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# Agricultural adjustments in the Illawarra region

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# Agricultural adjustments in the Illawarra region

## **Abstract**

Agriculture in the Illawarra region is dominated by dairying. The undulating topography, relatively fertile soils, adequate rainfall for good pastures, and, proximity to large urban populations of Wollongong, Shellharbour, Kiama, Moss Vale, Bowral municipalities, and Sydney metropolitan region, make the Illawarra almost ideal for dairy farming. There are hardly any viable alternatives to dairying, which is an old established industry in the region. The first dairy farms were established around 1828. By 1880 dairying was well established, with butter and condensed milk factories at several locations, and a substantial surplus of milk and butter for the Sydney market. The first successful shipment of whole milk to Sydney was made in 1886 by boat, in cans packed in ice. The Jamberoo Central Dairy was established in 1888 to which milk was supplied from several isolated farms on the surrounding hills by packhorse and wagon. The Illawarra has always been a region of small family operated farms and today more than 80 percent of the farms are owner-operated family farms. Indeed about 60 percent of the farms in the region have been operated by the same families for more than 50 years. At present the average size of holding is 127 hectares, with an average herd size of 62.

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# WOLLONGONG STUDIES IN GEOGRAPHY No. 4

## Department of Geography, University of Wollongong.



### AGRICULTURAL ADJUSTMENTS IN THE ILLAWARRA REGION

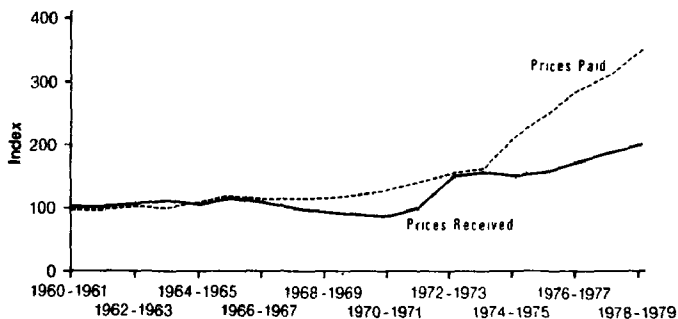
By Dr. E. Dayal

Agriculture in the Illawarra region is dominated by dairying. The undulating topography, relatively fertile soils, adequate rainfall for good pastures, and proximity to large urban populations of Wollongong, Shellharbour, Kiama, Moss Vale, Bowral municipalities, and Sydney metropolitan region, make the Illawarra almost ideal for dairy farming. There are hardly any viable alternatives to dairying, which is an old established industry, in the region. The first dairy farms were established around 1828. By 1880 dairying was well established, with butter and condensed milk factories at several locations, and a substantial surplus of milk and butter for the Sydney market. The first successful shipment of whole milk to Sydney was made in 1886 by boat, in cans packed in ice. The Jamberoo Central Dairy was established in 1888 to which milk was supplied from several isolated farms on the surrounding hills by packhorse and wagon. The Illawarra has always been a region of small family operated farms and today more than 80 percent of the farms are owner-operated family farms. Indeed about 60 percent of the farms in the region have been operated by the same families for more than 50 years. At present the average size of holding is 127 hectares, with an average herd size of 62.

#### THE NEED FOR ADJUSTMENT

The dairy industry in the Illawarra region, like dairying in the rest of Australia, has been adversely affected in recent years by the changes in the economic environment which are often referred to as the cost-price squeeze. Agriculture often lags behind during economic change because of a relative decline in the terms of trade for agriculture. As the demand for agricultural products is relatively inelastic, the prices of agricultural products do not increase in the same proportion as the prices of other commodities. Also, reduced population growth and rapid advances in technology often result in over production of agricultural output. Thus, the prices of inputs used in farming increase faster than the prices received by the farmers for their output, leading to the erosion of their net income (Fig. 1).

FIGURE 1 PRICES PAID AND RECEIVED BY FARMERS.



Certain sectors of the economy whose products are in greater demand are able to pay higher prices for available resources, thereby adversely affecting the terms of trade of sectors not growing as rapidly. In Australia the rapid growth of mining and tertiary activities has had damaging effect on the terms of trade in agriculture. Dairying has been particularly deprived because of a reduced domestic consumption of butter and a decline in export markets.

