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## New Zealand's food exports in the 21<sup>st</sup> century: whither the green option?

HUGH CAMPBELL<sup>1</sup> AND RUTH FITZGERALD<sup>2</sup>

School of Social Sciences, University of Otago, Dunedin.

### ABSTRACT

Over the last 8 years, several major horticultural industries have engaged in a process of 'greening' their food exports. This has been achieved through the fostering of organic and/or Integrated Pest Management (IPM) systems. Our analysis indicates that the most successful greening strategy has taken a two-tier approach – with a peak organic product, and a more mainstream product using IPM to create residue free fruit. The two-tier approach can be demonstrated to have advantages over an exclusive focus on either greening option. These industry developments have emerged partly in response to new niche markets for green and healthy foods. These markets are increasingly influenced by two emerging trends. First, is the emergence of 'green protectionism' as a political strategy in the EU and Japan. By switching from price support to environmental support payments, and raising barriers to food imports on the grounds of food safety and environmental concern, governments can achieve the politically advantageous outcome of serving the interests of both domestic rural producers seeking protection from cheap food imports, and urban middle class consumers concerned about food safety and the environment. The second emerging trend is the intensification of 'food scares' during the 1990s. Social scientific analysis would suggest that certain features of a food scare 'lock in' a scare for a prolonged period of time. Currently, scares involving BSE and GM foods are locked in and must be accounted for in strategy export decisions. Evidence from successful horticultural export strategies suggests that a wider range of food export industries should be contemplating a two-tier greening strategy to survive these emerging trends in the global market.

### INTRODUCTION

We live in extraordinary times. The seemingly relentless drive towards free trade in global agriculture has run into the sand. One of the most significant new trajectories in agricultural-science investment is suddenly drawing unprecedented levels of public criticism. The previously docile New Zealand food consumer is rapidly going green. Perhaps most startling of all is the appearance in parliament of an organic farmer<sup>3</sup>.

What this means for New Zealand's future as an agricultural exporter is somewhat complex. One notorious social philosopher was described as having 'the unique ability to render completely opaque, matters that were merely extremely complex'. In the hope of shedding some slight transparency on our future, we would like to present three issues for consideration. These three issues seemed an almost trivial irrelevance 12 months ago, but they loom large in these post-Seattle, Monsanto-obsessive times.

The first is the growth of environmental initiatives in New Zealand horticulture. At first glance, these seem to be simply niche responses to new market opportunities opening up in the First World. On closer inspection, however, they provide a useful lens that renders visible some of the underlying trends in global food trading. It is interesting to note how many of these trends seem to influence horticultural exports first, before moving on to other sectors. It may gall an animal science conference to hear it, but horticulture is signalling some trends with relevance to all food exports from New Zealand.

The second issue is the current status of global trade negotiations. In a world in which free trade now seems a somewhat utopian goal, it is useful to consult with those experts who actually expected Seattle to collapse in the face of internal contradictions within the direction of WTO policies. These internal contradictions have led to some important emerging trends in world trade.

Finally, we need to look more closely at the consumer.

From the perspective of the social sciences, it is no longer sufficient to simply say that First World consumers are 'going green'. A more complex social scientific analysis is needed to understand long-term trends, and an example of this style of analysis can be demonstrated by examining the phenomenon of the food scare.

### THE GREENING OF NEW ZEALAND HORTICULTURE

Over the last decade, horticultural exporters in New Zealand have engaged in an interesting repositioning of both their production systems and their products. As far back as 1991, the NZ Kiwifruit Marketing Board encountered some sudden trade problems with Europe – caused by Italian authorities manipulating the MRLs (Maximum Residue Levels) for some agrichemicals on kiwifruit (Campbell *et al.*, 1997). This was the opening shot in an emerging global pattern of trade problems surrounding 'food safety' or 'environmental' issues. At the same time, large institutional buyers like the British supermarkets and Japanese consumer cooperatives were demanding high levels of compliance with food safety standards, and were also enquiring whether New Zealand's horticultural exports could stand up to some auditing of the 'clean green' marketing claims being made (Ball, 1997).

