

## New Zealand Society of Animal Production online archive

This paper is from the New Zealand Society for Animal Production online archive. NZSAP holds a regular annual conference in June or July each year for the presentation of technical and applied topics in animal production. NZSAP plays an important role as a forum fostering research in all areas of animal production including production systems, nutrition, meat science, animal welfare, wool science, animal breeding and genetics.

An invitation is extended to all those involved in the field of animal production to apply for membership of the New Zealand Society of Animal Production at our website [www.nzsap.org.nz](http://www.nzsap.org.nz)

[View All Proceedings](#)

[Next Conference](#)

[Join NZSAP](#)

The New Zealand Society of Animal Production in publishing the conference proceedings is engaged in disseminating information, not rendering professional advice or services. The views expressed herein do not necessarily represent the views of the New Zealand Society of Animal Production and the New Zealand Society of Animal Production expressly disclaims any form of liability with respect to anything done or omitted to be done in reliance upon the contents of these proceedings.

This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](http://creativecommons.org/licenses/by-nc-nd/4.0/).



You are free to:

**Share**— copy and redistribute the material in any medium or format

Under the following terms:

**Attribution** — You must give [appropriate credit](#), provide a link to the license, and [indicate if changes were made](#). You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

**NonCommercial** — You may not use the material for [commercial purposes](#).

**NoDerivatives** — If you [remix, transform, or build upon](#) the material, you may not distribute the modified material.

<http://creativecommons.org.nz/licences/licences-explained/>

## Dairy farmer perceptions of the industry's "clean and green" image

<sup>1</sup>R. BILLONES, <sup>2</sup>W.J. PARKER AND <sup>1</sup>D. KUIPER

<sup>1</sup>Agricultural Systems and Management, Institute of Natural Resources  
Massey University, Palmerston North, New Zealand

### ABSTRACT

The purpose of this research was to quantify how dairy farmers believed their practices contributed to (or harmed) New Zealand's "clean and green" image. Dairy farmers (n=350) from eight regions of New Zealand were surveyed by mail. The majority of respondents (n=218) were mainly male (88%), older than 40 years (65%) and owner-operators (45%) or sharemilkers (31%). Some 81% thought New Zealand dairy farming deserved its "clean and green" image, 90% said this improved the marketing of New Zealand dairy products internationally, and 72% believed consumer perceptions of farming practices did affect their purchase decisions. The farming practices most strongly associated with a negative impact on the "clean and green" image of dairying were: cows in muddy paddocks (81% farmers), induction (71%), bobby calves by the roadside (62%) and tail docking (59%). Enhancers of the image were pasture grazing by cows (87%) and being outdoors year round (62%). The majority of farmers believed larger herds (80%), bloat drenching (79%), dehorning (65%), intensive fertiliser use (65%), effluent disposal (58%) and use of antibiotics (53%) to have no effect on the "clean and green" image. Concerns were expressed that a small group of farmers with poor management practice could seriously affect the industry's image.

**Keywords:** New Zealand dairy industry; "clean and green" image; farming practices.

### INTRODUCTION

A growing number of consumers are integrating their concern for the environment into their purchasing behaviour (Ottman, 1993; Mendleson & Polonsky 1995; Newell *et al.*, 1998). A new variation of marketing has emerged in response to these increasing concerns (Peattie, 1992), one which promotes the 'environmentally-friendly' attributes of products and services. Misleading claims by some industries, however, have caused some consumers to become skeptical and disillusioned about "clean and green" claims (Ottman 1995; Mendleson & Polonsky 1995; Zinkhan & Carlson 1995; Newell *et al.*, 1998). There is, therefore, growing demand for claims of being "clean and green" to be backed-up by audit evidence.

The 'clean and green' image is important to New Zealand. Due to its unique geography, low population density and separation from heavily industrial development, New Zealand enjoys a perception of being "clean and green" (Taylor, 1996). This "environmentally-friendly" image is used in the international promotion of New Zealand dairy products (Franks, 1998).

The purpose of this research was to investigate if dairy farmers believed their practices influenced New Zealand's "clean and green" image. They were also asked how important they thought this image is for the marketing of their dairy products. The perceptions of farmers were contrasted with those of consumers (Billones, 1999).