In the situation now facing the dairy industry, the only way to maintain net income is to increase productivity. To meet the change dairy farmers are rationalizing the industry and are making structural

adjustments. Major changes have occurred during the last 20 years in the size and location of farms, and also in the combination of products.

#### QUOTA SYSTEM AND GOVERNMENT SCHEME

Because of low incomes and over production in dairying a quota system was imposed. Under the present quota scheme a dairy farmer is allotted a quota for the supply of whole milk for which he is paid a higher price than the price he gets for the milk he sells for manufacturing. The scheme was designed to eliminate the winter deficit of milk from small producers, to protect and reward efficient producers, and to contract the industry thereby raising incomes. The quota allotted to a farmer depends on market demand for milk, size of holding, number of suppliers, and the base year production.

The traditional quota scheme has been criticised on the grounds that it compelled farmers to keep up production to avoid reducing their quota, and hence was not likely to contract the industry. But a new stabilization scheme presents a different method for the allotment of additional quotas, enabling only those who can produce substantially more than the quota they hold to get an additional quota. This will enable large farms to expand and encourage owners of small farms to leave the industry. Under the present quota allotment system a quota for whole milk supply is attached to a holding. In 1977-78 total annual quota allotted to Illawarra dairy farmers was more than 250 million litres, which was fairly equally distributed between eight dairy factories (Table 1). The more prosperous farmers with relatively larger holdings, who wish to expand production, can buy additional

TABLE 1  
DISTRIBUTION OF ANNUAL QUOTA FOR FRESH MILK  
IN THE ILLAWARRA IN 1977-78

Dairies	Milk Quota (litres)
Wollongong	31,648,275
Albion Park	31,720,000
Jamberoo	30,894,117
Berry	31,519,999
Gerringong	30,745,000
Nowra	30,890,212
Bowral	31,265,000
Moss Vale	31,403,921

holdings with quotas from owners of smaller farms who leave the industry. However, this process leads to the fragmentation of farms. Farmers expanding their holdings may own land in several localities. This increases their operating costs and is thus likely to reduce the competitive strength of the industry.

Federal and state governments have had to take additional measures to alleviate persistent hardships in the dairy industry. In 1970 the Marginal Dairy Farm Reconstruction Scheme was introduced to help farms that had temporarily become uneconomic and to help the departure of low income dairy farmers from the industry. The government assumed responsibility of acquisition and sale of marginal dairy farms. Such farms are made available for purchase to other dairy farmers who want to make their holdings economically viable through enlargement. The main objective of M.D.F.R.S. and Dairy Adjustment Program was to help uneconomic farm units to become viable through:

- 1) farm conversion to refrigerated bulk milk handling
- 2) amalgamation
- 3) diversification
- 4) relocation assistance.

Since 1977 all rural adjustment measures have been brought under a single scheme called the Rural Adjustment Scheme