These market pressures in the early 1990s lit a long fuse. Two industries – processed vegetables and kiwifruit – invested in organic production as a means for solving some of these demands (Campbell, 1996). By 1996, kiwifruit and pipfruit were also developing a middle level solution, a system of production that was not entirely organic, but had a good food safety and environmental profile. These middle level systems used Integrated Pest Management (IPM), and were promoted and audited at an industry level to provide fruit that was marketable as 'residue-free'. The end of the 1990s joined these industries joined by the wine industry. We now have three industry-

<sup>1</sup> Dr Hugh Campbell is a Senior Lecturer in the School of Social Sciences at Otago University. He is also the Programme Leader of the Public Good Science Fund research programme 'Greening' Food Exports: Social and Industry Dynamics. This is an ongoing programme that commenced in 1995 with the purpose of independently evaluating the development of organic and other 'environmentally enhanced' horticultural exports and identifying barriers to the further development of such exports. The programme currently involves nine researchers and has completed work in the following industries: processed vegetables, kiwifruit, pipfruit, wine and honey.

based schemes – KiwiGreen, Integrated Fruit Production – Pipfruit (IFP), and Integrated Wine/grape Production (IWP).<sup>4</sup>

**TABLE 1:** Estimated Value of Organic and IPM/Residue Free Produce by the end of 2000/2001 Growing Season

Industry Estimates	NZ\$ millions
Pipfruit (Integrated Fruit Production)	375-400
Wine (Integrated Wine/Grape Production)	98.6
Kiwifruit (KiwiGreen)	439
All Certified Organic	60
<b>TOTAL</b>	<b>972-997</b>

Through examining these emerging industry initiatives over the last five years, our research group has concluded that we now have a range of scenarios emerging for how to best ‘green’ horticultural exports. Some industries – like wine and pipfruit – have concentrated primarily on the middle tier producing ‘residue free’ fruit. Kiwifruit promoted a two-tier approach with a peak organic product and mainstream production under the KiwiGreen system. Our research suggested that the two-tier approach had the most promise (Campbell and Fairweather, 1998). There were several reasons why coupling the two tiers together was beneficial.

First, the single tier system poses some problems.

### 1) Solely organic production.

This provides an inefficient development strategy. As the government does not subsidise organic production, industry investment in a few dozen organic growers must show immediate returns or be deemed inefficient. While there are now a number of industries investing in organic production, none saw the potential benefits of this investment as being restricted to their small cohort of organic growers. Rather, companies see potential benefits for their ‘middle tier’ greening systems. At the same time, organic growers have benefited from R & D investment in the middle tier of the system. Often Integrated Pest Management techniques are identical or compatible with organic pest control systems. For example, organic kiwifruit producers need to monitor their vines for pests, and through KiwiGreen, a pest-monitoring infrastructure was established that benefited organic and KiwiGreen producers.

My prediction is that it will require more direct government involvement in organic grower conversion, or a re-prioritisation of public science spending (given that organic research commands a tiny fraction of the public R & D investment) for an exclusively organic development path to emerge in any New Zealand industry. Given the current configuration of the government, it is possible that the state will take over the guiding role that large exporters have previously taken with organic production. But we would be very surprised if the generous organic subsidies available in the EU materialised here.

### 2) Solely IPM-based or residue free production.

This strategy has some appeal to industries. The technical requirements for growers are less risky. Market access issues can be overcome without resorting to fully organic production. Finally, some industries felt more

comfortable developing something endogenously and not having to invite in members of the organic industry as inspectors or consultants. However, while several industries pursued the straight out production of ‘residue-free’ fruit, within the last year, most industries are now trying to foster organic production as well. While the KiwiGreen and IFP schemes have pulled in large numbers of growers, it seems that industry experience suggests they still can benefit from having organic production around.

