of Burke (1969), Cheney and Tompkins (1988), and Foss (1996, 2004) – and critical discourse analysis (CDA) – drawing on the work of Fairclough (1992) and van Dijk (1995, 2001).

Both rhetorical criticism and CDA highlight the pragmatic effects or possibilities for discourse-in-social-context. While rhetorical criticism has revolved around the terms 'persuasion' and 'identification', CDA has featured 'power' and 'ideology' (Cheney, 2000). Traditionally speaking, rhetorical criticism highlights how discourse exists as both a context for and an expression of the intentions of communicators as they seek to influence others, while CDA highlights the role of power and ideology in social institutions (Livesey, 2002). Both approaches, however, draw on the linguistic turn in 20th-century philosophy and social theory, and are concerned with how language shapes everyday meanings (Livesey, 2002).

Also, both approaches as applied may include analyses ranging from the micro socio-linguistic, to attention to broad patterns of discourse. It is the issue of how language is used by the dairy and kiwifruit industries to shape the everyday meanings of GM that is the focus of this study.

The main data examined in this article comprise documents produced for audiences both within New Zealand and in the industries' international markets between 1999 and 2003, a period of intense GM debate in New Zealand, as a Royal Commission on Genetic Modification made its report, and the government deliberated on public policy. The specific documents chosen for analysis comprised the industry communication about GM that was publicly available at the time of the research, as well as a number of documents accessed through industry contacts: that is, policy statements, media releases, speeches, articles, websites, and each industry's submission to the Royal Commission on Genetic Modification. In these documents the industry policies on GM have been explicitly stated or implicitly referred to. These documents are listed in the Appendix Table 1.

Further data were obtained from 20 interviews conducted with members of the kiwifruit and dairy industries holding management, marketing, communication, and research positions in their respective industries, and from eight focus groups conducted with dairy farmers and kiwifruit growers. However, although we refer to the data from the interviews and focus groups in this article to support the main document analysis, a more detailed analysis of these interviews and focus groups forms the basis of a separate article the authors have in progress.

In the data analysed at the level of *text*, we paid attention to the rhetorical features, for example, of what was present and absent, what was highlighted, and what was implicit or assumed. We particularly noted words that were treated as similar, words fostering ambiguity, words indicating antithesis or opposition, and words used in place of GM, such as metaphors and similes (Aristotle, 1954). More broadly, we examined strategies for identification or persuasion (see Burke, 1969; Foss, 2004; Foss et al., 1991), focusing on industry orientations towards GM. For example, in the dairy industry documents, the terms *GM* and *biotechnology* were often used interchangeably, both to reassure stakeholders that GM technologies were nothing new and to indicate their 'cutting edge' potential. In contrast, in the kiwifruit industry, the term *GM* was constructed in opposition to the term 'natural'.

We looked at the context of the references to GM, what other phrases accompanied them, what came before and afterwards. This involved noting the beginnings and endings of texts, the presence or absence of words or phrases, relationships between words or phrases, recurrent ideas, words or phrases that were repeated, and words or phrases which were emphasised or clustered together. For example, in an article in the *Kiwifruit Journal*, a scientific definition of GM was given first, but GM was also identified at other points in the article as a 'market risk', and as likely to have 'benefits' following long-term research and development (Lancaster, 2000: 24). Additionally, we noted references to names or titles within documents, the title of the document, and the first introductory sentences of the document, which might indicate the priority accorded to particular ideas,

and the foregrounding and backgrounding of topics. For example, a ZESPRI media release about GM highlighted the importance of the KiwiGreen integrated pest management system (Kiwifruit New Zealand, 1999).

We additionally analysed the documents in terms of the *discursive practices* – their production, consumption and distribution (and noted references to organizational discursive practices in relation to GM in the interview and focus group transcripts). We looked at the style and tone of writing, and the genre of the document, who it was intended for (audience) and how it was distributed.

At the level of *social practice*, we noted anything ambivalent, hesitant, not stated, implicit, hedged around, or paradoxical, that might indicate particular tensions in the communication. We looked for recurring themes, repeated use of words or phrases, and phrases suggesting particular emphasis, to examine possible underlying value systems, institutions, ideologies and practices that indicated relative levels of power, taken-for-granted meanings, or particular socio-political tensions (see Fairclough, 1992; van Dijk, 1995). For example, kiwifruit industry documents indicated strong environmental concerns, while dairy industry documents privileged scientific technical methods of risk assessment.

Analysis, interpretation, and critique

Both the kiwifruit and dairy industries are market-driven in the sense that the rationality of the market is of prime concern in their GM positioning. However, the socio-political meanings implicit in the rhetorical construction of their GM policies, and their supporting arguments, indicate different market contexts in turn linked to their different industry identities. In this section, we first discuss the kiwifruit industry positioning on GM, which focused on consumer and environmental integrity. We then discuss the dairy industry GM positioning, which, in contrast, focused on competitiveness and highlighted scientific perspectives of risk.

THE KIWIFRUIT INDUSTRY

The primacy of the customer and consumer

In the kiwifruit industry, GM policy is described as largely *market-driven* because it is determined by the preferences of customers and consumers, and the industry's major international markets, Europe and Japan, are referred to as GM risk-averse, such that consumers will not purchase GM foods. The submission and witness brief presented by ZESPRI to the Royal Commission, provides the most detailed explanation of the industry position on GM. This is justified in terms of the potential loss of export earnings not only to the industry but to New Zealand, if New Zealand develops GM food products commercially. For example, ZESPRI's submission states:

Our marketing evidence is that the perception of GM status of New Zealand food production will influence the buying behaviour of consumers for all New Zealand products. (ZESPRI, 2000: Executive summary, 4.4)

ZESPRI's submission document relies significantly on quoting statistics and surveys in support of the kiwifruit industry argument. For example, the submission quotes the dollar value, \$700 million turnover per annum, and the employment value, 25,000 jobs, of kiwifruit exports to New Zealand (ZESPRI, 2000: Section B(c), summary). It also refers to both international consumer research and research carried out by ZESPRI marketing staff as evidence of consumer perceptions about GM, to demonstrate the risk that GM products would alienate kiwifruit markets in Europe.