**KINDS OF ADJUSTMENTS**

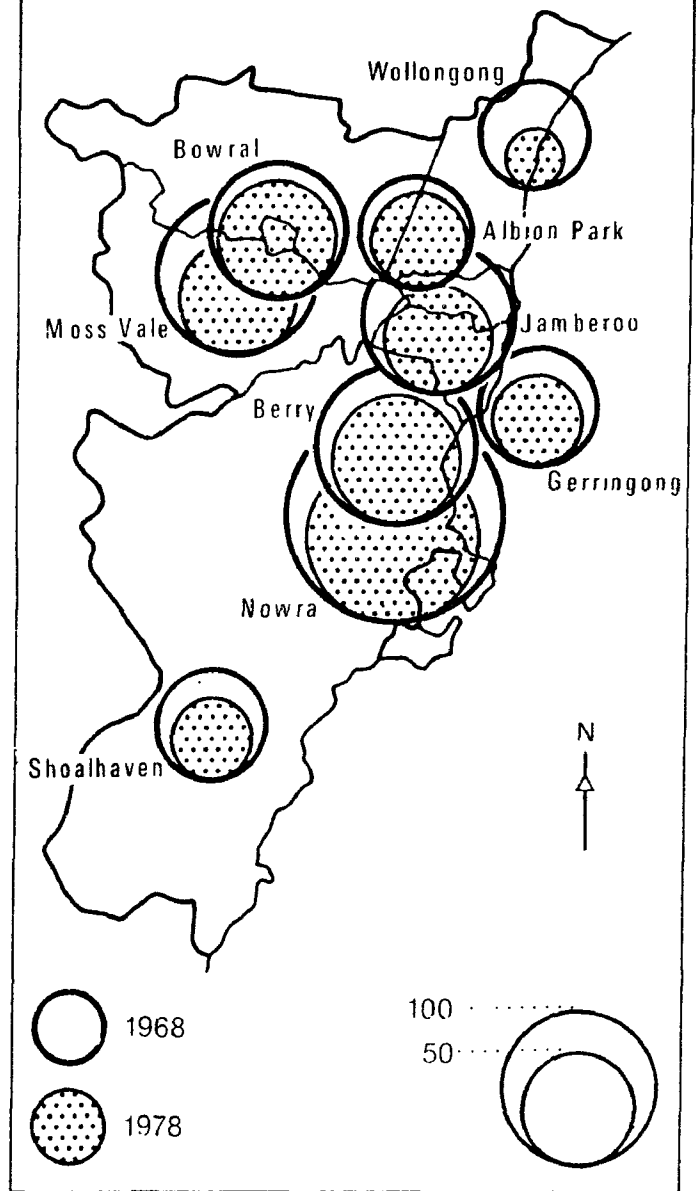
**Changes in Farm Size and Number:** The most noticeable change in the Illawarra dairying has been in the number and size of farms. The number of farms declined by almost half between 1961 and 1978 (Table 2). Among the sub-divisions of the Illawarra Region, Wollongong recorded the largest decline in farm numbers, due perhaps to greater urban encroachment on farmland (Table 2). In the remainder of the Illawarra also the decline was quite substantial, but fairly uniform. The decline in farm numbers is also clearly reflected in the change in the number of milk suppliers to the dairy factories in the region (Figure 2). The total farm area in the region has dropped substantially, but the greater drop in numbers has resulted in an increase in the average farm size (Table 2). Nevertheless, a substantial decline in total farm area is a matter of concern as it is indicative not only of the continuing exodus of farmers from dairying but also of a net decline of the industry in the region. About one third of the farmland has been lost to non-agricultural uses.

It seems that only some of the vacated farms are being bought by those remaining in the industry for enlargement of holdings; some go into the hands of developers for non-agricultural uses, and some are bought by absentee hobby farmers. A redeeming development, however, is the impressive increase in the average farm size. Here again the biggest increase was recorded in the Wollongong district.

**Changes in Herd Size:** A further structural adjustment in the region is an increase in the herd sizes. The average herd size increased from 55 to 62 head of dairy cattle between 1961 and 1978. The largest increase in herd size was recorded in Wollongong, where it increased by 71 percent (Table 2). In Kiama and Shoalhaven too the increases were quite substantial. It appears that in Wollongong, Kiama and Shoalhaven Shires, greater local demand for milk was responsible for more than average increase in the herd size. Bowral is the only subdivision of Illawarra, where a decline in dairy cattle herd size was recorded during the period under review. There were only 6 farms in Bowral in 1961, all dominantly dairy farms. In 1978 the number of farms increased to 8, but all switched over to beef cattle raising. Only 15 dairy cattle were reported on the 8 holdings there in 1978.

