
FARMING IN HAWKES BAY

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You are in sunny Hawkes Bay, the word "sunny" having become synonymous with the name Hawkes Bay, and there is justification for this when one examines the sunshine records for the district. This city of Napier enjoys an average of 2,420 hours of sunshine per annum which, if you look at it on a daily basis, is equivalent to just over $6\frac{1}{2}$ hours of sunshine per day for every day of the year. Lying to the south-east of the North Island as it does, and protected from the prevailing westerly winds by the Ruahine Ranges on its western boundary, and to a more limited extent from the southerly winds by the hills to the south, it escapes much of the cloud that districts to the west of the ranges experience.

TOPOGRAPHY

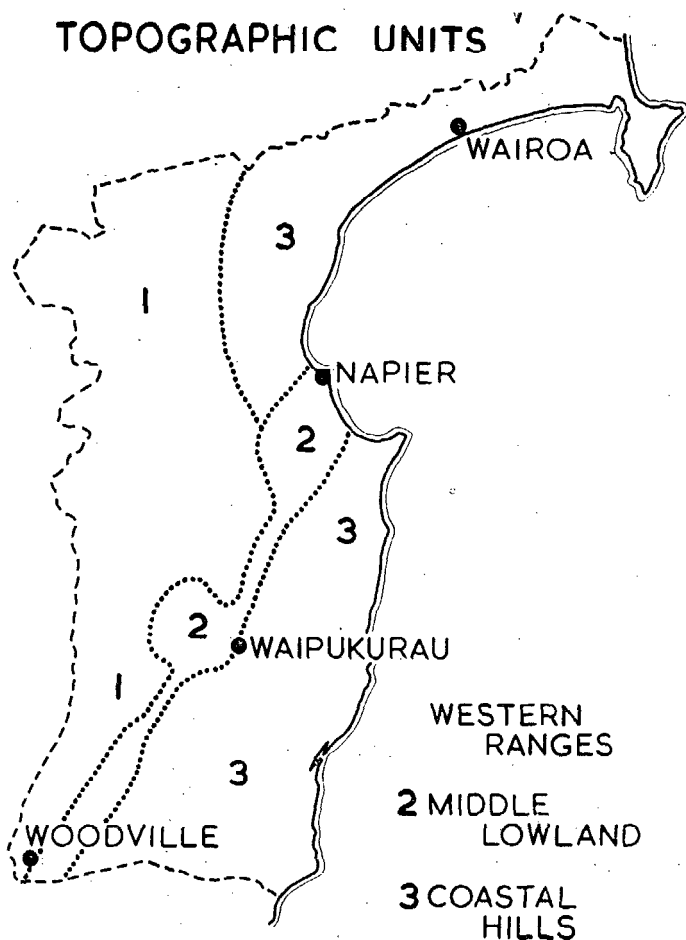
Most of the district consists of hills and steep country interspersed by smaller areas of flat country, and for simplicity it can be divided broadly into three topographic units :

- (1) The western ranges and foothills.
- (2) The middle valley lowland.
- (3) The coastal hill country.

The western ranges and foothills take up approximately 55 per cent. of the $3\frac{1}{4}$ million acres in the district. The main ranges vary in height from 3,000ft. to 4,000ft. and in places rise to over 5,000ft. and, from these, rolling to steep foothills extend for a considerable distance into the district.

Between the western ranges and the coastal hills is situated what may be termed a "valley lowland" which extends at an elevation of under 1,000ft. from the southern boundary of the district to Hawke Bay. This lowland falls into three quite distinct areas:

- (1) The Heretaunga Plains, centred on Hastings, together with the raised bed of the harbour lagoon, which together occupy an area of approximately 85,000 acres.



- (2) The, Tabapau or Ruataniwha Plains, west of Waipawa and Waipukurau, which covers nearly 64,000 acres.
- (3) The Upper Manawatu basin, which consists of areas of low terrace about and north of Dannevirke, and river flats, following the Manawatu River to the Manawatu Gorge.

In addition to these there are the Wairoa River flats, extending from Frasertown to the mouth of the Wairoa River.

The last topographic unit is the coastal hill area. In the northern part of this section the topography is extremely variable; From a height of approximately 1,000ft. inland there is a gradual loss of elevation