### SURVEY METHOD

One hundred dairy farmers in the North Island and 50 in the South Island were surveyed by mail in May 1999. A further 200 questionnaires were distributed by four consulting officers from the Livestock Improvement Association (LIA), to farmers who attended their discussion groups. The sample, therefore, has some bias toward farmers who attend discussion groups (approx. 65% of all dairy farmers). A total of 218 dairy farmers from eight regions

participated in the survey (a response rate of 62%).

The survey instrument was a two-page questionnaire consisting of 12 questions with coding boxes on the right hand side. Three distinct areas were investigated: the farmers' opinions on New Zealand's "clean green" image and its impact on the export marketing of dairy products internationally; their opinions on the effects of dairy farming practices on the "clean and green" image of New Zealand; and their opinions on the attributes of New Zealand dairy products. Completed questionnaires were compiled and answers were coded for descriptive statistical analysis using the SPSS package (SPSS, 1993).

### RESULTS

#### Farmer and farm characteristics

Most respondents were male (88%) and 65% of them were 40 years old or younger (65%). The average age of respondents was 37 years (range: 16 to 72 years). Forty-five percent of the respondents were owner-operators, 31% were sharemilkers, 13% were farm/herd managers and 11% were farm workers. The majority of respondents were located in the Taranaki (25%), Manawatu/Wanganui (22%), Waikato (20%) and Wellington (11%) regions. Others were located in Hawkes Bay (7%), Otago (3%), Canterbury (8%) and Southland (4%).

The average farm size of the respondents was 171 hectares (range: 22 to 850 ha), and 71% owned or worked on a property of less than 201 hectares. Most (52%) owned a herd of 350 cows (peaked milk) or less. The average herd size was 413 head (range: 82 to 2000).

#### Opinions on New Zealand's "Clean and Green" Image

The majority of respondents (81%) believed that New Zealand dairy farming deserved its "clean and green" image. Ten percent of the respondents, however, disagreed with the statement. Ninety percent thought that New Zealand's "clean and green" image improved the marketing of dairy

products internationally, while 5% did not believe this was the case. Seventy-two percent of the respondents agreed that overseas consumer perceptions of New Zealand farming practices would affect their decision to purchase dairy products from New Zealand.

### Opinions on New Zealand Dairy Farming Practices

Farming practices such as putting cows in muddy paddocks during winter (81%), induction (71%), bobby calf management (62%), and tail docking (59%) were viewed to have a negative effect on the “clean and green” image of New Zealand’s dairy farming products (Table 2). However, the majority also believed that cows fed on pasture (87%) and grazed outside all year round (62%) had a positive effect on the industry’s image. Most believed that practices such as large herd sizes (80%), bloat drenching (79%), dehorning (65%), intensive fertiliser use (61%), effluent disposal (58%) and antibiotic use (53%) did not affect the “clean and green” image. A considerable proportion of respondents however, do believe that antibiotic use (39%), intensive fertiliser use (28%), current effluent disposal (18%) and dehorning (17%) have a negative effect on the industry’s image.

**TABLE 1.** Opinions of New Zealand dairy farmers on the effect of dairy farming practices on the “clean and green” image of New Zealand’s dairy products.

Farming Practices	Opinions (%)			
	Negative Effect	No Effect	Positive Effect	No opinion
Cows mainly fed on pasture	1	12	87	-
Cows being outside all year-round	5	33	62	-
Induction	71	25	2	2
Tail docking	59	34	6	1
Bloat drenching	5	79	16	-
Dehorning	17	65	15	3
Bobby calves on the roadside	62	30	7	1
Large herd sizes	7	80	13	-
Cows in muddy paddocks	81	17	2	-
Intensive fertiliser use	28	61	10	1
Use of antibiotics	39	53	7	1
Current methods of effluent disposal	18	58	22	2

Fifty-nine percent of the respondents identified farming practices that they believe need to be changed in order to meet consumers’ expectation of “clean and green” products from New Zealand (Table 2). The three most important farming practices identified were: induction (30%), tail docking (22%) and cows in muddy paddocks (11%). A small number of respondents identified practices, such as leaving dead cows on the roadside, extensive fertiliser use, bobby calf management, antibiotic use, underfeeding cows and effluent disposal that should be changed. These opinions were reflected in comments such as: “Farmers should take cows off the paddocks when wet/miserable and the stand off area should not be in sight of roads” and “Eliminate tail docking and stop induction.” Differences in opinion between gender, age, region and profession were not significant.

**TABLE 2.** Practices dairy farmers believed must be changed in order to meet consumer expectations of “clean and green” dairy products from New Zealand (n=218): mentions in each category and percentage of total mentions.