**Changes in Productivity:** To survive and stay in the industry the farmers in the region are striving hard to increase productivity in dairy farming through structural adjustments and changes in the final product mix. These changes have led to a significant increase in productivity, i.e. milk production per cow and per unit area. The yield of milk per cow in the region has increased significantly between 1961 and 1978. This increase in milk yield per cow has largely been due to improvements in the quality of stock through breeding programs, enrichment of feed through improvements in the quality of pastures and greater production of fodder crops on several holdings. The artificial insemination program launched by the Department of Agriculture and the Dairy Industry Authority, from the Artificial Stock Breeding Centre at Berry, has made important contributions towards improvement of stock quality. The majority of farmers in the region have changed over to Friesians which are better suited to whole milk production. The improvements of the quality of pastures has been achieved through larger area holdings being devoted to sown pastures, and through the greater use of fertilizers. In the survey 60 percent of the farmers indicated that they were using more fertilizers now than they did 10 years ago.

**FIGURE 2: NUMBER OF MILK SUPPLIERS IN THE ILLAWARRA REGIONAL DAIRIES, 1968 AND 1978.**



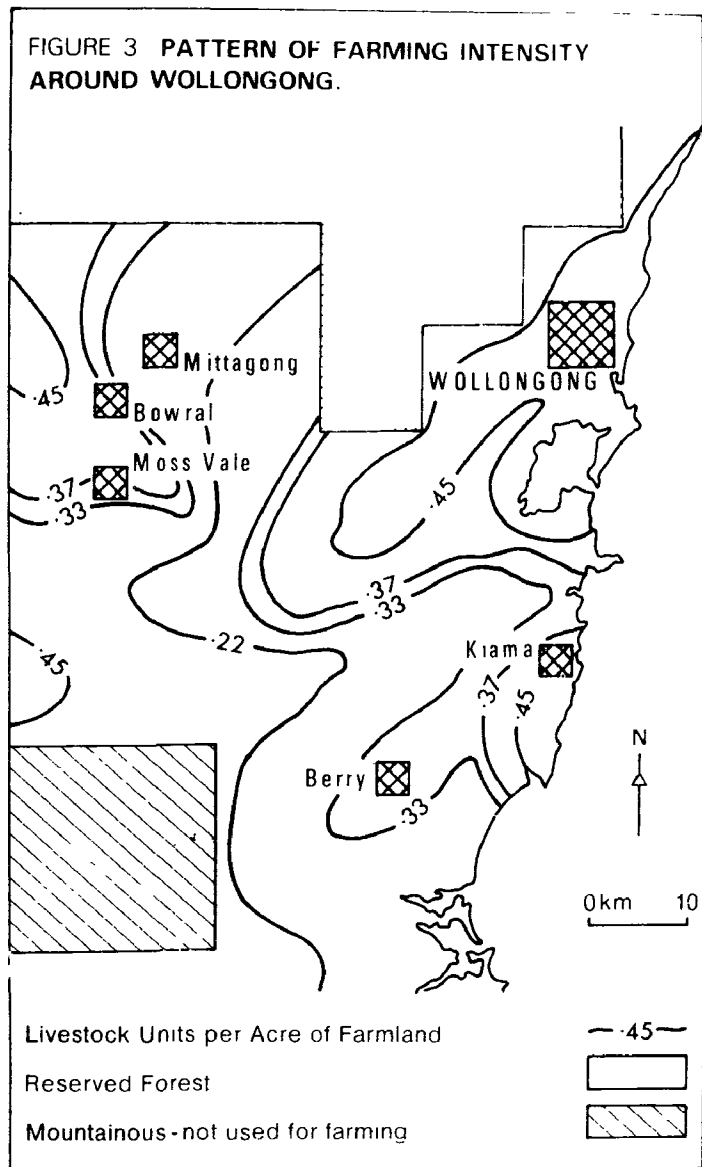
**TABLE 2 — STRUCTURAL CHANGE IN ILLAWARRA DAIRYING — 1961 to 1978**

