Dairy Production in New Zealand

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Dairy production in New Zealand is recognized as one of the most efficient in the world. It has to be efficient because it is neither subsidized by tax-payers nor undergirded by governmental price supports. The price paid to dairy farmers is determined by the sale price of dairy products in the international marketplace. In 1992, New Zealand dairy farmers received the equivalent of $7.24 per hundred weight, compared to the $13.14 paid to U.S. dairy farmers. And, yet dairy farming is highly profitable in New Zealand, because their costs of production are less than half of ours.

New Zealand consists of two islands in the South Pacific. Table 1 provides some comparisons with Illinois. While New Zealand is twice the size of Illinois, it only has one third the human population. However, it has almost 15 times more dairy cows and produces 7 times more milk. It has 7 times more dairy farms and their herd size is more than twice ours. As they do not have a large domestic market, their dairy industry is focused on the export of dairy products, rather than on providing fluid milk. New Zealand dairy farmers enjoy a similar standard of living to ours; their efficiency is attributable to much lower feed costs, labor costs and capital expenditures.

Table 1. Comparative statistics for New Zealand and Illinois

	New Zealand	**Illinois**
Land area (square miles)	104,454	57,871
Population (millions)	3.5	11.5
Dairy Cows (Thousands)	2,600	177
Milk Production (Billion Pounds)	16.8	2.6
Dairy Herds	14,458	2,200
Herd Size (cows/herd)	180	70
Milk Yield (Pounds/cow/year)	6,685	14,836
Milk Fat (pounds/cow/year)	326	534
Milk Protein (pounds/cow/year)	244	475
Cows on test	78%	49%
Cows bred artificially	75%	75%

Their feed costs are less than 10% of ours. That is because their cows are fed on pasture and receive few supplements. New Zealand has a temperate climate with fairly predictable rainfall. Temperature variation is moderate, with few dairy areas subjected to temperatures below freezing or above 100F. The cost of growing grass or alfalfa is much lower than any other crop. Corn is 10 times more expensive to grow and, while some is grown to supplement pastures, it is not considered economically justifiable. Milk production is typically expressed per farm acreage. The dairy farmer must be an efficient manager of his pastures in order to achieve optimum pasture yields over the year and from one year to the next. Any excess pasture growth is converted to silage or hay for feeding when pasture growth is deficient, as during a summer dry spell or in the winter. Cows are moved from one pasture to the next once or twice a day in 20- to 30-day rotations.

A consequence of almost exclusive grazing is the seasonality of their production. This is done to optimize milk production when pasture quantity and quality are at their peak. As a result, little milk is produced in May, June and July (winter in the Southern Hemisphere.) Figure 1 illustrates the extreme variation in production as evidenced by milkfat processed each month. Most farmers attempt to calve their cows within a 6- to 10-week period starting in early August. This places a premium on getting their cows in calf in a timely fashion. Problem breeders are often culled, although induced calving (6 weeks prior to due date, usually with attendant losses of calf and of some production) is used to get late bred cows back in synchrony with their herdmates. Heifers are expected to calve at 2 years. They are often raised at some distance from the milking herd, sometimes by contract to graziers. Their growth is monitored regularly (as with monthly weighings) and supplements are fed if pasture feeding is insufficient to maintain optimum growth. Estrus of heifers is often synchronized by hormonal injections, to minimize visits by the artificial inseminator.

Another consequence of dependence on pasture is lower production per cow. Despite comparable genetic merit, their cows average 6685 pounds of milk per cow per year; this is less than half the production in Illinois of 14,836 (see Table 1). Milk fat and milk protein production is comparably lower. Peak milk production is lower and lactations are shorter, with 230-day lactations typical. Production per cow has been increasing by 1% per year since 1970.

Labor costs on New Zealand dairy farms are estimated at less than half of ours. This is due in part to the absence of cropping activities and labor associated with storing and feeding supplemental feeds. In addition, speed of the milking operation is prized, with the goal of 1-hour milkings twice a day for the average farm of 180 cows. An estimated 80% of milking parlors are herringbones, with rotaries accounting for most of the rest. Automatic detachers are common. With larger operations, the practice is to divide the cows into groups of 250 or smaller.