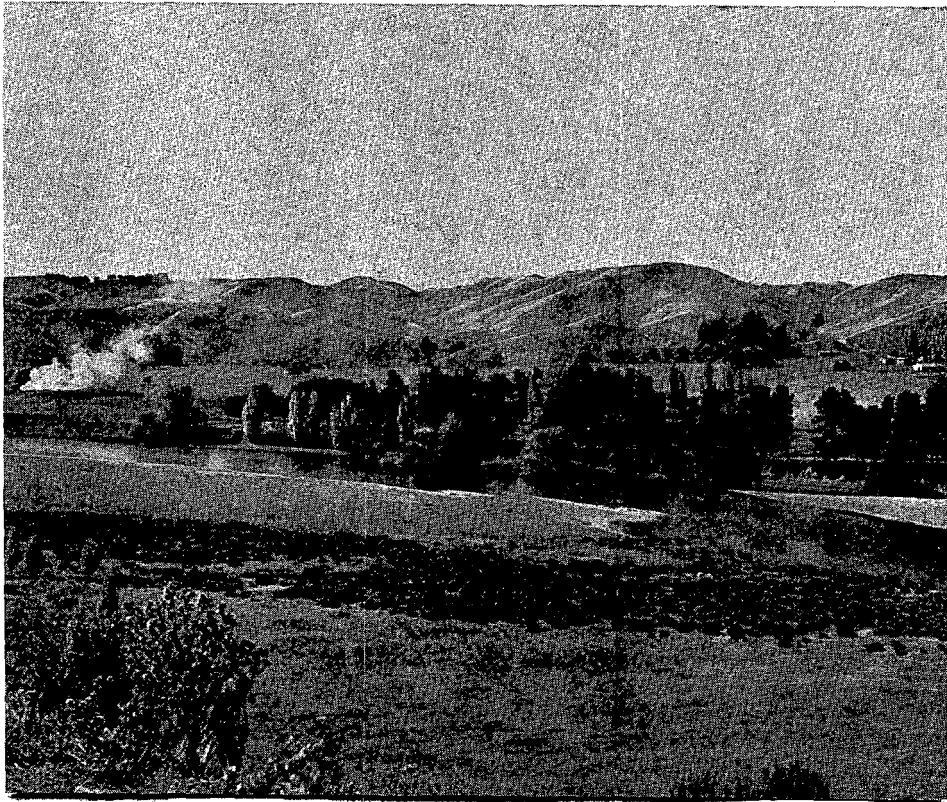
coastwards and streams and rivers are deeply entrenched in gorges.

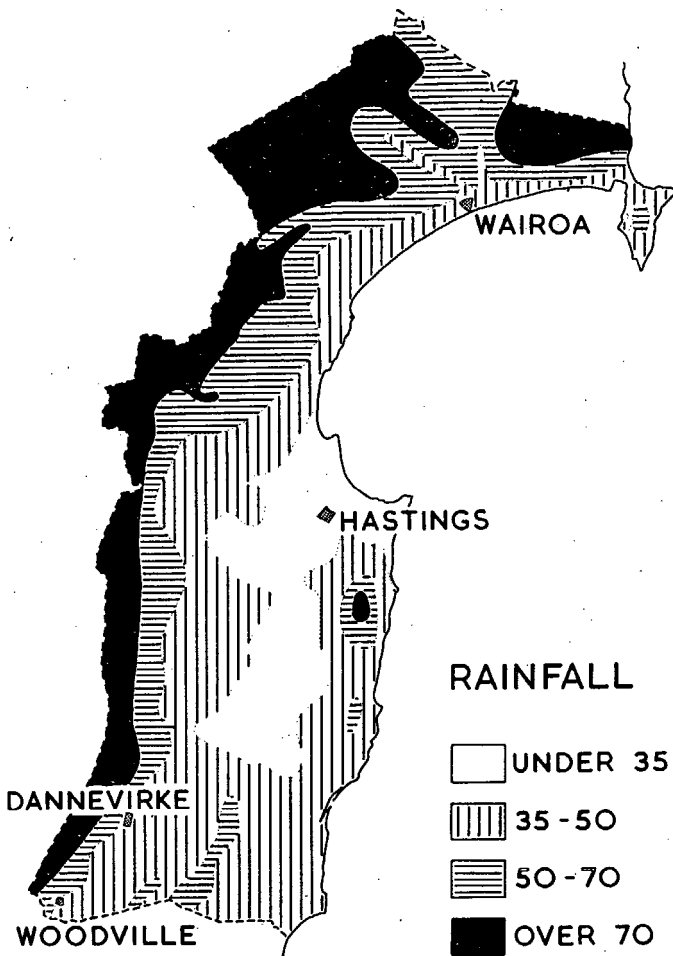
The southern section of coastal hill country extends from Cape Kidnappers to the southern boundary of the district, and consists of a series of ridges separated by broad valleys. Most of this country lies below 1,000ft., but in places rises to peaks of over 2,000ft. Much of the area is limestone country and it is regarded as some of the best of the Dominion's hill sheep country.

CLIMATE

I have mentioned the enviable sunshine record of parts of the district, and now I shall touch on some of the other climatic elements. The map shows the general rainfall pattern. In northern Hawkes Bay along the coastal sector the annual rainfall is generally above 40 inches and this increases as one goes inland. South of Napier on the coastal hills most of the area has about 40 inches per annum except for a small section around Mt. Kahuranaki, which receives

Hawkes Bay hill country to the south-east of Napier. Much of this area is limestone country and it is regarded as some of the best of the Dominion's hill sheep country.





