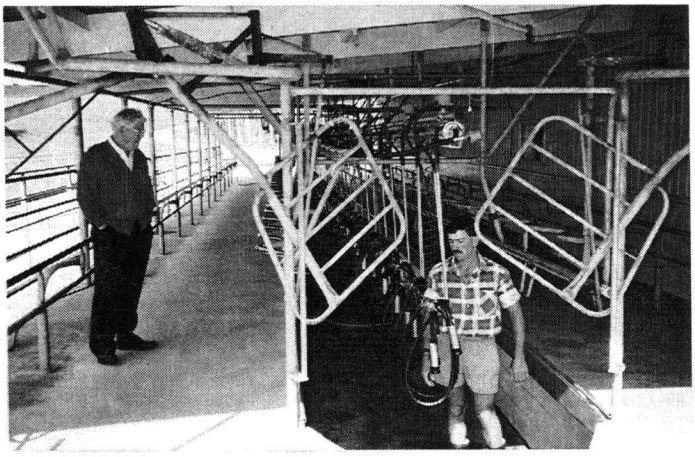
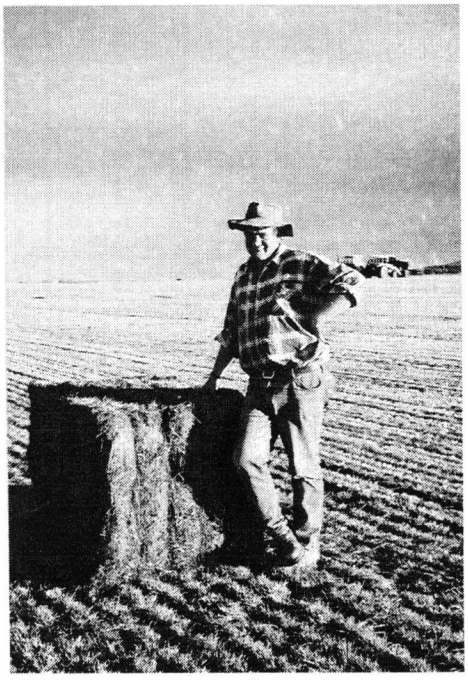
Attachment 1

Dairy Farmer Career Paths

Farm Entry and Exit Transitions in New Zealand and Wisconsin: Observations, Challenges, and Opportunites for Exchange

by G. W. Stevenson, Russell O' Harrow, and Douglas Romig





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The Babcock Institute for International Dairy Research and Development is a joint program of the University of Wisconsin-Madison College of Agricultural and Life Sciences, University of Wisconsin School of Veterinary Medicine, and University of Wisconsin-Madison Cooperative Extension. Funding for this study was provided by CSRS USDA Special Grant 92-34266-7304 to the Babcock Institute. The Institute is located at 240 Agricultural Hall; mailing address: 1450 Linden Drive, UW-Madison, Madison, WI 53706.

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Finally, we wish to thank the many Wisconsin agriculturists who recognize the importance of dairy farm entry and exit issues and whose encouragement was instrumental in organizing this investigative project. We hope this report makes a meaningful contribution to our ongoing collective work.

May, 1996.

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Executive Summary

This report is based on observations of dairy farmer career structures in New Zealand gathered during a field trip to that country in the spring of 1995. These observations are evaluated regarding their relevance for addressing Wisconsin's declining rates of farm entry and the constricted options for farm exit for many families in the state's dairying community.

The primary finding of the report is that New Zealand's historical success and current tensions relating to farmer career transitions are due to the larger connectedness or integration of three key components of New Zealand's dairy industry:

Supportive dairy farming systems. New Zealand's dairy farming systems are built on a favorable physical climate and intensive grazing techniques that have made possible the lowest variable costs of production in the world and that have enabled aspiring family farmers to enter the industry relatively easily.

Our purpose was to investigate New Zealand's system for supporting dairy farmer career transitions... with an eye on appraising its relevance for improving dairy farm entry and exit dynamics in Wisconsin.

A nationally integrated organizational structure. New Zealand has constructed a nationally integrated, farmer-responsive organizational structure headed by the New Zealand Dairy Board that provides leadership on important dimensions of the dairy industry, particularly marketing.

Institutionalized farmer career paths. New Zealand has developed a career structure that enables committed, energetic persons from both farm and non-farm backgrounds to relatively smoothly enter, advance within, and retire from dairy farm careers and enterprises.

New Zealand's dairy career structure has the following important dimensions for our consideration for dairying in Wisconsin:

Clear career stages. These steps in a career pathway have been institutionalized, and role models are plentiful for farming families at all stages.

Early career training. High quality training and farm apprenticeships prepare young, aspiring farmers for successful entry into dairying.

Effective mid-career transitions. Contract and sharemilking arrangements allow farmers to defer land ownership until the middle stages of their careers while accumulating capital in the form of cattle.

Complementary entry-exit strategies. Phased-in retirement and farm exit strategies complement staged farm entry strategies.

Institutional support. With support from both the public and private sectors, institutional structures have been put in place to coordinate and legitimate the overall farmer career structure.

The report examines in some detail the recruitment and early training of New Zealand's dairy farmers, mid-career transitions through sharemilking agreements, and lifestyle advantages offered by the career structure to retiring dairy farmers. Also examined are contemporary stresses on New Zealand's traditional dairy career structure caused by historical trends toward larger, more expensive-to-purchase

farms and by short-term rises in farmland prices fueled by GATT expectations.

We left New Zealand convinced that the effectiveness of their dairy farmer career structure is significantly connected with the well-being of other key components of the industry.

In the authors' judgment, the most useful lessons from New Zealand for dairy farmer career structures in Wisconsin are the importance of institutional arrangements and organizational relationships. The challenges for Wisconsin's dairying community and the opportunities for mutually beneficial exchanges with New Zealand are framed in terms of such arrangements and relationships. A fundamental challenge for both dairying communities will be to insure that the institutional forces generated by effective farmer career structures can withstand the forces pushing strongly in both Wisconsin and New Zealand toward declining farmer entry rates.

Introduction

This report is based primarily on information gathered during a 15-day field study of New Zealand's dairy institutions in the spring of 1995 by two Wisconsin agriculturists concerned with the significantly declining rate of entry of new dairy farmers in our state.[1] Unlike several recent visits by Wisconsin colleagues to New Zealand, which focused on dairy production and technology issues, our purpose was to investigate New Zealand's system for supporting dairy farmer career transitions—recruitment, training, and successive steps from farm employment to farm ownership to retirement—with an eye on appraising its relevance for improving dairy farm entry and exit dynamics in Wisconsin. New Zealand was chosen because of its historical success in regenerating its base of young dairy farmers through a set of unique, integrated, and well-institutionalized farmer career structures. The New Zealand investigation is part of a larger effort by a set of public and private organizations in Wisconsin to address farmer transition issues in the state's dairy industry.[2]

New Zealand was chosen because of its historical success in regenerating its base of young dairy farmers through a set of unique, integrated, and well-institutionalized farmer career structures.

It should be emphasized that the observations and challenges contained in this report are based primarily on the interpretations of two people, following a short visit. Information was generated initially through literature reviews in advance of the field study. Once in New Zealand, the authors focused mainly on information from personal observations and from interviews with a wide range of New Zealand dairy agriculturists, including farmers at all career stages, farm organizational leaders, government officials, researchers, and agricultural teachers and mentors. (See Appendix A for a complete list of persons interviewed.)

Secondary data gathered before and during the trip are employed in a supplemental way. While the limitations of such an information base are readily apparent, we believe we have successfully identified many of the key issues that must be engaged in evaluating New Zealand's dairy-related social structures for our ongoing work in Wisconsin. This optimism comes both from the quality of insight exhibited by our New Zealand interview partners and from a commitment to continue constructive dialogues with a number of our New Zealand counterparts.

This report has three principal sections:

- An analysis of New Zealand's institutional structures and programs for dairy farmer transitions,
- Challenges and opportunities for Wisconsin's dairy community, and
- Opportunities for continued exchange between New Zealand and Wisconsin.

Farmer Career Transitions in the New Zealand Dairy Industry

The authors went to New Zealand intending to focus rather specifically on farmer entry and exit programs. It soon became apparent that appreciating the larger connections among three key components of New Zealand's dairy industry was essential to understanding the historical success and current tensions relating to farmer career transitions in that country. From our observations, key components include:

Supportive dairy farming systems. New Zealand's favorable physical climate and pasture-intensive grazing techniques have been coupled to build dairy farming systems that make possible the lowest variable costs of production in the world and that historically have been relatively accessible to entry by aspiring family farmers.

A nationally integrated organizational structure. New Zealand has constructed a cooperatively based, farmer-responsive organizational structure that consciously provides leadership and coordination regarding important dimensions of the dairy industry, particularly the marketing dimension.

Institutionalized farmer career paths. With the support of both the private and public sectors, New Zealand has built career pathways that enable committed, energetic persons from farm and non-farm backgrounds to relatively smoothly enter, advance within, and retire from dairy farm careers and enterprises that offer significant economic and lifestyle rewards.

While this report will focus primarily on the third component, the interrelationships with the other two components cannot be overemphasized. Successful dairy farmer career transitions in New Zealand are at least as dependent on the success of the dairy product marketing strategies of the New Zealand Dairy Board, and on the sustainability of low-cost production systems, as they are on equitable sharemilking agreements and other farmer career bridges. We in Wisconsin have the most to learn from our New Zealand colleagues about these lessons of *integrated agricultural and food systems*—that sound technology is not enough, that marketing is critical, and that training and career structures generate interest in and enthusiasm about dairying.

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Seasonal, pasture-based dairy farming systems

Historically, New Zealand's dairy production has been based on the conversion of pasture into milk by grazing cows. In these traditional pasture-based systems, grains or concentrates are rarely fed, and the quantities of silage and hay fed per cow are small compared to those used in Wisconsin dairying systems.[3] This nearly complete reliance on grazed pastures as the source of feed has been necessary because of the relatively low prices received for milk by New Zealand's dairy farmers and the relatively high costs of raising or buying grain.

Successful dairy career transitions in New Zealand are at least as dependent on the success of the Dairy Board's marketing strategies and on the sustainability of low-cost production systems, as they are on equitable sharemilking agreements or other farmer career bridges.

Favorable climate. Pasture-based dairying is made possible in New Zealand by a generally equitable climate which favors the growth and utilization of grass. While New Zealand has four seasons similiar to Wisconsin, the seasons fall in opposite months in New Zealand because it is in the southern hemisphere. In other words, January and February are the warmest months in New Zealand, and July and August are the coldest. It is important, however, to understand that in the dairy portions of New Zealand (i.e., the areas of non-mountainous terrain), the weather is decidedly temperate in comparison to Wisconsin. This is particularly true in the northern region of the country's two primary islands, the region where the majority of dairy farming occurs. Average winter temperatures on the North Island range from 40 to 50 degrees, F.[4] Rainfall varies greatly across the two islands, but for most regions the interaction of temperature and rainfall results in the greatest growth of grass during spring and mid-summer (September to February).

Cow breeding and production. New Zealand's seasonal milking system is designed to make the most effective use of this pasture cycle. Cows are bred to calve in early spring (August to September), so that their maximum feed requirements in early lactation coincide with the period of most rapid pasture growth. Cows are dried off in late summer or autumn depending on summer rainfall and the declining rates of grass growth. Grass is efficiently harvested by grazing cows in a system of herd rotation through pasture subdivisions, or paddocks, that are defined and protected by high tensile electric fence.[5] This pasture-based dairy system results in milk production levels per cow that are about 50 percent of those in the U.S.[6] Despite these lower production levels, New Zealand's dairy farmers have acquired an international reputation of being able to produce milk at a cost lower than virtually all other dairy industries in the world because of the pasture-based, low-purchased-input, low-capital, seasonal system.[7]

Since 1984, New Zealand's agricultural economy has been largely unsubsidized and deregulated, requiring farmers to respond to changes in international prices for their products. While this shift has probably led to New Zealand's relative decline in per capita income, New Zealand dairying has remained very viable. Even so, over the past 15 years the value of the milk solids on which New Zealand's farmers are paid has declined in real terms while farm input costs have increased.[8] In 1994, New Zealand farmers were paid, on average, NZ $13.54 cwt, or the equivalent of U.S. $8.80 cwt, for their milk.[9] Farmers have responded to this cost and price squeeze by attempting to maintain low input costs and by experimenting with ways to improve per cow production. Their primary response, however, has been to milk more cows.[10]

Herd and farm size. Wisconsin observers should note that while New Zealand herd sizes are large by our standards, farm sizes in acres are fairly small. Average herd size in New Zealand has nearly quadrupled in the past four decades, increasing from about 50 cows in the early 1950s to almost 190 in 1994-95.[11] Average farm size in hectares has increased by roughly 60 percent during the same period, rising from

around 50 hectares (125 acres) in the 1950s to nearly 80 hectares (200 acres) in 1994.[12] On the other hand, farm numbers in New Zealand dropped from more than 35,000 herds from 1952-54 to around 14,000 herds in 1994-95, a reduction of nearly 60 percent. Parallel indicators of changes during this period in the dairy farm structures of Wisconsin and the U.S. are reported in Figure 1.[13]

Capital investment. A key to the historic capacity to produce milk at relatively low costs has been the low levels of capital investments required of New Zealand's traditional dairy system compared with the year-round confinement dairy farming systems employed for the past half century in Wisconsin and the Upper Midwest. Expenses for feed harvesting and storage, buildings, and manure handling are significantly reduced under seasonal, pasture-based systems. The major exception to the low-capital cost equation for New Zealand's dairy system is land prices. While high by Wisconsin standards, farmland prices in New Zealand have, nonetheless, been historically well-synchronized with milk prices.[14] However, in the last several years land speculation driven by relatively low interest rates and by GATT-induced expectations of greater access to foreign markets has caused farmland values to rise significantly.[15] This has been particularly true in the traditional dairy areas of the North Island. During our visit, we were told of land in the Waikato district being sold for more than NZ $25,000 per hectare (NZ $10,000 per acre). At current exchange rates, these land prices are equivalent to U.S. $6,500 per acre.

A key to the historic capacity to produce milk at relatively low costs has been the low levels of capital investments required of New Zealand's traditional dairy system compared to the year-around confinement dairy farming systems employed for the past half century in Wisconsin and the Upper Midwest.

Agricultural economists in New Zealand expect farmland prices to readjust and not significantly threaten the overall economic performance and viability of dairy farming which over the past five years has supported "a good standard of living" in New Zealand.[16] In general, we found considerable optimism throughout New Zealand's dairy community regarding prospects for economic returns during the next decade. This optimism was based primarily on export opportunities expected to be created by GATT.[17]

The seasonal, pasture-based system also supports important lifestyle dimensions, including simplified livestock management and opportunities for both short-term and extended holidays.[18] The lifestyle dimension is particularly attractive to older dairy farmers, many of whom retire from active milking in their late 40s or early 50s.

Figure 1. Changes in dairy farm structural characteristics in New Zealand, Wisconsin, and United States, 1952-54 to 1992-94

	1952-54	1992-94	% Change
Average herd size			
New Zealand	50	190	+280
Wisconsin	18	50	+178
United States	19	61	+221
Average dairy farm acreage			
New Zealand	125	195	+56
Wisconsin	156	293	+88
United States	177	336	+90
Total dairy herds			
New Zealand	35,653	14,597	-59
Wisconsin	107,350	30,156	-72
United States	548,763	155,339	-72

Source: Endnote #13

Challenges. Despite their successes relative to dairy systems elsewhere, New Zealand dairy farmers appear to be facing several important challenges in the coming decade. The first challenge will be the need to adopt more environmentally sustainable farming systems. The Resource Management Act, passed by the New Zealand government in 1991, is one of the most demanding pieces of environmental legislation in the world and locates considerable environmental regulatory power in local levels of government.[19] The act will directly affect dairy farming practices, particularly in relation to manure and waste disposal on farms where existing provisions are clearly inadequate to protect waterways.[20] Associated with natural resource concerns are animal welfare issues. Some conventional dairy farming practices in New Zealand, such as tail docking, which has been adopted for management convenience, will probably be discontinued.[21] As will be discussed more fully in the next section, it is important from an international marketing perspective that New Zealand maintains a "clean, green, and animal-friendly" image for dairy production.

New Zealand dairy people view their industry as a "whole system" to a degree that is unknown in Wisconsin or the U.S.