There are several reasons for this:

- the pioneer organic growers often had an extravagantly experimental approach to production compared to their conventional counterparts. Even if nine out of ten innovations didn’t work, the organic growers had the knack of coming up with the occasional innovation that did. For example, Heinz-Wattie Ltd took the use of ‘green manures’ (rotational crops ploughed in for soil fertility) and quickly adapted it for conventional sweetcorn production and actually improved their economic performance in conventional production. We know that some entomologists working on Integrated Pest Management in mainstream production keep in close contact with long-term organic growers and like to keep a close eye on what is happening on their orchards. For horticultural industries, fostering organic production created a site for innovation, a setting where people thought ‘outside the square’, with someone else taking all the risks.
- organic produce outperforms ‘residue free’ produce in the market. For all these industries, greener products have provided a premium in the marketplace. However, the organic premium is significantly higher. In the kiwifruit industry, the average net return for organic was \$2000-3000 per hectare higher than for KiwiGreen (although this last year’s production would not follow that rule). More important still, for a two-tier approach, is that organic produce acted as a ‘keyhole’ product, gaining access to some of the most difficult and lucrative institutional buyers. In some situations, even conventional produce from an exporter was treated more favourably if the company was developing an organic product. But it is specifically organic produce that has provided the market spearhead. There are only a couple of markets in the world – The Netherlands, and New York State – where consumer recognition of the value of an IPM, ‘eco-logical’ or ‘residue free’ product is high enough to justify marketing primarily through the IPM version of a product. I’ll return to this point soon.
- organic produce acted as a pilot case for developing new auditing systems. For some industries, the systems of independent certification, product separation and auditing demanded by organic produce provided a manageable test case, prior to launching an industry-wide initiative.

It has been an interesting experience watching the progress of these industries towards a two-tier pattern of greening. All started from a situation of considerable reluctance and were shunted towards these options by

<sup>3</sup>We would suggest caution to Ian Ewen-Street about his claim to be the first, as under many current certification standards, we suspect that prior to WWII every farmer in New Zealand Parliament was an organic producer.

external economic pressures. As a social scientist, we were always interested in some of the political notions that surrounded these developments. First, many were reluctant to move because they were worried that organic production would compromise the situation of conventional produce – raising questions about its safety. Second, many industry participants just found the idea of dealing with organic growers and industry personnel deeply concerning. Put simply, they didn't like them.

If there is anything we have learned in the last five years, it is that the first of these concerns can be successfully managed – in all cases more easily than anticipated. Far from prejudicing consumers against conventional produce, Heinz-Wattie were astonished to find that it was being treated as a preferred supplier by some buyers of *both* organic and conventional produce because they were seen as making moves towards greener production while other purely conventional suppliers were not. We call this the 'market halo' effect. The NZ Kiwifruit Marketing Board were deeply concerned with this issue between 1987-1990. When the market forced their hand in 1991, they determined to quietly convert *all* conventional production to KiwiGreen before making any marketing claims about environmental or food safety issues. They had a few surprises waiting. First, organic fruit quickly established itself as having better storage qualities than conventional fruit. Second, once growers had moved from conventional to KiwiGreen production the yield per hectare actually increased for many growers. Rather than trading off production levels for increased market value (as had been perceived), the NZKMB found that it had fostered an all round better way of producing kiwifruit. It is little surprise that the whole industry converted to KiwiGreen or organic in five years (Campbell et al. 1997).

To conclude this section, the experience of horticultural exporters suggests that industry greening can be achieved most successfully by fostering a two-tier system with peak organic production and a larger middle tier producing food with an enhanced 'food safety' profile.

That being the horticultural scenario, should we take this seriously for all primary production in New Zealand or is this a phenomenon that horticulturalists should keep to themselves? The following two sections suggest that such a scenario might benefit any food export industry trying to remain at the lucrative end of the world market.

