DAIRY INDUSTRY TRENDS IN THE N.S.W. MILK SOLIDS REGION, 1946–67

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This article traces the changes which occurred in the N.S.W. Milk Solids region over the 20 year period 1946–67. Variables examined are number of dairy farms, number of cows, volume of milk products sold, number of cows per farm, milk production per cow and per farm. Finally, three hypothesis are tested concerning the reasons for the changes in these variables.

1 INTRODUCTION

There has been considerable change within the N.S.W. Milk Solids Region during the past 20 years.[1] In part, these changes have been short-term responses to seasonal conditions, but more important, many of the changes have been consistently in the same direction and represent long-term trends. It is commonly accepted that the N.S.W. dairy industry as a whole has suffered a marked decline in the number of registered dairyfarms, and within the Milk Solids Region it is commonly suggested that the number of dairy stock and the volume of milk produced have also declined markedly. However, no survey of trends for these variables has been published on a regional basis, and little is known about the comparative rates of decline or increase of these measures of the dairy industry within this region.

2 DAIRY INDUSTRY DATA

Data were obtained from the Rural Industries section of the N.S.W. branch of the Commonwealth Bureau of Census and Statistics for each of the local government areas within the N.S.W. Milk Solids Region for three variables:

(1) the number of registered dairyfarms;

(2) the number of milking cows reported on registered dairyfarms;

(3) milk products reported delivered by registered dairyfarms to dairy factories.

(Hereafter these variables will be referred to as the number of dairyfarms, the number of milking cows and the volume of commercial milk.)

From these variables were derived the mean volume of milk reported sold by registered dairyfarms to dairy factories (commercial milk per farm), the mean volume of milk reported sold by registered dairyfarms

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[1] That part of the N.S.W. coastal dairy region excluded from the N.S.W. Milk Board Zone.

to dairy factories per milking cow on registered dairyfarms (commercial milk per cow), and the mean number of milking cows reported on registered dairyfarms per registered dairyfarm (milking cows per farm).

To present these data in a more manageable form, the 29 local government areas within the region were aggregated to conform as closely as possible to the watersheds of the coastal river valleys—Tweed, Richmond, Clarence, Bellingen-Coffs Harbour-Dorrigo, Nambucca, Macleay, Bega, and Eurobodalla. The two exceptions were the Bellingen-Coffs Harbour-Dorrigo local government areas in the north whose boundaries were so altered by re-organization of local government areas in 1956 that they cannot be satisfactorily disaggregated, and Eurobodalla Shire, which consists of several small river valleys which cannot be usefully separated. By this means it was possible to provide directly comparable data for eight sub-regions or Valley Regions continuously from 1946 to 1967, a time span quite adequate for time series analysis.

Data were derived from Rural Returns completed by landholders on the 31st March each year. As data relate to 1 day in each year, they are subject to similar comparability problems as Census data, both for comparing individual Valley Region data from year to year and for comparing Valley Region with Valley Region. However, with the exception of the southern Valley Regions during the past 5 years, there has been little incentive for dairymen in the N.S.W. Milk Solids Region to change from the normally accepted pattern of seasonal activities. In addition, "milking cows" were defined to include both cows actually in milk and "dry cows", that is, cows in milk earlier in the season, but not "springing heifers".

Selection and use of the six variables provides a number of problems. First, the Bureau of Census and Statistics provides dairy production data in a variety of measures which were frequently altered during the period 1946–67. To overcome this difficulty, all milk products were converted to standard milk equivalents in gallons.[2] Second, the Bureau has noted a consistent discrepancy between the volume of milk products reported delivered to dairy factories by registered dairyfarms and the volume reported received by milk factories.[3] The discrepancy generally varies between 1 and 5 per cent per annum, with 5 exceptional years (1945–46, 1947–48, 1952–53, 1954–55, and 1960–61) when the differences were calculated to be closer to 10 per cent. To overcome this discrepancy, all Valley Region totals were raised for each year by a state sales receipts difference factor provided by the Bureau. Thus,

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[2] Conversions to standard milk equivalents in gallons:
Commercial butter (lb) × 2·075
Butterfat (lb) × 2·5263
Cheese (lb) × 1·0
I. Molnar, Ed. *Australian Agriculture* (London: Heinemann, 1966), p. 604.

[3] Because of these discrepancies, the Bureau has asked that these data should be treated with caution and not published in a raw state.