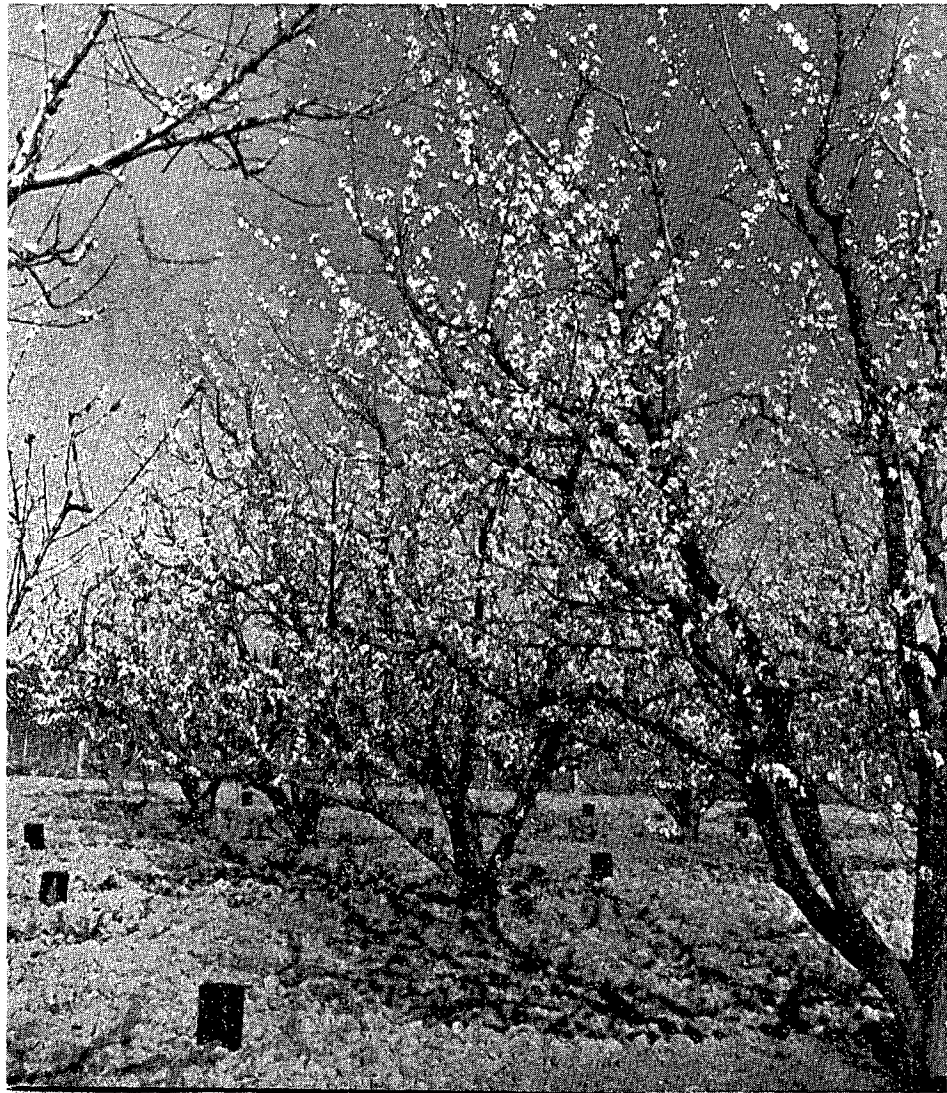
over 70 inches. Further westward on the plains and lower rolling country there, is one of the low rainfall areas of the North Island where the annual fall is under 35 inches, and again from here rainfall increases towards the western ranges.

While the monthly distribution of rainfall is generally fairly even, in spring falls are sometimes light and infrequent, and they are again sometimes light and unreliable in February and March. On the other hand the summer rainfall is affected by occasional storms of tropical origin when periods of intense rainfall have been recorded. For instance, **Rissington**, which is about 12 miles in a direct line north-west of

Napier, has an average fall of approximately 2.5 inches for March, but as much as 26 inches were recorded in March 1944 and in a recent year less than a quarter of an inch was recorded for that month.

The unreliability of the rainfall in spring and summer has a considerable influence on farming practices. A very dry summer results in parched pastures and in the past this has sometimes necessitated the shifting of stock to areas west of the ranges in the Manawatu and Rangitikei districts. However this

The soils and climate of the area around Hastings have proved very suitable for growing pip and stone fruits, and, of the area devoted to stone fruits in New Zealand, approximately one-third is located in this district.



practice has nearly ceased ; with the increased use of subterranean clover since 'the mid-1930's in the dry areas such as the Ruataniwha Plains fertility has been built up and pastures are able to withstand better the partial drought conditions. Also many farmers have adapted their farming practices to the dry conditions: they get their lambs away early, and also dry stock and other fat stock, and go into the summer with minimum numbers.

The range of temperature between summer and winter is not great on coastal areas, but inland it is naturally greater ; summer temperatures sometimes exceed 90 degrees F. and frosts are common, with consequent check to pasture growth. The provision of supplementary winter feed is essential in these areas and we find that *chou moellier* is the most popular winter supplement, between 25,000 and 30,000 acres being grown per annum.

The long hours of sunshine and the low relative humidity have been some of the contributing factors to the suitability of the area around Hastings as an orchard area for pip and stone fruits and to the growing of market garden crops. Late frosts in October and November sometimes cause damage, but on the whole loss from these is not great and not frequent.

SOILS

A description of soils must of necessity be of a very general nature. In the north-west portion of the district there are the light pumice soils derived from volcanic ash showers, and they are mostly of low natural fertility. Other low fertility soils are some of those which occur to the west, where they are formed from greywacke and argillite, greywacke conglomerates or pumicious sandstones and mudstones. Where the native vegetation was forest these soils are of higher natural fertility.