The kiwifruit industry rhetoric thus articulates the industry's market identity with New Zealand's market identity. The iconic link between kiwifruit and their country of origin is clearly identified as significant to international markets and it is suggested that GM commercial production of any crop or food product in New Zealand might adversely impact on sales of kiwifruit because of 'guilt by association' (Lancaster, 2000: 24).

ZESPRI's submission to the Royal Commission is notable for its *single* focus on market issues, and the *repetition* of key terms representing the importance of the markets. Interestingly, the deliberate simplicity of the ZESPRI policy was identified as a rhetorical strategy that was less likely to be critiqued, and more likely to be understood unequivocally by international consumers. Indeed a ZESPRI spokesperson states:

It's important that we have a simple, clear statement of policy . . . It was important to us that we influenced the Royal Commission . . . but I don't know that we want to be out there banging a drum on a global basis because all banging drums does is draws more attention to potential flaws in your argument. (ZESPRI Innovation spokesperson)

In this context, ZESPRI's issue management strategy in relation to GM was to minimize any possibility that their international markets might link the industry with GM practices or products, to avoid the possibility that these markets would reject New Zealand kiwifruit. ZESPRI chose deliberate tactics of 'silence', rather than engaging significantly in debate about GM in New Zealand, or even within the industry. The industry was keen to prevent misunderstanding of their GE-free policy, but avoided entering into general debate about the advantages or disadvantages of GM per se so that the concept of GM would not be associated with kiwifruit in the minds of their consumers. This was particularly important since, following the release of the new fruit variety ZESPRI Gold in 1997, international customers and consumers were frequently concerned that the new cultivar was the result of GM: 'We've had to state time and time and time again that it [ZESPRI Gold kiwifruit] is not genetically modified, there's no genetic engineering involved' (ZESPRI Communication spokesperson).

An early media statement that describes the kiwifruit industry policy on GM is clearly market-driven in that it comments at length on consumer concerns in international markets, yet the first paragraph of the statement also aligns the industry's caution over GM with its commitment to safeguarding the *environment*:

Kiwifruit New Zealand has aligned its research and development policy with its strong industry *environmental philosophy* and production practices by rejecting any involvement in genetic engineering. (Kiwifruit New Zealand, 1999, emphasis added)

As Cheney and Tompkins (1988) have argued, words or paragraphs positioned first or last in a document can sometimes be seen as a rhetorical strategy indicating the *essence* of an argument. In the media statement quoted above, ZESPRI immediately draws on environmental discourses to facilitate identification with this anti-GM policy by consumers concerned about environmental issues. This is also consistent with the industry commitment to sustainability – ZESPRI is a member of the Sustainable Business Network – and acknowledges growing concerns about sustainability and environmental issues in New Zealand and internationally (Allen, 2004; Elkington, 2001b; Hajer, 1997; Hart, 2001; Moser and Miller, 2001; Peterson, 1997).

In the next two paragraphs of the ZESPRI media statement, the *food safety* concerns of global consumers are also highlighted and articulated with *not* producing GM kiwifruit. For example:

As part of our commitment to further strengthening food safety practices, Kiwifruit New Zealand has resolved not to fund research, include within its inventory, or market genetically modified kiwifruit. (Kiwifruit New Zealand, 1999)

The kiwifruit industry sees the introduction of GM foods as a potential risk in losing market share because food safety is a major concern in Europe and Japan; major markets for New Zealand kiwifruit. In these markets the handling of food scares has created significant consumer distrust of both food industries and government and frequently increased support for policies which minimise damage to the environment (Allan et al., 2000; Marks and Kalaitzandonakes, 2001; Murcott, 2001). The media statement can be seen as a tactic to reassure these major international markets that New Zealand kiwifruit are not GM.

In this positioning, the kiwifruit industry's GM policy draws on neoliberal political and economic discourses underpinned by rational choice theory and public choice theory. Rational choice theory argues that in a free market consumers will make choices based on self-interest, using the instrumental rationality of cost-benefit analysis (Aune, 2001), and public choice theory further argues that public policy decisions should be made with the least possible violation of individual self-interest (Aune, 2001; Devine, 1998). In this sense 'consumer' becomes conflated with 'citizen' (Cheney, 1998; Devine, 2001), and kiwifruit consumers are constructed as public policy decision-makers.

The neoliberal political and economic discourses drawn on by the kiwifruit industry GM policy are those that already dominate New Zealand's social culture (Dalziel, 2003; Devine, 1998, 2001; Kelsey, 1997; Scott, 1997). As Albrow (1987) suggested, rationality can be clearly linked to the framework of knowledge and belief evident in the symbolic systems of a particular culture and time. The kiwifruit industry policy is thus strategically positioned as politically credible – consistent with government policy – and likely to find favour with government, and to foster identification with the policy by industry stakeholders. By drawing on these normalized discourses, the policy is also strategically positioned to influence the attitudes of the voting public, and other corporate, industry, and science interest groups.

The kiwifruit industry documents thus demonstrate a complex construction of the market rationality for GM public policy decision-making. They prioritize a macro economic approach which privileges the economic value of New Zealand's primary production industries and draw on neoliberal discourses emphasizing public choice and rational choice to highlight the importance of international customer perceptions. The historical value of New Zealand's primary produce exports is further emphasized in the submission to the Royal Commission arguing that GM policy should not be at the expense of existing successful export earnings.

Adverse consumer opinion caused by the perception of New Zealand as an exporter of GM foods could jeopardise a significant proportion of the kiwifruit industry's contribution to the national economy. (ZESPRI, 2000: Executive summary, 4.4)

This rhetorical positioning suggests that market values are prioritized above other concerns, a strategy of enhancement; that is, an attempt to highlight the significance of this argument (see Cheney et al., 2005). When market values are taken for granted as a sea of neutrality, the market itself is exempted from moral judgement (Cheney, 1998, 2004). Yet, the kiwifruit industry additionally acknowledges food safety and environmental concerns that suggest some ambivalence about the primary role of a free-market approach to GM policy.