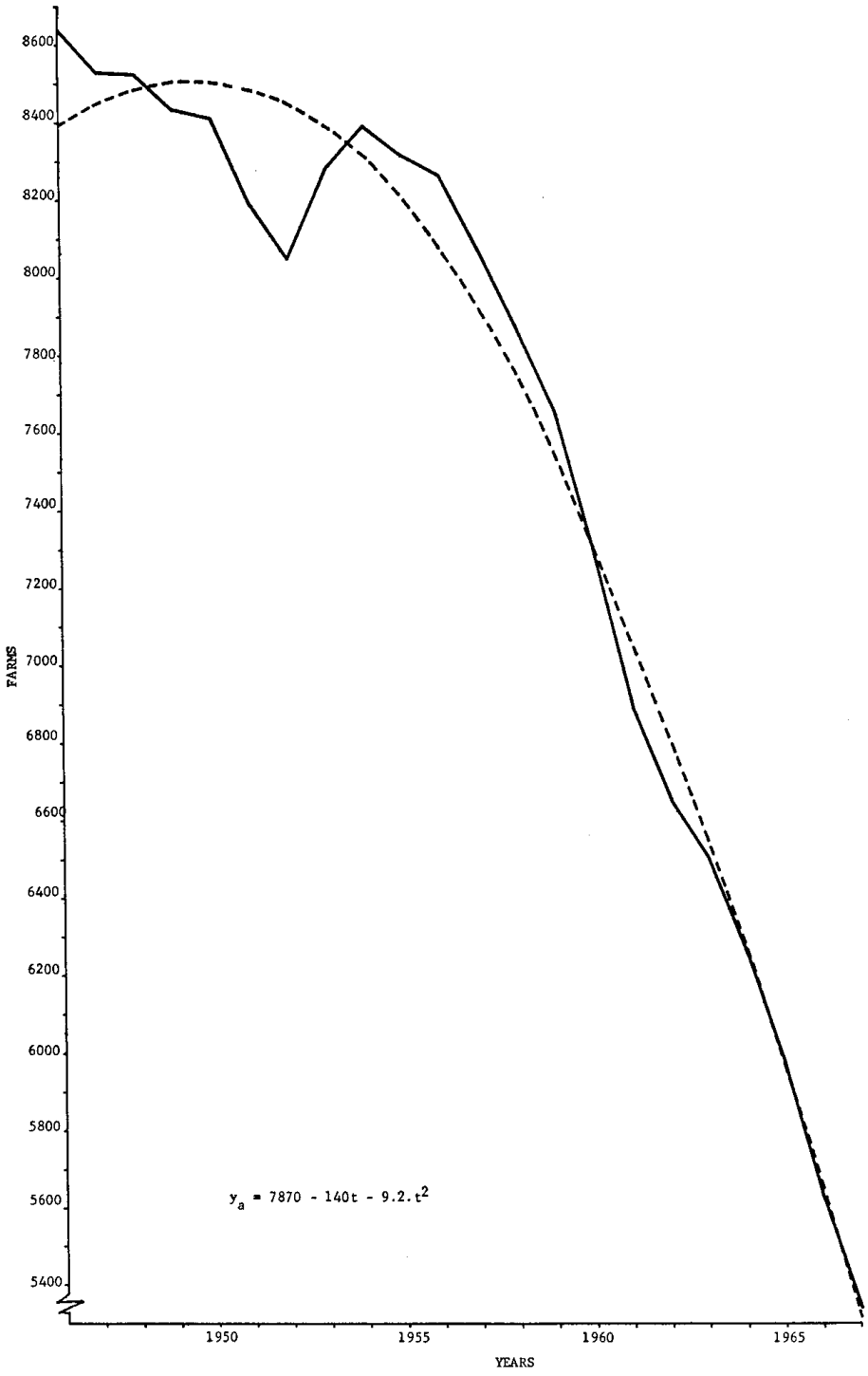

FIGURE 1: *Number of Dairyfarms*

while state totals are probably very accurate, there is a greater probability of error for Valley Region data which cannot be assessed, despite attempts to minimise it. To some extent the inherent probability of error in production data reduces its potential usefulness. However, the trends in production for each of the Valley Regions were so marked that it is considered that the errors will not materially alter the trend patterns. Third, it was impossible for the Bureau to provide total populations for each of the basic variables, hence little is known of the distributions for these variables. It seems likely that in all but the smallest of the Valley Regions, i.e. Eurobodalla, the populations are sufficiently large to assume normal distributions based on the evidence of published data from the census of rural holdings.[4] Fourth, during the period 1946 to 1967 the Bureau altered a number of categories of data to be reported, for example, *registered dairyfarms* became *commercial dairyfarms* and *milking cows* data were divided into *cows in milk* and *dry cows*. Direct comparison of annual returns for subsequent years by Police Districts indicated that most variations in data categories did not produce significantly different totals, and in some cases information from several categories could be aggregated to provide uniformity.[5]

3 DAIRY INDUSTRY TRENDS

3.1 NUMBER OF REGISTERED DAIRYFARMS, NUMBER OF MILKING COWS, AND MILK PRODUCTION

During the period 1946–67, the total number of registered dairyfarms in N.S.W. Milk Solids Region declined from 8,636 to 5,337. This decline was continuous except for a short period of expansion from 1952 to 1956. The overall decline between 1946 and 1967 amounted to 39·2 per cent of the 1946 total.[6] The trend curve:

(1) $y_a = 7870 - 140t - 9{\cdot}2t^2$

provides a good fit to the graphed data and suggests a continued rapid decline in the number of registered dairyfarms in the N.S.W. Milk Solids Region over the next few years. Beyond this the curve becomes so precipitous as to be of doubtful use of predicting the future dairy-farm population of the region[7] (figure 1).

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[4] *Classification of Rural Holdings by Size and Type of Activity, No.* 1, N.S.W. Bureau of Census and Statistics, (Canberra, Australia, 1965–66).

[5] Until 1967 the N.S.W. Police Department was responsible for delivering and collecting annually rural holdings returns. The returns were first aggregated by Police Districts and later by local government areas, Statistical Divisions and State totals.

[6] Detailed changes in farm numbers in each valley region will be discussed in a later section.

[7] M. J. Moroney, *Facts from Figures* (Middlesex: Pelican, 1962), Ch. 17.

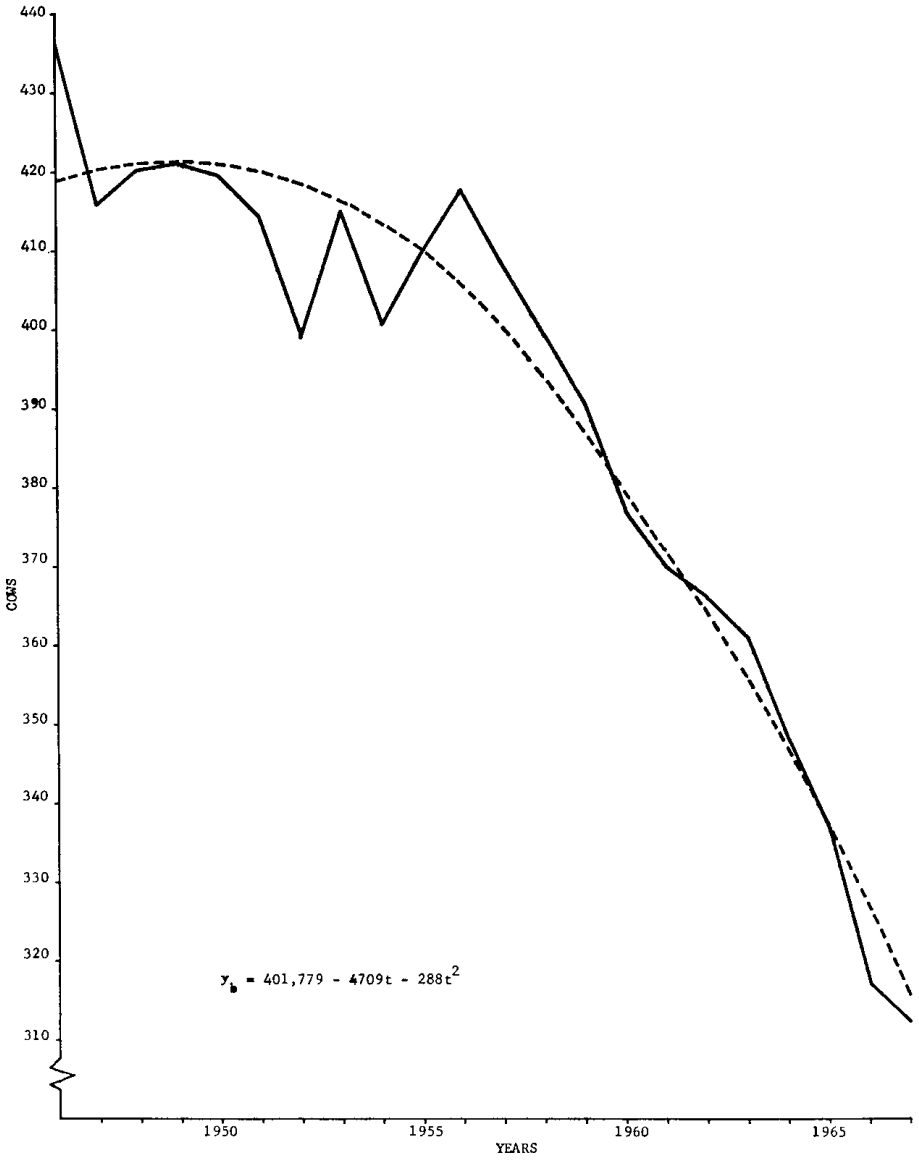

FIGURE 2: *Number of Milking Cows*

Similarly, the number of milking cows reported on registered dairy-farms had declined markedly (figure 2), but not quite as precipitously as the number of dairyfarms.