Farming Practices	Mentions	%
Induction	65	30 <sup>1</sup>
Tail docking	47	22
Cows in muddy paddocks	23	11
Dead cows on the roadside	18	8
Bobby calves management	18	8
Effluent disposal	10	5
Intensive fertiliser use	11	5
Underfeeding cows	9	4
Extensive antibiotic use	7	3

<sup>1</sup> Respondents could give more than one answer, thus percentages do not sum to 100%.

The remaining 41% did not mention any farming practice that should be changed. One farmer stated: “I have been to other parts of the world and we already have the best practices.” Another statement was: “Stop promoting “clean and green” forthwith, it invites challenge; we should be environmentally sustainable.”

### Opinions on New Zealand Dairy Products

New Zealand dairy farmers generally were positive about the products derived from their milk. They considered New Zealand dairy products to be healthier and safer (85%), “animal-welfare friendlier” (83%), “environmentally-friendlier” (80%), better value for money (76%), more attractive and better presented (80%) and tastier (82%), compared to those from other countries (Table 3).

**TABLE 3.** New Zealand dairy farmers’ opinions on New Zealand dairy products (n=214).

Compared to those from other countries, New Zealand dairy products are:	Strongly agree/ agree	Not sure	Strongly disagree/ disagree
	% within opinions		
Healthier and safer	85	12	3
Produced in an animal-welfare friendlier way	83	12	5
Produced in an environmentally-friendlier way	81	15	4
Better value for money	76	18	6
More attractive and better presented	80	18	2
Tastier	82	16	2

## DISCUSSION

The sample farms had a larger area and herd than the New Zealand average for the 1998/99 season (171 total ha vs. 91 effective ha and 413 vs. 229 cows (LIC, 1999)). Large properties skewed the sample distribution to the right (18% had 1000 or more cows compared with 18.2% of herds with 300 or more cows nationally in 1998/99 (LIC, 1999)). The average age of the respondents (37 years) was slightly lower than that reported for other national dairy farmer surveys

(e.g., 46 years (Rauniyar & Parker (1999)). The respondents in this survey, however, included farm workers and farm managers who are generally younger than farm owners. The sample was also heavily male-dominated. Caution, must therefore be exercised in extrapolating the survey results to New Zealand dairy farmers in general. Nevertheless the results do indicate the opinions of a large cross-section of the dairy farming community and highlight opportunities to strengthen the image of 'clean and green' farming.

While the relationship between environmental concerns and buyer behaviour remains a controversial subject (Hoek *et al.*, 1998), the respondents showed a high level of awareness of issues that could impact on the environmental image of New Zealand dairy products. As in other businesses, the new emphasis in the marketplace on environmental integrity and sustainable production and practices (Caincross, 1992), has caused the New Zealand dairy industry to review and improve farming systems in terms of environmental management (Franks, 1998). As noted by Bodeker (1998), however, further work is required in monitoring to demonstrate that dairy farms are indeed environmentally sustainable.

The concepts of animal welfare- and environmental friendliness are the subject of vigorous debate. Each person has their own interpretation on what is "right" and "wrong", "sustainable" and "not sustainable", or "cruel" and "kind". Even within New Zealand, as shown by this study, dairy farmers hold different views about the practices used on their property. While the majority believed that the continued use of a few selected practices, such as induction, threaten the industry's "clean and green" image (Tables 1 & 2), others saw these as being essential for maintaining the efficiency of their production system and cost competitiveness in milk production.

This research did not provide conclusive evidence that current practices on New Zealand dairy farms affect the marketability of its dairy products. However, other work that was part of this research (Billones, 1999), indicates that consumers' views do not always align with those of dairy farmers (Table 4). For example, British supermarket shoppers' ratings of attributes of New Zealand dairy products were lower than those of dairy farmers. The relationship between environmental concerns and buying behaviour is still a subject of debate in the marketing arena (Kalafatis *et al.*, 1994; Hoek *et al.*, 1998). Despite this, "green marketing" is here to stay (Coddington, 1993). Furthermore, the standards for environmental and animal welfare legislation and regulation are being raised in key export markets, and these could be used as market barriers to New Zealand's dairy products. The dairy industry, therefore, needs to continue to respond to protect and build its "clean and green" image and as noted by respondents in this study, ensure that the non-compliance of a small group of farmers does not cause disproportionate damage to this.