During the period of this research investigation, the kiwifruit industry has achieved record returns in international markets and the ZESPRI brand has become the kiwifruit market leader internationally (Webby, 2004). In the documents referring to the industry position on GM, this hard-won status is specifically identified, valued and respected, highlighting an overall theme that centres on the environmental *integrity* of the industry.

MANAGING THE ENVIRONMENT WITH INTEGRITY

The primary emphasis in the media statement on GM was, as discussed above, a concern for the existing environmental integrity, reputation, and brand identity of the industry. Indeed, the term 'integrity' occurs four times in the closing paragraph of the statement, and is also linked with the terms 'quality', 'loyalty', and 'safety':

We work hard to ensure that all New Zealand grown kiwifruit meets consumer and customer demand for *integrity* and we would never jeopardise our position, or our reputation for quality and *integrity*. We also would not risk losing customer loyalty and confidence in the *integrity* of the ZESPRI brand and system. In fact, we want the words environmental *integrity* and food safety to become synonymous with the ZESPRI brand system. (Kiwifruit New Zealand, 1999, emphasis added)

Environmental concerns are specifically referenced in five of the eight paragraphs in the media statement, including the lead one, where the environmental philosophy and GM are explicitly linked. Environmental integrity is further defined through explanations of the KiwiGreen integrated pest management system, aligning sustainable management practices with 'natural production technology options' to produce 'high quality fruit with minimal residues while sustaining the natural environment' (Kiwifruit New Zealand, 1999). The strong

rhetorical emphasis on the *environmental integrity* of the industry indicates a strategy aimed at gaining the trust of international customers and consumers with environmental concerns. Recent interviews conducted by New Zealand researchers with key suppliers and 'gatekeepers' to the European food sector, suggest that:

Favourable perceptions of New Zealand as a country-of-origin for food products are dependent mainly on confidence and trust in production, hygiene and quality control standards, rather than diffuse images of 'clean, green' landscape. (Knight et al., 2003: 3)

The implementation of the ZESPRI System by the kiwifruit industry, with its focus on transparency, trust, and accountability would seem to be a highly successful strategy in line with the findings of this report by Knight et al.

In 2001, the ZESPRI website featured a similar general positioning statement about GM:

ZESPRI International has said no to genetic modification . . . We are already acknowledged as a world leader in environmental integrity . . . all export quality ZESPRI Kiwifruit must be grown using the KiwiGreen system which maps, monitors and measures the entire production process, producing a high quality fruit of minimal residues while sustaining the natural environment. (ZESPRI, 2001)

Here, the phrase 'natural environment' used in conjunction with the phrase 'maps, monitors and measures' draws on western discourses of 'natural', which construct nature (and science) as an objective reality (Latour, 2004) that can be technically managed (Hajer, 1997), in this case with 'environmental integrity' (ZESPRI, 2001). Yet, the term 'natural' is polysemous, meaning both 'neutral' – that is acceptable or taken-for-granted – and connected to the environment we inhabit.

The first three paragraphs of a letter explaining the kiwifruit industry GM position to stakeholders again emphasize that the industry focuses on *natural* production practices – meaning both 'acceptable' and 'environmentally friendly' – as opposed to GM, which is thus implicitly positioned as 'un-natural'.

One hundred percent of ZESPRI's kiwifruit have been grown under *natural* breeding programmes . . . All of our kiwifruit are products of *natural* programmes using traditional propagation and growing methods – No genetic modification is involved. (Hodge, 2003, emphasis added)

Here, *traditional* growing methods are constructed as safe (having integrity) in contrast with the implicit uncertainty of the outcomes of *new* GM technologies. This is a further appeal to familiar, *trusted* primary production practices, and historical constructions of New Zealand as an unpolluted, pastoral land of plenty (see Archives New Zealand, 2002; Mitchell, 1972). 'Natural' values are privileged, and 'natural' is constructed as a moral imperative, as an ideal, pristine, pastoral paradise (Cronon, 1996), without acknowledgement that concepts of nature may be politically and culturally constructed (see, for example, Cronon, 1996; Douglas and Wildavsky, 1982; Hajer, 1997; Macnaghten and Urry, 1998).

This moral imperative discourse of 'nature' is additionally implicit in rhetoric associated with international perceptions of New Zealand's 'clean, green' image. In the *Kiwifruit Journal* article, for example, it is articulated with both health and safety, and lifestyle, through use of the words 'healthy, enjoyable food' and 'safe', to strategically position this New Zealand identity as an imperative for GM policy:

Kiwifruit are purchased and consumed because they are a healthy, enjoyable food. The image of New Zealand as clean and green and therefore perceived as safe is considered to be a benefit to kiwifruit sales particularly in Europe, but also in Japan. (Lancaster, 2000: 23)

Here, New Zealand's 'clean, green' image is explicitly linked with safety. Safety is then rhetorically attributed not only to the unadulterated 'naturalness' of the environment per se, but also to the *integrity*, that is, sound practices, by which New Zealand (and the kiwifruit industry) manages its products and the environment. Implicit in this statement, is an assumption that New Zealand's 'clean, green' image would be damaged by commercial GM food production, and that GM kiwifruit would consequently be perceived as a risk to the environment, rather than healthy and safe; the acceptability of the 'clean, green' image is taken for granted. This is a rhetorical strategy that Cheney et al. (2005) might describe as propaganda; a frame for a perspective that actively tries to prevent the appreciation that there are other perspectives.

A similar link to a 'clean, green' image is evident in the ZESPRI submission to the Royal Commission, where the term 'food safety and environmental integrity' is explicitly used:

The perception of New Zealand in the mind of many consumers is that of a 'clean and green' environment with a high degree of food safety and environmental integrity. (ZESPRI, 2000, Executive summary: 4.4)

This image of New Zealand is thus particularly advantageous for the kiwifruit industry. Although, the ZESPRI submission commented that food retailers increasingly demand standards that monitor these concerns (ZESPRI, 2000: Section B (n).3), and the industry faces increasingly rigorous technical production specifications from European and Japanese retailers, with the introduction, for example, of regulatory systems such as Euregap by European customers.

