



What's the story?

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## FARMING

### HISTORICAL EVOLUTION

#### Introduction

In a broad sense the history of New Zealand is essentially the history of agricultural development, as a country which has always been so dependent upon its primary industries must evolve policies which encourage their expansion. Moreover, the rate at which the economy as a whole can grow is tied to the capacity of agriculture to expand. Today pastoral products account for about 90 per cent of New Zealand's export income, a proportion as high as at any time in the past and, although forest products and aluminium may make a greater contribution in the future, the livestock industries are unlikely to be displaced from their premier position.

The establishment of settlement in New Zealand and the subsequent expansion of agriculture coincided with the large-scale changes following the industrial revolution which resulted in world markets being created for all the major agricultural products and raw materials. The construction of railways in Europe, North America and, later, in other parts of the world, the cheapening of ocean transport brought about by the substitution of steam for sail, the introduction of refrigeration and the generally higher levels of purchasing power in the latter half of the nineteenth century, all helped to change the agricultural scene. The British adoption of free trade in the 1840s, even if it had few complete imitators, made possible an expanding market for everything a country such as New Zealand could produce, although prices often fluctuated sharply and the market remained a highly competitive one.

#### The Importance of Wool

Apart from the stimulus given by the gold discoveries of the sixties and the return, during the last decade or so in the century, from frozen meat and, to a lesser extent, dairy produce, the New Zealand economy depended in the latter half of the nineteenth century on wool receipts. Sheep had been brought to the early mission stations prior to 1840, but they were few in numbers, and large-scale sheep farming in New Zealand did not get under way until 1843 when the first flock of 300 Merinos were driven from Wellington to the Wairarapa after having been brought from Australia. Within 10 years there were over 500,000 sheep in the country; within 20 years over 3,000,000.

Large-scale sheep farming, on the Australian model, began in the Wairarapa, but from 1846, when the first large flock was taken up near the Awatere River and for the next 30 years or so, progress was most rapid in the South Island. In the North Island the Maori Wars and the need for more



capital in order to clear the bush hindered progress. The bush-burn technique, brought from Australia and North America, proved most effective, but the major task of breaking in the North Island bush country did not begin until the 1870s, although the open country in the Wairarapa and Hawke's Bay was fully taken up by the 1850s. In the South Island the open, tussock-covered country offered ideal conditions to the "squatter", and by 1860 there was very little open country left. The land was taken up under a variety of conditions – the only claim that the first run holders had in the Wairarapa was a loose arrangement with the local Maori chiefs. Later the Government promulgated regulations regarding pastoral leases and, following Sir George Grey's cheap land ordinance in 1853, some large freehold blocks were purchased. Most of the expertise on extensive sheep farming came from Australia, based in the main on some rule-of-thumb methods that had worked reasonably well. Practically all the sheep, and a fair proportion of the capital, came from Australia, as did the terms and expressions which have passed into common usage.

Australian experience had shown that sheep did quite well when left to themselves, and under conditions where feed was adequate. With the freedom from disease, the Merino sheep imported from Australia increased steadily in numbers. For those sheep farmers established a little earlier, the sale of breeding stock to the late comers was a most lucrative part of the business. In the South Island, however, by the mid 1860s the demand for sheep for stocking up new runs had been largely met, and prices fell away.

The late 1860s and the 1870s brought fairly marked changes in the South Island landscape as the ploughable land was broken up and, after a crop of wheat or oats had been taken off, was sown down in exotic grasses. With the availability of cheaper fencing wire, boundary fencing, followed by the subdivision of individual properties, began. These changes were associated with the construction of railways and the more modest improvement in roads, which in turn brought about a rush to freehold as much land as possible. In some places a speculative boom was the result, the effects of which made themselves felt when prices declined in the eighties and nineties. At the same time the rapid appreciation in land values attracted capital which in turn helped to promote development.