**TABLE 4.** Differences in the perceptions of samples of consumers from three different countries and New Zealand dairy farmers (Differences between groups were all significant at  $P < 0.0001$ ) (Source: Billones 1999).

New Zealand dairy products are:	New Zealand	Philippines	UK	New Zealand dairy farmers
Perception $\mu$				
Healthy and safe	4.1 <sup>1</sup>	4.3	3.0	4.2
Produced in an animal-welfare friendly way	3.5	4.2	2.9	4.0
Produced in an environmentally-friendly way	3.5	4.3	2.9	4.0
Good value for money	3.9	4.2	3.1	4.1
Attractive and well-presented	4.1	4.3	2.9	4.1
Tasty	4.2	4.5	3.9	4.1

<sup>1</sup>Strongly disagree=1, Disagree=2, Not sure=3, Agree=4, Strongly agree=5.

Farmers face the challenge of reconciling the need to increase productivity (by a target of 4% per annum), and thus, the intensity of farming in order to remain internationally competitive, with that of protecting the environment. Ledgard *et al.* (1999) demonstrated that some systems of dairy intensification reduce the nutrient impacts on the environment but these systems may be less acceptable to the consumer in other respects, such as animal welfare. Farmers require further animal production, systems and environmental management research to show how they can profitably reconcile these apparently conflicting objectives. They also require cost-effective alternative technologies for consumers who indicate current practices are unacceptable to them.

## REFERENCES

- Billones, R.G. 1999. Consumer and farmer perceptions of the New Zealand dairy industry's image. Unpublished MAppSc thesis, Massey University.
- Bodeker, P. 1998. The New Zealand dairy industry's approach to on-farm quality issues. *Dairy Farming Annual, Massey University* **50**: 66-70.
- Caincross, F. 1992. Costing the earth – the challenge for Governments, the opportunities for business. Massachusetts, Harvard Business School Press.
- Coddington, W. 1993. Environmental marketing – positive strategies for reaching the green consumers. New York, McGraw Hill Inc.
- Franks, R. 1998. Industry Image and the Likely Impact on Future Farming practices. Continuing Education in Agriculture, No. 4 Dairy Farm Field Workshop, Massey University, New Zealand.
- Hoek, J.; Gendall, P.; Hederley, D.; Jardine, A.; Peterson, G. 1998. Green attributes: How do they affect consumer behaviour? Paper presented at the Australian & New Zealand Marketing Educator's Conference, University of Otago, Dunedin.
- Kalafatis, S.; Pollard, M.; Gilpin, S. 1994. Stability of consumer trade-offs when considering environmentally-friendly product attributes. Proceedings of the Marketing Educator's Group. Ireland, University of Ulster.
- Ledgard, S.F.; Edgecombe, G.A.; Roberts, A.H. 1999. Application of the nutrient budgeting model OVERSEER™ to assess management options and Regional Council consent requirements on a Hawke's Bay dairy farm. *Proceedings of the New Zealand Grassland Association* **61**: 227-231.

- LIC, 1999. Dairy Statistics. Hamilton, Livestock Improvement Corporation Ltd.
- Mendleson, N.; Polonsky, M.J. 1995. Using strategic alliances to develop credible green marketing. *Journal of Consumer Marketing*, **12** (2): 4-18.
- Newell, S.J.; Goldsmith, R.E.; Banzhaf, E.J. 1998. The effect of misleading environmental claims on consumer perceptions of advertisements. *Journal of Marketing Theory & Practice*, **6** (2): 48-60
- Ottman, J. A., 1993. Green Marketing – Challenges & Opportunities for the New Marketing Age. NTC Business Books, USA.
- Ottman, J.A. 1995. Mandate for the 90s: Green corporate image. *Marketing News* September 11, 29 (19): 8.
- Peattie, K. 1992. Green Marketing. Longman Group, UK Ltd.
- Rauniyar, G.; Parker, W.J. 1997. Constraints to farm-level adoption of new sustainable technologies and management practices in New Zealand pastoral agriculture. Towards Sustainable Agriculture Series, MAF Policy, Wellington.
- SPSS 1993. Statistical Package for Social Sciences, New York, McGraw Hill Inc.
- Taylor, R. 1996. Project 98 wants it clean, green, safe. *The New Zealand Farmer*, 18 July 1996.
- Zinkhan, G.M.; Carlson, L. 1995. Green advertising and the reluctant consumer. *Journal of Advertising*, (Summer):16.