Concerns for the environment are constructed by governments and corporate business in terms of discourses of sustainability and corporate social responsibility; that is, by articulating business concerns with sustainable environmental practices and sustainable social practices (Elkington, 2001a, 2001b; Frankel, 2001; Hajer, 1997; Hediger, 1999; Moser and Miller, 2001). True (2003) has, additionally, argued that global interconnectedness makes image and reputation an important part of competitive advantage, and this means that industries have to take seriously both sustainability and a national identity based on environmental reputation.

New Zealand's 'clean, green' image has been discussed at length, and critiqued as a myth in the sense that New Zealand's environment is not as unpolluted as this image would suggest (Brown, 1997; Henderson, 2005; True, 2003). The potential importance of this traditional identity to New Zealand trade was, however,

acknowledged in the commissioning of a report by the New Zealand Ministry for the Environment (BERL, 2003). Yet, the findings have been conflicting, indicating the complexity of possible impacts of GM on this New Zealand image (BERL, 2003; Knight et al., 2003).

The highlighting of environmental concerns by the kiwifruit industry at a macro level articulates wider environmental and sustainability discourses with economic arguments for caution on the commercial release of GM food products; while at a micro level, the representation of the industry as having environmental integrity is designed to protect its own pragmatic interests in the marketplace.

THE DAIRY INDUSTRY

Remaining competitive

The dairy industry positioning on GM, like that of the kiwifruit industry, is expressed and explained as being driven by the *market*. However, while the kiwifruit industry is primarily concerned about the values and attitudes of customers in Europe and Japan who are GM risk-averse, such concerns are not foregrounded in dairy industry documents. The dairy industry, like ZESPRI, justifies its position on GM by arguing that the industry success is important to New Zealand, because of New Zealand's economic dependence on primary industries. However, the future economic success of the dairy industry is then articulated with remaining *competitive* as indicated in Fonterra's media statement on 14 September 2001:

The reality every New Zealander should understand is that our economy is overwhelmingly dependent on biological products, including dairy products, meat, wool, fish, and fruit and vegetables. Maintaining and enhancing New Zealanders' living standards depends on the country maintaining and enhancing competitiveness of these key industries. (Fonterra, 14 September 2001)

The prioritization of 'living standards' as evidence of success and well-being, rather than, for example, care for the environment or educational standards and knowledge acquisition, highlights the economic perspective that is privileged in the dairy industry GM positioning.

In their submission to the Royal Commission, the New Zealand Dairy Board (NZDB) articulates GM with economic success by rhetorically constructing GM as *essential* to continuing success as a 'world competitive sector', to maintain and 'enhance' New Zealand's economic status quo and current living standards; it also positions GM as *desirable*, by suggesting that this provides an 'opportunity to lead the world' (NZDB, 2000a: Executive summary, 2). The following edited quotation demonstrates the connections created by the sequencing of the NZDB arguments in their submission:

New Zealand's economy is overwhelmingly dependent on biological products . . .

The New Zealand dairy industry is the largest and most important of these industries . . . The world is in a biotechnological revolution. Genetic modification ('GM') is an integral part of that. The pace of change is rapid and accelerating . . . GM is in widespread use overseas . . . The biotechnological revolution is an important part of the knowledge economy, a concept to which New Zealand is committed . . . New Zealand should ensure that responsible use of GM is permitted . . . It should allow the New Zealand

dairy industry to be a leader, not a follower, in biotechnological developments and the responsible use of GM. (NZDB, 2000a: Executive summary, 2)

A rhetoric of urgency as evidenced in this statement by the use of the words 'revolution', 'rapid' and 'accelerating', is maintained by the continued emphasis on the need to be competitive within international dairy markets, and the need for a commitment to GM is accentuated by the construction of biotechnology and GM as a 'revolution' with an accelerating pace of change.

The use of the metaphor of a 'race' with competitors adds persuasive immediacy to the dairy industry argument:

The New Zealand dairy industry is in a *never-ending race* with its competitors to maintain and enhance its competitive advantage. The New Zealand economy will suffer if there is any significant erosion in its competitive advantage. Such an erosion will occur quickly if the ability of the New Zealand dairy industry to compete in the biotechnology *race* is hindered through an inability to research and use GM. (NZDB, 2000a: Section 57.2, 68, emphasis added)

Again, failure to compete in this 'race' is articulated with a negative impact on the New Zealand *economy*, a benefit likely to be valued by the recipients of the submission, the Royal Commission, and implicitly the New Zealand Government who set up the Commission. The dairy industry is trying to create fear of the risks associated with *not* using GM technologies.

However, the metaphor of a race is discursively linked with other benefits in other documents, depending on the intended audience, evidence of different discursive practices (see Fairclough, 1992). The explicit emphasis of an NZDB booklet aimed at *farmers* is on the need to remain competitive at an *industry* level. The need to compete is again positioned as urgent and a race by the use of the words 'dare' and 'first':

Developments in biotechnology are moving so fast that we *dare* not be left behind by our competitors. Potentially biotechnology offers us, and our competitors, the opportunity to make quantum leaps in productivity. The *first* to make new discoveries has the opportunity to patent them and gain the full benefits. (NZDB, 2000b: 1, emphasis added)

In this instance, the race is positioned as providing increases in farm productivity, of particular relevance to the *farmer* audience.