## THE POLITICS OF TRADE, THE ENVIRONMENT AND FOOD SAFETY

While the international trade issues surrounding growth promotants in beef have been significant, it could be argued that meat and dairy are arriving slightly later onto this field of battle compared to horticultural products. Problems of pest and fungal control on horticultural products have traditionally been dealt to by a range of interventions which can then become a regulatory liability. Pipfruit producers are well accustomed to being squeezed between very strict US sanitary and phytosanitary (SPS) requirements, which demand both high levels of control of pests as well as applying increasingly strict MRLs to fruit. Some cynically suggest that this is just covert protectionism, and we would

be among them.

In working with horticultural exporters through the 1990s, it became clear that the levels of SPS requirements in key markets were increasing. This increase became a major factor in the strategic decisions made by these industries in the 90s. They concluded that if the current regulatory trajectory continued, the long term market for conventional produce was likely to become compromised. This regulatory trajectory is of some interest to us all.

To understand what has happened, and why the utopian free-market aspirations of New Zealand's policymakers were not realised, we must understand the outcomes of the Uruguay Round of the GATT that established the WTO. The most contentious and difficult aspect of the GATT Uruguay Round was agriculture and the future status of food trading under more liberalised trade regimes (Campbell and Coombes, 1999). The resulting trade agreement – the Uruguay round Agricultural Agreement (URAA) – attempted to unlock one critical question. This was: "do the claims of free trade override issues of environmental damage or consumer safety?" This made pro-free trade negotiators at the Uruguay Round concerned. Under such a direction, the European Union might conceivably have bargained away price and production subsidies only to adopt new forms of protection in the name of the environment or food safety. The basis for such a change in EU protectionist structures had already been signalled in the McSharry reforms of 1992 (Saunders, 1999). The compromise reached in the URAA was that environmental and "food safety" criteria could only form a Technical Barrier to Trade (TBT) provided there was a scientific consensus over any environmental and food safety claims (Campbell and Coombes, 1999).<sup>5</sup>

The extent to which this headed off new forms of protectionism was only minimal. Since 1995, the degree to which environmental and food safety claims have been invoked to restrict food imports into Europe and other countries like Japan has risen appreciably. In recent publications, this tendency has been termed "green protectionism" (see Campbell and Coombes, 1999). Further, there has been a lack of scientific consensus about TBT claims as is evidenced, in particular, with the bovine growth promotants debate, with many scientists supporting, to some degree, their country's negotiating position.

This strategy may worry free trade advocates like New Zealand (which is, even now, moderating its position), but it is highly felicitous politically for certain governments. Green protectionism enables a common cause to be found between rural agriculturalists seeking ongoing protection from cheap food imports and liberal urban consumers who value food safety and the environment. This is politically irresistible. Since 1995, the most recent European Union development – Agenda 2000 – has even more firmly committed Europe to increasing this style of payments to farmers (Saunders, 1999).

Over and above such base political concerns, issues of environment and food safety have independently become politicised by social movements and, fortuitously, have provided certain Governments with the grounds for invoking green protectionism. It is unlikely that European Union governments sought to politicise GM, or actively

<sup>4</sup> For a more detailed discussion of these schemes see Campbell et al. (1997), McKenna et al. (1995), Steven et al. (1997), Batchelor et al. (1997), McKenna et al. (1998), McKenna and Campbell (1999), Fairweather et al. (1999).

<sup>5</sup> For further analysis of the environmental politics of trade that surrounded the Uruguay Round see Benton (1996), Eglin (1995), Grimwade (1996).

searched out means to sanction GM imports from the US, but now that a concerned public has politicised it for them, the windfall in political and economic terms is considerable.

Over the last 6 months these trends have intensified considerably. The Seattle Round collapsed for a number of reasons. Contradictions inherent in the Uruguay Round agreement emerged at Seattle and the result was a surprising degree of strength for those nations – particularly within the EU – who rejected the ‘hard line’ position of the Cairns Group of free trade advocates. The ‘hard line’ WTO position was that all food products should be exempt from environmental and food safety barriers unless incontrovertible scientific proof established cause for concern. In response to this, the EU and others like Japan mobilised the ‘precautionary principle’ that scientific concern alone was enough to justify trade sanctions.