The growth of the sheep industry can be seen from the following table of sheep numbers:

1861-2,761,000
1871-9,701,000
1881-12,985,000
1891-18,128,000
1901-20,233,000

## The Frozen Meat Trade

The rapid growth in sheep numbers and the complete dependence of the whole country on fluctuating wool prices meant that a keen interest was displayed in the experiments in meat preservation that were going ahead in the sixties and seventies. Although the successful voyage of the *Frigorifique* from Buenos Aires to Le Havre took place only in 1877, proposals were being made in New Zealand for a similar venture within a year or more. By February 1882, when the *Dunedin* left Port Chalmers, works had been established at Burnside, near Dunedin, and plans were under way for the establishment of works near Christchurch and at Petone. Capital for the new industry came mainly from the larger runholders and in the first four years most of the stock supplied to the works also came from such men.

The frozen meat trade rescued the pastoral industries from the economic stagnation they were facing, but the industry was established at a time when the general course of prices for primary products was downward. Although the exports of frozen meat built up rapidly after 1882, over one million carcasses being shipped in 1890, the sheep farmers' return was frequently a very modest one as initially freight charges were high and there was a large element of prejudice against



imported frozen meat on the British market which took time to overcome. Perhaps it is a tribute to the quality of New Zealand mutton that a character in Galsworthy's *Forsyte Saga* should have expressed a preference for it. From an early stage in the development of the export trade in meat, serious obstacles were encountered, a combination of high tariffs in Europe and harassing veterinary regulations effectively preventing its growth, and establishing a pattern of restrictions which has persisted to the present day.

Besides introducing a greater degree of diversification into the economy, the frozen meat industry made possible a different pattern of farm management in the arable farming districts. In the North Island, where so much of the country was still undeveloped, there were fewer obvious changes in the first 20 or 30 years.

On mixed arable farms the increase in the area of fodder crops made possible a more satisfactory crop rotation system. The fat-lamb trade really developed in Canterbury where the lambs could be finished off on rape. In the North Island, on the other hand, the inadequacy of the pastures over much of the country made fattening more difficult. Even as late as the years immediately before 1914, a reasonably well developed North Island farm carrying more than three ewes to the acre was the exception.

## The Dairy Industry

The expansion of dairy farming, after the voyage of the *Dunedin* had shown that dairy produce could be successfully shipped to the United Kingdom, proceeded at a more modest pace. In the first place the industry was at a more rudimentary stage of development and, secondly, the smaller farmers possessed very little capital to invest in the construction of dairy factories. Circumstances thus forced them to cooperate, and in several districts in the 1880s small cooperative dairy factories were established, the fore-runners of the cooperatively owned industry today. The maintenance of quality was a serious problem from the beginning and much had to be done by a process of trial and error. The dairy industry is of interest, too, as the Government was closely concerned in fostering it. A bounty had been offered at the beginning of the 1880s for the first successful shipment of butter and of cheese. The first Government dairy expert was engaged in the 1889s, and in the early 90s the first legislation providing for a system of compulsory branding and then grading was introduced. This represented a significant break with *laissez faire* tradition and was carried through in the face of some scornful criticism. Compulsory inspection of meat, which came a few years later, also encountered strong opposition. By 1900 nearly 9,000 tons of butter and over 5,000 tons of cheese were being exported to a total value of over £1 million, and statistics showed that there were 335,000 dairy cows in the country.

Closer settlement was in the forefront of the Liberal Party's programme and the growth of the dairy industry provided a sound economic basis for this policy in that the occupier of a property of moderate size would be assured of a regular income. The process was also speeded up by the system established in 1894 of Government advances to settlers. This was basically of much more importance than the compulsory purchase and subdivision of large estates. This latter policy, however, was in effect a forthright assertion that the community was opposed to obstacles to settlement and would take whatever steps were necessary to ensure that they were removed.

## Intensive Grassland Farming

In the 80s and 90s the more farsighted of the farmers settled in the higher rainfall areas of the North Island began to perceive that the prospects of establishing a system of mixed farming on the pattern of that already existing in Canterbury was slight. When closer settlement had not proceeded very far, a system of fairly extensive farming, with modest areas to devote to oats and to turnips, met the immediate needs; but such a system of farming was not particularly profitable in itself, especially during the prolonged period of depressed prices in the 80s and 90s.