In 2003, 'the race' was further positioned as benefiting *global consumers*. The following statement appeared on every page of the Fonterra website: 'In milk, we have a unique raw material. We seek to lead *the race* to develop its nutritional potential by meeting the needs of an increasingly health-conscious world' (Fonterra, 2003, emphasis added). Here, the metaphor of a race is positioned as bringing health benefits, likely to have appeal for the wider audiences of the website. This reference to 'the race' is repeated in the Annual Report for 2001/2002, and in more detail in Craig Norgate's (first CEO of Fonterra) speech to the World Dairy summit:

But there is a *new race* on – a *race* to unlock the hidden potential of milk that new science is bringing into focus. All of us are in *the race* and we are all striving to win it. There are riches for the first to unlock the value, and commercialise it, and bring

new products to the market, which line up alongside consumers' desires for healthier nutrition. We all have a collective interest in *the race*, to ensure that dairy products are positioned as healthy products for the world, not simply a staple of life. (Norgate, 2001, emphasis added)

On this occasion, the *altruistic* collective benefits of improved global health from GM are surprisingly juxtaposed with the self-interest of the *financial* benefits expected to accrue from GM for the industry shareholders, the readers of the Annual Report, and the summit attendees.

The use of GM technologies, the dairy industry argues, can speed up the timeframes for research which may foster more rapid changes in dairy production than other techniques would allow, for example at the level of animal breeding, plant development for improved fodder, and microbial development for new value-added products like functional foods and 'nutraceuticals'.

The persuasive intent of the dairy industry is clearly evident in the Fonterra media statement of 14 September 2001, when the industry threatened to move its research offshore if the voluntary moratorium on applications for the commercial release of GMOs were continued. This threat is constructed as a loss to the knowledge society, and therefore to government strategy (see *Growing an Innovative New Zealand*, 2002; O'Sullivan, 2001), in an attempt to sway government policy:

Should the moratorium be extended, it would be impossible for us to remain competitive with developments in genetic modification without moving our research operations offshore. A move overseas would have a negative impact on our business. Worse it would have an even more negative impact on New Zealand's scientific community as our scientists led their junior colleagues and students offshore. If the concept of a Knowledge Society is to have meaning in a New Zealand context, it must include biotechnology in all its forms. (Fonterra, 2001a)

The dairy industry is implicitly accorded significant status in this quote, by the assumption that the loss of dairy industry scientists would be a considerable loss to the New Zealand scientific community, and to New Zealand's international identity and credibility. In this instance, the role of science and specifically 'biotechnology in all its forms' – including GM – is privileged as the priority for economic development.

Within a market rationality, then, the dairy industry's GM positioning foregrounds New Zealand's identity as an innovative and *competitive* knowledge economy (*Growing an Innovative New Zealand*, 2002), rather than, like the kiwifruit industry, foregrounding individual *consumer choice* and New Zealand's identity as a pastoral paradise. The market rationality for the dairy industry positioning on GM is thus underpinned by the need to be competitive in global dairy markets. GM is represented as crucial in the 'race' to gain competitive advantage in the international marketplace, and is linked with economic, producer, and health benefits, depending on the intended audience. This argument again draws on neoliberal free-market discourses that are consistent with current New Zealand Government policy, but based in this case on the claim that competition encourages innovation and technological development, leading to efficiencies of production (Dalziel, 2003; Devine, 1998, 2001; Kelsey, 1997; Scott, 1997).

The rationality of science and understandings of risk

The perspectives privileged by the dairy industry in its GM positioning, demonstrate a technical/science rationality as a logic for decision-making. The NZDB submission's rhetorical strategy of dismissal (see Cheney et al., 2005) marginalizes other perspectives and dismisses ethical, cultural, and political concerns specifically because they are not scientifically based. This is consistent with continuing attempts to keep science and political society separate, a position critiqued by Latour (2004) as unrealistic, given the political dimension of scientific knowledge itself.

As Douglas and Wildavsky (1982) and Wynne (1992) point out, social meanings about risk result from cultural and organizational biases. A number of adjectives describing the assessment of risk and uncertainty in the NZDB submission are inherently ambiguous but assume the legitimacy of a technical/science perspective; for example:

The *proper* approach to the uncertainties involved in any new technology or scientific discovery is to research the possible known consequences and to assess the risk of possible unforeseen consequences, by *proper* scientific methodology . . . the risks need to be *properly* assessed and managed. (NZDB, 2000a: Section 16.3: 24, emphasis added)

Here, the use of the word 'proper' relies on the underlying scientific assumptions made by the NZDB for an understanding of the judgement intended. In a more detailed discussion of risk assessment, the NZDB submission identifies 'proper' scientific principles as scientific method involving the replicability of results, and publication by peer review, leading to the quantification of benefits and risks. This again draws on scientific discourses that privilege technical assessments of risk (Burke, 2004; Tait, 2001; Wilkins, 2001). However, Adam et al. (2000), Beck (1992), Ho (1999) and Perrow (1984) suggest that modern risk involves uncertainty in a way that requires us to reflexively address cultural and ethical concerns, because a logic of control can no longer be applied in a post-industrial society, when outcomes cannot be envisaged or predicted, and it is unlikely that results will be consistently replicable or quantifiable. The implications of this are considerable. For example, lay publics increasingly critique the type of risk assessment privileged by technical experts (Beck, 1992), and it becomes impossible to insure against GM risks (see Berry, 2003; New Zealand Law Commission, 2002) with consequent issues of liability for compensation if damage does occur.

When other scientific or non-scientific approaches to GM are mentioned in dairy industry documents, they are frequently dismissed as myth or referred to as not being sound science. For example:

Many of the *alleged* uncertainties of GM which are often raised by opponents of GM are not *soundly based upon science*. Rather, much of the opposition to GM in agriculture springs from a complex mix of cultural, ethical and political concerns. (NZDB, 2000a, Section B, (b), 16.1: 24, emphasis added)

Such concerns are positioned as distorting the issues, for example, 'Cultural, ethical and other concerns should be recognised, but not allowed to distort the risk assessment process' (NZDB, 2000a, Section B, (c), p. 25). Additionally, in a GM media statement issued in September 2001, words which have ambiguous

meanings, like 'responsible', 'soundly-based' and 'realistic' indicate, as in the submission, that a technical/scientific perspective is taken-for-granted. For example:

We must ensure that the *responsible* use of genetic modification is permitted . . . The regulatory systems need to recognise *soundly-based* public concerns, manage risks, and be *realistic*, cost-effective and timely. (Fonterra, 2001a, emphasis added)

In addition, this comment implies that regulatory systems (such as those put in place to deal with GM developments by New Zealand's Environmental Risk Management Authority, ERMA) should be based on technical/scientific risk assessments, to avoid expensive and time-consuming public hearings which add to the costs of scientific research and development. Such concerns have been voiced by other New Zealand scientists and resulted in at least one project being taken off-shore (Beston, 2001).