(2) $y_b = 401{,}779 - 4709t + 288t^2$

Returns for 1967 indicated some 312,815 milking cows in the Milk Solids region compared with 436,260 in 1947, the difference representing 23·3 per cent of the 1947 total. Annual variations in the number of milking cows are more noticeable during the slight milk solids industry

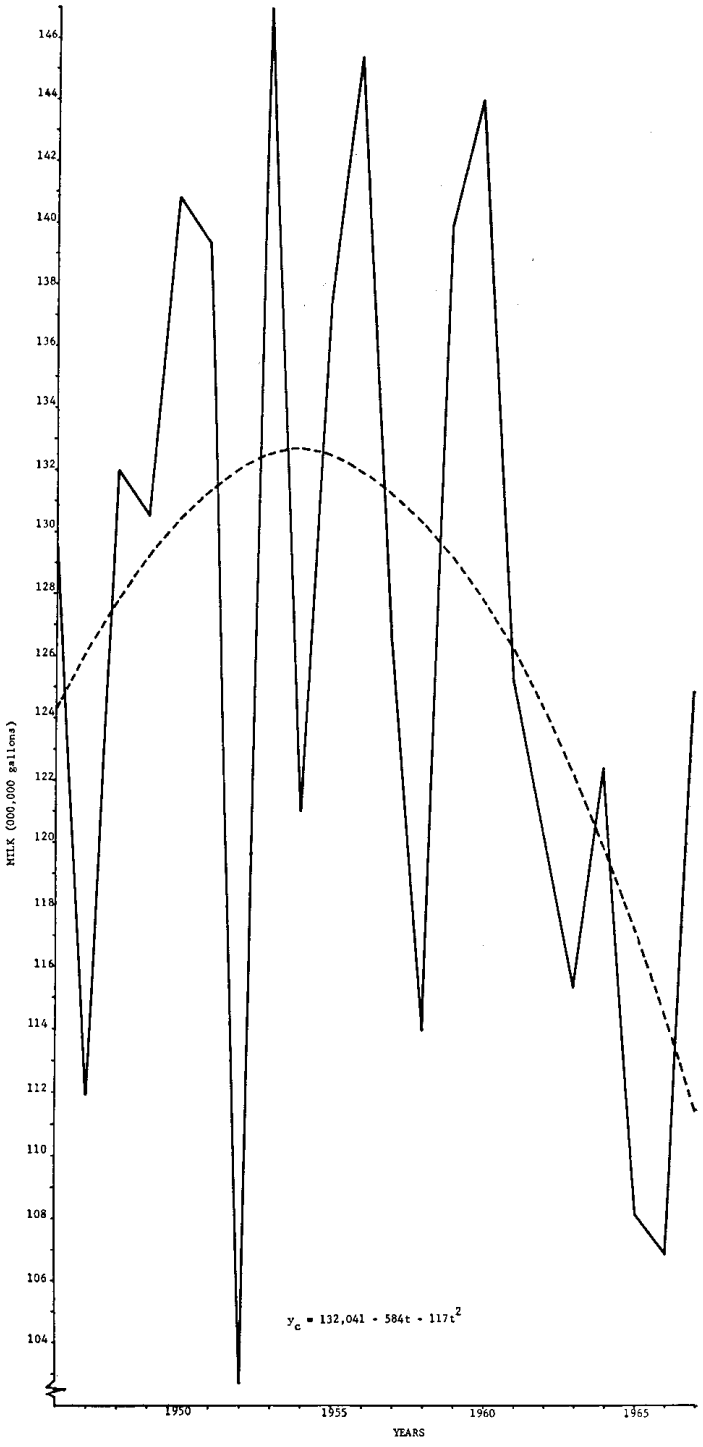

FIGURE 3: *Volume of Milk Sold*

boom in the early and mid-1950's, than for the number of registered dairyfarms, clearly illustrating the greater flexibility of herd size to economic anticipations in the very short run.

Data for the total volume of milk reported sold by registered dairyfarms to dairy factories, that is, commercial milk production, for this period displays a notably differing trend curve, which is represented by the equation

(3) $y_c = 132{\cdot}0 + {\cdot}584 - {\cdot}117t^2$ (by factor of 000)

(figure 3). The curve indicates an increase in commercial milk production from 124 million gallons per annum in 1947 to around 132·5 million gallons in the mid-1950's, despite a constant decline in the number of cows and the number of dairyfarms since 1947. However, after the mid-1950's, commercial milk production in the region began to decline, so that by the early 1960's the rate of decline was similar to the trend curves for the two previous variables. While seasonal conditions in the region were generally favourable for milk production between 1949 and 1963, the relationships observed between the trend curves for the number of dairy farms, the number of milking cows and commercial milk production suggests that at least till 1955, the region was benefiting from the removal of inefficient or marginal producers.

3.2 NUMBER OF MILKING COWS PER FARM, MILK PRODUCTION PER COW AND MILK PRODUCTION PER FARM

As would be expected with a proportionally greater decline in the number of dairyfarms than in the number of milking cows, the number of milking cows per farm was somewhat higher at the end of the period than at the beginning (figure 4). This increase, described by the trend curve

(4) $y_d = 49{\cdot}6 + 37t + {\cdot}05t^2$

was continuous from 1954 onwards. Similarly the trend curve for commercial milk per milking cow