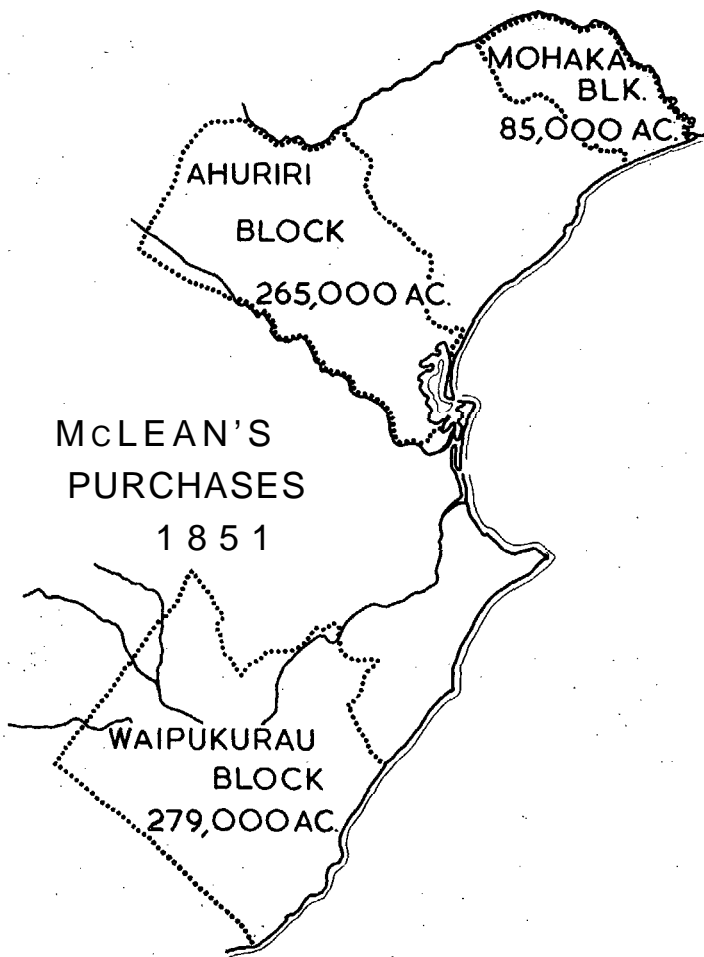
The coastal hill country in the east and just south of Napier is noted for its good natural fertility, and its loamy soils are formed on muddy sandstones, limestones, mudstones and related rocks. Further south on the coastal section there are soils derived from mudstone which are not quite so fertile, and there are also soils derived from argillites and sandstones' which are of low natural fertility. The most fertile soils of the district are those found on recent river deposits around Wairoa, on the Heretaunga Plains,- on the eastern portion of the Ruataniwha Plains, the upper Manawatu basin and on smaller flats on the coastal belt.

One of the peculiar features of some of the soils near Napier is the rocky pan, and you will be hearing something about this during the field trip together with other information on soils.

FARMING DEVELOPMENT

Two New Zealand districts have had a somewhat similar settlement history, these being Canterbury and Hawkes Bay. Both districts were settled in the early 1850s; in the case of Canterbury large blocks of land were vested in the Canterbury Association and in the case of Hawkes Bay, large blocks were purchased from the Maoris by the Central Government. In both cases these blocks of land were opened for settlement on lease, and large areas were taken up by individuals who subsequently obtained the right to acquire the freehold. There was thus created in both districts what was tantamount to a land monopoly. However, such a monopoly could not survive in its entirety in a rapidly expanding country and after the successful trial in handling refrigerated meat cargoes in the early 1880s, which demonstrated that good livings could be made from smaller areas of land, there arose in both Hawkes Bay and Canterbury a demand for land by people with small capital resources. As a result the State, in the 1890s, commenced a vigorous policy in these districts of purchasing land previously alienated from it, sub-dividing these areas and leasing them on very favourable long-term leases, at the commencement on the famous Lease in Perpetuity for a term of 999 years.

Now look at Hawkes Bay alone. There was some settlement prior to the 1850s; there were whalers on the coast and there were some loose agreements between pakeha and Maori under which land was used. However it was not until 1850 that the first phase of settlement commenced. In December of that year we find Donald McLean, whose name became inextricably bound with Hawkes Bay, setting out by canoe on the Manawatu River near Foxton, with a party of Maoris to go to Hawkes Bay to make arrangements on behalf of the State to purchase land from the Maoris. After a week's trip we find them landing near Oringi, south of Dannevirke, and then proceeding to the Ruataniwha Plains which McLean described as "being well adapted for grazing sheep, not being luxuriantly covered with verdure but well clothed with rich grasses of every variety." However when he reached the site where Napier now stands he was not so impressed for he said the place looked rather bleak, with scorched



grass and there was a scarcity of wood and water. He must have been the first to record an impression of a dry Hawkes Bay summer.

After this journey we find him again setting out, this time from Wellington via the Wairarapa in September 1851, to make payment of the first instalment for the Maori land. I don't think there is any doubt that McLean was a careful and shrewd Scot who made sure that his missions were successful ; he learned the Maori language and with patience and apparently picturesque language, he was able to meet the Maoris on fairly even terms. While it is not certain that the deeds setting out the conditions under which the vari-

ous blocks were purchased were actually drawn up by McLean, the language in which they were couched rather suggests that they were. For instance the wording of the deed for the purchase of the Waipukurau block, which was signed in November 1851, read like this:

“Now we have in our assemblies at Waipukurau, Patangata and Te Aute, and at this great gathering also of ours, considered, thought over and wept over, lamented and bidden farewell to these lands handed down to us by our ancestors as a lasting possession under the shining sun this day, to Victoria, Queen of England, with its timbers, water, fertile spots and barren places, and all pertaining to the said land as a lasting portion of land from us to the Queen of England for ever. We will not permit any persons to molest the Europeans upon the land.”