Under conditions of closer settlement, this system of farming was hardly practicable and yet in the face of the strong pressures to subdivide, the large estates could not remain in being. Farmers established on smaller units had to look at every possible means whereby they could raise the carrying capacity of the land. In effect, this meant the replacement of sheep, which included a high proportion of wethers, by dairy cows. On the better-class land the dairy farmer could get by with a limited amount of cropping, but elsewhere the small dairy farmer endeavoured to do the same with limited success, partly because he usually lacked the machinery to break up an area for fodder crops each year. Necessity compelled him to utilise what little resources he possessed, and the principal one of these was grass. The lack of equipment even made it expensive for him to save more than a small quantity of hay, and his cows were usually badly fed during the winter.

The steady rise in prices after 1900 did a great deal to raise the dairy farmers' standard of life. The advent of home separation and of machine milking, despite some official misgivings, also enabled him to handle more cows which in turn gave him the income to improve his property generally and his cowshed in particular. Higher prices also gave new confidence to the sheep industry, although the advance in wool prices was very slow. Meat prices picked up more rapidly, but the overseas market remained a highly competitive one. Farmers frequently expressed criticism of the gap between their return and the retail price for mutton and lamb in the United Kingdom. New capital was also invested in meat export works and, with the clear indication of the success of the industry before them, overseas companies took a greater interest in it. The possibility of representatives of the Chicago meat packing companies establishing themselves in New Zealand roused heated opposition and the Government ultimately took action to prevent it.

The growth of production in the 1920s, especially between the years 1925 and 1930, is of special importance in the history of New Zealand agriculture, as it was brought about in the main by the more intensive utilisation of the better-class ploughable country in the North Island. The principal agent in bringing about this change was superphosphate. Production expanded most rapidly in the Waikato and it was in this district that the increase in the usage of superphosphate was most marked. The importance of adequate supplies of super being available cannot be overemphasised, and the fact that its price was both absolutely and relatively lower than it was prior to 1914 gave an impetus to its use.

The 1920s also saw the beginnings of organised agricultural research in New Zealand and its application to immediate practical problems. There were a few devoted workers in the field before 1914, but they worked in isolation and were able to have little impact on farming techniques.

The pioneering work study of pasture ecology is associated with the names of Cockayne and Levy, their investigation in this field was followed by those into soil fertility, fertiliser responses, and plant selection and breeding. In 1923 the Department of Agriculture established the Fields Division, the officers attached to which were engaged full time on advisory work and were not required to perform any regulatory duties. This was a major step forward as it enabled those engaged on advisory work to gain the farmers' confidence just at a time when the benefits of a more scientific approach to pasture management were becoming more apparent.

Progress in New Zealand farming has been associated with refinements of the fertility-building cycle, i.e., topdressing stimulating clover growth which in turn raises the nitrogen status of the soil with an even greater pasture growth. The droppings from the increased number of animals that can be carried, raise fertility still further and carry the cycle to another stage. In the 1920s research workers were successful in discovering longer lasting strains of perennial ryegrass and white clover. Until then much of the seed available in the market was of poor quality, thus making it impossible for longer lasting pastures to be established. The identification of superior strains was followed by the establishment in the late 1920s of the seed certification system, and this enabled farmers to obtain, through commercial channels, better quality seed.

Superior pasture strains led to the improvement of large areas of problem country, the productive

value of which up until then had been very low. In the late 1920s the improvement of the gumland soils in North Auckland began, followed in the early 1930s of the first serious attempt to develop the pumice soils in the centre of the North Island. In this latter area, the discovery in 1935 that cobalt deficiency was responsible for the characteristic wasting disease in cattle and sheep called "bush sickness" made progress much more rapid. In the South Island, longer lasting pastures were also made possible in the better-class country, but sustained improvement of the rolling downland areas had to await the introduction of molybdenum in the decade after 1945.