(5) $y_e = 327 + 2{\cdot}5t - 0{\cdot}01t^2$

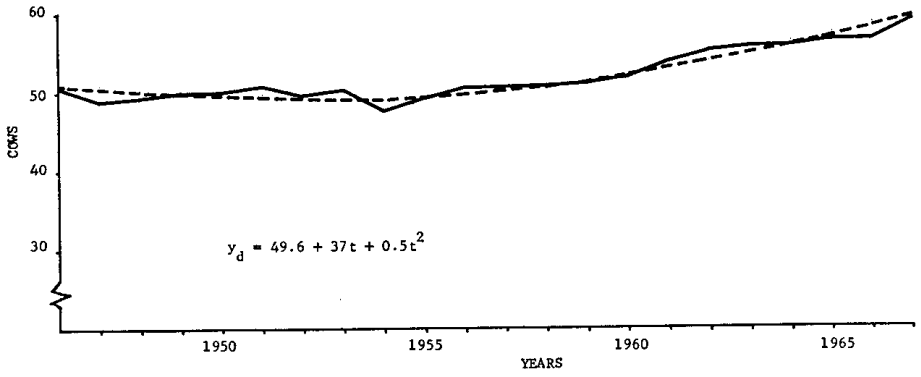

FIGURE 4: *Number of Cows per Farm*

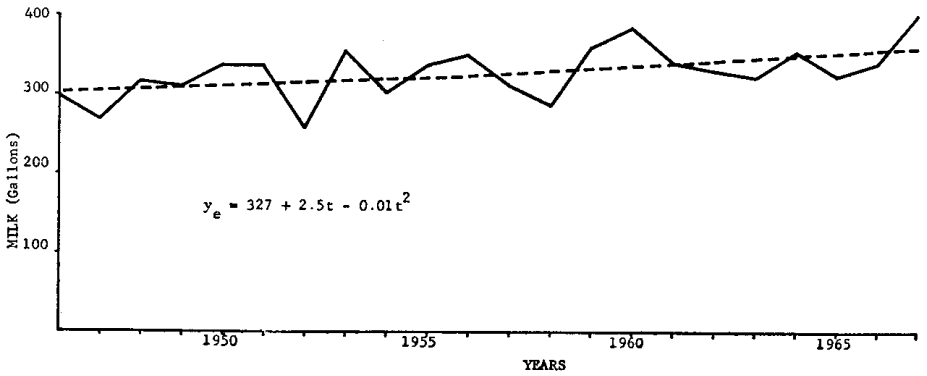

FIGURE 5: *Milk per Cow*

showed a consistent but slight rate of increase throughout the period (figure 5), although, in terms of actual production per cow, seasonal conditions caused a series of minor peaks and depressions. Due to the increase in the number of milking cows per dairyfarm and the increase in the production of commercial milk per cow, commercial milk production per farm demonstrated a significant increase between 1946–67, represented by the trend curve

(6) $y_f = 16{,}491 + 258t + 11{\cdot}6t^2$

Again actual data demonstrated considerable annual variation either side of the trend curve (figure 6). The volume of standard milk per farm suggested as providing a minimum level of economic reward by the McCarthy Report is represented by the 16,600 gallon line, which first intersected the trend curve in 1956.[8] Only during the last 9 years of the period was actual mean commercial milk production per farm in the Milk Solids Region in excess of 16,600 gallons.

4 THE RELATIVE IMPORTANCE OF EACH OF THE VALLEY REGIONS TO THE N.S.W. MILK SOLIDS REGION

These data indicate the broad pattern of trends in the N.S.W. Milk Solids Region, but do not distinguish Valley Regional variations within the various districts which comprise the region, and provide little opportunity to develop hypotheses concerning relationships between milk production and other farm characteristics. For this purpose it was decided to analyse the data for the same six variables by each of the Valley Regions.

By far the most important Valley Region in the N.S.W. Milk Solids Region is the Richmond. Its proportion of registered dairyfarms gradually increased from 47·7 per cent to 52·1 per cent of the N.S.W.

[8] Standard milk has a butterfat content of 3·3 per cent as required by the N.S.W. Milk Board.

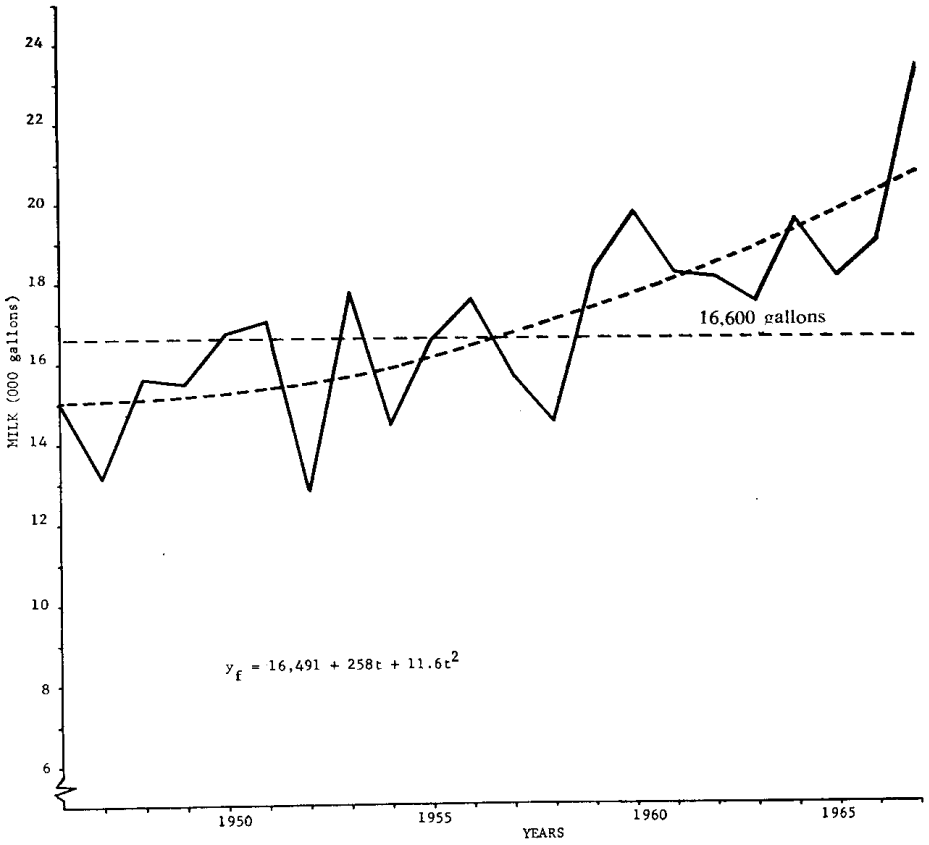

FIGURE 6: *Milk Production per Farm*

Region's total, despite a marked decline in its own dairy farm population of 32·3 per cent during this period. The Valley Regions with the greatest decline in number of dairyfarms were the Clarence (40 per cent of its 1946 total) and the Tweed (49 per cent of its 1946 total). In both Valley Regions the dairy industry faced considerable competition for land resources from the sugarcane industry in their lower valleys, and from the beef cattle industry in their upper river and tributary valleys.

The Richmond Valley, which is the major producing Valley Region of the N.S.W. Milk Solids Region, increased its proportion of total milking cow population from 51·8 per cent to 54·7 per cent between 1946 and 1967, while most other valleys in the northern section of the N.S.W. Region lost considerable proportions of their milking cow populations, e.g., the Tweed's proportion of milking cows declined from 10·7 per cent to 7·8 per cent. In contrast, the Valley Regions in the southern section of the Region increased their milking cow populations significantly, e.g. Eurobodalla milking cow population rose from 1·3 per cent of the Region's total to 2·1 per cent. However, the southern section of the Region provides only a small proportion

of the Region's total dairyfarm dairy cow populations and commercial milk production.