The map shows the purchases that were completed by McLean in 1851; in effect in four weeks he completed the purchase of 629,000 acres of land, which is approximately one-fifth of the area of the present Hawkes Bay Land District, the price being £7,120—not quite threepence per acre. The purchases by the State continued and settlement of the land proceeded. Names of landholders began to appear whose descendants are still well known in Hawkes Bay, such as the Hardings, Williams, Lowrys and Ormonds. The first sheep to come to the district came in 1849, when a flock of Merinos came overland from Wellington via the Wairarapa to Pourere Station on the coast south of Napier. By 1856 there were approximately 56,000 sheep in the district and by 1872 the numbers had increased to about 1,100,000. Sheep farming dominated the scene as it has done ever since.

Merinos were practically the only breed of sheep until the late 1860s, when long-woolled sheep such as the Lincoln and English Leicesters were introduced, and it was not until 30 years later that the Romney began to take its place in the district.

While the Hawkes Bay and Gisborne districts now have a greater beef cattle-sheep ratio than any other districts in New Zealand, being approximately 10 cattle beasts per 100 sheep shorn for Hawkes Bay, it was some years before they were carried in any great numbers. In 1895 there were 42,000 head of cattle in the district of which about 10,000 were dairy cows. Short-horns accounted for 50% of the total, and there were approximately 1,200 Aberdeen Angus and 250 Here-

fords. Today the beef breeds total 441,000, about 14 times greater than the number sixty years ago.

'Like some other districts in New Zealand, Hawkes Bay had its quota of settlers from Europe. In May 1872 there landed at Napier Norwegian and Swedish settlers who started their lives in the colony in the bush districts of Norsewood and Dannevirke. Other Scandinavians including Danes, arrived shortly afterwards. Their lot on their small bush holdings was a difficult one for a number of years, but they have been some of New Zealand's most worthy European settlers. They were also early pioneers in the dairy industry and there are still Hansens, Fredericksens and others of Scandinavian origin associated with it. The first co-operative dairy factory was opened at Umutaoroa near Dannevirke in 1893 and other factories at Norsewood and Ormondville soon followed until the industry became firmly established in Southern Hawkes Bay.

By the turn of the century the pattern was one of large sheep holdings over most of the district with wool as the main product, but with some fattening on the more favourable areas, a developing dairying industry on smaller holdings in the south and an incipient fruit growing industry on the Heretaunga Plains.

Before tracing any further developments it is of interest to look at one of the large holdings, and as many of you will be seeing a portion of the original Maraekakaho Station this afternoon, I shall give a few facts concerning it. It was purchased by Donald McLean about 1856 although he had acquired some areas before then. The original 30,000 acres, part of which was on the Heretaunga Plain and the balance on hill country, was purchased for about \$1,000. This area was subsequently increased and records show that it comprised 45,000 acres in the mid 1890s, when there were between 50,000 and 60,000 sheep on the property, as well as 1,800 Shorthorn cattle. About 300 acres of rape per annum was then grown and the wool clip comprised about 1,500 bales. In 1907 upwards of 100,000 sheep were shorn.

The station was a self-contained community with butcher's shop, store, blacksmith's shop, school and church, and there were never less than 70 employees.

However, a change from all this was coming and the actual turning point was probably the warning given in a speech at Napier early in 1895 by the Prime Minister the Rt. Hon. Richard Seddon.

He spoke of land monopoly and, like politicians of latter days, he quoted statistics, no doubt supplied to him by civil servants, to illustrate his point. Those statistics showed that 124 persons were at that time holding 1,430,000 acres in Hawkes Bay, which was equivalent to approximately 11,400 acres per person. Immediately afterwards the State was in the field as a purchaser of land under the Land for Settlement Act and at the end of 1895 the first two purchases were made in the district, these being the Elsthorpe Estate of 10,000 acres and Raukaka of 427 acres. In the eight years up to the end of 1903 nearly 110,000 acres had been acquired for closer settlement. This development continued, impetus being given to it after the first and second world wars, and since 1945 the State has again purchased approximately 125,000 acres in the district mainly for the settlement of servicemen.

With the close settlement, a natural concomitant was a more intensive system of farming. The new farmers on their smaller holdings with modest financial resources had perforce to obtain the greatest return from their holdings; greater emphasis was placed on fattening, and fat lamb production came into its own. The statistics over the last 35 years illustrate the trend.