New Zealand dairy farmers also have much lower capital expenditures. Because their climate is mild, they do not need to house their animals in the winter. This reduces their investments in buildings. The lack of cropping and handling of supplemental feeds reduces their equipment needs. Operational costs are also reduced, particularly because fuel prices are high; New Zealand has essentially no petroleum reserves. In contrast, hydroelectric power is abundant and relatively inexpensive.

Relative to the use of BST (bovine somatotropin), it would be effective in increasing milk yields under New Zealand's production system. However, its use is currently banned for fear of offending potential customers, particularly in Europe, where it is also banned.

All milk is processed by a dozen farmer-owned cooperatives, with all profits distributed yearly on the basis of production. All exported dairy products are marketed through the New Zealand Dairy Board, which receives no governmental support, and pricing is dependent on the international marketplace. In turn, it pays the cooperatives for their product sold in that market. Their Dairy Board has signed cooperative agreements across the globe and has been adept at developing niche markets for its products. Despite being a small dairy producer (less than 2% of world production and 12% of U.S. production), New Zealand accounts for 21% of dairy products traded on the international market, nearly twice the U.S. contribution.

Their Dairy Board also funds the national dairy extension program, administered by the Livestock Improvement Corporation, so that no taxes support that activity either. Thirty consulting officers distributed across the country deliver a service that is designed to reach a majority of all dairy farmers once a month. An important feature is discussion groups lead by a consulting officer for up to 30 farmers. Because of the seasonal nature of dairying, most producers in any one area have animals at similar physiological states subjected to the same climatic conditions. This facilitates extension programming. Consulting officers can also provide limited advice to individuals, especially those at start of their careers. For extensive individualized advice, farmers are expected to hire private consultants, who are also associated with the Livestock Improvement Corporation. This perhaps unusual arrangement ensures that the same advice is being provided by private consultants and consulting officers.

Milk recording covers 78% of New Zealand's dairy cows; this is much higher than the 49% figure in Illinois (Table 1). Most cows are tested once every two months rather than once a month, as is more common in the U.S. Somatic cell counts are automatically provided as part of that service and high counts can be used in culling decisions. At present, many dairy cooperatives penalize for counts greater than 500,000 and that threshold will be progressively lowered. A recent major extension effort known by the acronym SAMM (Seasonal Approach to Managing Mastitis) has the goal of reducing the national average bulk milk cell count to 150,000 or lower. The effort has reduced cell counts substantially over the last year, as mid-lactation counts decreased from 250,000 to 160,000. Only time will tell if progress can be sustained. Dry cow therapy and teat dip after milking are integral aspects of the program. It may be of interest that teat washing prior to milking is discouraged. Under their conditions (pasture rather than stalls), this is counterproductive in terms of disease control and, besides, it is labor intensive.

Although per capita consumption of dairy products in New Zealand is high, with milk, cheese, and butter consumption at 126%, 60%, and 495% of U.S. consumption, respectively, their domestic market is small. To provide fluid milk locally year-round, 3% of dairy farmers are contracted for this purpose. Such farmers continue to rely on pastures, but reduce the stocking rate for cows producing milk over the winter when pasture growth is slow. They tend to have a two-season operation, spring calving and fall calving, rather than the continuous calving prevalent in the States.

In summary, New Zealand has a very efficient dairy industry. The country is blessed with a climate that provides for ample growth of good pasture and that eliminates the need for housing cattle. Their dairy industry makes effective use of this environment to produce milk in a cost-effective manner. New Zealand dairy farmers use the best genetics available to convert inexpensive grass and alfalfa into milk. This requires largely seasonal calving and minimizes inputs of supplements that are expensive for them to grow. They minimize their labor inputs whenever feasible. They market internationally via a single, effective corporation. Unlike many countries, their dairy industry is not subsidized by government and provides for its own extension service. Their system may not be applicable in Illinois or most of the U.S. at the present time. But, those of us in the American dairy industry would do well to understand their system and to be prepared to emulate it where appropriate.

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