Despite some marked annual fluctuations in the proportional distribution of the Region's total commercial milk production among the Valley Regions, the general pattern of distribution for this variable was very similar to those of the two other basic variables e.g. the Macleay which commonly provided around 8 per cent of the Region's milk, provided 4·4 per cent of production in 1962. The only features worthy of comment are that the Richmond, Tweed, and Clarence provided a marginally lower proportion of commercial milk than of registered dairyfarms and of milking cows while the Bega, Eurobodalla, and Bellingen-Coffs Harbour-Dorrigo Regions provided a marginally higher proportion of commercial milk production.

5 HYPOTHESES CONCERNING TRENDS IN THE N.S.W. MILK SOLIDS REGION

By examining both the basic and derived variable data for each of the Valley Regions in turn, it should prove possible to test several hypotheses which have been commonly held concerning trends in the Milk Solids Region. Three of these hypotheses may be examined using this data:

(a) That the greatest rate of decline in the number of registered dairyfarms has occurred where opportunities for alternative forms of land-use are greatest.

(b) That scale of activities (represented by the mean number of milking cows per registered dairyfarm) is greatest in the core dairying districts where physical environmental conditions are the most favourable for dairying (represented by commercial milk production per cow), that is, the scale of activities is greatest where physical comparative advantage is greatest.

(c) That the decline in the number of registered dairyfarms represents the removal of small-scale dairyfarmers from the industry and is accompanied by an increase in the level of scale of activities.

5.1 THE REGIONAL DATA

There has been a marked decline in the number of registered dairyfarms in every Valley Region of the N.S.W. Milk Solids Region. The actual rate of decline has varied considerably from Valley Region to Valley Region, as did the time of commencement of this decline. First derivatives from the quadratic equations calculated for trend curve analysis in table 2 indicate the initial slope of trend curves in 1946 and the rate of change of slopes in succeeding time periods for each Valley Region. In Bega, Eurobodalla, Macleay, and Clarence Valley Regions, the decline in number of registered dairy farms commenced prior to 1946. In the Nambucca, Bellingen-Coffs Harbour-Dorrigo, Richmond, and Tweed Regions there was a period of slight to marked fluctuation in the number of dairyfarms between 1946 and 1955, but after 1955 the decline commenced in each of these regions, and the rate of decline

rapidly became greater than that of the previous group of Valley Regions. The southern Valley Regions, Bega and Eurobodalla, showed the slightest percentage decline (28·7 per cent) in the number of registered farms but Nambucca, Richmond, and Bellingen-Coffs Harbour-Dorrigo each had a decline of only between 32 per cent and 33 per cent in the number of dairyfarms between 1946 and 1967. On the other hand, the Clarence had a decline of over 60 per cent and Tweed of almost 53 per cent in the same period.

Data for the second variable, the number of milking cows per registered dairyfarm indicate a less marked decline in all Valley Regions than for the number of registered dairyfarms. In Eurobodalla after 1959, what had been a decline became a marked increase, so that by 1967 this Valley Region had a 17·7 per cent increase in the number of milking cows in the region. (Table 3 provides arithmetic comparison of the slopes of the trend curves for this variable for each Valley Region.) The third variable, volume of milk sold by registered dairyfarms to dairy factories, provides generally similar trend curves as the second variable, except in the southern Valley Regions (table 4). After the 1952 season, Bega Region had a marked increase in commercial milk production while Eurobodalla had a slight linear rate of increase which had commenced prior to 1947.

Among the northern Valley Regions, Richmond and Nambucca data provides trend curves with approximately the same proportional changes which began with a gradual increase in commercial milk production, reaching a peak around 1959, then declined progressively more rapidly during the rest of the period. Bellingen-Coffs Harbour-Dorrigo Region alone of those in the north provides data which indicates a consistent but gradually diminishing increase in total milk production throughout the period

(7) $y_c = 9356 + 79{\cdot}7t - 2{\cdot}4t^2$

The remaining northern Valley Regions, especially Clarence and Tweed, demonstrate a marked and increasing rate of decline in commercial milk production throughout the period.

Of the derived variables, mean volume of milk reported sold per registered dairyfarm to dairy factories provides the most interesting series of trend curves (table 5), especially when these are considered in relation to the 16,600 gallon line which represents the equivalent of the McCarthy Commission's minimum desirable level of butterfat production.[9]

Both southern Valley Regions have trend curves for commercial milk per dairy farm well above the 16,600 gallon level, with the lowest point of their trend curves for this variable in the early 1950's, rapidly increasing thereafter to the vicinity of 38,000 gallons per farm in 1967. Actual mean per farm milk production in the Bega Valley rose from a minimum of 17,400 gallons in 1947 to in excess of 38,500 gallons in

[9] *Report of the Dairy Industry Committee of Enquiry* (Government Printer: Canberra, 1960), p. 87.

1967. The level of mean per farm milk production was considerably more variable in Eurobodalla Region than in Bega Valley, with 7 years in which actual mean milk production was under 16,600 gallons per farm, and a range of from 13,600 gallons to 38,500 gallons per farm.

Data for mean per farm milk production in the northern Valley Regions reveals lower levels of dairy farm activity. Only in the Richmond Valley has the trend curve for this variable been above the 16,600 gallon line for the majority of the period 1946–67. In this region, however, the rate of increase per farm was diminishing in comparison with the rapidly increasing trend curves provided by the Macleay, Bellingen-Coffs Harbour-Dorrigo and Clarence Regions data. The general level of per farm milk production in the Nambucca Region has been outstandingly low throughout the period, starting at 10,390 gallons in 1946 and rising very gradually to 13,580 gallons in 1967. Actual commercial milk production per farm in the Nambucca only reached the McCarthy Report minimum level in one year, 1967.

Increases in commercial milk production per farm may be accounted for by increases in the mean number of milking cows per farm or increases in milk production per cow, or by some combination of the two. Marked increases in per farm milk production in southern Valley Regions are the result of marked increase in production per cow, combined with a slight increase in the number of cows per farm in the Eurobodalla Region and a marked increase in the number of cows per farm; and a slight increase in production per cow in the Bega Valley.

In the northern Valley Regions, only data for the Bellingen-Coffs Harbour-Dorrigo Region provides a trend curve with a notable increase in per cow production, from 270 to 440 gallons per cow (see table 6 for trend curve equations). Hence, increases in per farm production were very closely related to increases in the mean number of cows per farm, suggesting that the general improvement noted in per farm production was the result of either increased farm size or increased carrying capacity, the latter resulting from either short-term improvement of seasonal conditions or improved management.