Similar assumptions are also quite explicit in a second media statement, commenting that 'restrictions on commercial release are not scientifically justified' (Fonterra, 2001b). This perspective implies that technical science needs less regulation than that preferred by the public and government, that such science-based research can be assumed to be responsible and self-monitoring, that public fears are irrational and unfounded. It is again consistent with a neoliberal/public choice approach to the role of the state in public policy decision-making, which argues for business/scientific autonomy, with no regulation by government (Dalziel, 2003; Kelsey, 1997; Tenbensel, 2003).

The NZDB submission argues for an *objective*, technical/science-based assessment of the risks, but in the same section paradoxically acknowledges that there may be 'bias arising from the source of funding, the interests of the researcher, and other factors' (NZDB, 2000a: Section B, (c), 17.4: 26), which must equally affect such science-based assessments. A number of different factors are acknowledged to affect the objective perception of risk, for example:

Whether the risks affect children or adults; whether they are accepted voluntarily or imposed . . . These sometimes unstated perceptions are allowed to influence the perception of risk, so as to make an objective, science-based assessment more difficult, if not impossible. (NZDB, 2000a: Section B, (c), 17.6: 26)

Surprisingly, this seems to negate the possibility of objective scientific perspectives.

This ambivalence in the submission indicates that the dairy industry is aware of the contested nature of risk assessment and risk management. Yet, the continued *assumption* that pro-GM scientists with technical/science perspectives should be privileged simultaneously denies the political nature of their own rhetoric. As Aune (2001) commented, this is typical of realist rhetoric drawing on public choice theory, such as, for example, that associated with a neoliberal free-market rationality, which assumes a neutrality and inevitability for prevailing discourses of the marketplace.

The dairy industry uses a technical/scientific rationality in an attempt to legitimate its policy on GM by linking it with the existing assumed legitimacy of western science. As Latour (2004) argues, the hegemony of science is represented as beyond critique, in this sense science can be considered to be amoral, to be the

guardian of its own ethical standards. The industry thus attempts to construct its GM policy as value-free. It constructs legitimate decision-making about GM as controlled by science experts and science institutions, and marginalizes the values of all other interest groups. This begs the question, what process should be assigned to address such concerns?

Following the report of the Royal Commission, the New Zealand Government established a Bioethics Council (*Toi te Taiao*) in December 2002 to advise on cultural, ethical, and social issues associated with biotechnology, but this has no decision-making powers. This continued separation of technical and socio-political issues associated with GM is increasingly problematic in New Zealand, a bi-cultural nation. ERMA is the regulatory agency designated to make decisions about applications for the commercial release of GMOs but it has been extensively critiqued for failing to address Maori and other cultural perspectives of risk (Roberts et al., 2004).

It is evident that the dairy industry assumes that if publics had more technical/scientific information, and understood the science, they would support GM. This draws on a 'deficit model' of scientific understanding that assumes lay publics do not understand the scientific 'facts' (see Irwin and Wynne, 1996). This belief is not supported by current research, which indicates that attitudes to science, bio-technology, or GM are more likely to be influenced by the level of trust which publics place in science, than by the level of understanding or knowledge (Frewer et al., 1999; Hornig-Priest, 1995, 2001; Irani, et al., 2002; James, 2003; Wynne, 1992, 1996).

However, the dairy industry chose to leave the 'education' of the New Zealand public, and engagement with anti-GM interest groups to a 'front group': the Life Sciences Network (LSN).⁵ As one dairy industry spokesperson commented:

We did not see it our role to educate the public in biotechnology . . . Now what we did do though was to invest in the Life Sciences Network who we knew were going to do that. (Dairy industry research spokesperson)

The NZDB/Fonterra was concerned it would be seen as self-interested if it lobbied the public directly. Given the generally cautious view taken by the New Zealand public over GM issues, proactive involvement in the New Zealand-wide GM debate was seen as potentially alienating the public rather than gaining its support. The dairy industry preference was for intra-organizational and inter-organizational public relations/issues management, such as involvement in the LSN, to coordinate their strategies with other like-minded interest groups.

It is evident that the dairy industry positioning on GM does not in fact foreground consumer issues. However, over the timeframe of this research, the dairy industry has had to give increasing weight to consumer concerns, and recognize that these have been vociferously debated in New Zealand (see, for example, Ashwell and Olsson, 2004; Henderson, 2005; Motion and Weaver, 2005a, 2005b). The dairy industry position of support for GM is *more recently* commonly predicated with the proviso that they would never proceed with commercial applications as long as these are of concern to consumers.

The dairy industry GM policy is thus rhetorically constructed in terms that are market-driven, yet ambiguity about the role played by market-based and technical/scientific rationalities remains. It argues that research and development of commercial GM products is crucial, both for the future economic success of New Zealand and the continuing success of the dairy industry as a global competitor in international markets. In contrast to the kiwifruit industry, however, the market focus of the dairy industry highlights the significance of the corporate identity and corporate reputation of the industry in relation to GM issues, as opposed to the brand identity perceived by consumers. The focus is less on GM products, than on GM capability.

Discussion and concluding remarks

As Maguire (2004) found in his study of the social construction of the insecticide DDT, marketing, popular, policy, and technical discourses of GM are mutually implicated in each other. However, we increasingly find that two additional discourses – those surrounding environmental impacts, and risk and uncertainty – are evident in the social construction of new technologies. Within the market rhetoric of each industry in this study, it is clear that different prevailing rationalities are constructed, drawing on discourses and symbolic value-premises which reflect particular aspects of each industry's identity.