A second challenge is to improve per cow production, though not as an end in itself, but rather within the context of maintaining profitability.[22] Several strategies are currently being pursued toward this end. One is to improve the efficiency of existing pastures by experimenting with increased pasture fertilization, timely grass silage harvesting, and alternative forage production (for example, brassicas) to extend the grazing window in late summer.[23] A second strategy is to strategically supplement basic pasture diets for New Zealand cattle with additional dry matter inputs and various bypass proteins sourced from corn or corn silage. This strategy is aimed at improving per cow production through releasing more genetic capacity, extending lactation periods, and improving reproductive practices.[24]

Work on these pasture-enhancing and diet-supplementation strategies has been actively pursued since 1990 by dairy scientists associated with the Dairying Research Corporation, New Zealand's principal research organization focusing on dairy farming systems. Most of this research has been done at the Ruakura experiment station, located near Hamilton on the North Island. The authors visited Ruakura and spoke with scientists associated with these studies. Analyses of the data from the 1993-94 trials indicated that there were no profitability advantages for higher input feeding systems as compared to the conventional grass-based diet when all cost factors were taken into account.[25]

An integrated, farmer-responsive dairy industry

Based on our conversations with New Zealand agriculturalists, we were struck from the outset by the degree of integration exhibited by the New Zealand dairy industry. New Zealand dairy people view their industry as a "whole system" to a degree that is unknown in Wisconsin or the U.S. The linchpin of that system is the New Zealand Dairy Board. Others far more qualified and knowledgeable than the authors of this report have described and analyzed this central dairy organization.[26]

Nonetheless, our sense is that the following characteristics of the Dairy Board are the pivotal ones:

Government-chartered monopoly for dairy exports.[27] This "single-seller" mandate was legislatively granted in the 1930s to the Dairy Board's predecessor, the New Zealand Dairy Commission, as a response to what one elder dairy statesman described as a "divisive and hopeless" dairy situation characterized by a number of competing and under-resourced dairy manufacturing and exporting companies.[28] While private companies are excluded, in general, from exporting dairy products from New Zealand, enterprises do receive licenses from the Dairy Board to export "niche market" products that do not compete with the Dairy Board's exports. The domestic dairy market in New Zealand, on the other hand, is fully competitive, though regional companies tend to dominate in their geographical areas.

My knee-jerk reaction was, 'If it's a monopoly, it must be bad,' but I can't find much wrong with the Dairy Board, and I've been looking.
—William Bailey, U.S.-trained economist from Massey University

On the surface, the "monopsony" held by the Dairy Board appears contradictory to the economic restructuring and free market policies that have guided New Zealand's economy since the Labor government took power in 1984, following the United Kingdom's entry into the European Economic Community.[29] However, with the exception of a few economists associated with the Business Roundtable (an organization of large New Zealand corporations interested in partnering with Asian capital to export dairy products to the Pacific Rim), we found strong support for the Dairy Board's single seller mandate from farmers, dairy company workers, academics, and farm organizations.[30]

Our sense is that this broad support is attributable to the other organizational characteristics listed below, particularly the Dairy Board's sophisticated marketing capacity and its ability to coordinate and provide leadership for the entire industry. Important criticisms of the Dairy Board do exist, but they tend to focus on reforms in operational dimensions of the organization (for example, the need to "unbundle" the non-dairy business involvement of the Dairy Board from its primary dairy enterprises, the need to clarify the ownership structure of the Dairy Board's assets, and fears of Board dominance by the largest dairy processing companies under proposed new voting procedures).[31]

International marketer of value-added dairy products. In addition to its more general role of industry coordination, the Dairy Board's primary function is to intelligently market New Zealand dairy products in international commercial channels. The Dairy Board has done this increasingly well. The New Zealand Dairy Board is the world's single largest exporter of dairy products, accounting for approximately 25 percent of the international dairy trade and roughly the same percentage of the New Zealand economy's total exports.[32] In 1993, the Dairy Board marketed nearly $3.5 billion worth of dairy products through 400 different products with 1,000 specifications in more than 100 countries.[33]

The Dairy Board's overall marketing strategy is to overlay on the world's lowest variable cost of milk production system these marketing sub-strategies:[34]

- ❖ increase exports of specialized value-added products,
- ❖ increase sales through foreign subsidiaries,
- ❖ diversify across product lines and market countries, and
- ❖ be the first seller into a market.

The specialized, value-added strategy is based on much higher economic returns for these products than on undifferentiated commodities (for instance, butter or dried milk solids), and on these being considerably less vulnerable to price-depressing "dumping" by other exporting nations.[35] Examples of such differentiated products currently under market development include dairy sport beverages, dairy products for lactose-intolerant populations, and low-fat products that maintain their taste through substituting milk proteins for milk fat. Conscious association with environmentally responsible production systems—so-called "clean and green" practices—is another important dimension of this product differentiation strategy that has clear implications for the Wisconsin dairying community.[36]

The Dairy Board is the world's single largest exporter of dairy products, accounting for approximately 25 percent of the international dairy trade and roughly the same percentage of the New Zealand economy's total exports.

The use of foreign subsidiaries is a strategy for both new market penetration and for placing marketing expertise and decision-making "close to the market action."[37] The Dairy Board is involved with more than 80 manufacturing, repackaging, and distribution subsidiaries around the globe and maintains marketing research offices in Japan, Singapore, Great Britain, Germany, and the U.S.[38] The Board's market diversification strategy is based on the logic that all diversification plans need to avoid excessive exposure on any particular front. The Dairy Board has a policy of not committing more than 20 percent of its marketing in any one country.[39] The first-seller strategy is derived from lessons of the international marketplace where initial entrants gain, on average, a 15-percent advantage over second entrants and a sizable advantage over later entrants.[40]

The authors were impressed with these marketing strategies. Equally impressive, however, has been the Dairy Board's success in communicating to farmer-producers the value of investing significant organizational resources into developing value-added dairy products and effective marketing capacities. New Zealand dairy farmers understand far better than their Wisconsin counterparts that money is best made through partnerships between creative producers and creative marketers.

An exclusively producer-owned cooperative structure. Such economic partnering can be operationalized effectively through producer-owned cooperative organizational structures whose primary goal is to capture for the cooperative's farmer-owners (rather than outside investors) the value created by intelligent production and marketing strategies. The New Zealand Dairy Board is organized around this traditional cooperative principle.[41]

While simple in principle, the Dairy Board cooperative is organizationally complex. It is basically a two-tiered cooperative wherein eleven of the thirteen Dairy Board directors are elected by the 15 cooperative dairy manufacturing companies in New Zealand whose directors, in

turn, are directly elected by more than 14,000 dairy farmer-owners affiliated with these regional manufacturing cooperatives.[42] (See Figure 2.) The division of labor is as follows: the farmers produce the milk, the dairy companies manufacture the products, and the Dairy Board markets those products and coordinates the industry. Dairy Board Directors decide annually on the most desirable product mix based on worldwide market research, and encourage the dairy companies—through often-complex negotiations, price differentials, and standard cost formulas—to produce the optimum export mix.[43] The Dairy Board also allocates earmarked earnings to the dairy companies for plant modernization and for research and development of new processes and products.

New Zealand dairy farmers understand far better than their Wisconsin counterparts that money is best made through partnerships between creative producers and creative marketers.

On balance, New Zealand's industry-wide, farmer-owned, cooperative structure has worked well for the country's dairy industry over the past 60 years because it possesses significant economic and sociological advantages.[44] For instance, economic rationalizations and efficiency measures such as plant mergers or organizational streamlining work to the benefit of all members under such cooperative structures, rather than setting functional sectors or geographic regions against each other.[45] Older New Zealand farmers remember the times "when five or six milk trucks drove by the farm" and marvel at why such inefficiencies persist in the U.S.[46]

On the other hand, seeming inefficiencies in sectors of the industry may appear in a different light when the calculus of the entire system is computed. For example, while New Zealanders wrestle with the inefficiencies of dairy plant under-utilization during the "off-season" months of June and July, some studies indicate that the greater efficiencies of the farm sector employing low-cost, seasonal milking practices more than offset the disadvantages and result in an overall advantage over many competitors in the U.S. and Europe.[47]

New Zealand's cooperative structure creates important sociological advantages as well. An important one is the degree of "safety" and encouragement for information sharing. U.S. visitors are struck by the openness with which often quite strategic information is shared across all sectors of the New Zealand dairy industry. Part of this openness may be due to the open records requirements of cooperative organizations. However, much of the information sharing appears to be a function of the larger

Figure 2. New Zealand dairy industry

Source: New Zealand Dairy Board

cooperative framework under which it is structurally difficult to use strategic information for private or sectoral advantage. Rather, the sharing of strategic information—whether regarding on-farm production techniques between farmers on organized "pasture walks" or between dairy companies regarding new processes for product development—works to the advantage of the entire cooperating industry. Under such structural conditions, technology adoption can be quite rapid and well-informed.[48]

This integrated, cooperative structure also lends powerful support to the development of a sense of "community" across industry sectors or regions and results in a New Zealand dairy industry that exhibits the characteristics of a sociological group as well as those of a utilitarian, profit-maximizing economic enterprise. Such senses of community are heightened when the group's spatial boundaries coincide with important geopolitical boundaries like a county, state, or in New Zealand's case, those of a relatively isolated, reasonably scaled nation. Finally, group integration is further strengthened when the leadership is responsive to community members and consciously nurtures key components of the enterprise system; these are two characteristics we observed in the New Zealand Dairy Board.

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Leadership responsive to members. Both former Dairy Board Directors whom we interviewed ranked responsiveness to farmer members equally high with the "single seller" mandate in terms of organizational importance.[49] A retired Dairy Board director related the two principles when he told a conference of younger dairy farmers that "because the Dairy Board is a monopoly, we need to be doubly accountable."[50] Interviews with a range of New Zealand farmers confirm that the Dairy Board is generally perceived as being both approachable and responsive to farmers' interests.[51]

Several organizational mechanisms have been consciously put in place to help insure accountability and responsiveness. First, salaries of the Dairy Board directors, as well as the directors of the larger dairy companies in New Zealand, are sufficiently large to enable them to hire farm management replacements. This allows the directors to devote themselves full-time during their terms in office to their cooperative responsibilities.[52] These responsibilities include actively participating alongside the Dairy Board's staff in visiting and appraising the organization's many international marketing centers, and equally important, attending regular "milkshed meetings" with New Zealand dairy farmers to discuss industry issues and get feedback regarding farmers' concerns. A retired Dairy Board director stressed the effectiveness of "real farmers rather than salaried bureaucrats" keeping up contacts with both international customers and domestic producers.[53] The authors witnessed several ranking Dairy Board executives actively discuss industry plans with young dairy farmers attending the 1995 Sharemilkers Conference (held in Palmerston North, May 8-11, 1995).[54]

Second, age and four-year term limits are placed on Dairy Board directors to ensure board turnover and accountability. Observers indicate

that board elections are taken very seriously by the cooperative's membership, and that directors who are lazy or unresponsive to farmers' concerns are regularly voted out.[55]

A third accountability mechanism is active participation in the New Zealand dairy industry by the Federated Farmers of New Zealand. This organization is a voluntary membership-based farm and rural advocacy group similar to Wisconsin's Farm Bureau, the National Farmers Organization, and the National Farmers Union. Like these groups, the Federated Farmers focus on membership services and actively lobby nationally and regionally on behalf of farmers from all of New Zealand's agricultural sectors.[56] Particular attention is paid to the dairy industry through annual reviews of dairy company payments and overall Dairy Board performance. The chairperson of the National Dairy Section of the Federated Farmers was a leading participant in the discussions at the Sharemilkers Conference regarding Dairy Board plans and organizational reforms.

Observers indicate that Dairy Board elections are taken very seriously by the cooperative's membership, and that directors who are lazy or unresponsive to farmers' concerns are regularly voted out.

Support of key dairy industry components. The Dairy Board's leadership style involves not only coordinating but also actively developing and supporting important components of the New Zealand dairy industry. As previously mentioned, the Dairy Board sustains three key industry components: production, marketing, and farmer career structures, through organizational and financial support. New product development and research on manufacturing processes—pivotal dimensions of the marketing component—are engaged through the New Zealand Dairy Research Institute, which is funded totally by the Dairy Board. Support for the industry's farm production component is primarily through the Livestock Improvement Corporation and the Dairying Research Corporation. (See box below.)

Farmer transition structures and career ladders also receive partial support from the Dairy Board. In 1994, the Dairy Board contributed ap-

❖ Dairy Board-supported organizations

The New Zealand Dairy Board promotes farm production services and research primarily through financial support of the **Livestock Improvement Corporation** and the **Dairying Research Corporation**. Both of these organizations have strong farmer involvement on their advisory boards.

Livestock Improvement Corporation employs a national staff of 25 consultants who provide free lifestock services to New Zealand dairy farmers. The organization focuses on dairy herd improvement and coordinates such livestock services as sire evaluations and commercial artificial insemination enterprises. In addition, consultants regularly organize farmer "pasture walks" that have impressed Wisconsin visitors as highly effective mechanisms for sharing practitioner knowledge.

Dairying Research Corporation is a partnership with Ag Research, one of New Zealand's Crown Research Institutes through which the government funds public interest research. Such partnering enables the Dairy Board to leverage—or significantly influence—the directions toward which public funds are spent in the dairy industry. With experimental station headquarters at Ruakura on the North Island, the Dairying Research Corporation focuses on farm management and applied animal research, including milk production and supplemental feed studies, and challenges New Zealand's dairy farmers through the operation of self-contained commercial dairy farms.

Sources: Endnote #57.

proximately 10 percent toward the budget of the Farm Education and Training Association, the principal organization coordinating farmer training and transitions in New Zealand.[58] Expanded treatment of New Zealand's dairy career structure follows in the next section of this report.

However, it is appropriate to point out that, in comparison to resources devoted to the industry's marketing and production components, the Dairy Board's direct contribution to maintaining a successful dairying career structure in New Zealand is quite limited. While this system functions relatively well, we feel that the Board's small investment in farmer training and transitions is in need of reevaluation given the increasing challenges to New Zealand's dairy career structure highlighted in the following section.

An Institutionalized Farmer-Career Structure

New Zealand's traditional dairy farmer career structure exhibits the following important dimensions for our consideration in Wisconsin:

Clear career stages. Steps on a career pathway have been institutionalized, and role models are plentiful for farming families at all stages.

Early career training. High quality training and farm apprenticeships prepare young, aspiring farmers for successful entry into dairying.

Effective mid-career transitions. Contract and sharemilking arrangements allow farmers to defer land ownership to the late middle stages of their careers while accumulating capital (in the form of cattle) relatively rapidly.

Complementary entry-exit strategies. Phased-in retirement and farm exit strategies complement staged farm entry strategies.

Institutional support. Institutional structures have been put in place to coordinate and legitimate the overall career structure, with the support of both public and private sectors.

In the following section, we offer an overview of the first four dimensions, then return to a more detailed consideration of the fifth.

A significant proportion of New Zealand's dairy farmers come from non-farm backgrounds. By comparison, only a small percentage of Wisconsin dairy farmers in 1992 did not grow up on a farm.

Introduction: an illustration of a career pathway

Surveys of dairy farmers in New Zealand and Wisconsin reveal several important differences between farmers in the two regions. New Zealand's farmers are, on average, nine years younger than Wisconsin farmers. The average (mean) age of New Zealand dairy farmers in 1992 was 39 years, according to a survey conducted by Massey University researchers.[59] This figure combines a mean age of 32 years for sharemilkers, who make up approximately one-third of New Zealand's dairy farmers, with a mean of 44 years for farm owners. By comparison, the overall mean age for Wisconsin dairy farmers in 1992 was 48 years.[60]

A second difference between the two populations of dairy farmers is that a significant proportion of New Zealand's dairy farmers come from non-farm backgrounds.[61] By comparison, only a small percentage of Wisconsin dairy farmers in 1992 did not grow up on a farm.[62] Finally, the approximate distribution of management types of New Zealand's 15,000 dairy farms is 65 percent owner-operators, 25 percent herd-owning sharemilkers, and 10 percent non-herd-owning contract milkers.[63]

These demographic data suggest New Zealand's dairy industry historically has attracted young people from various segments of the society and has been generally successful in "transitioning" farmers through the stages of their dairy careers.[64] To a significant degree, this success is attributable to an institutionalized farmer career structure that is supported by both the private and public sectors. For the past 40 to 50 years, New Zealand's dairy career ladder has included these stages:

Early training. Early training is accomplished primarily through techni-

cal school education and farm apprentice-like employment. Students enter technical schools in their middle or late teens and develop their dairy skills while employed on a wage basis through their early twenties as dairy farm assistants, assistant herd managers, and herd managers.

Contract milking and negotiable sharemilking. Skilled young farmers in their middle 20s and early 30s manage and milk an owner's herd for a negotiated percentage of the milk check (usually 20 to 30 percent) and begin accumulating their own herds.

50-50 sharemilking. Young herd-owning farmers in their 30s operate a landowner's farm for 50 percent of the milk check and continue accumulating cattle.

