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Micro-level Clusters in the Australian Dairy Industry

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Abstract

Discussion groups in the dairy industry are a vital forum for knowledge transfer amongst dairy farmers. Discussion groups are made up of people engaged in the business of dairy farming and they can be classified as micro-level clusters. Micro-level clusters are collaborative networks of individual firms (Boekholt & Thuriaux 2000). In these clusters dairy farmers absorb and disseminate knowledge from professional agronomists, veterinarians, government advisers and research institutions. This paper explores the practice of small dairy farmers working in clusters to share knowledge and know-how. The study was conducted in the Central Murray dairy region of Victoria, Australia.

Key Words

Micro-cluster
Australian dairy industry
Dairy discussion groups
Knowledge transfer
Public policy

Introduction

The Australian dairy industry has a history of working effectively towards common agendas through dairy discussion groups. Dairy discussion groups can be classified as micro-level clusters. Micro-level clusters are collaborative networks of individual firms (Boekholt & Thuriaux 2000). Dairy discussion groups provide an environment

for knowledge transfer amongst dairy farmers who access expertise from agronomists, veterinarians, government advisers and research institutions. In this setting dairy farmers build their capacity for innovation through knowledge transfer. Knowledge transfer occurs during the conversion of tacit knowledge into explicit knowledge through sharing experience, dialogue discussions, know-how exchange and teaching (Politis 2003).

The dairy industry reflects Drucker's observation that "knowledge constantly makes itself obsolete" (Drucker 1997, p. 22). The industry's uptake of new technologies and better farm management practices, improved herd genetics, pasture management and supplementary feed regimes have resulted in dramatic improvements in productivity (Getting a Better Return 2001; www.dairycorp.com.au.statistics). In 1975 the average yield per cow was 2,750 litres per year (ABARE 2002, p. 39). In 2000-03 the yield had grown to 5 037 litres of milk per cow (Australian Commodities 2004). These improvements can be attributed to the effective dissemination of know-how throughout the industry.

This paper explores the practice of small dairy farmers working in clusters (loose collaborative relationships) to share knowledge and know-how. The report examines collaboration amongst small dairy farmers operating in the Central Murray dairy industry in Australia and evaluates the importance of government and industry intervention. Victoria is the largest producer of dairy products in Australia. The Central Murray dairy region is the largest in Australia, producing 26% of Australia's total milk production (Tesdorpf 2002). The Australian dairy industry is Australia's largest processed food industry and, with 13 per cent of the world dairy produce market, Australia is the worlds' third largest dairy exporter (Getting a Better Return 2001).

Dairy farming

Dairy farms run by owner managers (family farms) account for 99 per cent of all Australian dairy farms. On average the owner manager of a Victorian dairy farm is aged 49 years, works 65 hours a week and has a 46 year old spouse working 30 hours a week on the farm, a total of 135 hours per week in labour (ABARE 2002, p. 77). The average Victorian dairy herd in 2000 was 179 cows (ABARE 2002, p. 39).

Dairy farming is becoming increasingly sophisticated with higher production methods being employed. Dairy farm production has traditionally been pasture based but experiences during the recent drought (2002/03) and the 1982/83 drought have resulted in more farmers moving to grain feeding and other alternatives to perennial pasture. Farmers now choose their method of production from traditional methods, modest use of grain (<1.5 tonnes/cow/year) and hay, or high stocking rate systems which require up to 70-80% of the feed being brought in as supplements (McGuckian 2000). As well as increases in supplementary feeding new technologies adopted include fodder conservation, soil testing, artificial insemination, synchronised oestrus, defined mastitis control programs and computers on farms (Tesdorpf 2002). Doucouliagos and Hone (2000) show that over the past 20 years of an increasingly deregulated environment new capital investment has improved milk production and utilisation. It has also enabled the industry to reduce its dependence on labour (Doucouliagos and Hone 2000).

Deregulation of the dairy industry in July 2000 has forced farmers to identify strategies to improve their productivity. There is continuing pressure on the cost/price margin, particularly for smaller milk producers (Murray Dairy 2001).