	Farm Numbers			Farm Area (Hectares)			Average Farm Size (Hectares)			Average Size of Milk Cattle Herd			Ratio of Beef Cattle to Milk Cattle			Stocking Intensity		
	1961	1978	% Change	1961	1978	% Change	1961	1978	% Change	1961	1978	% Change	1961	1978	% Change	1961	1978	% Change
Wollongong M	189	70	-63.0	9,557	5,522	-42.2	50.6	78.0	56.0	41	70	70.7	0.149	0.546	266.4	937	1,368	46.0
Shellharbour M	92	60	-34.8	9,102	8,193	-10.0	98.9	136.5	37.4	86	99	15.1	0.022	0.338	1,436.4	890	0,970	9.0
Kiama M	163	100	-38.6	16,692	12,012	-28.0	102.4	120.1	17.6	94	123	30.8	0.030	0.232	673.3	948	1,262	33.1
Mittagong-S	309	183	-40.8	52,215	45,120	-13.6	168.9	246.5	45.8	32	35	9.4	0.983	3,730	274.7	0,380	0,676	77.9
Bowral M	6	8	33.3	588	293	-50.2	98.0	36.6	-62.2	47	2	-95.7	0.900	14,530	1514.4	0,925	0,795	-14.0
Wingecarrabee S	578	296	-48.8	83,402	54,511	-36.6	144.3	184.2	27.8	26	30	15.4	1.430	4,056	183.6	0,435	0,813	86.9
Shoalhaven S	690	363	-47.4	102,828	69,417	-32.5	149.0	191.2	26.2	58	74	27.6	0.117	0.894	664.1	0,435	0,730	67.8
Total Illawarra	2,027	1,080	-46.7	274,384	195,068	-29.9	116.0	141.9	22.4	55	62	12.7	0.519	3,475	589.6	0,707	0,945	33.66

Furthermore, improvements in productivity also appear to be the result of increased levels of farming intensity. The costs of inputs have risen significantly over the years, but land values in recent years have risen even more steeply. Therefore, instead of increasing the size of holdings, many farmers find it more profitable to increase the level of inputs and use their available land more intensively. In a recent survey in the region the majority of farmers expressed no desire for the enlargement of their holdings. The increase in intensity is shown by increased stocking density on the farms between 1961 and 1978. The density of stocking increased most in Wollongong and Kiama sub-divisions, where land is more expensive than elsewhere in the region owing to greater demand for land for non-agricultural uses (Table 2). The farmers are substituting more inputs for land in order to maximize return from land, which is the more expensive factor of production. Hence the pattern of farming intensity (measured in terms of stock density) appears to conform to Von Thunen's model (Figure 3) in which the intensity decreases with distance from urban centres. But this is not so much due to transport cost variations, as it is to higher land values near the urban centres. As noted above, the intensity of farming has increased near the larger urban centres.

Although the belief that larger farms are essential for increasing farming efficiency through economies of scale is widespread, the evidence drawn from the Illawarra Region is contrary to this view. As

FIGURE 3 PATTERN OF FARMING INTENSITY AROUND WOLLONGONG.



stated earlier the majority of farmers expressed no strong desire for farm enlargement. Furthermore, the statistical correlation between farm size and farming efficiency (measured in terms of milk production per unit of utilized area of the holding) was found to be low and

insignificant. This may be due to the limitations of quotas for whole milk. A large farmer is not free to produce what he is capable of producing. Hence an element of slackness on larger holdings may exist. For example, one farmer on a 400 acre holding keeps only 86 cattle and produces 90,250 gallons of milk annually, while another farmer working only a 316 acre holding produces 72 percent more milk.

A further adjustment is being made through greater diversification. Farmers in the region appear to be combining milk production with beef production, for the number of beef cattle on dairy farms in the region has increased significantly. Owing to a sharp rise in beef prices during the 1970's the ratio of beef to dairy cattle went up in every shire of the region between 1961 and 1978 (Table 2). The rise in the ratio is more striking in the three inland shires of Mittagong, Bowral, and Wingecarribee, and also Shoalhaven, where beef cattle numbers surpassed the dairy cattle numbers. In Mittagong, Wingecarribee and Shoalhaven shires the holdings are relatively large and therefore provide greater scope for diversification in farm business. Bowral municipality is a special case, where all the eight farms switched to beef cattle raising, despite proximity to urban population. In some instances farms have been bought either by hobby farmers or speculators, who keep some beef cattle on the property while they themselves work elsewhere. In such circumstances dairying is not suitable for it requires full time attention. On the whole in 1961 there were more dairy cattle in the Illawarra region but in 1978 there were more beef cattle.