Farm ownership and operation. Sharemilkers in their late 30s to early 40s sell accumulated cattle to generate a down payment for a beginning farm.[65] During their 40s and early 50s, New Zealand farmers often sell and "step up" to larger farms.

Phased-in retirement. By their middle 50s, many New Zealand farm owners stop milking and enter into share agreements with contract or sharemilkers. Significant income from these contractual agreements enables farm owners to support a range of lifestyle choices in the latter stages of their careers with options to sell or pass on the farm at a time and in a manner they choose. As one close observer of this career ladder summarized it, "New Zealand's dairy farmers work like hell for 20 to 25 years, acquire farm ownership, put on a sharemilker, and then enjoy a very rewarding lifestyle."[66]

As mentioned in the introduction to this section, public and private organizations support the overall career structure. What follows is a closer consideration of that support and of the current forces prompting changes in New Zealand's traditional dairy career structure.

Recruitment and early training of New Zealand's dairy farmers: tech institutes and ITO Agriculture

The early career stages of many New Zealand dairy farmers are guided by the complementary programs of the nation's technical training institutes and Industry Training Organization (ITO) Agriculture. Recently renamed, the latter organization was known as the Farm Educa-

❖ Farmer profile: early career stages

Frank and Sandra Park, farm managers and sharemilkers, Te Aroha, North Island, in their early 30s

Neither Frank nor Sandra came from a farm background; however, Frank began working for wages on the Stuart and Beth Bay farm as a teenager in the early 1980s. Frank tried an electrician apprenticeship in his early twenties but returned to the Bays' farm as an assistant herd manager because he enjoyed farming and "wanted to have something more than a trade."

Since then, Frank was promoted to herd manager for the Bays' primary farm and is accumulating his own milking herd. Frank and Sandra recently entered into a 50-50 sharemilking contract with a neighboring farm owner. The Parks now have several options for the future, the most likely is taking over one of the Bay farms through buying into the overall farm partnership.

Source: Endnote #67

tion and Training Association (FETA) at the time of our field study.

Technical institutes in New Zealand come in several forms: *public polytechnics* located in regional centers throughout the country, *private non-profit training centers,* and *for-profit enterprises.* These training centers offer a combination of classroom and experiential learning through which agricultural students—over the course of four to five years—can earn progressive and formal levels of accreditation, beginning with a National Certificate in Farm Practice and culminating with a Diploma in Agriculture.[70] (See Figures 3 and 4.)

'It's time to look at our responsibility to help younger farmers. I came up through the Cadet Program and we want to give back to it.'— Wayne Berry, New Zealand sharemilker

As a national industry coordinating organization affiliated with New Zealand's Ministry of Education, ITO Agriculture provides both financial and logistical support for young farmers through its Dairy Cadet Program. These beginning farmers can earn academic credentials, while moving up the initial rungs of the career ladder as dairy farm assistants, herd managers, and in some cases, contract milkers.

Technical training institutes. The authors visited two technical training institutes on the North Island: the Waikato Polytechnic in Hamilton, and the Taratahi Training Center, a private, non-profit training organization located outside of Masterton. We visited two classes at the Waikato Polytechnic: a beginning or pre-cadet class of "dairy farm trainees" and a more advanced class focusing on "farm business management." (See Figure 4 for the relative status of these classes in the polytechnic's overall "Farm Training Pathway.")

The *trainee class,* composed of 16- to 18-year olds, is a 19-week, full-time course and the first step in a two-year program leading to the National Certificate in Farm Practice.[71] The overall goals of this initial course are

❖ Farmer profile: middle career stages

Wayne and Salina Berry, Sharemilkers, Putaruru, North Island, in their middle 30s

Wayne came from a dairy farm background and from age 18 to 23 progressed through the early steps of the traditional New Zealand career structure, the Dairy Cadet Program. Beginning as a salaried dairy farm assistant, he moved to an assistant herd manager position, and then a herd manager position and finally entered into a 20 percent contract position managing 180 cows. Through this five-year progression, he worked on four farms.

The Berrys spent the next seven years in 50-50 sharemilking arrangements, starting with the purchase and management of Wayne's parents' herd of 150 cows and then moving to a 250-cow operation. For the past five years, Wayne and Salina have sharemilked 360 of their cows on a 400-acre farm in the lower Waikato district of the North Island. Employing a 20-percent contract milker, the Berrys continue to operate a 150-cow herd on Wayne's parents' farm, with plans to add another 100 cows in the coming year.

In order to help with increased labor and management demands, the Berrys will employ two cadets for the 1995-96 grazing season: a herd manager for the parents' farm (most likely a young couple of senior cadet status), and a junior cadet to work with Wayne and Salina on the larger operation. The Berrys are committed to the dairy career structure in New Zealand. As Wayne said, "It's time to look at our responsibility to help younger farmers. I came up through the cadet program and we want to give back to it."

Over the next four years, the Berrys plan to pay off the mortgage on the expanded herds, enabling the couple to own nearly 600 cows debt-free. They can then use the value of the cows as a down payment on a farm in the Waikato district where they hope to milk about 170 cows. Wayne will be 39 years old when these negotiations for farm ownership begin.

Source: Endnote #68

to prepare trainees in the basic skills of dairy farming and "to acquaint them with the culture of rural people."[72] The curriculum is based on a strong mixture of classroom and experiential learning. Conceptual material is coupled with hands-on training in such areas as farm safety, vehicle usage and maintenance, milking and milk quality, animal physiology and reproduction, and calving and calf rearing.[73] Two three-week internships on Waikato dairy farms are included in the 19-week course. Host farmers and instructors evaluate the students' internship performances based on an agreed upon set of "farm competencies."

In addition to being young, the trainee class is 50 percent from non-farm or urban backgrounds. It is this context that gives rise to the special emphasis on "learning to live with rural people." Farming couples are brought to the class prior to the trainees' first internship to discuss these issues.[74] Moreover, many of the students bring backgrounds of not doing well in more traditional, academically oriented classrooms. However, the instructor's experience is that "if you treat these young people as adults, many of them do excellent work."[75] Discussions with the students clearly indicated that farm ownership, rather than high wages from farm employment, was their primary motivation. About one-third of the students in the class we visited were women, a higher proportion than in most beginning classes, according to the instructor.[76]

❖ Farmer profile: late career stages

David Bay, retired farm owner, Te Aroha, North Island, in his early 70s

Following World War II, David worked as a wage laborer on a well-established dairy farm in the northeast section of the Waikato district, beginning as a weekend milker and eventually getting promoted to farm manager. He then worked as a contract milker on a neighboring farm where he saved sufficient money to make a down payment on a "small, rough farm" and a herd of cattle. He and his family worked this farm for 16 years, and bought adjoining land. Later, they sold the two acreages to secure the down-payment for the farm that currently is the foundation farm for the Bay family partnership, which involves three generations and five farming units and is currently managed by David's son and daughter-in-law, Stuart and Beth Bay.

Three of these dairy farms are operated under a charitable trust, whose proceeds provide camp and agricultural experiences for children with disabilities. In addition to these career choices, David earlier served three terms as a director of the New Zealand Dairy Board. Over the years, the Bays have actively supported New Zealand's dairy career structure, having employed more than 100 young dairy families as assistants, managers, and contract or sharemilkers.

Source: Endnote #69.

The *farm business management class*, the second class we visited, is a 12-week, full-time option offered by the Waikato Polytechnic.[77] The curriculum emphasizes important business dimensions of dairy enterprises (e.g., budgeting and financial management, marketing, staff employment, farm law and tax issues). For this advanced class, the instructor effectively uses the case study method adopted by many professional schools in the U.S. Students are older—in their middle and late twenties—and many have been employed as herd managers. Several students had experiences as contract milkers, and one, the only woman in a class of 12, is sharemilking with her husband. Similar to the younger trainees, all of these advanced students were Caucasian. They impressed their visitors as competent, perceptive, and articulate young farmers who had definite, well-reasoned views on the changing dynamics of New Zealand's dairy industry.

The Taratahi Agricultural Training Centre is a 70-year-old, non-profit organization created by a special act of the national government in the 1920s.[78] The Centre offers training for beginning farmers similar to the pre-cadet class of the Waikato Polytechnic, with the major difference that Taratahi is primarily a residential program in which 60 of the 70 students enrolled in the year-long program live in the school's dormitories.[79] The Centre's residential character enables the

institution to operate two "real farms," a 400-acre sheep operation and a 250-cow dairy enterprise. Organized into instructor-led teams of six students, the pre-cadets receive hands-on training by performing all of the labor on these farms. This experiential learning is balanced by a more theoretical orientation in the classroom.

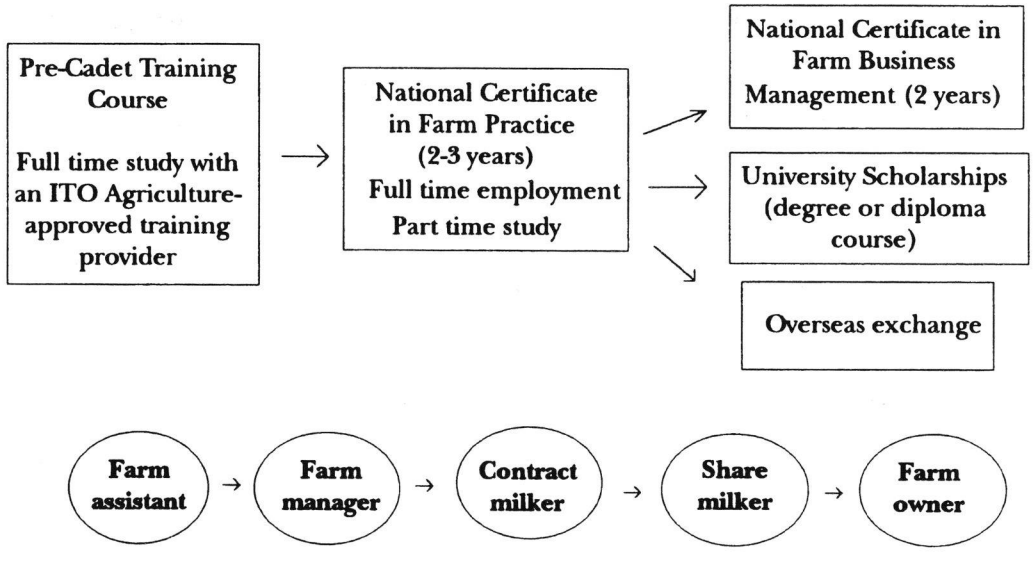
Taratahi's student body is primarily white and male. Twenty percent of the students are young women, and at the time of our visit, two students were of Maori origin, New Zealand's indigenous people and the country's primary racial minority group. The Taratahi student population, which is similar in age to the pre-cadet students at the Waikato Polytechnic, is about half from non-farm backgrounds. Conversations with instructors confirm that such backgrounds are clearly not an impediment to successful performance. As the Centre's director pointed out, "Within a month or two the farm kids and the city kids are about equal."[80]

'Within a month or two, the farm kids and the city kids are about equal.'— director, Taratahi Training Centre

The Centre's leadership has actively developed strong recruiting linkages with a set of secondary schools on the North Island. In addition to receiving one-on-one contacts, counselors from these high schools are invited to an annual conference hosted by the Centre, at which time the Taratahi program is showcased and stress is placed on "agriculture as an excellent career choice."[81] Eighty-five percent of Taratahi students are placed upon graduation, according to the following destinations: about 10 percent go to Massey University; 50 percent join ITO Agriculture's Dairy Cadet Program; and 30 to 40 percent go straight to privately negotiated farm employment.[82]

ITO Agriculture. ITO Agriculture is one of 54 industry training organizations in New Zealand whose purpose is similar to ITOs for the development of plumbers, auto mechanics, and electricians. ITO

Figure 3. New Zealand Dairy Farming Career Stages



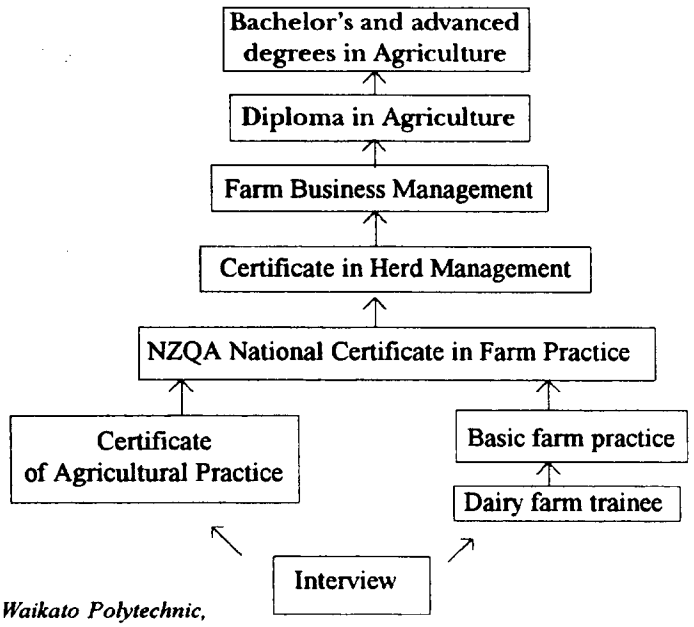
Source: Farm Education and Training Association

Agriculture's primary goal is to "coordinate recruitment, training, and employment of young people who wish to make a career in the farming industry."[83] To this end, the organization offers cadetships (similar to apprenticeships) in dairy, sheep, beef, deer, grain, and pig farming.

Historically, these cadet programs in agriculture were located in the private, non-profit sector under the sponsorship of the Federated Farmers of New Zealand. Known as the Farm Cadet Scheme, these farm training programs were organized on a decentralized and regional basis. ITO Agriculture's predecessor, the Farm Education and Training Association (FETA), was established in 1990 to take over the operation of the Farm Cadet Scheme and to address the growing needs for education and training in the farming industry. FETA achieved recognition as the official ITO for farming (except equine) with the passage of the Industry Training Act in 1992. More than 90 percent of ITO Agriculture's funding comes from government grants through New Zealand's Ministry of Education, with industry organizations such as the Dairy, Meat, and Wool Boards contributing the balance.[84] By the end of 1994, FETA/ITO Agriculture was serving nearly 2,000 cadets, each of whom paid an annual membership fee of $190.[85]

Organizationally, ITO Agriculture has a central headquarters in Wellington and six regional offices located throughout the two islands. Nineteen field officers and 12 support staff are assigned to 16 districts within these regions. Case loads per field officer range from 50 to 125 cadets.[86] Every district has a farmer advisory council, composed of eight to ten members.[87] The organization's national board is made up of two farmers from each of the six regions, plus representatives from the Dairy Board, the Wool Board, and the Federated Farmers.

Figure 4. Farm Training Pathway in New Zealand



Source: The Waikato Polytechnic, Dept. of Agriculture and Horticulture

Working in collaboration with the technical training institutes, ITO Agriculture facilitates the employment steps of dairy cadets as they move—over a four- to five-year period—from beginning status as a dairy herd assistant through assistant herd manager to herd manager and, in some cases, to a contract milking position. As indicated above, cadets earn various levels of formal academic accreditation during this employment progression through various full- and part-time courses offered by the technical training institutes. Once they are

employed through the cadet program, following their initial farm trainee courses, most cadets get formal training through courses that meet one day every two weeks in locations scattered throughout the regions. Instructors employed by the technical institutes travel to these locations. In some instances, cadets take time off from farm employment to attend full-time classes at the polytechnics.

In addition to the training and evaluation they receive from the polytechnic instructors, cadets also receive training and evaluation from their farmer employers. These employer/mentors, called Farmer Trainers, are specially selected, and like the Bay and Berry families described above, are often outstanding agriculturists.

Field officers are the pivotal actors in the institutionalized training sequence for beginning dairy farmers in New Zealand.

Field officers. Employed by ITO Agriculture, field officers actively counsel cadets to do their employment and training on different farms so they will experience a range of enterprises and management styles. It is not uncommon for dairy cadets to work and learn on as many as four farms during their cadetship.[88] Field officers are the pivotal actors in this institutionalized training sequence for beginning dairy farmers in New Zealand. The authors of this report interviewed field officers in the Waikato, Manawatu, and Wairarapa districts of the North Island.[89] The major responsibilities of field officers include:

Promoting the Cadet Program and recruiting and evaluating new cadets. Officers recruit new students by speaking with secondary school students, guidance counselors, and students in the entry-level farmer trainee courses.