Valley Region data generally do not suggest there was a notable relationship between the number of milking cows per farm and milk production per cow. For example, Richmond and Nambucca Regions both had very comparable actual values and trend curves for production per cow but Nambucca, with 40·1 to 44·5 cows per herd, had significantly smaller mean herd size than Richmond, with 52·8 to 61·6 cows per herd (table 7). Similarly, Macleay and Bellingen-Coffs Harbour-Dorrigo had a mean herd size difference of between 6 and 7 milking cows, although mean production per cow trend curves were very similar, especially in the early years of the period.

5.2 CONCLUSIONS

From these data, the more important of which are summarized in table 8, it appears that in those Valley Regions where alternative land-use opportunities have been greatest, the Clarence and Tweed and to

a lesser extent the Macleay, the proportional decrease in the number of dairyfarms has been greatest, giving support to the first hypothesis that the greatest rate of decline in the number of registered dairyfarms has occurred where opportunities for alternative forms of land-use are greatest. In these Valley Regions there are several alternative opportunities for land-use. But, unless data were disaggregated to very small-scale units, i.e. Police Districts, it would be impossible to determine whether the proportional decrease has been greatest along the intensive dairyfarming margin in the Tweed and Clarence where sugarcane cultivation has proved a more profitable enterprise than dairyfarming, or along the extensive margin of dairying in the Macleay, where dairying has given way to beef cattle grazing.

While scale of activities, as measured by mean number of milking cows per farm has been increasing throughout the N.S.W. Milk Solids Region, the increase has in fact been greatest where suitability of the physical environment for dairyfarming, as measured by mean volume of milk per cow, has been highest, i.e. in the two southern Valley Regions. This apparently satisfies the second proposition that the scale of activities is greatest in the core dairying districts where physical environmental conditions are the most favourable. However, these regions have had great opportunity to sell whole milk either to the Canberra market or as supplementary supplies to factories within the N.S.W. Milk Board Zone, and the problem becomes one of establishing the respective degrees of importance of each group of factors, physical and economic.

The relationship between these two derived variables is not particularly clear in the northern Valley Regions. Although there is sufficient evidence to suggest that the hypothesis is null, there are alternative explanations. Much of the lower Richmond district of the Richmond Valley Region and the Dorrigo district of the Bellingen-Coffs Harbour-Dorrigo Region are noted as environmentally favourable for dairy-farming. The Richmond Valley has the highest mean number of cows per dairy, and the Bellingen-Coffs Harbour-Dorrigo Region has had the most rapidly increasing mean herd size. But because of local government area boundaries it is impossible to segregate districts within these regions for closer examination. At local government area level, for which data must be divided into two 11-year spans (1946–55 and 1957–67), no significant differences in trends were observed, strongly suggesting that either the hypothesis or the form of measurement is not applicable. As the form of measurement adopted appears to provide a reasonable measure of suitability of the environment for dairying purposes, it would be necessary to sub-divide regions into the smaller data collection areas to test the second hypothesis adequately. Because of the arbitrary nature of the Police District boundaries, these proved to be of little additional value when trials using Police District data were conducted.

The third hypothesis, that concerning scale of dairyfarming activities and decline in the number of registered dairyfarms, may be examined by comparing the mean number of milking cows per farm and the

proportional decline in the number of registered dairyfarms. An examination of data for these variables suggests there is little or no relation between them, and that not only small scale dairyfarms have abandoned the industry. It follows that the forces which stimulated the general decline of the dairy industry in the N.S.W. Milk Solids Region 1947–67 have had a similar effect on both small and large-scale units. In practice two types of dairy producers tend to leave the dairy industry; the smallest, who are economically marginal producers, and leave the industry to seek other employment, and the largest producers who, for a variety of sociological and economic reasons, abandon dairying in favour of some other enterprise, for example beef cattle raising.

In the Clarence and Tweed Regions, assessment of effects of farm abandonment on scale of activities in dairying is more complex because the land-use alternative, sugarcane cultivation, is more economically attractive than dairying. The lower valley districts of these Valley Regions which would be important larger-scale dairying districts where the alternative of sugarcane cultivation is not available, experienced absolute abandonment of dairying on land suitable for cane when additional cane assignments became available. These partial explanations are based on field observations, but provide some suggestions why the third hypothesis concerning scale of activities and the decline in the number of registered dairyfarms cannot be established from available data.

TABLE 1

Trend analysis for six dairy industry variables 1946–67

Variable	Equation	First Derivative *a*	First Derivative *b*
Number of registered dairyfarms	$y_a = 7870 - 140t - 9{\cdot}2t^2$	-140	$-18{\cdot}4t$
Number of milking cows reported on registered dairyfarms	$y_b = 401{,}779 - 4709 + 228t^2$	-4708	$+456t$
Volume of milk reported sold by registered dairyfarms to dairy factories	$y_c = 132{,}041 - 584t - 117t^2$	-584	$-234t$
Mean volume of milk reported sold to dairy factories per registered dairyfarm	$y_d = 16{,}491 + 258 + 11{\cdot}6t^6$	$+258$	$+23{\cdot}2t$
Mean volume of milk reported sold to dairy factories per milking cow on registered dairyfarms	$y_e = 327 + 2{\cdot}5t - 0{\cdot}01t^2$	$+2{\cdot}5$	$-0{\cdot}02t$
Mean number of milking cows reported per registered dairyfarm	$y_f = 49{\cdot}6 + 37t + 0{\cdot}5t^2$	$+37$	$+1{\cdot}0t$

TABLE 2

Number of registered dairyfarms reported by Valley Regions 1940–1967

Valley Regions	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Tweed	802	823	839	836	787	763	759	792	793	778	799
Richmond	4,122	4,066	4,115	4,076	4,104	3,984	3,908	4,018	4,068	4,045	4,010
Clarence	1,020	987	960	922	915	891	869	874	887	868	850
Bellingen-Coffs Harbour-Dorrigo	750	767	735	724	729	713	712	771	810	816	823
Nambucca	490	495	511	517	544	537	539	544	542	546	529
Macleay	686	658	643	640	637	615	597	608	609	610	606
Eurobodalla	128	102	101	104	100	99	100	104	118	112	109
Bega	638	630	618	611	590	585	558	564	555	530	538

Valley Regions	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Tweed	750	700	687	625	579	567	548	517	491	460	395
Richmond	3,933	3,884	3,775	3,650	3,500	3,375	3,310	3,177	3,062	2,895	2,778
Clarence	862	820	778	723	655	594	566	528	489	441	405
Bellingen-Coffs Harbour-Dorrigo	758	740	710	661	617	610	598	583	554	526	503
Nambucca	524	508	507	475	431	423	419	408	380	341	332
Macleay	578	568	555	543	513	487	470	448	425	402	387
Eurobodalla	107	104	103	96	91	87	93	96	88	87	82
Bega	549	537	531	513	496	500	495	492	481	469	455