Strategic flexibility in dairying

Globalisation, increasing reliance on the export market, the bilateral trade agreement with the United States, the impact of the 2002-03 drought, the ongoing threat of water shortages in the Murray-Goulburn irrigation system and the rise in the Australian dollar against the US currency are all factors which have or will impact upon dairy farmers. The economic, political and ecological environment has become more uncertain. Dairy farming has become a risky business. In such an uncertain and dynamic environment dairy farmers must develop greater strategic flexibility.

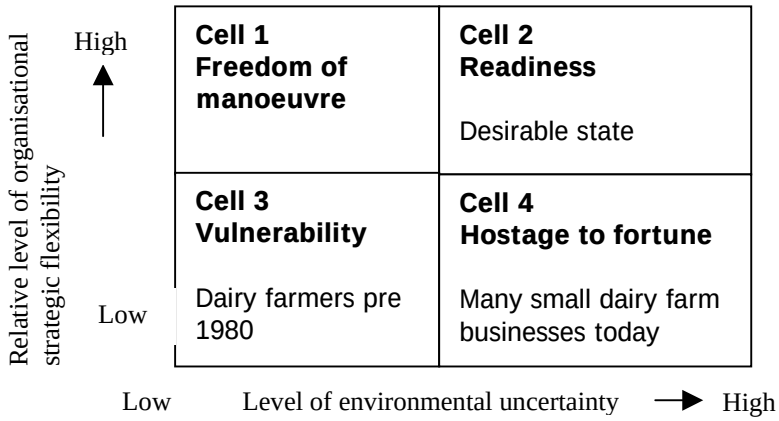
Farm work is time consuming and tiring, leaving little opportunity for strategic thinking. In the dairy industry historically, measures have been physical – the number of cows milked, bales made and paddocks irrigated. Dairy farmers are managers of small businesses and small firms tend to have difficulty in differentiating between strategic and operational managerial roles; they are not geared to scanning for environmental threats and opportunities; they have few external linkages and they have little influence over external events (Lang, Calantone & Gudmundson 1997).

Strategic flexibility is a concept suited to dynamic environments where continual change is unlikely to make once-and-for-all adjustments an appropriate form of managing change (Genus 1995). Collaboration among dairy farmers can be viewed as the development of a capability to permit some freedom of manoeuvre, as illustrated in Figure 1. In Cell 1 the flexibility of an organisation is high against a background of low uncertainty in the external environment. In Cell 3 the level of organisational flexibility is low, but so too is the level of environmental uncertainty. An organisation in this situation may find itself vulnerable to future change. Most dairy farm businesses would have fitted this category until the late 1980s.

Cell 4 depicts the current situation for many small dairy farmers as 'hostages to fortune'. Here a combination of low organisational flexibility and highly uncertain environmental conditions places the farm business at the mercy of external circumstances. Cell 2 portrays a state of 'readiness' – the desirable state.

Dairy farmers who are able to avoid committing to a future deployment of resources, and are able to reverse, remedy or undo strategic decisions can gain some measure of control over their destiny. Cell 2 indicates that flexible organisations are better able to cope with increasing uncertainty. Obviously this is the desirable position for dairy farmers to work towards. Collaborative practices can help dairy farmers to achieve some flexibility.

Figure 1: Understanding the need for strategic flexibility



(Source: Adapted from Genus 1995, p. 22)

Through collaboration the results of one farmer's experimentation can be a useful source of trial and error learning for others in the cluster, enabling problems to be identified without incurring the costs of implementation (Genus 1995). Porter (1998) argues that clusters offer good mechanisms for transferring technology out of

research establishments and into practice. Having preferred access to such knowledge gives dairy farmers enhanced control over their destiny.

Nevertheless, the difficulties inherent in the development of clusters are real. If collaborative practices are to work well many factors must be considered. The management of inter-firm linkages tend to be problematic (Hamel, Doz & Prahalad 1989). Dairy farmers tend to hold strong personal views about farming practice. Participants in collaborative relationships enter with different histories, experiences and motives (Genus 1995). While the history of dairy discussion groups has been positive recent changes in public policy are now impacting upon the processes of knowledge acquisition and transfer in dairy farming.

Dairy Discussion Groups – Micro-Clusters

A dairy farmer discussion group is

> *A group of people engaged in the business of dairy farming. The group may have either a specific focus (eg mastitis) or may wish to cover a number of topics throughout the year. Groups can be established to solve a particular problem within a short time frame (a Learning Group) or can be ongoing.*
>
> *There are a large number of dairy farmer discussion groups around the state of Victoria, with groups in each region operating differently* (Nelson 2002).