Apart from the scientific advances, farmers over the last 30 or 40 years have also introduced many improvements into their systems of management, and the attainment of higher productivity has been made easier by the improvement in roads and the provision of electric power at a reasonable cost. The efficiency of the New Zealand milking shed is largely dependent on the availability of electric power and, unless water can be pumped to all parts of the farm, there can be no subdivision into small paddocks, a practice which has made possible much more effective utilisation of feed.

Apart from the scientific advances made during the 1920s and 1930s, there were considerable changes in the organisation of marketing. During the First World War both meat and dairy produce had been sold to the British Government at fixed prices and, after a brief experience of conventional marketing methods after the war, producers of both meat and dairy produce indicated to the Government their desire for some form of producer control over the marketing of these products. The establishment of the Meat Producers' Board in 1922 and the Dairy Export Control Board in 1924 met these demands, the aim being to set up organisations which would supervise the rate at which supplies were shipped to the United Kingdom market, arrange freight and insurance contracts, and engage in promotional work. The drastic fall in prices during the 1930s made necessary more elaborate measures, especially for dairy farmers whose resources were often very limited. The guaranteed price for butter and cheese introduced in 1936 and the various enactments designed to reduce the weight of the farmers' mortgage indebtedness were all part of this policy.

## Recent Developments

Although the post-war period in New Zealand has seen a steady increase in production and the wide adoption of more scientific aids and mechanised equipment, there have been no fundamental changes of any consequence in the organisation of agriculture, the relative importance of the principal products, or in the methods of management.

Until the late 1950s the gradually rising price level meant that farm incomes were generally increasing, with a greater surplus available for reinvestment in the improvement of farmers' properties. This has led to both higher productivity and a reduction in the drudgery associated with farm work. Technological advances have been conspicuous. Aerial topdressing has greatly improved the carrying capacity of the New Zealand hill country and in this field New Zealand has led the world. With other technical advances such as the utilisation of hormone weed killers, the adoption of more efficient machines, and improvements in the treatment of animal diseases, New Zealand farmers have taken advantage of the progress that has been made overseas.

"Floor" prices have now been established for all New Zealand's principal exports, their operation being based on the idea of accumulating reserves during favourable periods, thereby putting a "floor", by various methods, under prices when overseas markets are less favourable. It is generally accepted, however, that over any period of time the price paid to the producer cannot diverge very far from that obtained on the market.

In the last few years the need to expand markets has been uppermost in the minds of those concerned with the future of New Zealand's primary industries. During the decade after 1945, the immediate post-war dislocation of agriculture in so many countries and the time needed for



recovery meant that there was a strong demand for all types of farm produce. Thus the need for competitive selling did not really arise. Although it was clear to the more far-sighted that such a situation would not be permanent, the return to conditions of free marketing in 1954 did represent an abrupt departure from conditions which many farmers had become accustomed to over a period of 15 years.

Since 1955 the prices received for New Zealand's principal exports have fluctuated fairly sharply and, with some qualifications, the terms of trade have moved in an adverse direction. There are a number of reasons for this state of affairs, the most fundamental being of course the fact that agricultural production has fully recovered from the effects of war. Moreover, technological changes that have come about in the post-war period, together with the strongly protectionist policies in the agricultural field pursued by the major industrial countries of the world, have also caused concern. The problem of protection is the most serious for New Zealand as profitable markets for relatively high-cost animal products can be found only amongst communities with a high level of real income.

The United Kingdom has long been the market for the greater part of New Zealand's exportable surplus, but there are obvious limits to its capacity to absorb additional food products. In any case the United Kingdom's own production has been greatly stimulated. To cope with these conditions New Zealand has endeavoured to seek a liberalisation of trade policies and to develop new markets wherever possibilities exist. Many obstacles have to be overcome. Concessional sales of surplus commodities may disrupt markets, shipping services may be inadequate, consumer tastes may have to be modified, and various limitations on imports may have to be overcome.

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