#### THE FUTURE

The majority of the farmers in the Illawarra Region seem to be quite pessimistic about the future of the dairy industry. They appear dissatisfied with the present government policy concerning quotas for whole milk. The rising costs of operation, increased land rates, and declining demand for milk products were other reasons given for their pessimism. Most farmers in the region are critical of the way the price of milk has been deliberately kept down. Sometime back, for example, the price of a loaf of bread and a pint of milk was the same, i.e., 10 cents, but now the price of a loaf of bread is 65 cents and a pint of milk is only 28 cents. Nonetheless, the condition of dairy farms in the Illawarra appears to be better than the dairy farms in other regions of New South Wales (e.g. on the North Coast and Southwestern Tablelands). The net cash annual income per property in the region, according to a Bureau of Agricultural Economics survey, is \$11,000, which is more than 100 percent higher than the net income per property on the North Coast, and about 8 percent higher than similar income on the Southwestern Tablelands. Also, an average farm in the Illawarra Region produces 65 percent more milk than an average farm on the North Coast and 10 percent more than an average farm in the Southwestern Tablelands. The relatively better position of the Illawarra dairy farmers is due to the combination of physical and economic advantage that they enjoy. The Illawarra has a relatively cooler and more temperate climate compared with the North Coast and the Southwestern Tablelands, providing a more favourable physical environment for dairying. The economic advantage is the relative proximity to Sydney and Wollongong markets. The present system of calculating freight rates, is based on the concept of average market, in which it is initially assumed that all milk goes to Sydney. The Illawarra farmers pay 0.6 cents per litre for freight compared with 1.4 cents paid by North Coast farmers and about 2.0 cents by farmers on the far South Coast. This is a very substantial advantage. Because of high cost of transporting fluid milk it is advantageous to produce it in the areas within easy reach of large urban population centres. The increasing cost of fuel will further compel farmers to stay as close to market as possible, and will give additional advantages to Illawarra dairy farmers.

Furthermore as the costs of operation have been rising faster than the prices received by the farmers, those who rely more on farm produced feed will probably be better able to survive than those dependent on high-cost purchased feed. To keep the costs down it will be necessary to utilize the resources of the farm as much as possible without, of course, exploiting them.

Greater diversification than hitherto introduced on the farms will also be an important strategy for survival. Combining dairying with beef cattle raising, which has already begun, could be further extended. Some surveys suggest that returns from fattening beef cattle are better than from breeding them. The possibilities for some speciality crops could also be explored. A mixed type of farming, combining dairying with piggeries and some speciality crops on the pattern of agriculture in Western Europe, appears promising.

Nevertheless, relatively low returns in dairying have for some time been discouraging the younger generation from going into dairying on a full-time basis, and therefore the average age of dairy farmers in the region has increased rather rapidly in recent years. Moreover, the high prices offered to dairy farmers for their land for non-agricultural

uses are likely to induce aging farmers to sell land and leave the industry for good. Thus, the ageing of farmers and soaring land prices in the region are two major issues of concern for the future of the industry in the Illawarra.

#### REFERENCES

- 1 *Quarterly Review of the Rural Economy*, Vol 1, 1979. pp 137-144
- 2 *Dairying Industry in Brief*, Kiama. Jamberoo Co-operative Dairy Society, 1971
- 3 "New Stabilisation Scheme", *N.S.W. Dairyman*, April, 1979. p 5.
- 4 "How Freight Rates are Calculated", *N.S.W. Dairyman*, November, 1979. pp 6-7.
- 5 "Survey of Costs and Incomes in N S W.", *N S.W. Dairyman*, May, 1979, pp 3-5
- 6 Jeans, D. "Farm Closure and Amalgamation in the N.S.W Dairying Industry", *Geography Bulletin*. Vol 3. 1971. pp 25-31
- 7 Throsby, C D., *Agricultural Policy*, Harmondsworth Penguin Books, 1971
- 8 "Dairy Industry May Disappear", *Kiama Independent*, August 6, 1980, p. 3
- 9 Jeans, D , *An Historical Geography of New South Wales to 1901*. Sydney Reed Education, 1972.

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