

# THE DAIRY FARMING POPULATION AND MIGRATIONS

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This is the third in a series of articles looking at employment issues in the New Zealand dairy farming industry. The first in the series was an initial enquiry to gauge the extent of migration as a component of the dairy farm population. A second article discussed how the employment of immigrant staff could best be arranged to ensure lasting and successful employment relationships. This latest addition reviews the data available from the New Zealand census on the dairy farmers and dairy farm workers population and, in particular, on migration patterns within that population.

## Lack of useful and relevant data

A continuing problem associated with understanding labour numbers and employment issues in dairy farming is a lack of useful and relevant data. While an array of production and statistical information is available for the dairy industry this often does not include people data. There have been no consistent statistics collected of farm labour in New Zealand since 1996. A considerable number of data snapshots exist, as agriculture is sometimes included in survey data that is regularly collected on other sectors of the New Zealand working population. The *Annual Business Frame Update* survey, for example, included agriculture in 1998 for the first, and to date, only time. Additional insights may be gained from many exploratory studies, such as those described in the previous two studies of this series, although often the data collected is neither robust nor particularly representative of the situation as a whole. This article presents a more comprehensive picture of the dairy farming labour force using data from the five yearly *Censuses of Population and Dwellings*. The census collects data on all those resident in New Zealand on each census night and is comparable across the last three counts, in 1991, 1996 and 2001.

## The dairy farming labour force

The census records labour force statistics in several quite different forms. The primary differentiation is between those recorded as working in the dairy industry and those whose occupation is dairying. For the resident population on census night occupation in main job is recorded, as is who employs them. From these sets of figures a calculation is made of the numbers employed in any given industry.

Therefore it is possible to be employed in occupations other than dairy farmers/dairy farm workers and yet be counted in the dairy farming industry figures. These calculations generate quite different sets of figures. At the 2001 census there were 35,037 people employed in the New Zealand dairy industry and 26,331 employed by occupation as dairy farmers/dairy farm workers. This latter population, classified by Statistics New Zealand as 'Occupation Classification 61211 dairy farmers and

dairy farm workers', includes cadets, farm hands, managers, supervisors, workers, farmers, stud farmers, milking equipment operators and sharemilkers. The classification includes all those whose main job is dairying on-farm. Many reports on the dairy farming workforce are misleading as they use the industry figures rather than occupation, an especially significant point given that on-farm employment shortages have been identified as one of the greatest problems for the industry as whole.

## PROFILING THE DAIRY POPULATION

Tipples, Wilson and Edkins presented a reasonably robust profile of the dairy farmers/dairy farm workers population based on age structure, sex, highest qualification attained, hours worked and status in employment variables. Based on these variables the dairy farming segment of the population was compared with the New Zealand population in general. Temporal and regional comparisons were also possible. Some caution is needed when making comparisons between censuses as variables are often measured using different time frames, some questions are not answered well by respondents, the format and content of questions may change, and there may be variations in coding and classifications.

For these reasons the profile presented here does not include either income or ethnicity variables. It must also be remembered that, while the census presents data that are comparable over these three census years, it is essentially data on three separate sets of figures, or three separate populations. Some data available from the census does show changes within one population. It was possible to find out where the dairy farmers/dairy farm workers population at each census date had been living five years previously. This showed the migration of the dairy farmers/dairy farm workers population around New Zealand from 1986 to 2001 and is presented after the following description of the dairy farmers/dairy farm workers population.

## Characteristics of the dairy workers population

Data from the 2001 census showed the age distribution of the dairy farmers/dairy farm workers population to be similar to the New Zealand working population as a whole, although it was under-represented in the 20-24, 25-29 and 50-54 age groups, and over represented in the 30-34, 35-39 and over 55 age groups. Dairy farmers/dairy farm workers were poorly educated in comparison to the total population, especially the number who had degree qualifications although, as might be expected, they were slightly better represented with vocational qualifications.

In terms of status in employment, which classifies people according to whether they work for themselves or for other people, the dairy farmers/dairy farm workers population had much higher numbers in the 'self employed without employees' and 'unpaid family workers' categories – a reflection of the

unusual occupation structure of the dairy farmers/dairy farm workers workforce. One of the areas of greatest difference found was in the hours worked per week. In 2001, for all employed New Zealanders, 33% usually worked between 40 and 44 hours per week and 25% worked over 50 hours per week. In contrast only 11% of dairy farmers/dairy farm workers worked between 40 and 44 hours, while 64% worked over 50 hours. Within the total agricultural section of the working population 40% worked over 50 hours.

The census count shows an overall loss in the dairy farmers/dairy farm workers population of 6.4% between 1991 and 2001 along with changes in the population's characteristics. In 2001 there was a higher percentage in the older age groups than previously. While the 15 to 19 year group maintained its share, a fall in the percentage of those aged between 20 and 34 suggest that labour retention is a problem. The proportions of employees and employers had increased over time while the number of self-employed without employees had fallen, a reflection of changes in the operating structures on New Zealand dairy farms.