Jack Green, an Inspector with the Department of Agriculture, started dairy discussion groups in the 1950s. Since that time discussion and knowledge sharing has become part of the culture of the dairy industry.

Dairy discussion groups can be classified as micro-clusters. Micro clusters are collaborative networks of individual firms (Boekholt & Thuriaux 2000). Discussion

groups are also knowledge clusters. Knowledge clusters develop around knowledge-producing institutions such as universities and government research agencies, but also inter-linked firms, suppliers and customers, where the primary benefit of the linkage is the sharing of knowledge and learning (Johnston 2004). For many years discussion groups have brought together networks of dairy farmers to share deep knowledge through face-to-face exchange facilitated by experts from a number of government supported agencies.

An important facilitating mechanism for knowledge exchange in the dairy industry has been the Target 10 program which was established in 1992 as a result of cooperation between the Department of Primary Industries, the Dairy Research and Development Corporation, United Dairyfarmers of Victoria, The University of Melbourne, dairy processors and their field advisory staff, agribusiness organisations and sponsors. The program was designed to extend the use of pasture based feeding systems amongst dairy farmers and has been a catalyst for dairy farmers and industry to work collaboratively for improvements across the industry. More than 60% of dairy farmers and 56% of dairy based businesses were enrolled in Target 10 core programs in Victoria in 2003 (Target10 2003).

These figures are indicative of the high level of collaboration, information sharing and trust that has been developed in the dairy industry over many years. This is now under threat. Through the 1990s the Target 10 discussion groups were funded and organised by the Department of Primary Industries. During 2002 funding to the discussion groups has been cut back and dairy farmers have been encouraged to fund and operate discussion groups themselves (www.target10.com).

Work is being done to improve farmer participation in learning programs, for instance, the Murray Dairy Strategic Plan identifies the need for the acquisition of

new skills and knowledge, benchmarking programs and knowledge exchange amongst dairy farmers (Murray Dairy 2001). The Department of Natural Resources and Environment has a series of Web pages devoted to assisting dairy farmers establish and run discussion groups (www.nre.vic.gov.au/notes). The regular attendees are recognised as the better performers in the industry, a result, no doubt, of learning about and implementing best practice on their farms. The challenge to the industry is to have all or most dairy farmers involved in knowledge exchange clusters.

Clusters bring government entities, companies, suppliers and local institutions together around a common agenda which is constructive and actionable (Porter 1988, p. *xxvii).* The Organisation for Economic Co-operation and Development (OECD) working definition of clusters is,

> *networks of production of strongly interdependent firms (including specialised suppliers), knowledge producing agents (universities, research institutes, engineering companies), bridging institutions (brokers, consultants) and customers, linked to each other in a value adding production chain* (Boekholt and Thuriaux 2000, p. 9).

For small dairy farmers clusters can '*create collective assets in the form of information, specialised institutions, and reputation. More importantly, clusters enable innovation and speed productivity growth.'* (Porter 1988, p. *xxiii*).

Collaboration and linkages amongst businesses and between businesses and knowledge suppliers in a context of global competition are key characteristics of clusters (Boekholt & Thuriaux, 2000). Through the 1990s the Australian government took a leading role in developing frameworks needed to seed cluster development. Today the government is taking a laissez-faire approach in anticipation of farmers

themselves taking on leadership of micro-clusters. As McPherson (2002) observes, industry needs to be the main driver of clustering for the concept to be successful, but OECD studies highlight the role of government as a catalyst for action, a network facilitator, an honest broker, and an institution builder.

The dairy industry has an enviable history of collaboration and knowledge sharing in both formal and informal arenas. Discussion groups provide forums for knowledge generation and knowledge acquisition in a climate of trust and openness. Dairy discussion groups exemplify Davenport and Prusak's (2000) 'communities of knowers, brought together by common interests, (who) usually talk together in person, on the telephone, and via e-mail and groupware to share expertise and solve problems together'.