As an established leader in international markets, the kiwifruit industry aims to maintain the trust conferred by its international customers and end-consumers; the industry seeks to protect its *brand* identity. Since consumer concerns draw significantly on risk discourses associated with the environment and food safety, these discourses are clearly evident in the conscious rhetorical positioning of the industry. In fact, the brand identity for the kiwifruit industry is built strongly around environmental values associated with 'natural' and New Zealand's 'clean, green' image.

In contrast, the New Zealand dairy industry, although a strong competitor in the global dairy industry, is under threat from other international dairy producers able to compete with New Zealand dairy products on the basis of price. The New Zealand dairy industry advantage has been based on efficiencies of production developed through sophisticated scientific breeding and pasture management and the efficient technical manufacture of commodity milk products. The possibility that other nations might compete with the New Zealand dairy industry on the basis of new GM technologies results in a market rationality that draws on science and technology discourses *favouring* GM. It is the scientific/technical basis for, and identity of, the industry which is threatened, its *corporate* identity as a *producer* in competition with other international dairy producers.

Interestingly, on a pragmatic level, the two industries are equally reliant on consumer support, and the kiwifruit industry would entertain the possibility of using GM should consumer opinion change. However, there is increasing evidence that consumers are still risk-averse to GM products, and, for the dairy industry, this means that the industry has been unable to proceed with the

adoption of GM at the pace it initially recommended. Significantly, the rhetorical positioning of the two industries highlights different perspectives of time; the kiwifruit industry advocates caution until research results are more understood – a *consumer* timeframe – while the dairy industry positions research and development timeframes as urgent and a race – a *production* timeframe. As Adam (1999) has commented, timescapes of risk are to a great degree socially constructed. For example, we might highlight and prioritize the potential long-term environmental damage of GM technologies over the short-term benefits of increased shelf life for GM products.

However, both industries are market-driven and privilege economic perspectives of GM issues. They implicitly present the private benefits for the industry as in the public interest, in terms of the significant economic value which each industry contributes to the overall New Zealand economy. Edelman (1995) argued that words like ‘public interest’, ‘rationality’ and ‘efficiency’ are not scientific or technical terms, yet they still suggest an unambiguous goal. These god-terms (Burke, 1969) and their attendant imperatives are seldom interrogated in the middle of decision-making or policy-making processes. Such terms make controversial assumptions whose meanings change according to the values and ideologies of their users. This means that, particularly when decisions are contested or confused, policy is created ‘to transform . . . self-serving inclinations into justifications imbued with patriotism, altruism, logic, or fashionable ideology’ (Edelman, 1995: 412). In fact, ‘in the public interest’ may additionally mean a need for information and public knowledge (Edelman, 1995; Weaver and Motion, 2002) or the means to voice public discontent (Rogers-Hayden and Hindmarsh, 2002). As Krinsky commented, a *critical* public interest perspective ‘requires people who are able and willing to speak out candidly and critically’ about the environmental, political, economic, and socio-cultural impacts of the industrialisation of science (2003: 224).

This critical discourse analysis of two New Zealand *industry* perspectives of GM contributes new understanding of how the ‘mobilization of bias’ – that is, the development of a particular strategic organizational interest (Schattschneider, 1960: 30) – occurs in communication about controversial public issues. It clarifies areas of commonality and difference among industry protagonists in the battleground of public debate about GM and demonstrates that rhetorical strategies such as identification, strategic ambiguity, dismissal, and enhancement (see Cheney et al., 2005) are indeed evident as these industry groups seek to influence public policy on GM. Interestingly, the kiwifruit and dairy industry viewpoints were represented in the media as being polarized ‘for’ and ‘against’ GM, yet both rely on the rationality of the marketplace to argue for their respective GM policies. Their different GM positions and public policy preferences are, however, constructed to reflect the different value-premises, identities and images held by stakeholders of the respective industries, and indicate how elite groups attempt to set interpretive frames for public policy decision-making. This study demonstrates the *complexity* of the interrelationships evolving in industry discourses surrounding GM.

There is clearly great value in methodologies which draw on *both* rhetorical criticism and CDA, and much more research along these lines needs to be done. In addition, exploration of the inter-relationships between identity, rationality, and

values of other influential interest groups holding seemingly disparate positions in debate about GM will enhance understanding of this public policy environment. In fact, a parallel approach may be useful in understanding other controversial public issues, such as the introduction of nanotechnologies, or issues related to the use of nuclear power. Such research has the potential to facilitate a greater critical appreciation of the possible impacts of technological and scientific change, and the multiple voices participating in those debates.

ACKNOWLEDGEMENTS

This research was conducted as part of the first author's doctoral study, and was generously supported both by a Bright Futures Foundation for Research and Technology (FRST) scholarship, and by funding from the FRST grant (contract #7863-ANTT), programme title: Socially and Culturally Sustainable Biotechnology.

NOTES

1. The terms 'genetic modification' (GM) and 'genetic engineering' (GE) are used interchangeably throughout this article, and are not intended to privilege a particular set of meanings. 'Genetic engineering' is a term widely used in much of the literature, particularly in Europe and in New Zealand prior to the Royal Commission on Genetic Modification in 2000. Since the Royal Commission, 'genetic modification' has become the more commonly used term in New Zealand.
2. The term 'NZDB' is used to refer to the dairy industry executive management group prior to the merger in 2001, and the term 'Fonterra' refers to the executive management group following the merger.
3. The legislation which corporatized the kiwifruit industry was introduced in 2000, making shares in the newly formed ZESPRI Group Limited available solely to New Zealand kiwifruit growers, under the leadership originally of Kiwifruit New Zealand, and later under the separate companies, ZESPRI International and ZESPRI Innovation, licensed by Kiwifruit New Zealand. In this study, the term 'ZESPRI' is used to refer to the executive management groups in the kiwifruit industry.
4. The *New Zealand Kiwifruit Journal* is an industry publication, independent of ZESRI International Ltd., edited by Jacquie Webby for audiences within the kiwifruit industry in New Zealand. It publishes articles contributed by industry members and industry service groups about kiwifruit research and production, and international markets for kiwifruit. It is supported by trade advertising.
5. The Life Sciences Network (LSN), formed in 1999, represented 22 industry, research, and scientific groups actively in favour of significant investment in GM in New Zealand. The aims of the group were to exchange information, discuss common challenges, participate in public debate, and positively influence public policy (Life Sciences Network, 2001). The LSN made a lengthy submission to the Royal Commission and issued media releases on every aspect of GM, both international and national. It maintained a particularly comprehensive GM website that included copies of media releases and reports from a wide range of other sources as well as their own. Since the lifting of the moratorium on applications for the commercial release of GM in New Zealand, the network has disbanded.