By the end of the Seattle negotiations, the precautionary principle had been mobilised as a strong counter-rhetoric to the hard line position. This was given even further strength in the Montreal negotiations of the UN Biosafety Protocols. US negotiators made a number of surprising concessions and gave unprecedented legitimacy to the precautionary principle in dealing with the global trade in GM foods.

The real effects of the UN Biosafety Protocols are not entirely certain, as there are clearly contradictory issues between the UN and WTO protocols. While these will take time to resolve, the overall trends are becoming clearer. It is now certain that momentum towards further liberalisation of world markets has decreased, and ‘green protectionism’ has a much higher degree of political legitimacy than was considered possible even six months ago. This has implications for the global trade in all food products. Even New Zealand has tentatively embraced the precautionary principle, and can now hardly complain if its trading partners use the same device. Certain markets like the EU and Japan can now launch a legitimate ban on some food imports, and such an action may be politically advantageous for governments who are seeking to protect domestic agriculture *and* assuage the fears of liberal urban food consumers.

### **THE VOLATILITY OF GREEN CONSUMERS AND THE IDEA OF THE FOOD SCARE**

Evidently we are facing challenges posed by international trade policies. However, below the regulatory level lie even more challenges. Even if our products can avoid regulatory barriers, we still have to sell them to people, and the most wealthy among them are increasingly assisted in this product selection by large multiple retailers, supermarkets and cooperatives. Rather than dwell on the rather overworked topic of the UK supermarket chains, we would like to suggest that our analysis of consumer purchasing decisions is still at a fairly immature stage. My first and greatest objection to much market research is that it isolates consumers’ decisions from the wider social and historical context. Often you can’t see the wood for the trees. Or, more precisely, we sit around examining all the different types of tree without realising that we are in a

forest.

I’d like to give you an example of how a social scientist might use the lessons of history to understand the current situation of consumer concerns over food safety. Consumer fears about food safety are not a new phenomenon. Any study of the Industrial Revolution in Britain can demonstrate that the working classes were highly anxious about their food – a real concern given the extraordinary levels of food adulteration common in the 18<sup>th</sup> and 19<sup>th</sup> centuries. In trying to understand consumer behaviour in the 20<sup>th</sup> century, some social scientists have coined the notion of the ‘food scare’<sup>6</sup> – which we find quite useful for understanding current situations like the consumer crisis over GM foods.

While acknowledging that consumers can be fickle beasts, sometimes in the ebb and flow of taste and fashion, certain factors come into play which ‘lock in’ concerns about the safety<sup>7</sup> of food products. This ‘lock in’ process forms what is termed a ‘food scare’. The following six criteria provide us with the dimensions of a classic food scare:

- At the local level – the appearance of concerned citizen meetings, regional marketing style surveys indicating levels of consumer concern.
- At the political level – the formation of lobby groups and the appearance of radical and conservative spokespeople on the issue.
- At the news media level – internationally and locally a strong level of interest in the topic as a newsworthy item
- At a moral and philosophical level – a plethora of publications, conferences, and articles on the issue.
- At an economic level - the appearance in international trading transactions of premiums distinguishing between ‘safe’ and ‘less safe’ products. The response of economic institutions like supermarket chains to demarcate or eliminate products. Emergence of advertising campaigns or branding reinforcing the differences.
- At the regulatory level – moves towards national and supra-national demarcation of a product or groups of products through sanctions, moratoria or labelling.

History tells us that food scares, in which these six factors lock in concern over a sustained period of time, have taken place quite regularly in the 20<sup>th</sup> century. Further, once they are locked in, they are hard to shift.

To use an intriguing example, margarine was subject to a classic food scare for over 60 years (Ball and Lilley, 1982). First developed in 1885, its production was immediately opposed by vigorous lobbying from the dairy industry and by consumer concerns led by popular figures of the time. Sustained interest by the media was apparent. Soon politicians moved within the US to demarcate margarine and stigmatise it through legislation. Mark Twain helped

<sup>6</sup> See Beardsworth and Keil (1997), Miller and Reilly (1994), Murcott (1999).