Dairy farmers live in closely settled agricultural communities that have enabled the development of informal, personal relationships which underpin the formation of industry clusters (Kreiner & Schultz 1990). Informal relationships are an important means of acquiring or exchanging information and expertise. Close relationships are possible for farmers who live in communities where families and individuals know each other. Most farmers have regular contact with their milk processing company, they meet at training programs, extension activities and discussion groups. This closeness is a natural competitive advantage as demonstrated amongst small Italian industrial firms where clusters of firms that had previous interpersonal relationships were formed in 90 per cent of cases, while for joint ventures this was true in 50 per cent of the cases (Grandori & Soda 1995). Producers visit each other's firms and freely discuss their production problems and share their innovations (Piore 1992) in much the same way as dairy farmers engage in farm walks.

Access to new processes and knowledge is an important influence on dairy farm performance. Dickson and Hadjimanolis (1998) argue that the importance and benefits of establishing better local networks through cooperation are clear.

> *Managers should give more importance to innovation by developing proactive innovation strategies and applying professional management practices in new product development and evaluation. Close relationships with their partners (suppliers, customers, etc.) are important channels for acquiring resources and information and in conducting business for mutual benefit* (p 16).

The Research Method

Twenty-six dairy farmers from the Central Murray region of Victoria and 21 industry experts were interviewed for this research project. The interviews, each of around 60 minutes' duration, were tape recorded and transcribed for analysis. Dairy farmers were interviewed on their farms around Echuca, Rochester, Kyabram, Stanhope, Tongala and Shepparton.

The researcher gained further understanding and knowledge by attending the annual Target 10 Victorian Dairy Industry Workshop in 2003.

Qualitative analysis using Miles and Huberman's approach (1994) was used to identify themes and patterns which then enabled selective coding and interpretation.

For this paper data pertaining to knowledge acquisition and sharing will be presented.

Education and knowledge sharing in dairying

Of the 25 dairy farmers interviewed only 2 had a formal education in dairy farming. Three farmers had studied other disciplines at University before going on to the farm.

The remaining 20 had a secondary school education and had learnt farming skills from their parents, from employers or other farmers. This result indicates a relatively poor level of formal education within the research population.

The dairying nations of New Zealand, Denmark and Holland require dairy farmers to complete dairy farm management studies before they are permitted to farm. In Denmark there are eleven agricultural colleges in a nation of only 5 million people (Porter 1988, p. 133). Education and research is a cornerstone of the Danish government's approach to cluster development in the food products industry (Boekholt & Thuriaux 2000).

> *Cluster policy should be seen as an integrated package of public interventions in close consultation with those directly involved, ie the business community, the research and education organisations and so on* (Boekholt & Thuriaux 2000, p. 39).

In contrast, Australian dairy farmers begin farming without any qualifications or certification. This was a cause of concern amongst industry experts:

> *We're one of the few countries where you can buy a farm with no skills. If you're in Denmark you have to do a course – Greenticket in Managed Properties. Here any Tom, Dick or Harry can go and be a farmer, any sort of farmer. God knows what that does for land degradation and environmental problems.* (Industry Expert)

> *They need better training on irrigation, use of fertilisers, pasture management, environmental sustainability triple bottom line, how to employ labour.* (Industry Expert)

However, farmers did not agree that they needed formal educational qualifications.

> *I don't see it as any different to buying the sports shop in Kyabram. You're buying a business and it's up to you to do the groundwork and find out how to do it properly. If you don't you'll be shaken out. It's up to the individual. We're very lucky we get so much help. We've got the Department in there that give you free information and most of them don't use it.* (Dairy Farmer)

One way to encourage farmers to consider formal education is to offer recognition of existing skills and knowledge. Many farmers have been very good at acquiring knowledge and sharing knowledge about farm practice through short courses and discussion groups. Arguments for government regulation to mandate Recognition of Prior Learning (RPL) and training certification were supported by a number of industry members.