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APPENDIX

TABLE 1. *Documents analysed*

| <i>Industry Organization/ Author</i> | <i>Documents</i> | <i>Specific title</i> | <i>Date</i> |
|--------------------------------------|--|---|-------------|
| Kiwifruit industry | | | |
| Kiwifruit New Zealand | Media Release, published on ZESPRI website | Kiwifruit New Zealand says no to genetic modification | March 1999 |
| ZESPRI International | Submission to the Royal Commission on Genetic Modification | | 2000 |

(continued...)

(TABLE 1 continued)

| <i>Industry Organization/ Author</i> | <i>Documents</i> | <i>Specific title</i> | <i>Date</i> |
|--|---|--|-------------------------|
| Tony Marks, CEO, ZESPRI International | Witness Brief accompanying Submission | | 2000 |
| Jane Lancaster | <i>New Zealand Kiwifruit Journal</i> | The genetic modification debate and our contribution to it | November/ December 2000 |
| ZESPRI Innovation | <i>Kiwiflier</i> | Our position: No to GM – an update from ZESPRI Innovation | November 2001 |
| ZESPRI | ZESPRI website | | 2001 |
| ZESPRI | Annual Report | | 2001 |
| ZESPRI | Annual Report | | 2002 |
| Sandy Hodge, ZESPRI International Communication Team | Letter sent to anyone enquiring about ZESPRI policy on GM | | 2003 |
| ZESPRI | ZESPRI Brand video Zespri System video | | 2003 |
| ZESPRI | ZESPRI Media Information Kit | | 2003 |
| <i>Dairy industry</i> | | | |
| New Zealand Dairy Board (also made on behalf of New Zealand Dairy Research Institute, Livestock Corporation Limited, Dairying Research Corporation, ViaLactia Biosciences New Zealand Limited) | Submission to the Royal Commission on Genetic Modification | | 2000 |
| Juliet MacLean, dairy farmer and Nuffield Scholar | Witness brief | | 2000 |
| John Yeabsley, senior fellow of the New Zealand Institute of Economic Research | Witness brief | | 2000 |
| New Zealand Dairy Board | Information booklet written for internal dairy industry staff | What is biotechnology? Biotech brief | 2000 |

(continued...)

(TABLE 1 continued)

| <i>Industry Organization/ Author</i> | <i>Documents</i> | <i>Specific title</i> | <i>Date</i> |
|---|--|---|-------------------|
| New Zealand Dairy Board | Information booklet written for dairy farmers | Biotechnology: Why we're investing in research | 2000 |
| New Zealand Dairy Board, in conjunction with the New Zealand Co-operative Dairy Company | Legal and concluding submissions to the Royal Commission | | 2001 |
| Juliet MacLean, dairy farmer and Nuffield Scholar | Information booklet widely distributed to farmers | A brief guide to understanding biotechnology in New Zealand farming | 2001 |
| Fonterra | Media Release | Statement on genetic modification | 14 September 2001 |
| Craig Norgate, CEO Fonterra | Speech given to the World Dairy Summit | | 29 October 2001 |
| Fonterra | Media Release | GM decision | 30 October 2001 |
| Fonterra | Annual Report | | 2001/2002 |
| Craig Norgate, CEO Fonterra | Speech given to the Fonterra Annual Meeting | | 12 September 2002 |
| New Zealand Milk Products | Website | | 2002 |
| Fonterra | Website | | 2003 |

ALISON HENDERSON is a Lecturer in the Department of Management Communication at the University of Waikato, Hamilton, New Zealand. Her research interests focus on the management of identity in relation to public policy issues, particularly in the areas of genetic modification, biotechnology, and public health. Alison successfully defended her PhD thesis, entitled 'Organizational Identities and Rationalities: A Rhetorical and Discourse Analysis of Organizational Communication about Genetic Modification in the New Zealand Kiwifruit and Dairy Industries' in December 2005. ADDRESS: Department of Management Communication, Waikato Management School, University of Waikato, Private Bag 3105, Hamilton, New Zealand. [email: alison@waikato.ac.nz]

C. KAY WEAVER is an Associate Professor in the Department of Management Communication at the University of Waikato. Kay has recently been a leading researcher on several externally funded grants investigating the communication of science and new technologies in New Zealand. She is widely published in international journals and edited book collections and is co-author of three books and mostly recently co-edited *Critical*

Readings: Violence and the Media (2006) for Open University Press. Her research draws on a range of post-structural critical theoretical and qualitative methodological approaches. ADDRESS: Department of Management Communication, Waikato Management School, University of Waikato, Private Bag 3105, Hamilton, New Zealand. [email: ckweaver@waikato.ac.nz]

GEORGE CHENEY (PhD, Purdue University, 1985) is Professor of Communication at the University of Utah, Salt Lake City, USA, where he is also Director of Peace and Conflict Studies. At the same time, he is Adjunct Professor at the University of Waikato, Hamilton, New Zealand. His teaching and research interests include identity and power in organizations, quality of work life, workplace democracy, business and professional ethics, marketization and globalization, and the rhetoric of war and peace. George has published five books and more than 80 research articles and chapters. Recognized for teaching and research, he has lectured in Western Europe and Latin America, in addition to North America and Australasia. ADDRESS: Department of Communication, The University of Utah, 255 S. Central Campus Drive, Room 2400, Salt Lake City, UT 84112, USA. [email: george.cheney@utah.edu]