Recruiting and evaluating farmer trainers. Field officers try to select experienced, knowledgeable dairy farmers who are committed to New Zealand's dairy career structure and to mentoring.[90] Each Farmer Trainer is paid NZ $1,000 by ITO Agriculture as a symbolic compensation for serving as a mentor.[91]

Arranging job interviews for cadets and assisting in the negotiations and oversight of employment contracts between cadets and farmer trainers. Cadet contracts are based on employment guidelines authorized by New Zealand's Department of Labor.[92] These formal contracts are quite detailed and cover such issues as length of contract, hours of work, wages, allowances, vacation and leaves, as well as termination of employment and resolution of disputes.[93] An important continuing role of the field offficer is to mediate smaller grievances between cadets and their employers. For instance, during our visit, the Manawatu field officer resolved a disagreement between a cadet and a farmer regarding the quality of motorbike that the farmer agreed to provide.[94] These labor evaluation and mediation roles have earned ITO Agriculture a strong reputation among many New Zealand dairy farmers who appreciate the assurance of high quality cadet employees and back-up systems should labor disputes arise.[95]

Conducting annual evaluation of cadets in cooperation with farmer trainers. Like all industry training organizations in New Zealand, ITO Agriculture is moving to competency-based approaches for evaluating cadet performances and for designating the students' levels of achievement.[96] The Waikato district appears to be ahead of the other districts

in institutionalizing a set of competencies on which cadets are evaluated. These criteria range from general farm competencies such as the management of farm vehicles and buildings, fencing, soils and fertilizers, and pests and diseases, to more dairy-specific competencies such as reproduction and calving management, herd nutrition and health, and the management of milking systems and production.[97] The Waikato field officer visits cadets twice a year and conducts, with the host trainer, an annual formal evaluation of each cadet's levels of competency. Cadets also get a chance to evaluate their farm trainers.

Maintaining contact with the cadet's off-farm educational program. In most cases, this is done through sharing information with the polytechnic instructors who teach the dispersed, day-long courses that cadets attend on a biweekly basis. In districts without a centrally located polytechnic institute, field officers use correspondence courses with the Open Polytechnic in Wellington, field days hosted by the agricultural faculty of Massey University, or educational modules offered by private, for-profit training organizations with which ITO Agriculture has contracts.[98] The field officer in the Wairarapa district works closely with the staff of the Taratahi Training Centre.[99]

Organizing skills competitions. ITO Agriculture sponsors regional and national skills competitions among dairy cadets to increase the public visibility of farming skills and to reward highly competent cadets. These competitions are given excellent coverage in regional newspapers, and the national competitions are televised throughout the country.

Working collaboratively with the district's farmer advisory council. While farmer involvement at the district level was stressed by ITO Agriculture officials, the authors sensed a significant degree of variation among the districts that we observed. Farmer support and involvement were clearly the strongest in the Waikato.

During our field investigation, ITO Agriculture was emerging from the Farm Education and Training Association and was taking on broader responsibilities to the New Zealand government through the Ministry of Education. This involved overseeing national training standards and certifying training providers; restructuring the organization's national board to reflect wider constituencies and perspectives such as those from women and racial minorities; and diversifying the funding base to reduce its vulnerability to reductions in government spending.[100]

❖ Sharemilking agreements: fifty-fifty and negotiable

New Zealand has two types of sharemilking agreements, based on rules established by "The Sharemilking Agreements Order of 1990."

Negotiable agreements are similar to "contract milking" in which non-herd-owning farmers manage a farm owner's herd for between 20 to 30 percent of the farm income. These agreements are typically for one year.

In **50-50 agreements**, which usually last three years, the sharemilker rather than the farm owner provides the dairy herd and machinery necessary for the farm's operation, and farm income is split equally.

Source: See Appendix B.

Middle stages in the dairy career pathway: negotiable and 50-50 sharemilking

If the linchpin of the larger New Zealand dairy industry is the Dairy Board, that of the dairy career structure is sharemilking. A unique component of New Zealand dairying for more than 100 years, sharemilking involves operating a farm on behalf of the farm owner for an agreed share of the farm income as opposed to a set wage. Sharemilkers are independent self-employed contractors. Sharemilking offers young people a way to enter dairy farming without having to purchase land, while building assets, sharpening management skills, and aiming for farm ownership if that is their goal. (See Appendix B.)[101]

While a number of New Zealand agriculturists whom we interviewed expressed concerns about contemporary pressures acting on sharemilking opportunities, at no time did we hear anything but strong affirmations for the overall institutional structure. Historically, both participants and observers have recognized that sharemilking provides important rewards and serves important functions for young farmers, older farm owners, and the dairy industry and country as a whole.[102] Indicators of this industry-wide support are the regulatory legislation described above and the nationwide use of a common sharemilking legal agreement.[103]

As will be explored in the next section, the relative numbers of 50-50 (herd-owning) and negotiable (non-herd-owning) sharemilking agreements are currently in a state of flux in New Zealand. Data for the past several decades, however, indicate a relatively stable profile in which nearly 25 percent of the country's dairy farms (more than 3,100 in 1994) were operated by herd-owning sharemilkers and another 10 percent by non-herd-owning sharemilkers.[104] Farms operated by 50-50 sharemilkers tend to be about one-fourth again larger than owner-operated farms. In 1993-94 sharemilker farms averaged 224 cows and 89 hectares (222 acres), compared to 175 cows and 74 hectares (187 acres) for owner-operated farms.[105] As expected, sharemilkers are younger than their land-owning counterparts, by an average of 10 to 12 years. Surveys conducted in the late 1980s and early 1990s place the average sharemilker's age in the early thirties and the average farm owner's age in the early to mid-forties.[106]

If the linchpin of the larger New Zealand dairy industry is the Dairy Board, that of the dairy career structure is sharemilking.

Sharemilkers in New Zealand are organized on both regional and na-

❖ 1995 Sharemilkers conference

The authors attended the 1995 Sharemilkers Conference held at Palmerson North during the second week of May. We were left with the following impressions:

❖ We were encouraged by seeing more than 300 young, energetic dairy farmers who deliberated optimistically yet critically about their careers and their industry's future. Also instructive was that the Sharemilker of the Year Award was given to a young couple from non-farm backgrounds.

❖ We were surprised at the degree of sensitivity toward gender and family issues. More than one third of the conferees were women, and children of all ages were present throughout the conference. Discussions of technical and dairy production issues were balanced with such farm family issues as career planning, off-farm investments, and children's education. The major exception was the high percentage of male keynote speakers and panel discussants.

❖ We were impressed with the dialogue between confident, well-informed young farmer professionals and responsive Dairy Board executives. Lengthy and at times heated discussions focused on such complex issues as the effects of international exchange rates on Dairy Board profit profiles, new product development, strategies to address proactively environmental and animal welfare issues, and sharemilkers' rights regarding membership in New Zealand's dairy companies. (See endnote #108.)

❖ We had some uneasiness with the strong, highly visible presence of agribusiness interests associated with the farm input sector. The authors recognize the need for resources to present a quality conference. Our concern is with the degree and direction of relationships between family farm enterprises and corporate agribusiness. From our perspective, a key to the historic success of the New Zealand dairy industry has been that farm enterprise relationships have been built primarily with the marketing and output business sector of the industry, while purchases from the farm-input sector have been kept on the low side.

tional levels under the dairy section of the Federated Farmers of New Zealand. Regional officers of the Sharemilkers Subsection are elected to a national board that sets policy for the voluntary organization and advocates for sharemilkers' interests through the Federated Farmers.[107] In New Zealand tradition, the Sharemilkers Subsection conducts an annual Sharemilker of the Year competition (see box below) and sponsors a bi-annual conference.

Contemporary dynamics in New Zealand's dairy farmer career structure

GATT-induced inflation of farmland prices is causing a general "backing up" on New Zealand's traditional dairy career pathway.

The sharemilking structure in New Zealand is currently experiencing some significant stresses. As noted earlier, the sources of these strains are both long and short term. In the former category are the historical trends toward fewer, larger, and more expensive-to-purchase farms. On the short term, land speculation driven primarily by GATT export expectations has caused farmland prices to rise significantly since 1991. The primary purchasers of this inflated land have been existing farm owners as well as corporations entering New Zealand dairying with an eye on GATT-induced profits.[109] While many agricultural economists in New Zealand argue that the opportunities to be generated by GATT are exaggerated, and that land has become overvalued and land values will eventually decline, at the present time land inflation creates significant obstacles for sharemilkers looking to purchase their first farms.[110] Land inflation also presents growing consequences for the overall dairy career pathway. The primary consequence of higher land prices is that sharemilkers now need to own more cows or share-farm for longer periods of time in order to accumulate the capital necessary for entry into farm ownership. GATT-induced inflation of farmland prices is causing a general "backing up" on New Zealand's traditional dairy career pathway.

Sharemilkers whom we interviewed generally agreed that, depending on the location and value of the land, between 350 and 600 mortgage-free cows were needed to generate sufficient capital to buy a first farm of 60 to 80 hectares (150 to 200 acres).[111] According to these sources, 15 years ago a beginning farm buyer would have needed one-third to one-half fewer cows to buy the same farm.[112] Under the present conditions, accumulating sufficient cows and capital not only means staying

❖ Sharemilker of the Year Award

1994 award goes to young farm couple from non-farm backgrounds.

New Zealand's **Sharemilker of the Year Award** recognizes outstanding sharemilkers and helps promote sharemilking as an economically viable business venture. Contestants are judged on technical expertise, business and time management efficiencies, sharemilking knowledge, and productive relationships with farm owners.

In 1994, Taranaki dairy farmers **Bryn and Marise James** won the Bank of New Zealand Sharemilker of the Year Award. The couple, who have a fifty-fifty sharemilking contract on a 100-hectare farm, started sharemilking five years ago. The Jameses both come from non-farm backgrounds. **Bryn is a former clerical worker, and Marise, an accountant.**

The couple used their $10,000 prize money to purchase a 40-hectare property at Ratapiko.

in sharemilking longer; it increasingly means contracting for and managing two or more 50-50 share agreements. As is indicated by the case of the Berry family (see box, page 17), this is done by the sharemilking family providing the labor on one farm, and by negotiating with a non-herd-owning contract milker to provide the labor on the other.

The result of this kind of "doubling up" by older sharemilkers is a reduction of 50-50 sharemilking opportunities for young contract milkers beginning the middle stages of their careers. According to knowledgeable observers, these smaller, initial 50-50 sharemilking opportunities have been pivotal for the historical success of New Zealand's dairy career pathway.[113] From our observations, these introductory sharemilking opportunities are being most negatively affected under the current dynamics of New Zealand's dairy industry.[114] Another factor reducing the availability of sharemilking opportunities is the still small, but growing tendency for some young dairy farmers to see sharemilking as a permanent status, rather than as a transitional stage on their way to farm ownership. These farmers are being motivated by both economic and lifestyle considerations.[115]

The combined effects of long- and short-term dynamics within the New Zealand dairy industry suggest increased difficulty for entry into farm ownership, increased age for the successful enterers, and larger farms for young farmers to manage and pay off.

Fifty-fifty sharemilking opportunities are being reduced by two additional factors. Both are driven by a new calculus under which the recent inflation in land values imbalances the equation that has been the historical basis for the 50-50 agreement, that is, the rough equilibrium between the value of land on the one hand, and the value of labor and cows on the other. The first factor is the growing practice of farm owners to buy a herd of cows and convert a 50-50 sharemilking agreement to a negotiated or contract agreement.[116] The second is the practice for farm owners to reduce a nominal 50-50 agreement to something closer to 60-40 (in favor of the land owner) through specially added stipulations and exemptions in the fine print of the sharemilking contact.[117] It is becoming clearer that the combined impact of all these recent dynamics may be having important implications within the New Zealand dairy industry on the relative distribution of 50-50 and negotiable or contract-share agreements.[118] Data from a recent survey conducted by a Manawatu dairy company suggest that the drop in numbers of 50-50 agreements is sizable.[119]

In summary, the effects of long- and short-term dynamics within the New Zealand dairy industry may be increased difficulty for entry into farm ownership, increased age for successful enterers, and larger farms for young farmers to manage and pay off. It may be that these problems are a temporary result of a speculative land inflation bubble resulting from the GATT agreement. In any event, these dynamics appear to be pushing New Zealand in the direction of Wisconsin's dairy industry with increasing economic and lifestyle pressures on dairy farm families and a significant decline in the rate of entry of new farmers.[120]

Clearly, New Zealand's dairy industry is being challenged to renew its historic capacity to attract and motivate young people and to maintain effective farmer career paths. Most dairy cadets and sharemilkers whom we interviewed were still optimistic that with hard work they and others like them could still make it to farm ownership despite the increased obstacles and lengthened time frames. However, most were

glad that they were not at their respective career stages five or ten years in the future.

Challenges and Opportunities for Wisconsin's Dairy Community

In the following sections, we use the preceding observations regarding New Zealand's dairy industry and farmer career structure as fresh perspectives for assessing the farm entry and exit challenges posed by Wisconsin's dairy industry. We believe there are sufficient parallels between the two industries to make the dialogue meaningful and sufficient differences to make the exercise valuable. We understand the problems of simplistically transporting organizational or technological arrangements from one socioeconomic and cultural system to another. It is for this reason that we have chosen words like "challenges" and "opportunities" rather than "lessons" and "recommendations." This is particularly important in light of the authors' overall conclusion that *the most valuable information from New Zealand for Wisconsin's dairy industry is the importance of institutional arrangements and relationships.* Several points need emphasizing before turning to specific challenges:

The most valuable information from the New Zealand study for Wisconsin's dairy industry is the importance of institutional arrangements and relationships.

First, this concluding section is intended to begin the needed dialogue rather than close it off. We invite participation by a wide range of agriculturists in Wisconsin and New Zealand who share our concerns for the vitality of our respective dairy communities and who bring knowledge and insights far beyond ours.

Second, we make the assumption that in calculating vitality measures for our dairy communities, social dimensions like farm entry opportunities and farmer career pathways, quality of life for farm families, and rural community infrastructure are important indicators, parallel in weight to economic and environmental measures.

Third, while Wisconsin does not currently have New Zealand's depth of institutional infrastructure targeted at dairy farmer careers, we do have considerable resources and some important advantages. These advantages include relatively low farmland prices in many regions of the state as well as a range of dairy farming systems capable of producing milk at prices competitive on the world markets. Skilled professionals in the farming and the dairy processing sectors represent important human resources with great potential for renewal.

Finally, Wisconsin has a historical tradition and a contemporary base of active dairy-related organizations in the private, public, and non-governmental sectors. It is to this organizational base that we pose the following challenges and opportunities.

Challenge/Opportunity I

Develop dairy career structures that enable committed persons to reasonably enter, advance within, and exit from farming careers and enterprises that offer significant economic and lifestyle rewards.

The traditional New Zealand dairy career structure has a set of relatively clear career stages that energetic persons from farm and non-farm backgrounds can move through relatively easily. Early-career steps

are made possible through high-quality training and apprenticeship or job opportunities. Mid-career progress is supported by mechanisms to rapidly generate capital and defer land acquisition until an appropriate time. Retirement and farm exits can be phased in and are complementary to the staged entry of new farmers. Finally, institutional arrangements have been put in place to coordinate and legitimate the overall career structure, with the support of both public and private sectors.

How relevant are such career structure characteristics for the contemporary farm entry and exit dynamics in Wisconsin's dairying community? As suggested above, we believe this is a legitimate question, and that engaging it will provide new perspectives and innovative ways to approach farmer transitions in Wisconsin. In particular, we believe that most characteristics of the overall New Zealand career structure are quite relevant to our state's dairying community, that many of the specific institutional arrangements appropriate to Wisconsin will be different from those in New Zealand, and that our greatest challenge or opportunity will be in constructing the organizational relationships to coordinate the components of an effective, integrated dairy career structure. Such integration is important because farm entry and exit are closely linked processes. If one wants to accomplish entry-related goals, one cannot do so without addressing exit issues, and vice versa.

New Zealand's dairy farmers work like hell for 20 to 25 years, acquire farm ownership, put on a sharemilker, and then enjoy a very rewarding lifestyle.— Warren Parker, Massey University

Recruitment and training of new dairy farmers. Traditionally, dairy farmer recruitment in Wisconsin has been accomplished primarily through farm family and informal rural community mechanisms. Training has been accomplished through a mix of informal farm and family-based mechanisms, and more formal educational experiences. The key institutional actors in the formal educational sector are the state's public high schools, the Wisconsin Technical College System, the Farm and Industry Short Course (UW-Madison), the three colleges of agriculture associated with the UW-System, and UW-Cooperative Extension. The above represent a rich set of organizational resources. As will be emphasized repeatedly in this discussion, the challenge or opportunity is targeting and coordination.

The authors look forward to discussing with the leaders of these institutions their ideas for possible organizational collaborations regarding new dairy farmer recruitment and training approaches. Important issues emerging from the New Zealand study that could be engaged in the discussion include:

❖ strategies for recruiting beginning dairy farmers from non-farm as well as farm backgrounds;

❖ training approaches that creatively combine the theoretical and the practical, and make effective use of farmer mentors and on-farm internships;

❖ programs that help beginning farmers receive academic certification and earn income from meaningful farm jobs and apprenticeships;

❖ building organizational capacity to oversee the training and employment pathways as is done in New Zealand by ITO Agriculture.