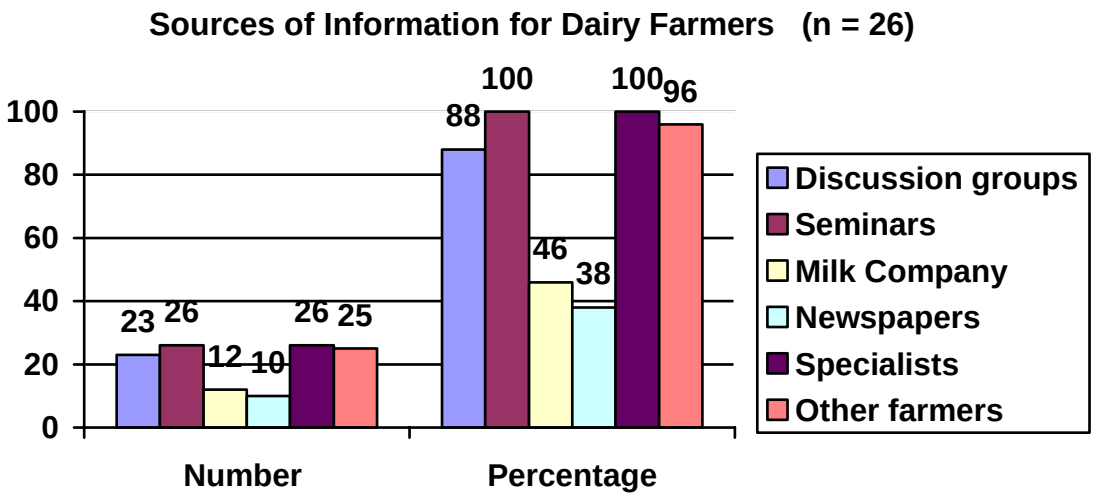
> *We need this type of regulation to bring in generational change. A lot of farmers would get RPL for a Dookie Diploma.* (Industry Expert)

Young people are not attracted to dairying as a career. Strong negative perceptions of dairy farming as being dull, repetitive and relatively unskilled work must be challenged if the industry is to have access to a skilled workforce. If qualifications and certification were encouraged by the industry, dairying could become more attractive to secondary and tertiary students.

Dairy farmers' knowledge sources

Dairy farmers in the study were well served by a rich array of information sources. Table 1 presents findings which reveal a high level of information gathering activity amongst dairy farmers. All farmers reported accessing a wide range of people, programs, publications and places for information gathering.

Table 1: Sources of Information for Dairy Farmers



All but three farmers (23) reported some interaction with discussion groups with 17 reporting a regular involvement, attending most meetings of their local group.

Field officers employed by various milk companies (Murray Goulburn, Nestle, Bonlac) provided information and support to dairy farmers. Communication was maintained through regular newsletters and by contact every one to two days when milk is collected by tankers.

Farmers also reported reading a range of literature and daily papers.

Specialist advice was particularly highly regarded with farmers calling on professionals, Department of Agriculture, specialist soil testers, agronomists, veterinarians, accountants and financial consultants, for advice as soon as a problem arose. Farming has become more technical in recent years and this was reflected in a greater dependence on expert advice:

> *You probably do need some expertise and in more recent times since we've had more difficult years I've used consultants more than previously. More to do with feed, dairy nutrition, to try to get a balanced diet for the cows. That's been the main focus. If you're going to expect x amount of litres out of a cow you have to put something in, your pasture plus whatever else you've got to bring their diet up. It sounds easy enough but these cows are a little bit more touchy than you'd think. It's not very hard to upset things.* (Dairy Farmer)

In particular dairy farmers valued the information transferred from their neighbours and dairy farmer friends.

> *We talk with other farmers all the time. I rang a neighbour this morning about these heifers getting too tight to calve. I remember a couple of years ago him talking about the same problem and I rang him to find out how they fixed the problem. That's how we get a lot of our information. We get a lot of phone calls here from neighbours too… Socially too whenever we go out we always talk shop. We get abused for talking shop!* (Dairy Farmer)

Networks of friends were vital for farmers to gather information.

> *The majority of our friends are farm oriented so if something interests you then you talk to one of them and they might know more and there might be a chain reaction and there could be ten different farmers with ideas. Our group that we go out to tea with regularly we mainly talk about farming.* (Dairy farmer)

These valued networks were fundamental to the success of dairy discussion groups which form the basis of dairy industry clusters.

A Department of Primary Industries Field Officer reported that there were 12 discussion groups operating in northern Victoria. Each discussion group had around 30-40 members with around 400 out of a total of 2,800 farmers on the mailing lists (around 14.2%). It was generally acknowledged that the more committed and better performing farmers attended meetings and were active members of the discussion groups.