There was a percentage decrease in the numbers of part time workers and increases in those working over 70 hours per week. Caution is needed when discussing the dairy farmers/dairy farm workers population for New Zealand as a whole, however, as there are regional differences in farm and herd sizes, as well as regional variations in the operating structures on dairy farms.

## Regional distribution

Regionally the dairy farmers or dairy farm workers population has diverse characteristics, and a range of employment issues exist which are only relevant in some regions. Some factors, such as an ageing workforce put more pressure on existing workers. This is especially the case in traditional dairying areas such as Northland that have little or no experience of employing staff. The changing operational structure within the dairy industry can also create problems in new dairying areas where there has been movement of dairy farmers/dairy farm workers from traditional areas. Again, these farmers may have limited experience of employing staff. They may also be faced with quite different operating systems than those they were familiar with.

A striking feature of the dairy industry in New Zealand is its uneven regional distribution. Of the total 2001 dairy farmers/dairy farm workers population 20,973 (80%) were located in the North Island and 5,355 (20%) in the South Island. Waikato was the most populous region with 35% of the total. Waikato and Taranaki combined had over 50% of the total. Of the South Island regions, Canterbury and Southland recorded the most, with 7.1% and 5.2% of the New Zealand total respectively. There had also been considerable changes in the regional distribution of dairy farming in the decade preceding the 2001 census. Chief among these was the growth of dairying in the South Island, up from 10% in 1991, to 15% in 1996 and 20% in 2001.

### MIGRATION

Better understanding of this growth can be gained by analysis of internal migration data collected by the census. The census asks where working adults at each census date had been living five years previously. Maintaining a clear picture of the variable limitations was important – what is recorded is the previous

regional location of the dairy farmers/dairy farm workers, and members of this population may not have been part of the same occupation population five years previously.

Additionally, the figures do not show who might have left the dairy occupation except in total losses, by regions, in absolute numbers. This data was extremely complex to deal with and included a significant number of missing data from responses recorded as not stated or region not further defined. Despite these limitations the data present an interesting and useful picture of dairy farmers/dairy farm workers migration around New Zealand.

### ACROSS THE REGIONS

The table shows the percentage of each regional dairy farmers/dairy farm workers population moving for each of the census years. The North Island regions were more stable, with average movement of 14.8% of their population between 1996 and 2001. In contrast the average movement in South Island regions was 28.4%. In the North Island Taranaki was by far the most stable region, with only 9% movement between 1996 and 2001. The Bay of Plenty was the most volatile, with 19% movement between 1996 and 2001. For the North Island regions the percentages remained relatively consistent over all three census periods.

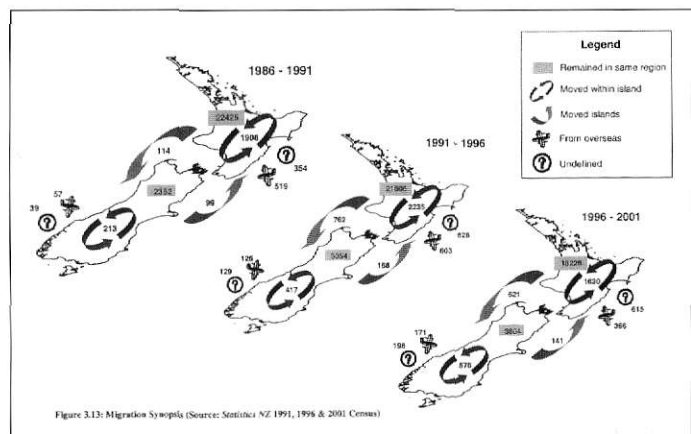
### Percentage migration by regions across census years

Percentage of regional total moving			
	1991	1996	2001
Northland	13	18	13
Auckland	12	19	17
Waikato	13	16	14
Bay of Plenty	16	20	19
Rest of North Island	11	18	17
Taranaki	5	10	9
West Coast	18	26	26
Canterbury	15	26	29
Otago	17	32	34
Southland	10	51	33
Nelson/Marlborough	12	21	20

In the South Island migration was more volatile across the three census periods. Of the dairy farmers/dairy farm workers in Southland at the 1996 census, for example, only 49% had been in the region in 1991. Movement into Southland appeared to peak in this census period and subsequently dropped to more normal South island levels at the following census. Both the Otago and Canterbury regions have remained volatile in terms of migration.

Care must be taken when discussing percentage movements however as the total numbers involved in many cases may be small. For example, the 14 percent movement of the 2001 Waikato dairy farmers/dairy farm workers population involved 1,260 persons who had not been in that region in 1996. In contrast, the 34% movement of the 2001 Canterbury dairy farmers/dairy farm workers population, who had not been in Canterbury in 1996, involved only 534 persons.