Mid-career transitions. A major challenge for us in Wisconsin will be to find equivalents to New Zealand's sharemilking structures. As emphasized earlier, sharemilking enables young New Zealand farm families to defer land purchases to the late-middle stages of the career ladder, yet accumulate management skills and capital relatively rapidly, in preparation to acquiring land. Considerable applied research and institutional development work lies ahead to construct effective mid-career transitions in Wisconsin. On the research side, much needs to be learned about creative transition strategies currently being developed by "junior operators" on Wisconsin dairy farms.[122] On the development side, the authors are aware of several mid-career transition approaches being explored in the state. Professional consultants in northeastern Wisconsin, for instance, are developing transition models for single-family, confinement dairy systems based on a 45-55 contract that combines many of the features of New Zealand's negotiated and 50-50 agreements.[123]

A major challenge will be to develop sustainable farming enterprises in Wisconsin that can generate sufficient income for both sharemilking and land-owning families, as is the case in New Zealand.

Farm-owning graziers in the southwestern section of the state are working with a team of economists from the UW Cooperative Extension and of sharemilkers and scientists from New Zealand to formulate agreements appropriate to Wisconsin for contracts with both herd-owning and non-herd-owning sharemilkers. Plans are to monitor these sharemilking relationships over the next several years and to share the information with interested agriculturists.[124] A major challenge will be to develop sustainable farming enterprises in Wisconsin that can generate income sufficient for both sharemilking and land-owning families, as is the case in New Zealand. The New Zealand perspective also points out the value of young farmer organizations to act as support networks for farm families in their mid-careers, a challenge or opportunity presented particularly to Wisconsin's several farm organizations.

The discussion thus far has been based on the assumption that dairy farm ownership is the most important mid-career goal of dairying families. However, a small but growing number of young New Zealand dairying families are choosing to remain as permanent sharemilkers for economic and life style reasons. It seems to us advisable that we in

❖ Wisconsin School for Beginning Dairy Farmers

A pilot training project began in 1995 called the Wisconsin School for Beginning Dairy Farmers. Housed in the Farm and Industry Short Course at UW-Madison, the school is a two-year experiment, supported by a coalition of public and private organizations, that focuses on farm entry through pasture-based dairy systems. Recruitment linkages for the school are being built with high school instructors, extension and technical college staff, and an array of farmer organizations. The school's instructional faculty are drawn from university and extension scientists, veteran graziers, and agribusiness representatives.

Following the classroom component of the training, students are placed in summer internships on farms operated by veteran graziers. Similar to the Dairy Cadet Program in New Zealand, the students receive instruction and mentoring from the veteran farmers based on a set of farm management competencies. Organizational linkages are being created to support the "passing on" of the post-internship training needs of these aspiring dairy farmers to the technical college and university extension systems. While this particular pilot program is built around grazing, the idea has far more general relevance.

Source: Endnote #121.

Wisconsin explore and evaluate strategies for entering dairy farming other than through farm ownership. For the authors, the end goal is the regeneration of prosperous, stable, and community-involved farm families. We invite educators, farm organizations, and farm transition professionals to join us in exploring alternative arrangements to support such families. While this is not the place for a detailed analysis, the following alternatives strike us as worth evaluating. We encourage others to add to the list.

Long-term tenancy or sharemilking agreements. Assuming that the share splits are equitable, indefinite tenancy or sharemilking appears to be a legitimate option given certain circumstances and farm family goals. We understand that long-term tenancy agreements have been institutionalized in Illinois grain farming systems, and these may provide some insights and models.

Professional employment on larger dairy enterprises. Management and professional level roles are integral to large dairy enterprises and should be evaluated as stepping stones or final destinations in dairying careers.[125]

It is clear that retirement and farm exit approaches must be effectively linked with farm entry strategies if older dairy farmers in Wisconsin are to exercise meaningful late-career options and exit from farming with the dignity and security they deserve.

Dairy input-specialty enterprises. Dairy input-specialty enterprises may also be an underexplored entry option. Examples of such enterprises would include farmers specializing in raising replacement heifers or operating custom forage or cropping management services.

Farmer retirements and exits. A particular strength of New Zealand's traditional dairy career structure is that staged farm entry strategies for young people complement phased-in retirement and farm exit approaches for elders. This works in New Zealand because of three important conditions that are too often not met in Wisconsin.[126] *First,* retirement and farm exit plans are usually put in place well in advance. *Second,* the retiring farm family usually has no significant debt. *Third,* the farming enterprise is attractive and viable for beginning to mid-career farmers. A survey of Wisconsin dairy farmers taken in 1994 found that nearly two-thirds of families who indicated a desire to exit farming within three years had done little or no retirement planning.[127] Related and more troublesome may be the fact that many traditional dairy farms in Wisconsin possess inappropriate structures or insufficient acreage to be viable for young farm families.

Given the seriousness of the last factor, some observers are suggesting studying the feasibility of a "dairy farm redevelopment authority" that would purchase farms with low marketability from retiring farmers, retrofit the infrastructure and land bases, and sell the modified dairy farming units to beginning or mid-career farmers. A parallel approach is being explored in New Zealand to redevelop sheep ranches into viable dairy farms. Whatever the combination of approaches, it is clear that retirement and farm exit approaches must be effectively linked with farm entry strategies if older dairy farmers in Wisconsin are to exercise meaningful late-career options and exit from farming with the dignity and security they deserve.

Coordination and support. Building and coordinating institutional relationships will be the major challenge for developing effective dairy

farmer transition structures in Wisconsin. Fortunately, the beginning of such a coordinating capacity was achieved in the spring of 1995 with the passage of legislation to create and staff the Wisconsin Farm Link Services, as part of the Wisconsin Dairy 2020 Program. This new organization is to be housed in the Farmers Assistance Program of Wisconsin's Department of Trade, Agriculture and Consumer Protection. Plans are for Farm Link Services to assume overall coordination of beginning and retiring farmer programs in the state. It seems clear that if an effective, integrated dairy farmer career structure is to be built through the Farm Link Services, these public resources will need to be matched by contributions from the private and non-governmental sectors. We encourage the Dairy 2020 program to integrate farmer career issues into its overall programming, and we encourage all of the organizations associated with the Dairy 2020 effort to actively support the Farm Link Services. Such support appears to be a classic case of enlightened self-interest given the importance to the entire industry of revitalizing the dairy farm sector.

Challenge/Opportunity II

Develop institutional arrangements that respond to farmers and provide leadership for key components of the state's dairy industry, particularly marketing.

While the principal purpose of our field trip originally was to better understand the nature of farmer transitions in the New Zealand dairying community, we left New Zealand convinced that the effectiveness of the dairy farmer career structure is significantly connected with the well-being of other key components of the industry. Standing out particularly vividly to us were the components of industry leadership, marketing, and viable farming systems.

In New Zealand, marketing and industry leadership functions are consciously coupled in the same organization. The New Zealand Dairy Board successfully communicates to farmer producers the importance of investing significant organizational resources into developing value-added dairy products and building effective marketing capabilities.

Marketing and support of key industry components. We have discussed in some detail the integrated, value-added marketing strategies being developed by the New Zealand Dairy Board. While none of the authors is a marketing specialist, we quickly recognized the excitement and confidence exhibited in these strategies by members of New Zealand's dairy community, from farmers to dairy company leaders. We look forward to discussions with dairy marketers in Wisconsin regarding their views on the relevance of such strategies to our state's dairy industry. We would, however, like to reinforce two points with regard to marketing in the New Zealand dairy industry. First, marketing functions and industry leadership functions are consciously coupled in the same organization, the New Zealand Dairy Board. The authors' sense is that we in Wisconsin could learn a great deal about the positive consequences for the industry from such institutional arrangements. Second, the Dairy Board has successfully communicated to farmer producers the importance of investing significant organizational resources into developing value-added dairy products and into building effective marketing capabilities.

Wisconsin's dairy industry can also learn a great deal from the proactive way that the Dairy Board supports key components of the New Zealand dairy industry, as preparation for effective market perfor-

mance. Examples include the facilitation of farmer education by staff employees of the Livestock Improvement Corporation, the development of new products by the Dairy Research Institute, and the sponsorship of challenges between dairy scientists and farmers as is done at the Ruakura Agricultural Centre. And again, the authors urge increased industry support of dairy farmer career structures, in both Wisconsin and New Zealand.

Farmer-responsive organizations. In September 1995, the senior author of this report attended a meeting in LaCrosse, Wisconsin, where nearly 2,000 dairy farmers confronted the leaders of their manufacturing cooperatives on matters of milk price and overall co-op responsiveness to the owner-members. He was struck by the difference between this interaction and that which he and the second author had witnessed in New Zealand between leaders of the Dairy Board and young farmers. We are not sure how to fully account for the difference, but we suspect it is various organizational practices. Earlier in this report, we described what appeared to us as being the most important organizational practices of the New Zealand cooperatives with regard to leadership's responsiveness to farmer members. They are relisted in an abbreviated form as follows, and shared in the spirit of identifying opportunities:

New Zealand cooperative directors are paid salaries sufficiently large to enable them to hire farm management replacements, and they are expected to work seriously for their organizations.

Sufficient salaries for cooperative directors. Cooperative directors are paid salaries calculated sufficiently large to enable them to hire farm management replacements, and they are expected to work seriously for their organizations. Primary among the directors' responsibilities are regular meetings with farmers to discuss industry issues and hear farmers' concerns.

Good training and mentoring. Cooperative directors receive considerable training and mentoring during their tenure.

Age limits and regular elections. Directors' positions have age limits, and they regularly face re-election challenges.

Annual evaluations. New Zealand's principal farmer advocacy organization conducts annual performance appraisals of all dairy cooperatives.

Larger issues of industry integration and dairy community development. The institutional arrangements surrounding the Dairy Board provide much greater integration of New Zealand's dairy community than is the case in Wisconsin. A key question is whether Wisconsin's dairy community would reap significant benefits from coupling greater industry integration with the elements of farmer reponsiveness and value-added marketing, as described above. The authors invite others more knowledgeable about industry structure to engage the question with us. We encourage listening to older New Zealand dairy farmers and former Dairy Board directors who told us of being forced into greater cooperation and integration as industry survival strategies.

While the Dairy Board model clearly works for New Zealand, the Wisconsin dairying community will just as clearly have to develop levels and types of coordination appropriate to our needs, if greater integration is deemed valuable. The authors urge everyone to factor the integrative powers of "community" into whatever institutional arrange-

ments are explored to express this coordination. As was indicated earlier, the New Zealand dairy industry exhibited to us many of the characteristics of a sociological community as well as the characteristics of a utilitarian, profit-making, economic enterprise. Contemporary political economists are beginning to explore the distinct positive functions that are played by markets, institutions, and communities, respectively.[128] The New Zealand dairy industry is structured so that these three powerful socioeconomic expressions reinforce one another. Whether comparable social constructions are possible within the Wisconsin dairy community needs further evaluation.

We recognize as well that the relative cohesiveness of the New Zealand dairy industry is made possible by some special circumstances. The sense of community is reinforced significantly by the nation's isolation, and because the community's spatial boundaries coincide with the country's geopolitical boundaries. The parallels are much weaker for the Wisconsin dairy industry. Should dairy community development be focused on an increased state identity? On an Upper Midwest identity? In light of the U.S. dairy processing structure, does a national dairy community development approach make sense or appear feasible?

Challenge/Opportunity III

Adapt pasture-based production and management systems for Wisconsin.

While we recognize and appreciate the diversity of dairy farming systems that exist in or are emerging in Wisconsin and believe no one system is best suited to the state's conditions, we have a particular interest in single-family, pasture-based systems. This interest has been reinforced by the New Zealand field study and by recent survey results that indicate a growing incidence of pasture-based dairy farms in Wisconsin.[129]

Wisconsin dairy farmers could make greater use of New Zealand's dairy pasturing strategies if there was more research and information on grass and forage management systems to extend the grazing or milking "windows" in early spring and late fall.

Our experiences here and in New Zealand suggest that these systems can be highly efficient and could increase the options available for new and established dairy farmers in our state. As the New Zealand experience indicates, pasture-based systems can offer important economic and social advantages. Obviously, however, New Zealand's climate and soils are particularly well suited to intensive pasturing, so that New Zealand systems cannot be directly transferred to Wisconsin.

Environmental challenges for Wisconsin. There are important climatic, environmental, and socioeconomic challenges to adopting New Zealand systems in Wisconsin. For example, Wisconsin dairy farmers could make greater use of New Zealand's dairy pasturing strategies if there was more research and information on grass and forage management systems to extend the grazing or milking "windows" in early spring and late fall. Improvements in low-cost milking structures and animal shelters that function effectively in colder weather will also be crucial. Animal feeding, nutrition, and breeding strategies that insure adequate conception rates in hot, humid weather would help seasonal dairy producers to achieve effective seasonal calving "windows."

More information about New Zealand's system could help Wisconsin dairy farmers adapt strategies. Such information includes how to

modify grazing and herd movement strategies that do not adversely affect the quality of stream banks and surface waters. Other information is the long-term nutrient balances of soils on pasture-based farms where nutrient-absorbing cropping has ceased on one hand, but while significant amounts of supplemental feeds are imported onto the farm and manure application rates have increased on the other. Low-cost winter housing alternatives are also needed that maintain animal health and do not lead to environmental problems. Many of these research priorities can best be pursued through farmer experimentation (as has largely been the case in Wisconsin dairy grazing systems), but most of these grazing adaptation issues will require substantial university research as well, ideally in conjunction with farmer cooperators.

Dairy grazing systems require a proactive management style, and thus tend to involve a substantial amount of experimentation and "fine-tuning" by the individual farmer.

Labor and management practices. Intensive grazing technology, particularly in the early phases of adapting it to Wisconsin conditions, has numerous potential implications for labor requirements and for management practices. While labor requirements per cow will generally decline in grazing systems relative to confinement ones (because less labor is required for field operations and manure hauling), there is also a redistribution of labor requirements over the seasons, even if year-round milking is maintained. Spring is the busiest season in grazing systems due to the need to initiate pasture rotations, install and repair fencing, provide water to fields when there is the threat of freezing temperatures, and if milking is done on a seasonal basis, the need to take care of a surge of cows freshening within a two-month window.

The grazing systems to emerge in Wisconsin over the next several decades are likely to involve larger per-acre cow carrying capacities and thus result in larger herds, particularly if dairy graziers purchase all or most of their grains and concentrates. Evidence from New Zealand as well as Wisconsin suggests that dairy grazing systems require a proactive management style, since forage output and its relationships to soil type, climate, pasture species composition, and cultural practices exhibit considerable local variation. Grazing systems thus tend to involve a substantial amount of experimentation and "fine-tuning" by the individual farmer.

These observed and hypothetical contrasts between grazing and confinement systems suggest that if, as we suspect, grazing continues to become more common in Wisconsin, it will have some important farm-structural concomitance. Though grazing systems may reduce overall labor requirements (on a per cow basis), we suspect that grazing is most likely to be implemented by full-time (rather than part-time) farmers because of the intensity and proactivity of the management that is required. For example, our observations from New Zealand suggest that there is considerably less part-time farming than is the case in Upper Midwest dairying. Grazing systems will tend to shift labor from field operations to milking and herd management, and will thus affect the quality as well as the quantity of labor required. If grazing proves to be associated with increased herd sizes, this may decrease the number of stanchion barns while making it even more urgent that low-cost milking parlor alternatives are available to Wisconsin farmers.

Grazing will thus tend to be a more attractive option to particular types of farm operators and farm families than to others. Research knowledge about these tendencies could be helpful to dairy educators and leaders in advising farmers about which dairy production system alternatives are best suited to their resources. Knowledge of this sort will be especially important in advising entering farmers, and in assisting early to mid-career farmers who are contemplating the need to retrofit or replace obsolete capital equipment (both milking facilities and machinery).

Capital costs and entry strategies. It should be noted that one of the reasons the two senior authors became interested in New Zealand dairy production systems was because of our impression that the low-purchased-input and low-capital nature of these systems was integral to the recruitment of energetic, committed young people into dairy farming. We reasoned that because these systems do not require large capital investments and high variable costs, they would make it easier for persons with modest resources to enter dairying. We did not encounter any evidence in New Zealand to the contrary. In fact, our observations regarding the constricting impacts of higher land prices on the New Zealand dairy farmer career structure reinforce the importance of low capital costs for dairy entry.

Grazing systems will tend to shift labor from field operations to milking and herd management, and will thus affect the quality as well as the quantity of labor required.