> *It seems to me that the ones that are successful are sharing information. Information has been where Target 10 has put its efforts, in terms of grazing, dairy nutrition and stuff like that. … But there are those that haven't got the vision, and how to get people to have the vision I think is very difficult. They talk about lack of morale, lack of status in the industry as if they couldn't do anything. They didn't feel empowered to do anything.* (Industry expert)

Discussion groups were critical to the process of extending innovative practice. As one farmer said the discussion groups attract 'the people who are a bit progressive in the area.' The groups were strong and provided 'a heap of benefits.'

> *They provide a social outlet for a start, particularly in tough years. You learn about local conditions, the group is open and frank and you tend to know if you're performing better than others. You've got a benchmark and people offer new ideas and advice.* (Dairy farmer milking 120 cows)

Discussion groups were fundamental to the networks of farmers, industry advisors, experts, researchers and policy makers in the dairy industry. The discussion groups could be described as clusters. In Australia clusters in many industries are nurtured by governments wishing to support innovation and competitive advantage.

Boekholt and Thuriaux (2000) argue that cluster policies are needed at different levels, macro, meso and micro, with each level requiring a different approach and having a different set of actors. Dairy farmers form part of micro-level networks and they interact with many actors and institutions forming the micro cluster, as illustrated in Table 2.

Table 2: Players in Victorian Dairy Micro-Clusters

Cluster Level: Micro-level Networks	**Typical Actors**	**Players in the Victorian Dairy Industry**
Geographic clusters, eg	Dairy farmers	Dairy farmers
Congupna Discussion Group,	Network brokers	Target 10
Kyabram Discussion Group,	Regional Technology and Innovation Service Providers	Murray Dairy
Kyton Hares		GV AgCare
Target 10 Syndicates		Dairy company extension officers
		Department of Primary Industry
	Research and educational organizations	Agribusiness – local veterinarians, management consultants, feed and fertilizer companies, herd improvement organisations, banks, accountants, TAFE college lecturers, Rural Training Council of Australia, Melbourne University, Dookie College
	Financial advisors	
	Industry consultants	

Source: Adapted from Boekholt & Thuriaux 2000, p. 17

Farmers and industry experts agreed that micro-level clusters were essential to innovation in dairying. Whether the clusters should be assisted and funded by government was strongly debated. The Department of Primary Industries (DPI) has supported the Target 10 discussion groups for many years providing staff to organize and attend meetings. After ten years of providing funds the government has altered this policy to move responsibility for initiating and running discussion groups to farmers. As one industry member said,

The Government is saying why should we be putting money into a bunch of extension officers to support dairy farmers when they're the ones who get the benefit. If it's important to them and their business the individuals should pay.

Another industry expert held the same opinion,

There's a moral obligation for farmers to take control. No one's going to keep the groups going for nothing. These groups have found that they can get funding as they went along. The ones that have worked have found leadership from within.

Farmers were divided on this issue. Those who were actively involved in successful, self-run discussion groups believed that they were better run, more relevant and more rewarding than they had been in the past.

Our group is a closed group with a maximum of 20 members. We came up with our own rules and wrote our own constitution. There's a core group of four, an executive, who do the secretarial work and organisation. Attendance is required, we all signed up to agree to that. We run on business-oriented topics. We wanted it to be more than a social day. We invite speakers along. Everyone has to put their figures in by August 1st and we look through for common factors to see where people are doing well. Trust is a real big issue. Like whatever information is put up and those figures that you see there, once you leave there nothing more is said outside. It's probably a little bit more advanced than it was before. The next stage has been to go to another level where you're really picking the topics and pulling it to pieces and trying to improve what you're doing. (Dairy farmer)

Another farmer held the view that farmers would do better on their own, without government intervention.

> *Our group is going pretty well. Now there's 27. The newsletter is sponsored. It's $100 to be paid up members. It's better than it used to be. We're covering things that are relevant. The farmers are choosing what we want.*

Industry experts and farmers agreed that the self managed discussion groups offered opportunities for a wider range of topics selected by farmers. Many of the groups were choosing to study more strategic areas. They were excited by the new process and they were pleased that their groups were performing well.

Unfortunately the successful and advanced discussion groups were perceived to be fewer than those which were languishing after the funding cuts. Many dairy farmers were no longer attending discussion groups. As one expert said,

> *I'd say I think the changes (funding cutbacks) were done by a consultant who never worked in the field with unrealistic expectations of what they could deliver and how they could achieve results.*

A typical response from a farmer who had ceased attending a discussion group indicated a need for leadership. No one in his group was prepared to take on the extra work.

