Farming in Hawke's Bay

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Abstract

There is a wide range of farming enterprises in the Hawke's Bay region because of the extended nature of the region, from Wairoa to south of Woodville, favourable climate and the mixture of soil types. This paper is therefore a general overview of the district and it attempts to provide some comparisons for those who attended the conference in 1975 and possibly 1955.

Keywords: beef, cattle, climate, deer, forestry, goats, Hawke's Bay, horticulture, sheep, soils, viticulture

Introduction

Hawke's Bay was named by Captain Cook after the first Lord of the Admiralty. It is the traditional home of the Ngati Kahungunu. It has a total area of 1 409 955 ha and extends from Wairoa in the north to Woodville in the south – about 193 km. The land district rarely exceeds 64 km in width and is bounded on the east by the Pacific Ocean and on the west by the Ruahine and Kaweka Ranges.

Brief early history

William Colenso founded his mission near Port Ahuriri in 1844. The original population was Maori with only 20 people of European descent in 1850. This has increased to approximately 165 000 people of which 25% would be of Maori descent. Land was gradually leased, purchased and acquired from the Maori tribes and hapu, and a strong livestock industry was developed. The 130 000 sheep, 3000 cattle and 380 horses in 1856 have grown to 6 million sheep, 600 000 beef cattle, 150 000 dairy cattle, 105 000 deer, 15 000 goats and ostriches – a total of approximately 10.5 million stock units.

Land settlement was difficult because of poor access through the ranges and dense bush, and also because much of the Heretaunga Plains was flooded.

Settlement of Danes and Norwegians in southern Hawke's Bay, along with the extension of the railway and drainage of the plains, helped immensely the development and communication in central and northern Hawke's Bay.

Topography

The land district consists mainly of hills and steep country interspersed with flats. There are probably three categories: Western ranges and foothills, mid-district hills and plains, and coastal hills.

Climate

The word "sunny" has become synonymous with Hawke's Bay. The total of 2200 sunshine hours per year (a slight decline from the 1975 period) is due to the rain-shadow effect of the western ranges. This sunshine, coupled with the low humidity, make the Heretaunga Plains climatically suitable for horticulture and viticulture on the plains plus silviculture on the hills. Management practices of the livestock industry are influenced by the climatic conditions, particularly the dry northwesterlies and the unreliable rainfall in the spring. These conditions also necessitate that horticultural and viticulture have irrigation systems to ensure reliable and economic yields. Snow is generally not a major problem to farming.

Soils

Only a general description of the soils is possible and for northern and mid-Hawke's Bay the following applies.

- Light pumice soils derived from sub-aerial volcanic ash showers cover the north-western portion of the district. They are mostly of low natural fertility.
- Other lighter soils occur to the west where they are formed from greywacke and argillite, greywacke conglomerate or pumiceous sandstone and mudstones. These have low natural fertility except where the native vegetation was forest.
- Coastal hill country has good natural fertility – its loamy soils are formed on muddy sandstones, limestones, mudstones and related rocks.
- The most fertile soils are those formed on recent river deposits on the Heretaunga Plains and on the smaller flats in the coastal belt.

In Southern Hawke's Bay a wide variety of soils occur but they can be generally grouped as follows:

- Soils of alluvial flats which are generally well-drained, fertile, silty soils and intensively-farmed with sheep and cattle.
- Soils of the terraces, which include yellow-grey earths, yellow-brown loams and grey soils.
- Soils of the rolling hills, which are formed from a wide variety of rocks and include yellow-brown earths and intergrades between yellow-brown earths and yellow-grey earths.
- Soils of the steeplands which are formed from a variety of parent material such as siltstone, sandstone and limestone, or a mixture of these or mudstone, greywacke and argillite.

Land utilisation and farming systems

Farming enterprises in Hawke's Bay cover sheep, cattle, goat and deer breeding, and finishing, fruit growing, cereal cropping, process cropping, small seed, viticulture, dairying, silviculture and ostrich farming.

Sheep and cattle
Sheep and cattle numbers increased significantly over the years, initially as more land was cleared and developed, and subsequently as farmers intensified the farming systems. Sheep and cattle numbers peaked in the late 1970s to early 1980s at approximately 9.4 million and 900 000 respectively, following a number of government initiatives to develop more land and intensify land already in pasture. The western ranges and foothills are predominantly breeding country but where practical, lambs and cattle are now finished. The coastal hill country is predominantly breeding country and finishing when the season allows. The mid-district and lower rolling to flat country is predominantly finishing with some breeding. The predominant sheep breed is still Romney but cross-breeding with other breeds of higher genetic potential is occurring in a large number of sheep flocks. The base breed of the majority of beef herds is Angus, but most farmers have introduced a cross-breeding programme utilisating a large number of alternative beef breeds. Mean lambing average is 110% but there is still a large variation from 80% to 200%. Average calving is 89%. Napier is now one of two wool-selling centres in New Zealand, but the quantity of wool handled has dropped to approximately 206 000 bales compared with 280 000 bales in 1974–75.