TABLE 3

Number of milking cows reported on registered dairyfarms by Valley Regions 1946–1967

Valley Regions	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Tweed	46,866	43,830	44,299	43,809	42,384	42,140	40,727	43,560	43,462	42,327	43,098
Richmond	225,917	215,183	218,335	217,470	217,239	214,914	206,345	217,469	200,090	216,315	219,298
Clarence	41,446	37,760	38,768	38,354	37,670	37,473	35,792	36,326	36,015	35,118	36,653
Bellingen-Coffs Harbour-Dorrigo	29,953	28,781	28,570	27,777	28,315	27,502	26,864	28,839	29,882	29,960	30,909
Nambucca	20,848	19,845	20,513	21,018	21,988	21,821	21,095	21,273	20,855	21,078	21,293
Macleay	31,824	30,158	30,115	30,870	30,339	28,127	27,606	28,787	29,216	28,964	29,298
Eurobodalla	5,663	5,175	5,301	5,359	5,413	5,133	5,259	5,416	6,227	5,855	5,734
Bega	34,743	34,860	34,397	36,196	36,261	37,271	34,380	33,294	34,491	29,912	31,266

Valley Regions	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Tweed	40,560	38,028	37,752	34,575	33,242	33,277	32,396	29,932	28,614	26,705	24,547
Richmond	213,827	213,003	208,281	203,799	200,189	198,543	195,455	188,538	184,042	173,254	171,059
Clarence	36,810	33,997	32,102	31,204	29,746	28,524	26,361	23,810	22,314	19,644	18,875
Bellingen-Coffs Harbour-Dorrigo	28,115	27,875	27,282	25,313	24,910	24,827	24,652	24,875	24,432	22,897	23,193
Nambucca	21,093	19,476	19,582	18,755	17,875	17,224	17,410	16,854	15,655	14,552	14,770
Macleay	28,597	28,350	27,448	26,548	25,892	25,185	24,233	22,011	21,481	20,846	21,397
Eurobodalla	5,989	5,898	5,615	5,630	5,876	6,147	6,477	6,981	6,789	6,722	6,664
Bega	32,742	32,117	31,750	30,583	31,184	31,909	33,302	33,880	32,569	32,062	32,310

TABLE 4

Volume of milk reported sold by registered dairyfarms to dairy factories by Valley Regions* 1946–1967

Valley Regions	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Tweed	13,799,148	11,930,503	12,313,903	11,203,504	12,648,213	11,643,602	9,423,311	13,916,223	12,169,250	13,053,322	13,038,231
Richmond	66,298,420	57,089,047	67,607,268	66,464,226	72,743,880	75,824,355	53,084,880	78,957,884	63,854,913	74,822,929	76,462,326
Clarence	12,513,766	10,086,609	11,800,351	11,645,981	11,991,999	10,244,632	8,107,751	11,506,310	8,853,984	9,898,934	11,073,223
Bellingen-Coffs Harbour-Dorrigo	7,849,558	7,240,263	9,282,530	8,630,340	9,613,059	9,413,417	6,829,310	9,686,489	8,591,907	9,724,162	11,348,593
Nambucca	4,796,139	4,421,339	5,678,805	6,472,631	6,648,852	6,519,720	5,009,514	6,818,967	5,396,292	7,968,870	7,536,386
Macleay	10,787,823	8,200,864	11,501,592	10,990,131	9,727,441	7,937,059	7,237,652	9,795,595	8,296,297	9,771,462	10,352,258
Eurobodalla	1,843,200	1,994,998	2,000,138	2,314,515	2,781,462	2,303,499	2,169,856	2,365,773	2,714,095	2,357,113	2,718,631
Bega	11,599,152	10,994,998	12,806,115	12,786,860	14,671,845	15,470,937	10,805,950	14,041,808	11,165,298	10,046,253	12,912,652

Valley Regions	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Tweed	11,441,108	9,546,618	11,673,058	11,176,455	9,785,401	9,632,272	8,548,487	8,615,799	7,099,005	8,465,121	8,270,039
Richmond	64,838,601	60,421,928	72,640,118	77,198,628	65,662,462	69,947,818	62,219,232	61,954,259	54,277,351	52,803,168	61,919,559
Clarence	9,102,711	7,990,451	11,814,453	10,861,787	8,741,292	7,815,203	7,434,415	6,560,524	6,146,320	5,505,835	6,820,566
Bellingen-Coffs Harbour-Dorrigo	9,220,897	8,324,024	10,249,673	10,488,363	8,821,281	8,101,145	9,346,397	10,427,143	8,985,655	9,754,838	11,517,948
Nambucca	6,754,590	5,293,559	6,811,065	6,598,114	5,534,953	4,027,252	5,313,495	6,266,685	4,663,265	3,635,606	5,826,261
Macleay	9,213,097	9,760,315	10,938,191	10,404,495	4,381,695	5,618,991	6,932,568	7,272,498	7,354,971	8,210,699	9,464,613
Eurobodalla	2,543,726	2,261,337	2,804,979	3,076,700	3,138,479	1,341,665	1,264,768	3,370,491	3,276,778	3,574,565	3,557,978
Bega	13,263,350	10,372,816	13,023,453	14,222,062	14,273,662	13,794,272	14,295,695	17,951,319	16,302,866	14,910,345	17,525,482

* Milk products converted to gallons of standard milk equivalents, 3·1 per cent butterfat content.

TABLE 5

Mean volume of milk reported sold per registered dairyfarm to dairy factories by Valley Regions* 1946–1967

Valley Regions	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Tweed	17,227	14,496	14,677	13,401	16,071	15,260	12,415	17,571	15,346	16,778	16,318
Richmond	16,084	14,041	16,429	16,306	17,725	19,032	13,584	19,651	15,697	18,498	19,068
Clarence	12,268	10,219	12,292	12,631	13,106	11,498	9,330	13,165	9,982	11,404	13,027
Bellingen-Coffs Harbour-Dorrigo	10,466	9,440	12,629	11,920	13,187	13,203	9,592	12,564	10,607	11,917	13,789
Nambucca	9,788	8,932	11,113	12,520	12,222	12,141	9,294	12,535	9,956	14,595	14,246
Macleay	15,726	12,463	17,887	17,172	15,271	12,906	12,123	16,111	13,663	16,019	17,083
Eurobodalla	14,400	19,559	19,803	22,255	27,815	23,268	21,699	22,748	23,001	21,046	23,227
Bega	18,180	17,452	20,722	20,928	24,868	26,446	19,366	24,897	20,118	18,955	24,001

Valley Regions	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Tweed	15,255	13,638	16,992	17,882	16,901	16,988	15,599	16,665	14,458	18,402	20,937
Richmond	16,486	15,557	19,242	21,150	18,761	20,725	18,797	19,501	17,726	18,239	22,289
Clarence	10,560	9,744	15,186	15,023	13,345	13,157	13,135	12,425	12,569	12,485	16,841
Bellingen-Coffs Harbour-Dorrigo	12,165	11,249	14,436	15,867	14,297	13,281	15,629	17,885	16,220	18,545	22,899
Nambucca	12,890	10,420	13,434	13,891	12,842	9,521	12,683	15,360	12,272	10,662	17,549
Macleay	15,940	17,184	19,708	19,161	18,288	11,538	14,750	16,233	17,306	20,425	24,456
Eurobodalla	23,773	21,774	27,233	32,049	34,489	15,421	13,600	35,108	37,236	41,087	43,390
Bega	24,159	19,316	24,526	27,723	28,778	27,589	28,880	36,486	33,894	31,972	38,518

* Milk products converted to gallons of standard milk equivalents, 3·1 per cent butterfat content.