> *We haven't been going to discussion groups, we've slackened off I s'pose. It could be that Target 10 isn't running it cause in some ways it's good to have a bit of a leader. I miss it cause it's good to exchange.*

Farmers whose groups have failed following the funding cutbacks have the choice to join an effective group, as this farmer did:

We used to have a Target 10 discussion group locally and that collapsed due to a few different things. Target 10's not funding it anymore. Other Target 10 groups seem to have withered a bit without Target 10 support. We've become involved in a self-funding group. We meet once a month. It gives you a good feel for how you're doing, how you're coping and what you're doing. Last week was very deep, with bringing cows back from parking[1].

Some farmers were clearly hostile to the change.

The local discussion group is now incorporated. Thirty of us meet monthly. We're self-managed. We elected an executive. Target 10's money ran out. They found it hard to measure the benefits so they cut the funding. I think it was stupid!

Another farmer observed that the Target 10 extension officers would lose an important knowledge resource due to less frequent interaction with farmers.

I'm in a discussion group. We're on our own here which I think stinks cause we're paying taxes for those people (Target10) to be there. Those people have learnt so much from the farmers.

It is important that the benefits of discussion groups are not lost as a result of cost cutting. The discussion groups have given high value returns to the industry and the style of the groups is very comfortable for farmers. Information is presented in a way that is understood and liked. Without funding some discussion groups will continue to develop and flourish but others will falter. It may be that a number of models should be explored. These models should reflect the educational background and the

[1] Parking cows is the practice of moving the herd to a more suitable location during times of poor feed or lack of water. Many herds in the Murray Goulburn region were moved to Gippsland or to western Victoria during the drought.

readiness for independent knowledge seeking amongst the dairy farming population. At all levels, from the most strategic and innovative to basic operational processes, knowledge clusters offer opportunities for advancement of the industry.

Conclusions

Membership of dairy micro-clusters can enhance the productivity and rate of innovation of dairy farms. Until recently public policy has supported the spread of discussion groups, providing a framework for collaboration between dairy farmers, the public sector and research institutions. As a result, close communities of farmers who are linked by friendships, family and business networks have built trusting and reciprocal relationships with each other.

During the 1990s Target 10 discussion groups drew together networks of people and organizations to feed knowledge and know-how into the industry in a style that was very comfortable for dairy farmers. Information was conveyed in relaxed, social forums. Today government support for dairy discussion groups has been withdrawn. The public/private partnership required for the development of clusters has ended.

Responses to the policy change have varied. Many dairy farmers resent the withdrawal of support and, having no external leadership or coordination, have let their discussion groups lapse. In contrast, a number of discussion groups which were already performing well, have become self-managed and self-funded following the cut to government funding. Farmers in these micro-clusters have found the process of taking control liberating and energizing. They are finding ways to share knowledge more effectively. These groups, which have incorporated and settled their membership, have found that the dairy industry's long tradition of information exchange, trust and collaborative practice is bearing fruit – even without the nurturing

influence of government intervention. They have the energy, organization and commitment to schedule meetings, events, guest speakers and industry visits which are specifically tailored to their members' needs.

These very different responses reflect the varying levels of receptiveness in the dairying communities. Farmers have expressed two sets attitudes to public policy on clustering. One group of farmers is dependent upon government officers for leadership, less ready for collaboration and more attuned to the status quo. This group wants the frameworks, assistance and leadership provided by Target 10 advisers to be reinstated and enhanced. Members of the other group prefer the newly acquired autonomy of self-managed micro-clusters. Both views reflect a need for a new generation of policy makers to 'move away from Australia's current laissez-faire approach, to provide innovation policies which are strategic, proactive, flexible and enabling' (McPherson 2002). Both approaches are required. Public policy must embrace the views of both groups through facilitating partnerships between dairy farmers and different sectors of government using diverse models that reflect the readiness of participants. In particular public policy should enhance research and industry linkages and ensure effective technical support and information services. The long-term legacy of the work begun in the 1950s by Jack Green and continued by so many dairy farmers should not be abandoned at a time when the industry is facing new challenges and uncertainty.

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