<sup>7</sup> Safety in these terms, could involve either health, or ‘cultural safety’.

lead the charge by saying that margarine was indicative of the "artificiality of modern life" while others called it a "mechanical mixture" created by "the ingenuity of depraved human genius" (Ball and Lilley, 1982: 492). By 1900, 80% of Americans lived in states where margarine could not be legally coloured yellow and in some states it was actually forced to be coloured pink. It was not until after WWII that margarine was reinvented as a 'modern' product and gained widespread consumer support – a 'lock in' period of over 60 years. Ironically, the only significant scientific finding to suggest that margarine was unsafe – in this case the carcinogenic properties of one dye used in margarine – came much later.

The intriguing quality of food scares is that once legislative and institutional lock-in has occurred, it is very hard to shift. The political gains of stigmatising a food product through legislation are high, while the political costs of retracting that legislation are also high. Starting with margarine, we can fast forward to the emergence of a food scare around food irradiation in the 1950s<sup>8</sup> (a scare of 50 years duration which is still going), pesticide residues, food colourings, artificial sweeteners in the 70s and 80s, until we reach the climactic decade of food scares – the 1990s. This peak may be a case of an increasing incidence of problems arising in an overstressed food production system, or maybe it is the effect of emerging information technologies amplifying many of the tendencies that emerge in a food scare. Rising from the catastrophe of BSE, the GM situation in the late 90s has all the hallmarks of a classic food scare and the various features of it have well and truly 'locked in'. My conjecture is that the antibiotic situation in intensive production has not escalated into a fully recognisable food scare yet, but it is only a matter of time.

There seem to be two options for action in a food scare. You either ride it out – like margarine and food irradiation – or you purge – like pesticide residues, some food additives, BSE, and salmonella in eggs. Currently, our markets are engaging in a purge of GM products. For those wanting to ride it out, history has shown us that some external factor – *a deus ex machina* – like WWII might be required to break the lock in effect. Otherwise, you simply have to wait until the overall cultural setting shifts in your favour. In order to ride out the GM food scare, what *deus ex machina* might be required to turn up and turn things around for GM foods? Or are GM scientists going to have to simply sit tight and wait for the *zeitgeist* to be exorcised?<sup>9</sup>

There is an obvious final point needing to be made here. When a food scare becomes locked in, people still have to eat. Just as a food scare entrenches consumer resistance to particular types of food, it opens significant sustained opportunities for the alternatives.

## CONCLUSION

The situation in horticulture is interesting. Over the last ten years, a strategy for greening export production has emerged, and, with some variations, we have observed a successful development scenario emerge – two tier greening. By adopting both organic and residue free management programmes, certain synergies are created that have a beneficial effect on the overall strategy. We consider that horticulture has pioneered a reasonable development

trajectory for primary production in New Zealand. It is reasonable because it engages with the realities of global trade politics and the emerging trend of green protectionism. It is also realistic in that the food safety concerns of First World consumers are reaching a climactic pitch and food scares are increasing, not decreasing, in frequency.

While it is uncertain how many governments will take advantage of the opportunity to exploit green protectionism, a food export strategy that relied merely on the goodwill of some nations to not adopt such a politically advantageous course of action appears somewhat naïve. Put the other way around, it might be naïve for industries wishing to continue to export to lucrative markets like Europe to avoid developing food products that will be fireproof no matter what forms of green protectionism are mobilised against us. This may seem a highly defensive strategy, but perhaps the reality is that green protectionism and the increasing frequency of food scares are playing into our hands. Our relatively benign production environment may see the average New Zealand producer still selling their products to Europe long after the American mid-West has environmentally hit the wall.

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<sup>8</sup> This case has received much wider attention than the margarine scare. See Bruhn, (1995), Jack and Sanderson (1995), Ten Eyck (1999).

<sup>9</sup> For a fuller discussion of the issues relating to GM foods see Campbell *in press*.

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