At the same time, we feel it is important to make clear that New Zealand's intensive pasturing technology is no more important than its post-secondary training and internship institutions, and its traditions of sharemilking and relatively early retirement, in helping to recruit young people into dairying. This is just an impression, however. We recommend that New Zealand researchers join with Wisconsin counterparts to devote research effort to determining whether training and other dairy-career institutions on the one hand, or lower-capital production systems (including, but not limited to intensive pasturing practices) on the other, are the most important factors in facilitating entry into and comfortable retirement from dairying.

Farm safety. Our field study uncovered several other dimensions in which alternative systems such as intensive pasturing may need to be evaluated in relation to Wisconsin conditions. Though farm safety is seldom a high-visibility topic, farm safety is a very important farm quality of life issue. New Zealand experiences with intensive grazing systems suggest that they have had some positive and some negative implications for farm safety. On one hand, intensive grazing systems involve relatively little use of large farm machinery, especially machinery employing power take-offs, and thus there is a very low incidence of accidents associated with use of large machinery. On the other hand, given the critical role of cow conception during a brief breeding "window" in making possible a seasonal dairying system, New Zealand dairy farmers tend to employ bulls (usually after one or two months of artificial insemination) in order to increase conception rates while minimizing AI outlays. The presence of bulls on dairy farms is a major farm safety threat. It was not clear to us, however, whether use of bulls is essential to seasonal dairying or whether there will be any trend toward use of bulls in intensive pasturing systems in Wisconsin. This is a significant

information need that requires cooperative research among the natural and social sciences in conjunction with farmer cooperators.

Quality of life. Our field study produced some interesting observations on other quality of life issues that are associated with seasonal pasture-based systems. Extended vacations are very common among dairy farming families in New Zealand. There is a very high level of satisfaction with extended vacations from dairying responsibilities afforded by seasonal pasturing technologies. Most New Zealand dairy producers with whom we spoke considered seasonal dairying and extended vacations among the most important reasons they entered and have remained in dairying.

Most New Zealander dairy producers with whom we spoke considered seasonal dairying and extended vacations among the most important reasons they entered and have remained in dairying.

On the other hand, considerable stress can be generated by seasonal systems that concentrate calving into narrow time windows. However, a number of New Zealand farmers with whom we spoke like seasonal calving because it frees them from having to worry about calving-associated problems for the rest of the year. It is not entirely clear how these quality of life issues will manifest themselves among Wisconsin producers who adopt intensive grazing technology. Research on this issue is needed, and we would argue that Wisconsin dairy farmers and dairy leaders should not discount the crucial role that the lifestyle advantages (and disadvantages) of alternative dairy production systems may play in the future of the industry.

Economic impacts. An important economic issue suggested by the New Zealand study is the potential aggregate impact on the state's dairy processing sector, should a significant proportion of the grass-based systems develop over the next several decades into spring-calving, seasonal systems. As indicated earlier, significant growth of seasonal dairying can lead to uneven milk supplies across the year, and thus to problems with dairy plant efficiencies. Also, given the strong emphasis in Wisconsin on cheese-making and the growth of a significant spring calving, the seasonal grass-based dairy farming sector could have significant aggregate effects on the quality and composition of milk relative to the requirements of high-quality cheese production.[130] Fall calving, seasonal systems is an enterprise strategy that may balance these potential aggregate effects.[131]

Exchanges Between Wisconsin and New Zealand

Experiences throughout our field study in New Zealand and suggestions from New Zealanders alerted us to many opportunities and potential benefits from continued interchanges between the Wisconsin and the New Zealand dairy communities. As indicated earlier, there are sufficient similarities—a predominance of family farming, the declining importance of price supports, and so on—so that there can a base for learning from and with the other.[132] At the same time, there are a great many instructive differences regarding practices, institutions, and relationships. Below is an initial list of possible exchanges. The authors welcome opportunities to introduce any parties from Wisconsin and New Zealand.

Even though Wisconsin's dairy leadership structure is diffuse, and perhaps because it is diffuse, there is a tremendous opportunity for New Zealand and Wisconsin to discuss the advantages and shortcomings of their leadership structures.

Exchanges of students and young dairy farmers. New Zealand's primary dairy farmer training organization, ITO Agriculture, has initiated dairy cadet exchanges with several other countries. The director of the ITO Agriculture indicated strong interest in exploring similar student exchanges with Wisconsin. We encourage the organizers of the Wisconsin School for Beginning Dairy Farmers and other farmer training organizations to capitalize on this interest. The Sharemilker Subsection of the Federated Farmers of New Zealand is very interested in exploring similar exchanges with young farmer organizations. We encourage all Wisconsin farmer organizations, as well as farmer networks such as GrassWorks, Inc., to respond.

Exchanges among farmer training organizations. Dialogues among organizations involved in the training of dairy farmers could productively focus on such issues as student recruitment, curriculum and apprenticeship organization, and the strengths and weaknesses of competency-based training. In Wisconsin, organizations such as the Wisconsin Technical College System, the Department of Public Instruction, the Farm and Industry Short Course, and UW-Cooperative Extension would benefit from sharing information with their New Zealand counterparts. Representing New Zealand is ITO Agriculture, teachers and administrators from the polytechnic system, and farmer consultants employed by the Livestock Improvement Corporation. Conversations between Wisconsin's Farm Link Services and New Zealand's ITO Agriculture regarding the coordination of training and early employment could be particularly valuable.

Exchanges among industry leaders. New Zealand has a definite dairy leadership, consisting of farmers elected by other farmers to serve as directors of the New Zealand Dairy Board. Wisconsin's dairying community lacks such a definite leadership, although there is a set of leaders of many diverse groups and organizations (cooperatives, agribusiness, farm organizations, universities and technical colleges, state government agencies, Dairy 2020, and so on) that make up the Wisconsin counterpart to the Dairy Board. Even though Wisconsin's dairy leadership structure is diffuse, and perhaps because it is diffuse, there is a tremendous opportunity for New Zealand and Wisconsin to discuss the advantages and shortcomings of their leadership structures.

In Wisconsin, the Dairy 2020 program is perhaps in the best position to spearhead discussions regarding institutional arrangements, dairy community development, and the support of industry components. We particularly urge communications with older New Zealand farmers and former Dairy Board directors who have historical perspectives on the industry dilemmas that drove New Zealand farmers to greater integration. Dialogues are also encouraged between the Wisconsin Federation of Cooperatives and New Zealand's dairy companies regarding organizational practices that can make possible high quality communication between leaders and farmer-owners. In addition, profitable exchanges could occur among dairy processing enterprises in the two industries regarding marketing strategies that focus on value-added dairy products. Farmer organizations and networks in Wisconsin could productively talk with the Federated Farmers of New Zealand regarding ways of serving as constructive watchdogs for the dairy community. Finally, we encourage dialogues among industry leaders in both dairying communities regarding ways to support farmer career structures.

A fundamental challenge for both dairying communities will be to insure that the institutional forces generated by effective farmer career structures can withstand the forces pushing strongly in both Wisconsin and New Zealand toward declining farmer entry rates.

Exchanges between farmers and academic researchers. We hope that this report is itself evidence that there is much to be gained from continuing exchanges, initiated by the Babcock Institute, between dairy-related scientists from Wisconsin and New Zealand. On the production side, reciprocal contributions can clearly be made based on New Zealand knowledge of pasture-based dairy systems and Wisconsin expertise in dairy genetics, forage enhancement, and dairy cow diet supplementation. *We also recommend strongly that researcher exchanges include farmers as equal participants.*

During the New Zealand visit, we had the opportunity to observe two different organizational models for applied agricultural research and extension that deeply impressed us. We strongly encourage UW-Cooperative Extension and colleges of agriculture within the UW-System to learn more of these approaches and seriously explore the possible advantages and ways that these approaches could be adapted to the Wisconsin context. The first model has been used successfully for the past several decades by scientists at the Whatawhata Research Centre, a sheep experiment station on the North Island associated with AgResearch, one of New Zealand's Crown Research Institutes. The model brings together a facilitating scientist, 20 to 30 farmers, and representatives from local agribusiness. The network's education and research programs center around a representative or "monitor farm" on which accurate records are kept on a whole-farm basis.[133] The beginning experiments in sharemilking described earlier in the report would be excellent opportunities to explore this research and extension model in Wisconsin.

The second New Zealand approach is that employed by the Ruakura Agricultural Centre. A considerable amount of research performed at Ruakura is done in the context of self-contained demonstration dairy farm units which must be commercially viable. These research and demonstration farms are designed to challenge New Zealand dairy farmers, and interaction between scientists and farmers is extensive through advisory groups and field days.[134]

There are also good reasons for exchanges between Wisconsin and New Zealand regarding socioeconomic investigations. At the farm management level, exchanges could very usefully focus on the relationships between profitability and inputs, and on labor and lifestyle issues, particularly as herd sizes continue to increase and labor management challenges mount in both dairying communities.[135] At the more macro level, it seems clear that a number of the forces that are affecting dairy farm numbers, reducing young farmer entry rates, and affecting community infrastructures in agriculturally dependent rural areas are increasingly similar in Wisconsin and New Zealand.

We hope that this report is evidence that there is much to be gained from continuing exchanges between dairy-related scientists from Wisconsin and New Zealand.

The authors recommend that dialogues on collaborative research regarding issues of farm management, farm structure, farmer transition dynamics, and lifestyle and quality of life issues be initiated in Wisconsin by the Agricultural Technology and Family Farm Institute, the Center for Dairy Profitability, and the Center for Integrated Agricultural Systems, UW-Madison, and in New Zealand, by the Department of Agricultural and Horticultural Systems, Massey University.

Endnotes

[1]This report's senior authors are G. W. Stevenson, a rural sociologist and the assistant director of the Agricultural Technology and Family Farm Institute (ATFFI) and the Center for Integrated Agricultural Systems (CIAS) and Russell O'Harrow, a retired dairy farmer from Oconto County, Wisconsin. Russell is also a member of the citizens advisory council for the Center and the Institute, organizations associated with the College of Agricultural and Life Sciences, UW-Madison, and with the UW-Extension. Douglas Romig secured significant background information for the report, while a graduate student at the UW-Madison.

Indicators of the decline in the entry rates of Wisconsin farmers come from focus groups, surveys, and census data. Focus groups and listening sessions with Wisconsin farmers and agricultural professionals conducted by the ATFFI during 1993 and 1994 revealed the consistent message that it is currently very difficult for young people to enter farming and for older farmers to sell out or transfer the farm when they are ready to retire. (Lezberg, Sharon. *Summary of the ATFFI Entry-Exit Focus Group Meetings: A Report to the Entry-Exit Coalition.* ATFFI Research Paper #5. University of Wisconsin, Madison, 1994.) Survey research and analyses of census data confirm these impressions and indicate that the decline of farm numbers in Wisconsin during the 1980s and the early 1990s was accounted for primarily by a decline in the rate of entry of new farmers rather than an increase in the rates of farm exits. (Jackson-Smith, Douglas. *Getting In While the Going's Tough: Entry into the Wisconsin Farm Sector.* ATFFI Technical Report #1. University of Wisconsin, Madison, 1994) In fact, entry rates declined in Wisconsin during this period faster than in any other state in the nation. (Gale, Fred and David Henderson. *Estimating Entry and Exit of US Farms, 1978-1987.* USDA-ERS Staff Report AGES9119, 1991.) Studies of the establishment and termination of dairy herds in the state based on the Brucellosis Ring Test lists also point to a declining number of dairy herd establishments in Wisconsin. (Cross, John. *Entry-Exit Behavior of Wisconsin Dairy Farms.* ATFFI Research Paper # 6. University of Wisconsin, Madison, 1994.)

[2]Many of these organizations were affiliated during the past three years through the Wisconsin Farm Entry/Exit Coalition. During the spring, 1995, the Coalition successfully secured funding from the state's legislature, through the Wisconsin Dairy 2020 Program, to support the Wisconsin Farm Link Services to be located in the Farmers' Assistance Program of the Department of Agriculture, Trade, and Consumer Protection.

[3]Holmes, C. W. and G. F. Wilson. *Milk Production From Pasture.* Butterworths, NZ, 1984.

[4]Information Consultancy Group. *New Zealand In Profile.* P. O. Box 2922, Wellington, NZ, 1994.

[5]For more detail on management-intensive, pasture-based dairying systems, see Bartlet, B., et.al. *Grazing Reference Materials Manual.* Cooperative Extension Division, University of Wisconsin-Extension and College of Agricultural and Life Sciences, University of Wisconsin-Madison, 1994.

[6]New Zealand's relatively lower per cow milk production levels are a function of nutrition and length of lactation, rather than differences in the genetic merit of the cattle. Parker, W. *Management and Financial Characteristics of New Zealand Dairy Farms.* Paper for a technical workshop on "Parallels in Dairy Grazing in New Zealand and the Midwest," Arlington Research Station, Wisconsin: 7. 1993.

[7]Holmes and Wilson, 1984, p. 2; Brooks, I. *New Zealanders make nearly 2-1/2 times their U.S. counterparts.* Hoards Dairyman. March 10, 1966.

[8]Parker, W. and G. Rauniyar. *Are sharemilkers contributing to their own demise?* Paper and presentation to the 1995 Sharemilkers Conference, Palmerston North, NZ: 5-6. 1995.

[9]These milk prices are calculated on New Zealand farmers being paid NZ $6.38/kg of milk fat in 1994 and currency exchange rates of NZ $1 = U.S. $0.65. Parker and Rauniyar, p. 6.

[10]Parker and Rauniyar, p. 5.

[11]Parker and Rauniyar, p. 1.

[12]Parker and Rauniyar, pp. 2-3. The increased cow to hectare ratio has been facilitated by increased labor efficiencies connected with improved cowshed design and equipment, farm transport and electric fences.

[13]The New Zealand statistics are for 1953-54 and for 1993-94 and are taken from Parker and Rauniyar, pp. 1-5. The Wisconsin and U.S. statistics are for 1954 and for 1992 and are taken from: (a) The Bureau of the Census. *1954 Census of Agriculture.* Volume 1: Counties and State Economic Areas, Part 7, Wisconsin, Department of Commerce, Washington, D.C., 1956; (b) The Bureau of the Census. *1954 Census of Agriculture.* Volume II: General Report, Statistics by Subjects, Department of Commerce, Washington, D.C., 1956; (c) The Bureau of the Census. *1992 Census of Agriculture,* Volume 1: Geographic Area Series, Part 49, Wisconsin and County Data, Department of Commerce, Washington, D. C., 1994; and (d) The Bureau of the Census. *1992 Census of Agriculture,* Volume 1: Geographic Area Series, Part 51, United States, Summary and State Data, Department of Commerce, Washington, D.C., 1994.

[14]Parker and Rauniyar, p. 9.

[15]Parker and Rauniyar, pp. 6-7.

[16]Parker, 1993, p. 17. This judgment is based on annual personal family drawings averaging around NZ $25,000 after home mortgage and some electricity, telephone, and vehicle expenses are met by the farm business.

[17]See the New Zealand Dairy Board. *Annual Report.* P. O. Box 417, Wellington, NZ, 1994.

[18]Parker, 1993, p. 23.

[19]For a guide to the 1990 Resource Management Act, contact the authors of this report or write to the Ministry of the Environment, P. O. Box 10-362, Wellington, NZ.

[20]Parker, 1993, p. 25.

[21]Interview with Neville Martin, Public Affairs Manager, New Zealand Dairy Board, May 12, 1995.

[22]The five-fold increase in New Zealand's milk production since the 1950s has occurred primarily because of the herd expansions noted above. Per cow production has improved considerably more slowly, with production averaging 113 kg MF per cow in the 1950s and 150 kg MF per cow in the 1990s. (Parker and Rauniyar, p. 2.) Such indicators have caused leading animal scientists in New Zealand to conclude that less than 75 percent of the genetic potential of New Zealand dairy cattle is being expressed and that leading dairy farmers are close to the limit for milk production from pasture-only feeding systems. (Parker, 1993, p. 25.)

[23]Farmers reported on their experiences with all these strategies during the 1995 Sharemilkers Conference, May 8, 1995.

[24]Parker, 1993, p. 25.

[25]Attrril, B., R. Short, V. Westbrook, and D. Miller. *Profit, production and inputs.* Report from the dairy farmers field day, "Systems For More Milksolids," April 13, 1995. No. 2 Dairy. Dairying Research Corporation, Ruakura, NZ, 1995.

[26]Dobson, W. "The competitive strategy of the New Zealand dairy board." *Agribusiness.* Vol. 6, 6(1990): 541-558; The Boston Consulting Group. Performance and efficiency audit, 1995; The New Zealand Dairy Board, 1990-1993. The New Zealand Dairy Board, P. O. Box 417, Wellington, NZ.

[27]The Dairy Board's position regarding the export of dairy products from New Zealand is technically referred to as a monopsony, the monopoly being over supply, rather than in the marketplace.