TABLE 6

Mean volume of milk per cow reported sold by registered dairyfarms to dairy factories by Valley Regions* 1946–1967

Valley Regions	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Tweed	294	272	278	256	298	275	158	319	280	308	303
Richmond	293	265	310	306	335	353	257	363	290	346	349
Clarence	302	267	304	304	318	274	227	317	246	282	302
Bellingen-Coffs Harbour-Dorrigo	271	252	325	311	340	342	254	336	288	325	267
Nambucca	230	223	277	308	302	299	237	321	259	378	354
Macleay	339	272	382	356	321	282	262	341	284	337	353
Eurobodalla	325	386	377	432	514	449	413	437	436	403	442
Bega	334	315	372	353	405	415	314	422	324	336	413

Valley Regions	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Tweed	282	251	309	323	294	289	264	288	248	317	337
Richmond	303	284	349	379	327	352	318	329	295	305	362
Clarence	247	235	368	348	294	274	282	276	275	280	361
Bellingen-Coffs Harbour-Dorrigo	328	299	376	414	354	326	379	419	368	426	497
Nambucca	320	272	348	352	310	234	305	372	298	250	394
Macleay	322	344	399	392	362	223	286	330	342	294	442
Eurobodalla	425	383	500	546	534	218	195	483	483	532	534
Bega	405	323	410	465	458	432	429	530	501	464	542

* Milk products converted to standard milk equivalents, 3·1 per cent butterfat content.

TABLE 7

Mean number of milking cows reported per registered dairyfarm by Valley Regions 1946–1967

Valley Regions	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Tweed	58·5	53·3	52·7	52·4	53·9	55·6	53·7	55·0	54·8	54·4	53·9
Richmond	54·8	52·9	53·1	53·4	52·9	53·9	52·8	54·1	54·1	53·5	54·7
Clarence	40·6	38·3	40·4	41·6	41·2	42·1	41·2	41·6	40·6	40·5	43·1
Bellingen-Coffs Harbour-Dorrigo	38·6	37·5	38·9	38·4	38·8	38·6	37·7	37·4	36·9	36·7	37·6
Nambucca	42·5	40·1	40·1	40·7	40·4	40·6	39·1	39·1	38·5	38·6	40·3
Macleay	46·4	45·8	46·8	48·2	47·6	45·7	46·2	47·2	48·0	47·5	48·3
Eurobodalla	44·2	50·7	52·5	51·5	54·1	51·8	52·6	52·1	52·8	52·3	52·6
Bega	54·5	55·3	55·7	59·2	61·5	63·7	61·6	59·0	62·1	56·4	58·1

Valley Regions	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Tweed	50·1	54·3	55·0	55·3	57·4	58·7	59·1	57·9	58·3	58·1	62·1
Richmond	55·4	54·8	55·2	55·8	57·4	58·8	59·0	59·3	60·1	59·8	61·6
Clarence	42·7	41·5	41·3	43·2	45·4	48·0	46·6	45·1	45·6	44·5	46·6
Bellingen-Coffs Harbour-Dorrigo	37·1	37·6	38·4	38·3	40·4	40·7	41·2	42·7	44·1	43·5	46·1
Nambucca	40·25	38·3	38·6	39·5	41·5	40·7	41·6	41·3	41·2	42·7	44·5
Macleay	49·5	49·9	49·5	48·9	50·5	51·7	51·6	49·1	50·5	51·9	55·3
Eurobodalla	56·0	56·7	54·5	58·6	64·6	70·7	69·6	72·7	77·1	77·3	81·3
Bega	59·6	59·8	59·8	59·6	62·9	63·8	67·3	68·9	67·7	68·4	71·0

TABLE 8

Summaries of data for Number of registered dairyfarms, Number of milking cows, and Volume of milk reported sold to dairy factories 1946–67 *by Valley Regions*

Valley Regions		1946	1967	Year of lowest value		Year of highest value	
Tweed	(a)	802	395	1967	(395)	1948	(839)
	(b)	46,866	24,547	1967	(24,547)	1946	(46,866)
	(c)	13,799,148	8,270,039	1965	(7,099,005)	1946	(13,799,148)
Richmond	(a)	4,122	2,778	1967	(2,778)	1946	(4,122)
	(b)	225,917	171,059	1967	(171,059)	1946	(225,917)
	(c)	66,298,420	61,919,559	1966	(52,803,168)	1953	(78,957,884)
Clarence	(a)	1,020	405	1967	(405)	1946	(1,020)
	(b)	41,446	18,875	1967	(18,875)	1946	(41,446)
	(c)	12,513,766	6,820,566	1966	(5,505,835)	1946	(12,513,766)
Bellingen-Coffs Harbour-Dorrigo	(a)	750	503	1967	(503)	1956	(823)
	(b)	29,953	23,193	1966	(22,897)	1956	(30,909)
	(c)	7,849,558	11,517,948	1947	(7,240,263)	1956	(11,348,593)
Nambucca	(a)	490	332	1967	(332)	1955	(546)
	(b)	20,848	14,770	1967	(14,770)	1950	(21,988)
	(c)	4,796,139	5,826,261	1966	(3,635,606)	1955	(7,968,870)
Macleay	(a)	686	387	1967	(387)	1946	(686)
	(b)	31,824	21,397	1966	(20,846)	1946	(31,824)
	(c)	10,787,823	9,464,613	1961	(4,381,695)	1948	(11,501,592)
Eurobodalla	(a)	128	82	1967	(82)	1946	(128)
	(b)	5,663	6,664	1951	(5,133)	1964	(6,981)
	(c)	1,843,200	3,557,978	1946	(1,843,200)	1966	(3,574,565)
Bega	(a)	638	455	1967	(455)	1946	(638)
	(b)	34,743	32,310	1960	(30,583)	1949	(36,196)
	(c)	11,599,152	17,525,482	1955	(10,046,253)	1953	(17,951,319)

(a) Number of registered dairy farms

(b) Number of milking cows

(c) Volume of milk sold to dairy factories (gallons)