TABLE 1

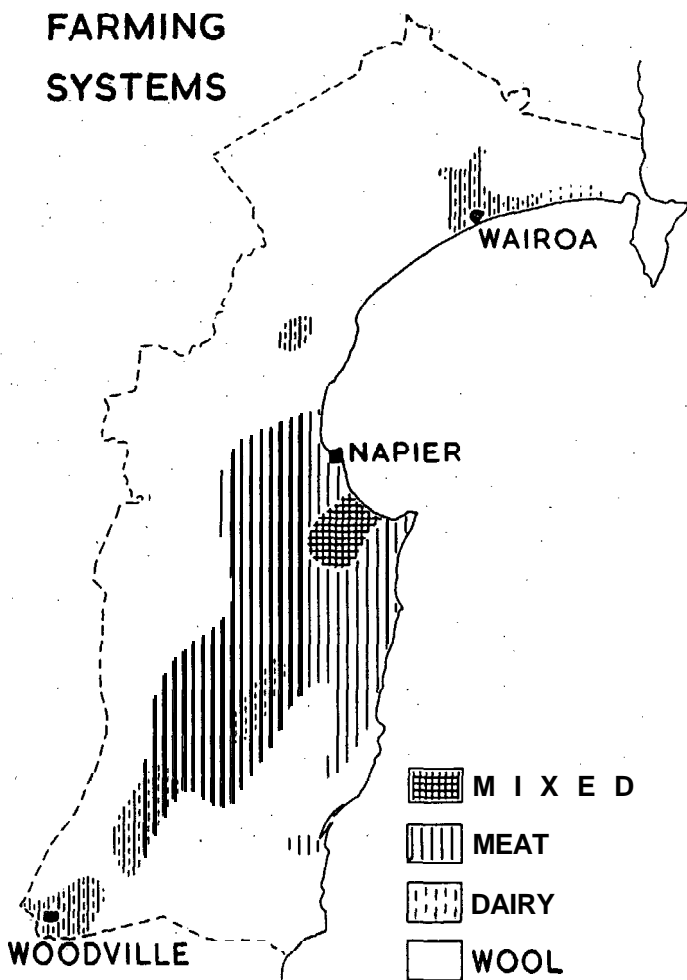
Year	Average size of Holding	Breeding Ewes as % of Total Sheep
1920	670	43%
1955	480	63%

Another trend of importance is the greater part that beef cattle are playing. From 246,000 in 1920 the numbers have now reached 441,000 and the trend is towards a greater proportion of the beef cattle to comprise beef breeding stock.

FARMING TODAY

This brings us to the present day.

The area of 2,760,000 acres occupied for farming, of which 1,810,000 acres are in grass, carry approximately 4,800,000 sheep and 520,000 head of cattle, of which 54,000 are dairy cows in milk. In addition there are about 7,000 acres in orchards and market gardens, about 7,000 acres devoted to growing cash crops, and about the same acreage set aside each year for pasture seed crops. That is the broad picture of the farming



industry today and if figures can convey a picture they show how sheep dominate the farming scene.

A simple classification of farming systems is rather difficult and any method of making the division must be arbitrary. Also a description of these systems can be tedious to listeners. First there is sheep farming for the production of wool and store sheep which is the feature on the higher country along the western ranges, on a considerable portion of the hill country of Northern Hawkes Bay and on the hill country on the south-east coast. Here Romney cross ewes are mated with Romney rams and the practice is to

retain ewe lambs for flock replacements, fatten a few wether lambs, and dispose of the remaining wether lambs as stores for fattening in other districts. Cattle are run, and breeding cows, both Hereford and Aberdeen Angus, are carried in conjunction with the sheep. On some of the easier yet rather inaccessible hill country there is an intermediate farming system, where a proportion of the lambs are fattened. Here Southdown rams are mated with the older ewes and the lambs sold as fat.

These store and intermediate sheep farms have an important place in the economy of the sheep industry of the North Island, for they are the reservoirs from which the fat lamb producers of Hawkes Bay, the Manawatu and some other districts obtain some of their flock replacements. This farming system occupies what can still be regarded as the pioneer fringe of the district, and it is an area where Hawkes Bay must pin its hopes for a considerable portion of the increased production which must come from the district.

The next farming system and undoubtedly the most important one is that where the management aims at the production of meat and wool and the perimeter of this system is gradually extending outwards on to the store sheep country as topdressing increases there and pastures improve. In Northern Hawkes Bay there are isolated areas, such as the river flats in the vicinity of Wairoa and an area around Tutira, where there are fat lamb fattening farms. In mid and Southern Hawkes Bay this type of farming extends westwards from Hastings and then southwards in a wide stretch to the southern end of the district at Woodville, the area including part of the coastal hill country, except for the higher and more broken parts. Most of the Heretaunga Plains, the Te Aute Valley, the Takapau-Ruataniwha Plains, and a portion of the upper Manawatu basin come into this category.

As indicated earlier, in many of the areas subject to dry summer conditions, and this applies to much of the land coming within this farming system, the general practice is to get the lambs away early, followed by the other fat stock, so that the minimum number of sheep go into the dry summer.

Management practices differ in the area but there does appear to be room for a considerable increase in the area of lucerne to provide some of the supplementary feed. Conditions are suitable to its growth, but over the past twenty years there has been little change

in the acreage devoted to it, there usually being about 5,000 acres of lucerne cut for hay each year.

Some idea of the importance of the Hawkes Bay fattening farms can be obtained from the slaughtering figures for the three freezing works operating in the district. In a year they handle about $\frac{1}{2}$ million sheep, $1\frac{1}{4}$ million lambs, and about 35,000 cattle.

The other two systems, apart from the market garden and orchard industries, are dairying and mixed farming. There are 900 dairy herds of over 20 cows each and most of these are in the southern part of the district on the flat and easy rolling country around Norsewood, Dannevirke and Woodville, where the rainfall averages between 45 and 50 inches per annum. Dairying is also a feature round Wairoa and Nuhaka, as well as parts of the Heretaunga Plains. There are 15 dairy factories which produce approximately 4,300 tons of butter and 3,000 tons of cheese per annum.