[28]Interview with David Bay, April 30, 1995. In contrast to the Dairy Board, the Wool and Beef Boards in New Zealand do not possess export monopolies, and both industries remain highly atomistic and under-coordinated, according to some producers. Interview with Graham Wilson, May 7, 1995.

[29]Johnson, R., W. Schroder, and N. Taylor. "Deregulation and the New Zealand agricultural sector: a review." *Review of Marketing and Agricultural Economics* 57, Nos. 1,2,3(1989): 47-73.

[30]The results of a 1994 survey of New Zealand dairy farmers indicated that 89 percent supported the Dairy Board's single seller mandate. MRL Research Group, New Zealand Farmer Survey, 1994. A survey of dairy company workers conducted in 1994 reported similar support. Both reports are available from the New Zealand Dairy Board, P. O. Box 417, Wellington, NZ. An American-trained economist from Massey University said, "My knee-jerk reaction was, 'If it's a monopoly, it must be bad,' but I can't find much wrong with the Dairy Board and I've been looking." Interview with William Bailey, May 5, 1995. New Zealand's principle farmer advocacy organization, the Federated Farmers of New Zealand, is both a strong advocate of "free market" policies and of the Dairy Board's single seller mandate. Interview with Malcolm Bailey, May 9, 1995.

[31]For a summary of these issues, see McRae, A. and G. Lynch. *Does the dairy board best serve the interests of New Zealand farmers?* 1991 Dairy Farming Annual: 1-9, Wellington, 1992.

[32]Dairy Board statistics cited in Paterson, H. *A post-GATT analysis and outlook for the New Zealand dairy industry.* Tasman Agriculture Ltd., Wellington, NZ.

[33]Paterson, *ibid.*

[34]Dobson, p. 547. Presentation by Chris Moller, Dairy Board executive, at the 1995 Sharemilkers Conference, Palmerston North, May 10, 1995.

[35]Dobson, p. 547.

[36]The Dairy Board has made the tactical decision to not allow the use of rBGH in dairy herds because of consumer sensitivities, particularly in Taiwan and other Asian countries. Tail docking, a common practice on many New Zealand dairy farms, is also likely to be stopped due to animal welfare concerns among European consumers. Interview with Neville Martin, Manager of Public Relations, New Zealand Dairy Board, May 12, 1995.

[37]Dobson, p. 546.

[38]Interview with Neville Martin, May 12, 1995. It is through such joint ventures that the Dairy Board gets involved with the non-dairy enterprises that are at the heart of the "unbundling" issues. For instance, the Dairy Board is involved with such overseas ventures as refining and marketing vegetable oils, processing fruit juices, and marketing fertilizer, cars and tractors. Dobson, p. 546.

[39]Dobson, p. 547.

[40]Interview with Neville Martin, May 12, 1995. According to Dairy Board calculations, third place entrants into a given market tend to break even, and entering fourth or later is a strategy for losing money.

[41]The importance of the Dairy Board's cooperative structure was stressed alongside the importance of the "single seller" mandate by nearly all the persons we interviewed in New Zealand.

[42]Two of the thirteen Dairy Board Directors are appointed by the New Zealand government.

[43]Paterson, p. 1; Dobson, p. 544.

[44]Boston Consulting Group, 1995.

[45]Interview with Stuart and Beth Bay, April 30, 1995.

[46]Interview with David Bay, April 30, 1995. From this farmer's perspective, cooperation was forced on the New Zealand dairy industry as a survival mechanism, both in the 1930s and again following the new economic realities emerging in the 1980s. Mr. Bay feels that similar choices will also con-

front members of the U. S. dairy industry should government support prices for milk drop appreciably.

[47]Interview with David Gray, May 5, 1995. See also Dobson, p. 543.

[48]Interview with Warren Parker, May 5, 1995.

[49]Interview with David Bay, April 30, 1995. Interview with Brian Mooney, May 6, 1995.

[50]John Whitlock's public statement while chairing a panel at the 1995 Sharemilkers Conference, Palmerston North, May 11, 1995.

[51]One young farm family that we interviewed expressed their comfort with directly phoning Dairy Board directors when they felt the need to express an opinion or receive particular information. Interview with George and Sharon Moss, May 4, 1995.

[52]A director of the largest dairy company in New Zealand, the New Zealand Dairy Group, indicated that his director's annual stipend exceeded NZ $40,000.

[53]Interview with Brian Mooney, May 6, 1995.

[54]The consequences of such on-going dialogues within the New Zealand dairy industry were apparent at the 1995 Sharemilkers Conference as many young farmers exhibited thorough understandings of such complex issues as the effects of the New Zealand dollar's international exchange rate on the Dairy Board's profit profile.

[55]Telephone interview with Neville Martin, Outreach Manager, New Zealand Dairy Board, October 26, 1995.

[56]The Federated Farmers are strong believers in a deregulated "free market" approach to political economy based on the organization's analysis that the primary beneficiaries of the pre-1984 economic arrangements in New Zealand were not farmers, but farm-related service industries like fertilizer dealers and shippers. Current issues on the Federated Farmers political agenda include advocacy for "outcome based approaches" to farmer responsibilities under New Zealand's tough new environmental laws, supporting farmer's property rights in the land and treaty negotiations between the government and various indigenous Maori nations, and advocacy for the controlled privatization of federal grazing lands on the South Island. Interview with Paul Jackman, Public Relations Manager, Federated Farmers, May 12, 1995.

[57]With the dismantling of New Zealand's publicly funded extension service in the mid-1980s, the role of the Livestock Improvement Corporation's farm consultants has become increasingly important. Other private extension consultants operate in New Zealand on a fee-for-service basis, but according to several sources their role has dwindled to that of primarily offering financial advice to farmers. Interviews with Richard Kuiper and Evelyn Hurley, May 5, 1995.

The Dairying Research Corporation has five self-contained farms currently under operation. Four, located at Ruakura, focus on milking systems and mastitis control, farm management, young stock, and dairy nutrition. Another farm is located in the Taranaki region of the North Island and focuses on farm management. Interviews confirm that the Dairy Board's presence in the Dairying Research Corporation partnership has had a significant disciplining effect on the research agendas of Ruakura scientists. Interview with Bob Parr, May 1, 1995. Scientists from the Dairying Research Corporation and Ag Research work closely together at Ruakura. While linkages with university-based scientists do exist, these researchers play a distinctly tertiary role in agricultural research because New Zealand does not have a strong land-grant university system like the U. S.

An example of the Dairy Board's nurturing role for the industry is its sponsorship of a video-tape series entitled "Farming With Pictures" that is widely distributed to New Zealand dairy farmers. Funds for producing these technically attractive videos are partly generated through co-sponsorship by New Zealand agribusiness whose products and services are tastefully highlighted. Videos are

produced and distributed four times a year, with each focusing on seasonally relevant topics. The video the authors viewed in the home a veteran farmer (prior to settling in for a serious watch of the first America's Cup yacht race) included the following topics: Dairy Board marketing updates, pasture fertilization, cow conditioning for optimal calving, milking equipment maintenance and mastitis control, and supplemental feeding experiments at the Ruakura research station.

[58]Interview with Karen Flukes, ITO Agriculture, May 12, 1995.

[59]Parker, W., D. Gray, J. Lockhart, G. Lynch, and E. Todd. "Drying off management and the use of management aids on seasonal supply dairy farms." *Proceedings New Zealand Society of Animal Production.* 53(1992): 127-132.

[60]Bureau of the Census. *1992 Census of Agriculture, Volume I: Georgraphic Areas Series, Part 49: Wisconsin State and County Data: 133.* U.S. Department of Commerce, Washington, D. C., 1994.

[61]Roughly one-third of New Zealand's dairy farmers come from non-farm backgrounds estimates a knowledgable farmer and director of the Livestock Improvement Corporation. Interview with Stuart Bay, April 30, 1995.

[62]Less than 5% of Wisconsin farmers come from non-farm backgrounds. Unpublished data from the *1995 Wisconsin Dairy Farmer Poll,* The Agricultural Technology and Family Farm Institute, UW-Madison, 1995.

[63]Federated Farmers of New Zealand. *Sharemilking: the Opportunity.* Wellington, 1995.

[64]The authors were struck by the number of times the word "career" was used by New Zealand dairy farmers of all ages to describe their occupational plans. Such language indicated clearly that these farmers saw themselves as serious professionals and business persons.

[65]Such rapid capital accumulation is significantly assisted in New Zealand because no capital gains taxes are paid on cattle sold by sharemilkers.

[66]Interview with Warren Parker, May 9, 1995.

[67]Interview with Frank Park, April 30, 1995.

[68]Interview with Wayne and Salina Berry, sharemilkers in the Waikato district, May 3, 1995.

Given rising land prices in the Waikato, a traditional dairying region of New Zealand, the Berrys recognize that they will need to select a highly productive farm and return, once again, to supply all the labor themselves.

[69]Interview with David Bay, April 30, 1995. David's son, Stuart, is currently a director of New Zealand's largest dairy manufacturing company, the New Zealand Dairy Group, and is an active board member of the Livestock Improvement Corporation. Discussions with sharemilkers indicate that employment or a share agreement on one of the Bay's farms is viewed as an important career badge. The Bays regularly get more than 150 applications for sharemilking openings. Interview with Stuart and Beth Bay, April 30, 1995.

[70]The length of time it takes for a student to progress through the various levels of accreditation depends on whether they exercise full-time or part-time options in the "Farm Training Pathway." In addition, students can start at advanced levels upon providing evidence of prior experience or learning, (e.g., a letter from a former employer). At several stages in the technical institutes' educational sequence, students can transfer to one of New Zealand's two universities with agricultural curriculums, Massey University on the North Island or Lincoln University on the South Island. Students holding a Diploma in Agriculture receive two year's worth of credits towards a Bachelors Degree in Agriculture.

[71]A more intensive 28-week option is available to beginning students and results in earning the National Certificate in Farm Practice in one year.

[72]Interview with Peter Hodgkinson, Instructor at the Waikato Polytechnic Institute, May 2, 1995.

[73]The Waikato Polytechnic Institute. "Agriculture Courses for 1995." Waikato Polytechnic, Private Bag 3036, Hamilton, NZ.

[74]As the instructor put it, "The ways of farming families can sometimes be a "culture shock" to young people raised in the city." Interview with Peter Hodgkinson, May 2, 1995.

[75]Interview with Peter Hodgkinson, May 2, 1995.

[76]The instructor also indicated that "sexism is high among male students." Interview with Peter Hodgkinson, May 2, 1995. Records kept by ITO Agriculture indicate that less than 10 percent of the nearly 2,000 cadets enrolled during 1994 in the Farm Cadet Program were women. FETA. *Farm Education and Training Association Annual Report.* 30, Wellington, 1994.

[77]The other option is a one-day-per-week class that runs for a year.

[78]Interview with Nicola Morris, chief executive office of the Taratahi Agricultural Training Centre, May 11, 1995.

[79]Tuition for Taratahi's twelve-month pre-cadet training is NZ $6,500 for residential students and NZ $2,000 for commuters.

[80]Interview with Nicola Morris, May 11, 1995.

[81]Another indicator of the Dairy Board's support for key components of the industry is that Dairy Board directors are often featured speakers at these annual Taratahi conferences for high school guidance counselors. Interview with Nicola Morris, May 11, 1995.

[82]Interview with Nicola Morris, May 11, 1995.

[83]Brochure published by ITO Agriculture, Old Wool House, 140 Featherston St., P. O. Box 10383, Wellington, NZ.

[84]Interviews with Gary Beecroft and Karen Flukes, May 12, 1995.

[85]FETA, 1994, p. 32.

[86]FETA, 1994, p. 33.

[87]Wayne Berry, the sharemilker described on page 17, is chair of the farmer advisory council for the Waikato district on the North Island.

[88]Due to industry characteristics and farm numbers, it is much easier for dairy cadets on the North Island to work on several different farms during their cadetships than it is for beef and sheep cadets, or even dairy cadets on the South Island, to do so.

[89]Interviews with Angela Bell (Waikato), May 3, 1995; Paul Sharland (Manawatu), May 11, 95; and Trevor Gardinor (Wairarapa), May 11, 1995.

[90]These larger commitments to the dairy career structure and to mentoring young dairy farmers are exhibited well by the Bay and Berry families described above.

[91]Each Farmer Trainer, in turn, pays ITO Agriculture NZ $150 to partially compensate for the organization's role as coordinator.

[92]See *Code of Practice and Employment Contract for FETA Farmer Trainers and FETA Students,* available from the authors of this report or by writing ITO Agriculture, Old Wool House, 139-141 Featherston Street, P.O. Box 10-383, The Terrace, Wellington, NZ.

[93]See the employment contract adopted by the Waikato district of ITO Agriculture, available from the authors or from ITO Agriculture, Waikato, Private Bag 3016, Hamilton, NZ. Examples of the terms of cadet employment come from the two cadet jobs that Wayne and Salina Berry are preparing to offer for the 1995-96 season. (Interview with the Berrys, May 3, 1995) The first position, a dairy herd assistant, will employ a junior cadet in his/her second year. Primary job responsibilities include assisting the Berrys with herd feeding and milking, farm maintenance, and calf rearing on the

family's 360 cow sharemilking operation. This cadet will work 60 hours per week and be paid NZ $16,000/year.

The second position, a herd manager, will employ a senior person in his/her third or fourth year of cadetship. The Berrys are looking for either a couple or a single person. This cadet will assume primary responsibility for managing the 150-cow herd that the Berrys sharemilk on Wayne's father's farm. Duties include pasture and hay management, breeding and calving regimes, animal health maintenance, milking, record keeping, and weekly farm management meetings with Wayne and Salina. This cadetship will involve a 60 hour work week, with fifty vacation days throughout the year, and pay NZ $25,000.

[94]Interview with Paul Sharland, May 11, 1995.

[95]Interview with Phil and Lois Butler, May 3, 1995.

[96]Competency-based education where "people receive credit for what they can do, rather than what courses they have taken" is being adopted throughout New Zealand as part of a national policy emanating from the Ministry of Education. The underlying goals of the policy are to better prepare the entire New Zealand work force for international competitiveness and to enable individual workers to more flexibly carry a "package of competencies" from one career stage to another. The authors were impressed with the broad range of competencies being emphasized by the Ministry of Education under the following headings: *essential learning areas* (language, math, science, arts, social science, and physical well-being), *essential skills* (communication, problem-solving, self-management, social and cooperative skills), and *attitudes and values* (honesty, reliability, tolerance and respect for others, fairness, respect for the law, non-racism and non-sexism). Presentation by representative of the New Zealand Ministry of Education at the 1995 Sharemilkers Conference, May 8, 1995. Many university educators in New Zealand are critical of the Ministry's competency-based approach, viewing it as not sufficiently synthetic. Interview with Warren Parker, May 10, 1995.

[97]For a complete list of the competencies on which dairy cadets are evaluated in the Waikato, see the district's "Performance Appraisal Form." available from the authors or from ITO Agriculture, Waikato, Private Bag 3016, Hamilton, NZ.

[98]Interview with Paul Sharland, May 11, 1995.

[99]Interview with Trevor Gardinor, May 11, 1995.

[100]For a fully detailed analysis of the issues involved in FETA's shift to ITO Agriculture, see the "Report on the Strategic Planning Workshop of Agricultural Industries and Educators Associated With FETA" in FETA, *Annual Report*, 1994, pp. 20-28.

[101]Prior to 1990, government regulations specified tightly the obligations required of farm owners and sharemilkers. Depending on the mix of contributions, agreements were divided into three categories based on the income share received by the sharemilker. These agreement categories were set at 29%, 39%, and 50%, respectively. For a detailed listing of the relative mix of contributions and responsibilities required of farm owners and sharemilkers under the pre-1990 sharemilking agreements, see Parker, 1993.

[102]See Maughan, C.W., K.I. Lowe, and B. J. Ridler. *Sharemilking: a position paper.* Technical Discussion Paper No. 16, Dept. of Agricultural Economics and Farm Management, Massey University, 1978. or Parker, 1993, p. 9. The stressfulness of sharemilking should not be under-played, however. The combinations of very hard work, starting families, managing labor, and negotiating with farm owners exert considerable pressure on young farm couples. Interview with Arnold Bryant, February 13, 1996.

[103]A copy of the common sharemilking agreement used throughout New Zealand can be obtained from the authors or from the Federated Farmers of New Zealand, P.O. Box 715, Wellington, NZ.

[104]Federated Farmers of New Zealand. "Sharemilking, The Opportunity." 1995; Parker and

Rauniyar, 1995.

[105]Parker and Rauniyar, 1995, p. 4.