Migration synopsis



The illustration presents a summary of the dairy farmers/dairy farm workers population migration in absolute numbers for the three census years. The maps show the numbers who remained in the same region, although they may have moved within that region, those that have moved regions within islands and those that have moved islands. There has been a marked increase in the movement between islands over these years. In particular, increases in the South Island can be seen. At the time of the 1991 census there were 114 dairy farmers/dairy farm workers in the South Island who had been resident in the North Island five years previously. Conversely, 99 North Island dairy farmers/dairy farm workers had previously been in the South Island. At the time of the 1996 census the number moving south had increased to 762 – a 568% increase. The movement south had dropped slightly by the 2001 census, although there was still a much greater number moving south than north.

**WORKERS FROM OVERSEAS**

There was a steady increase in the South Island dairy farmers/dairy farm workers population coming from overseas over each of the three census years; from 57 in 1991, to 126 in 1996, and 171 in 2001. While it is impossible to know whether these people are returning New Zealanders or immigrant workers, the fact that over the same period the numbers from overseas declined for the North Island dairy farmers/dairy farm workers population suggests that this may, in a large part, be overseas workers satisfying demand in the South Island.

It is difficult to make comparisons of the dairy farmers/dairy farm workers internal migration and the total population. New Zealand as a whole has a very mobile population with 50% at the 2001 census recording a different address from that lived at five years previously. Rural adults, however, are far less likely to move than other sectors of the population. Additionally, the spread of dairying into new areas, such as Southland, goes against the normal migration trends for that region. The same problems occur when looking at the descriptive data from the census for this population.

The incidence of Gypsy Day as described in the first article in this series suggests unusual migration patterns within the dairy population. This yearly movement cannot be accounted for by the five-yearly census counts.

## An unusual population

This article has drawn a picture of the dairy farmers/dairy farm workers population at the times of the last three censuses of population and dwellings. The data available from the *Census of Population and Dwellings* can be used to describe the age distribution, employment structure, qualifications held and regional distribution of dairy farmers/dairy farm workers population. Although whether these are the most important characteristics of this population can be questioned. Census variables such as status in employment, while useful for making whole population comparisons, are perhaps not the most appropriate for an industry such as dairying where the employment structure is somewhat unusual. As Tipples et al found, the dairy farmers/dairy farm workers population did not closely profile the New Zealand population as a whole when compared across some variables. For some variables, such as hours worked, there is not even a close match with the rest of the agricultural working population.

**ETHNICITY**

Regional variations in the dairy farmers/dairy farm workers population, and in the nature of dairy farming, have to be taken into account especially in light of the migration described in this paper. To understand what is happening with, for example, labour retention in the dairy industry it would be useful to have data on the dairy farmers/dairy farm workers occupations five years previously, rather than just where they were living. The inclusion of variables such as ethnicity and income would also add to our understanding of the dairy farmers/dairy farm workers population.

Knowing more about the current ethnicity of the dairy farmers/dairy farm workers population is useful in several ways. At the 2001 census only 1300 (5%) of the dairy farmers/dairy farm workers population were Maori, compared with one in seven (14.3%) of the New Zealand population as a whole. The Maori ethnic group have a younger age structure and a higher birth-rate than the non-Maori population and thus has potential to increase its portion of the New Zealand population. This may also increase the percentage of Maori involved in dairying, although as the shows, a considerably larger number of Maori were employed in agricultural occupations other than dairying at the 2001 census.

Agriculture occupation and population increase by ethnicity

Ethnicity	Occupation agriculture	Percentage population increase 1991-2001
Total people European	122,610	3.0
Total Maori	14,850	21.0
Total Pacific people	2,208	38.7
Total Asian	2,736	138.0
Total other	168	n/a

The table shows the numbers employed, by ethnicity, for all agricultural occupations at the 2001 census. Agricultural employment is predominantly undertaken by those of European ethnicity. In the total population there has been a fall in the

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number of people recording European ethnicity from 83% in 1991 to 80% in 2001. Counts of Asian ethnicity have more than doubled between 1991 and 2001.

The column to the right in the shows the percentage increase for each of the main ethnic groups between 1991 and 2001. Those with the smallest representation in the agricultural work force are the fastest growing segments of the New Zealand population. Immigration has the potential to further change the ethnic balance in New Zealand and if it is these migrant workers who fill the future employment gaps on dairy farms, then as Tipples and Lucock pointed out, there are employment issues that need to be understood that are unique to them.

## Conclusions

While this article has drawn a comprehensive portrait of the dairy farmers/dairy farm workers population it is not without some serious limitations and cautions. On a positive note, however, it provides a platform to work from to gain greater understanding of the dairy farmers/dairy farm workers population and changes within that population. Provided there are no major changes in the data collection for the 2006 census we now have a base to which the next series of data can be added.

A detailed study such as this also provides a useful context, or framework, from which to view results from smaller exploratory surveys, such as those reported in the previous papers

in this series. The more we understand about the current dairy farmers/dairy farm workers population the better we will be able to predict and monitor future trends.

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