It is probably true to look upon the Heretaunga Plains as the only true mixed farming area. While fat lamb production is the dominant feature, there is some dairying, and also considerable areas are shut up each year for the production of pasture seeds. A recent and new source of revenue for some of these farmers has been the growing of crops of peas and beans for canning and upwards of 4,000 acres of peas per annum have been produced for this purpose.

With respect to pasture seed production, the Heretaunga Plain has become renowned as a producer of perennial ryegrass seed, approximately 4,000 acres being shut up each year for this purpose. Another seed producing area is the Ruataniwha Plain, and all told Hawkes Bay takes pasture seed crops from between 8,000 acres and 10,000 acres per annum.

The area around Hastings lays claim to being the fruit bowl of New Zealand. I shall not dispute the claim other than to **say** that it **is** one of the main fruit bowls. The soils and climate of this area have proved very suitable for pip and stone fruits and today there are approximately 3,800 acres in orchards and 400 acres in grape vines. Of the apple trees in the Dominion the district has approximately 17 per cent., pears 36 per cent., and stone fruits 31 per cent., and its production per acre of pip fruits is higher than any other district in the Dominion.

The large market garden industry is one of the most recent developments in Hawkes Bay. In 1920 there were approximately 150 acres in market gardens on the Heretaunga Plains and by 1939 it had reached

580 acres. The war gave considerable impetus to the industry and today there are approximately 3,700 acres devoted to market gardens, in addition to which there are the areas of peas and beans grown by farmers for canning and quick freeze. Included in the area are 500 acres in asparagus.

The orchards and market gardens form the basis of a very vigorous local canning industry and of recent years a considerable part of the canned vegetables has been exported. For instance, for the twelve months ended 31 December last year the value of canned vegetables exported from New Zealand was \$352,000 and Hawkes Bay's share of this sum was certainly not small.

SERVICES

The Farming Industry of this district is quite well serviced.. There are three freezing works, one at Wairoa and two near Hastings. There are five lime works producing about 110,000 tons of lime per annum and the new fertiliser works at Awatoto, close to Napier, at present has an annual output of approximately 125,000 tons of superphosphate.

Wool sales are held at Napier and the port of Napier handles most of the export produce of the district. For the year ended 30 September 1954, 96 overseas vessels used the port and about 116,000 tons of outward cargo passed over the wharves, the greater part comprising wool and frozen meat.

That is a bird's eye view as near as I can- give in a paper of this nature, of the farming development which has taken place and of the present farming pattern, and some of the main farm services. Unfortunately I have had to resort to that necessary evil, statistics.

THE FUTURE

Now I shall endeavour to- look a little way into the future. Estimates, or perhaps I should say intelligent guesses, have been made of the likely number of stock that the district should carry in 20 years' time and they are something like this:

TABLE 2
Estimated Stock Numbers in 1975

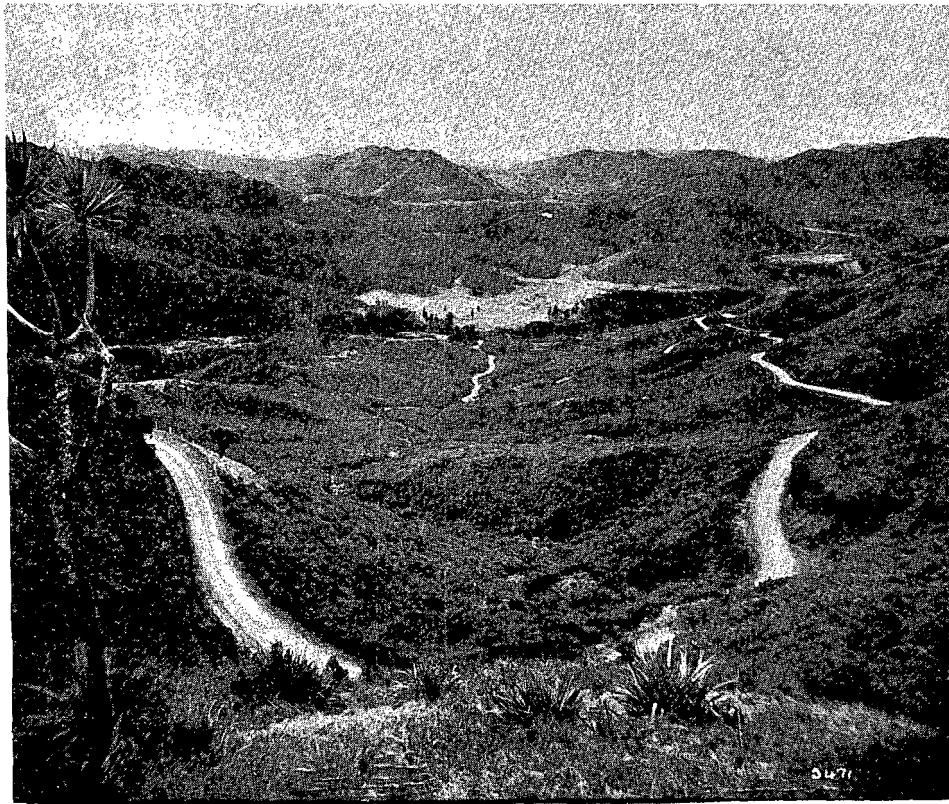
	1956	1975	% increase
S h e e p	4,800,000	6,500,000	36.6
Breeding Beef Cows	181,000	200,000	10.5
Dairy Cows	64,000	68,000	26

Also estimates of fertiliser usage indicate that between 160,000 and 170,000 tons of superphosphate will be required per annum.