[106]Parker, W. J., D. Gray, J. Lockhart, G. Lynch, E. Todd. "Drying off management and the use of management aids on seasonal supply dairy farms." *Proceedings New Zealand Society of Animal Production,* 53(1992): 127-132.

[107]Interview with Michael Palleson, May 9, 1995.

[108]Nearly all the sharemilkers we interviewed were concerned about two related issues: not being afforded membership rights in the cooperative dairy companies to which they shipped their milk, and not receiving compensation for improving the productivity and value of the farms on which they sharemilked.

[109]Several of the older farm families that we interviewed were buying additional farms and enlarging already sizable family enterprises. The principal corporate entry is represented by Tasman Agriculture, Ltd., an Australian-based firm that is buying sheep and beef farms on the South Island, converting them to large dairy operations (N>500 cows) and operating them through 50-50 sharemilking agreements. Tasman Agriculture orchestrated a significant presence at the 1995 Sharemilkers Conference.

[110]For the argument that the present inflation in land values is a speculative aberration and that land values will soon return to their more historically based correlation with enterprise profitability, see Parker and Rauniyar, 1995, pp. 7-9.

[111]Interview with Manawatu sharemilkers, May 9, 1995. See Wayne and Salina Berry's plan for farm entry based on 600 mortgage free cows, p. 17 of this report. This upper end figure is necessitated by the Berry's choice to buy near Wayne's father's farm in the Waikato, the most expensive dairy farmland in New Zealand. Phil and Lois Butler, sharemilking neighbors of the Berrys, are buying a 170-acre-farm in the less expensive Manawatu district. Income from selling 350 mortgage free cows will be added to savings to generate the 50 percent down-payment that New Zealand banks require for obtaining a first farm loan. Interview with Phil and Lois Butler, May 3, 1995.

[112]Interview with Phil and Lois Butler, May 3, 1995.

[113]Interview with Brian Mooney, May 6, 1995.

[114]Interview with Manawatu sharemilkers, May 9, 1995. Confirmation of this squeeze on first time 50-50 sharemilking agreements comes from interviews with established farm owners in the Taranaki and Waikato districts who indicated that openings for new sharemilking positions on their farms would elicit from 75 to 100 and from 150 to 200 applicants, respectively. (Interviews with Robert Godderidge, May 6, 1995 and Stuart and Beth Bay, April 30, 1995.) Sharemilkers all commented on the increasingly tight market for 50-50 positions and that "who you know" was often more important than "what you know."

[115]More income can be generated from employing contract milkers and managing two or three 50-50 share agreements than by operating a highly mortgaged, first-owned farm. If one is a good manager, the life-style comparisons may also be favorable in the short run. (Interview with Manawatu sharemilkers, May 9, 1995.) It will be interesting to watch this tendency toward a permanentization of sharemilking, as it represents a distinct change in the basic motivational underpinning of New Zealand's dairy career structure.

[116]The simple arithmetic driving this practice is that a herd of cows can be added for around 15 to 20 percent of the enterprise's income base. Add another 20 percent for a contract milker and the total expenses represent considerably less than the 50 percent payout of the converted sharemilking agreement.

[117]Several sharemilkers we spoke with were particularly incensed by these tactics on the part of farm owners, but felt that they couldn't resist too strongly given the current seller's market for 50-50

sharemilking opportunities.

[118]Parker and Rauniyar, 1995, p. 3, 10.

[119]Data presented May 8, 1995 at the 1995 Sharemilkers Conference by representatives of the Tui Milk Company indicated that 60 percent of the company's milk in 1991-92 came from farms operated by 50-50 sharemilkers. By 1994-95, this figure had dropped to 25 percent. If continued, the practice of employing 50-50 sharemilkers by such corporate farmers as Tasman Agriculture, Ltd., will bolster the market for these agreements. On the other hand, such corporate operations reduce the land available for eventual family farm ownership.

[120]When the number of new dairy entrants expressed as a ratio of total dairy farm sales (i.e., those sold to existing farmers, business people and companies, as well as new entrants, the proportion of new farmers has declined from 41 to 44 percent in 1978-80 to just over 15 percent in 1993-94. Parker and Rauniyar, 1995, pp. 8-9.

[121]The Wisconsin School for Beginning Dairy Farmers is sponsored by the Center for Integrated Agricultural Systems, the Farm and Industry Short Course, and the Agricultural Technology and Family Farm Institute, UW-Madison, in cooperation with GrassWorks, Inc., the UW-Extension, and the Wisconsin Technical College System.

[122]Research to identify alternative mid-career strategies being employed by Wisconsin dairy farmers is currently being designed by the staff of the Agricultural Technology and Family Farm Institute, UW-Madison. Among other things, the survey will identify the types of share-farming currently being employed by dairy farmers in the state. The role of off-farm employment in mid-career transitions will also be an important focus of the research, as will the role of rental and lease arrangements.

[123]See the model employed by consultants at Total Farm Management Services, Chilton, WI, as described in "Most Dairy Farm Transfers Begin With Milk Check Arrangement," October 12, 1995, the third in a series on dairy farm transition presented by the weekly newspaper, *AgriView.*

[124]For information on these sharemilkiing agreements, contact Rick Klemme, CIAS, 146 Agriculture Hall, UW, Madison, WI 53706. (608-262-5201, Klemme@ae.agecon.wisc.edu)

[125]The authors were struck by how clearly farm ownership, as opposed to well-paying jobs as permanent employees, was the key motivator for the New Zealand dairy cadets with whom we spoke. We have little sense of the mindsets of young Wisconsin dairy aspirants or what changes may or may not be taking place.

[126]Farmers Assistance Program, *Farm Transfers in Wisconsin, A Guide for Farmers,* Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison, 1994.

[127]Barham, Bradford and Spencer Wood. *1994 Wisconsin Dairy Farmer Poll: Summary Report: 18.* ATFFI Research Paper No. 4. ATFFI, UW-Madison, Madison, WI, 1994.

[128]Bowles, Samuel and Herbert Gintis. *Efficient Redistribution: New Rules for Markets, States, and Communities.* Political Economy Workshop, University of Massachusetts, Amherst, MA, 1994.

[129]Fourteen percent of a random sample of Wisconsin dairy farmers taken in 1995 report that they rotate cattle between pastures at least once a week. Five percent indicated that they rotate cattle on a daily basis. Unpublished data from the 1995 Wisconsin Dairy Farmers Poll, the Agricultural Technology and Family Farm Institute.

[130]See Wendorf, W., J. Baker, G. Heimerl, and R. Cropp. *Dairy grazing systems and the consequences on dairy processing and marketing.* CIAS working group report. University of Wisconsin, Madison, 1994.

[131]See the plans for a 100-cow dairy enterprise featuring fall-calving, high herd average, rotational grazing, and quality purchased feed reported November 24, 1995, in *AgriView.*

[132]Wisconsin and New Zealand dairy farmers are already learning from each other via the Internet

list server, GRAZE-L, sponsored in New Zealand by the Taranaki Polytechnic Institute, and in Wisconsin by the Center For Integrated Agricultural Systems, UW-Madison. For information on joining GRAZE-L, see website http://pluto.taranaki.ac.nz/tlbdt/grazel/join.htm.

[133]For more information on the "monitor farm" extension model, contact Rex. W. Webby whose address is listed in Appendix A.

[134]For more information on the Ruakura model, contact Bob Parr whose address is listed in Appendix A.

[135]For New Zealand concerns regarding increased management challenges as herd sizes increase, see Parker and Rauniyar, 1995, pp. 10-11.

Appendix A: Persons Interviewed

Bailey, Malcolm. Chairman, National Dairy Section, Federated Farmers of New Zealand. Agriculture House, 12 Johnson Street, PO Box 715, Wellington. Phone: 4-473-7269. Fax: 4-473-1081.
Bailey, William. Professor, Department of Agricultural Economics and Business, School of Applied and International Economics, Massey University, Private Bag 11222, Palmerston North. Phone: 6-350-4166. Fax: 6-350-5642; Email: W.C.Bailey @massey.ac.nz.
Baker, Peter and Shona. Manawatu Sharemilkers. Taonui Rd., R.D. 5, Fielding. Phone: 6-323-0360
Bardell, Cam. Sharemilker. Hamua R.D. 4, Pahiatuia. Phone: 6-376-6316.
Bay, David. Retired Dairy Farmer and Former Dairy Board Director. , R.D. 1, Te Aroha. Phone: 7-888-0892.
Bay, Stuart and Beth. Waikato Dairy Farmers. 680 Manawaru Rd., R.D. 1, Te Aroha. Phone: 7-884-6731. Fax: 7-884-6730.
Beecroft, Gary. Chief Executive Officer. ITO Agriculture, Level 6, Old Wool House, 139-141 Featherston Street, PO Box 10-3383 The Terrace, Wellington. Phone: 4-472-8731. Fax: 4-479-4233.
Bell, Angela. Field Officer, Waikato, ITO Agriculture. Corner of the Rurakura & Morrinsville Roads, Private Bag 3016, Hamilton. Phone: 7-856-0833; Fax: 7-856-0582.
Berry, Wayne and Salina. Waikato Sharemilkers. Lake Arapuni Road, R.D. 1, Putaruru. Phone: 7-883-5789.
Brett, Dymond. Sharemilker. Hamua R.D. 4, Eketuhura. 6-376-7355.
Butler, Phil and Lois. Waikato Sharemilkers. Tutukau Road, R.D. 2, Reporoa.
Bryant, Arnold. Retired Director of the Ruakura Agricultural Centre. 330 Cambridge Rd., Hamilton. Phone 7-856-3604. FAX: 7-838-5670.
Dickie, Merrell and Clare. Manawatu Sharemilkers. Apiti R.D. 2, Kimbolton. Phone/Fax: 6-328-4828.
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Gardinor, Trevor. Field Officer, Wairapa, ITO Agriculture. Agriculture House, 26 Perry Street, PO Box 311, Masterton. Phone 6-378-8125. Fax: 6-378-8009.
Graham, Fraser, Meryl, and Craig. Waikato Dairy Farmers. Lake Road, Taupiri R.D. 1, Waikato. Phone/Fax: 7-849-7038.
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Appendix B: Sharemilking Fact Sheet

FEDERATED FARMERS OF NEW ZEALAND (INC)

Sharemilking
The Opportunity

Sharemilking is a career option with promise and is a way for young people to enter farming and the dairy industry without having to purchase land, but at the same time being able to build assets and aim for farm ownership if that is their goal.

FACTS ABOUT SHAREMILKING

- 23% of dairy farms are farmed by herd owning sharemilkers.
- 10% of dairy farms are farmed by non-herd owning sharemilkers.
- Herd owning sharemilkers milk 3,140 herds.
- 26% of New Zealand's milk production comes from herd owning sharemilkers.
- Dairying is expanding in the South Island creating opportunities for sharemilkers with both corporate and private land owners.
- Sharemilkers can achieve a good return on investment and equity.

TYPES OF SHAREMILKING

Sharemilking involves operating a farm on behalf of the farm owner for an agreed share of the farm income as opposed to a set wage. Sharemilkers are independent self-employed contractors.

The two types of sharemilking agreements are Negotiable Order and 50% (50/50) agreements. The main difference between the 50/50 agreements and the Negotiable Order agreements is that the 50/50 sharemilker owns the herd and plant machinery necessary to farm the property other than fixed plant, whereas under the 1990 Negotiable Order the farm owner supplies the stock and plant and implements can be supplied by either party. The common term for a 50/50 agreement is three years. The term of a Negotiable Order agreement is one year.

THE 1990 NEGOTIABLE ORDER SHAREMILKING AGREEMENT

Negotiable Order agreements are covered by a Government regulation called "The Sharemilking Agreements Order 1990". The Negotiable Order replaces 29% and 39% agreements. Copies are available from Federated Farmers offices. The percentage of income (the agreed share) received by the sharemilker is negotiated between the sharemilker and the land owner, but the other conditions of the agreement can only be varied if the sharemilker is not disadvantaged. The agreed share is arrived at taking into account the farms expected production, dairy company payout, farm equipment supplied by each party, and costs met by each party, plus allowing a reward for the sharemilkers management expertise and labour.

The 1990 Negotiable Order has two parts. Part one allows the sharemilker a share in cull cows and stock sales and a share of the increase/decrease of supplement values and veterinary costs. Part two varies only in excluding these provisions.

Obligations

The Sharemilker

- To manage the farm in accordance with good husbandry and the owners directions.
- To keep accurate herd records.
- To provide the labour.
- To supply dairy shed rubber ware, washdown hose and nozzle, brushes, buckets and brooms.
- To supply a farm bike if required.
- To pay dairy shed electricity plus farm water pumping electricity.
- To pay the agreed share of grazing, nitrogen fertiliser and purchased supplements.

The Owner

- To supply a healthy, sound, leptospirosis vaccinated herd.
- To supply previous records of production and herd health, pays AB and herd testing costs.
- To provide efficient milking plant, water supply and effluent disposal system.
- To supply fertiliser as specified in the sharemilking agreement.
- To provide and maintain good housing for the

Sharemilker - pays for freight, shed detergents and general farm maintenance.
- Pays full cost of supplementary crops.
- Meets costs of fuel and oil for running farm machinery.

50/50 AGREEMENTS

Owner's Obligations

The Owner:

- Provides the land, an efficient milking shed and plant, water supply and an approved effluent disposal system;
- Ensures buildings, including the sharemilkers house, fences, drains, hedges, etc are in a suitable condition at the commencement of the Agreement;
- Supplies material for the maintenance of fences, buildings, races, etc;
- Meets the landed cost of fertiliser;
- Supplies chemicals for weed and pest control, but not the spraying of drains;
- Pays half the cost of seed and fertiliser for supplementary crops;
- Retains, after consultation with the sharemilker, the management and control of the land.
- Pays for all permanent pasture seed.

Owners Remuneration

- 50% of milk cheques including deferred payments;
- Bobby calf income depending on the individual contract.

Sharemilker's Obligations

- Provides the herd, any bulls used and pays all AB and herd testing costs;
- Milks cows, cares for and feeds herd, rears calves for replacement;
- Supplies farm implements (tractor, hay mower, spray gear etc);
- Meets all shed operating expenses including belting, oil and power;
- Supplies and installs rubberware at the commencement of the Agreement, maintains same throughout the course of the Agreement and leaves the shed in efficient operating order;
- Supplies hose and nozzle for washdown plant and retains ownership of same;
- Pays all electric power used in milking shed and for water pumping;
- Responsible for all farm work, including maintenance;
- Supplies labour and meets harvesting expenses, including silage covers;
- Pays spreading costs of fertiliser;
- Pays half share of fertiliser and seed for supplementary crops and is responsible for cultivation of crops and regrassing;
- Is expected to complete all spraying, cultivation and sowing work associated with pasture renewal;
- Provides all labour;
- Unless specifically stipulated in the Agreement, the sharemilker is not entitled to take on outside work.

Attention is drawn to the fact that there is sometimes a trade-off in that the sharemilkers will receive all bobby calf returns in consideration for meeting the costs of bloat and eczema protection and also the cost of magnesium.

Remuneration to the Sharemilker

- 50% of the milk cheques, including any deferred payment for the season or seasons in question;
- A half share of the sale of bobby calves, except where there is a trade off between bobby calf sales and bloat, causmag and zinc costs;
- The proceeds of the sale of cull stock.

GUIDELINES FOR SUCCESSFUL SHAREMILKER AGREEMENTS

- Never sign anything you have not read or don't understand;
- Seek advice from local Federated Farmers Sharemilkers Subsection and other professional advice;
- Seek professional advice from a solicitor before signing a contract;
- Where it is a Negotiable Order Agreement - use 'The Sharemilking Agreement Order 1990' - this can be altered, but only if the sharemilker is not disadvantaged by the change;
- For 50/50 Agreements use the industry developed guidelines (copies available from Federated Farmers);
- Make sure farm policy has been fully discussed before signing;
- Make sure as much as possible is written down and quantified in the contract e.g. 2,000kg dm/ha pasture cover on 1st June. Any changes during the duration of the contract should be countersigned by both parties;
- Maintain good communication throughout the duration of the contract - problems can be avoided this way.
- 50/50 contracts are commonly for a three year term.

FEDERATED FARMERS OF NEW ZEALAND (INC)

Federated Farmers acknowledges the assistance and commitment the Bank of New Zealand has given to the farming sector, and in particular, in producing this fact sheet. This is one of many ways the Bank of New Zealand is showing its support for sharemilkers. Others include sponsorship of the coveted Bank of New Zealand National Sharemilking competition as well as Regional Sharemilking competitions. To find out how the Bank of New Zealand can help finance your next herd, or tailor banking to meet your specific needs, call a Rural Manager at any branch of the Bank of New Zealand or phone 0800 502 903 between 8am and 8pm weekdays. The views expressed in this article are not necessarily those of Bank of New Zealand.

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