The increases are quite considerable, but I do not think there is much doubt that they will be achieved. First we find that the State has under development 62,000 acres of land, 57,600 acres being handled by the Lands and Survey Department and 5,000 acres by the Maori Affairs Department. It is not easy to say what the land will carry when developed but I would not put it less than $2\frac{1}{2}$ sheep per acre, or say, another 150,000 sheep and possibly about another 10,000 head of cattle. Naturally I cannot forecast whether the State will develop further blocks, but I think that this type of development will continue as long as there remains land which can be converted into farming land.

There is also a considerable amount of private land development work going on and, if it continues at the present rate of about 10,000 acres of virgin country going into new grass each year, it will account for another 400,000 to 500,000 extra sheep in 20 years time.

From the ranges on the western boundary, rolling and steep foothills extend for a considerable distance into the district. Much of this country is still covered in scrub.



There are certainly large areas in Hawkes Bay that can still be brought in ; there are about 340,000 acres in scrub, fern, and second growth, a considerable part of which is capable of development. There is also 330,000 acres of natural *Dunthonia* country where considerable improvement is taking place with the aid of aircraft. When it is realised that, for the year ending 31 March, last, no less than 34,500 tons of fertiliser was dropped from the air on Hawkes Bay farming land, it shows that the hill farmers are keen to effect improvements to increase carrying capacities.

In addition to the increases that are likely to come from the hill areas, the productive potential of the flat and easy rolling country has certainly not been reached. While I consider that the targets for stock numbers should be reached, nevertheless there are problems.

SOME PROBLEMS

I cannot cover all of them, mainly because I do not know them all, and those that I mention are not placed in any particular order.

Later this morning you will be learning something from Mr Matthews about local weed problems. Those who are developing hill land, particularly in the northern part of the district, have blackberry and gorse to contend with and no matter what method is used to cope with these weeds, it means, in most cases, an added development cost. Another weed which is at present causing an economic loss, and I suspect not an inconsiderable one, is barley grass. With the build up of soil fertility it is increasing, and we find pelts being condemned as a result of the penetration of the seed, and also lamb and mutton carcasses are being rejected for export, in addition to blindness being caused to some stock.

Hawkes Bay, unfortunately, has an unenviable reputation with respect to soil erosion. Photos showing erosion have appeared from time to time in publications and one frequently finds that they are scenes of a scarred hillside or a sedimented river valley in Hawkes Bay. As a result of past burning practices and subsequent over-grazing, combined with occasional rainfalls of high intensity, flooding and sedimentation of river courses has occurred. One has only to go back a few years to ascertain some of the results. In April 1938 the Esk Valley flats of about 1,750 acres, an area about 10 miles north of this city, was left with a siltation of an average depth of 3ft. 6in. after very severe flooding following intense rainfall.

The district also has areas deficient in minor elements which will no doubt be discussed, following papers later in the Conference: At this stage I can mention the pumice soils in the north-west of the district which are deficient in cobalt.

A problem of considerable importance, particularly in the development of northern Hawkes Bay hill country, is that caused by the dissection of the land by deep streams and river gorges. To provide access to areas capable of development by implements means the provision of access over the streams which can only be done by constructing costly tracks and bridges. These streams also add considerably to the fencing costs of developed country.

I do not know the area of Maori land in the district but there are considerable areas. We hear the criticism that national production is hindered because these lands are often not being utilised. However, in spite of this criticism I am fairly certain that in the future the Maori people will more and more agree to their undeveloped and partially developed lands being grouped in blocks and developed by the Maori Affairs Department, subdivided and leased to trained Maori farmers. This trend must have an effect on the future production of Hawkes Bay.

Probably the major problem is the provision of finance to carry out land improvement work, particularly on the more marginal hill areas. While quite a lot of this improvement work can be financed today from surplus farm revenue and, where it can, it should be, nevertheless finance will have to be made available in a number of cases if production targets are to be reached. The Marginal Lands Board is playing a part in providing some finance, but with only about £400,000 available to it per annum it can do only a little in a national programme of land development and improvement. There is also this question of credit contraction. A few days ago I learned in this district that a scheme for the handling of lime was being hampered because of the credit squeeze. In itself it is a relatively small matter, but a number of these can be a hindrance when trying to increase production from the soil. A credit squeeze whereby the whole orange is squeezed until each pip squeaks, regardless of whether the pip is essential or not so essential, does not appear to be as well founded as it might be, for thereby both necessary and not so necessary enterprises are hampered. It does not appear to be consistent, on the one hand, to be calling for increased farm production, and on the other

to be putting obstacles in the way. This does not mean that I consider credit should not be contracted, but let **cognisance** be taken of the essential and not so essential.

Most of the problems are known, and some of the remedies, but nevertheless they are still hindrances to increasing the productive capacity of the district. However I can conclude by saying that I consider Hawkes Bay has a bright future and there are few areas in New Zealand where the farmer is so well compensated for his efforts.