Dairying
Although it is not looked upon as being a dairying area, dairy farming played an important part in the development of Hawke's Bay. Most of the dairying is in Dannevirke and Woodville on terrace country on relatively free-draining soils. Dairy cattle numbers have fluctuated since peaking in 1972–73. They declined during the 1970s and early 1980s, but now have recovered to approximately 145 000. Presently, there are approximately 279 herds milking a mean of 260 cows. The increase from 44 000 cows in milk in the early 1970s to 72 500 cows in milk now is largely due to the 33 dairy conversions that occurred in central- and mid-Hawke's Bay district. These 33 herds average 535 cows in milk, but range up to 1100 cows per herd.

Deer
From the late 1970s, deer farming expanded in Hawke's Bay as a diversification from traditional sheep and beef farming. The majority of deer farms are part of larger sheep and beef enterprises. Deer numbers peaked in the mid-1990s at approximately 137 000. The deer enterprises are widespread in the region and are a mix of breeding, finishing and velvet production depending on the climate.

Goats
Interest in goat farming started in the mid-1980s and peaked at approximately 180 000 in 1989. The majority were from feral base stock captured in northern Hawke's Bay supplemented with imported blood-stock from overseas – mainly Australia. The number of goats has now declined to approximately 15 000. Farming goats includes goat meat and fibre production.

Cash cropping
Most of the cereal cropping is confined to the Ruataniwha plain and pockets of ideally suited soils and climatic zones, e.g., Drumpeel Road in Otane. In addition to the cereal crops, some process cropping of peas and sweet corn is grown for Heinz Wattie and McCains. There is a mix of land use on the Heretaunga plains due to the soil types and climatic environment. These uses range from livestock-only enterprises to pip and stone fruit production, viticulture, market gardening, process crops, flower production and ostrich farming.

Land farmed by the crown
Initially, land was purchased, developed and farmed by the Crown for settlement. Since 1945, over 350 new owners have been settled in the region on mainly sheep and beef farms, plus dairying, orchards and market gardens. Land settlement has totalled over 80 000 ha. Since the cessation of land settlement in 1983, Land Corp Farming Ltd has acquired land in the region and

is presently managing 10 properties totalling approximately 27 000 ha and 175 000 stock units, focusing on breeding and finishing mainly sheep and cattle as large, corporate, integrated, farming enterprises.

Horticulture

When one considers the volume of fruit and vegetables produced in Hawke's Bay, it is easy to see why it is referred to as the "Fruit Bowl of New Zealand". The soils and climate on the Heretaunga Plains are very favourable for horticultural production. Presently, there is 7500–8000 ha planted in pip and stone fruit. Approximately 6500 ha is planted in apples with an additional 350–400 ha in pears. The balance is planted in various varieties of stone fruit crops. Apples yield approximately 180 000 t, or 10 million cartons, the majority of which are exported but the local New Zealand market would utilise at least one million cartons. This production represents approximately 36% of the national planted area producing about 50% of the national crop.

Summer fruit or stone fruit (peaches, plums, nectarines, apricots and cherries) is also important in Hawke's Bay where we have 33% of the production area growing 72% of the national production. There are about 1200 ha planted in stone fruit crops of peaches, apricots, plums and nectarines producing approximately 5700 t of fruit. In addition to the pip and stone fruit production, Hawke's Bay produces significant quantities of berries, kiwi-fruit (1.2 million trays of which 95% was exported last year), grapes (23 000 t), citrus fruit, glass house production, mushrooms, cut flowers and over 200 ha of nursery production. Process and export fresh vegetables are also an important income earner for Hawke's Bay. These include asparagus, peas, sweetcorn, squash, tomatoes, potatoes, carrots, beetroot, broad beans. Approximately 6500 ha of these crops were planted last year producing approximately 120 000 t of produce for both export and local markets. The major crops for area and volume are sweetcorn and squash – 30% of national production – at approximately 36 000 t for each crop.

Beekeeping

This industry has over 16 000 hives producing 500 t of extract and section cut-comb honey. Other income is from bees' wax, orchard pollination services and export of queen bees.

Silviculture

Following the development of the pulp and sawmill at Whirinaki and the expansion of the log export trade, the area planted in pines in the region has continued to expand to approximately 135 000 ha. Ownership is mainly forestry companies and forestry investment partnerships and not the state, which was the major owner in the 1970s.

Industries supporting horticulture and agriculture

Agriculture and horticulture in Hawke's Bay are well serviced by supporting industries. There are two processing companies both canning and quick freezing, namely Heinz Wattie and McCains. Presently, there are 54 fruit packhouses, which include small family enterprises but the majority of the fruit is handled by eight packhouses with a combined throughput of 6.1 million Tray Carton Equivalents (TCE) or 113 000 t. There are 10 companies providing cool storage with a total capacity of 6.7 million TCE or 124 000 t. Other major industries include four freezing works, a fertiliser works, two stock firms, three wool scourers, one large and a number of small transport operators, lime quarries, timber mills, a pulp mill and a pet food factory.

Hawke's Bay is fortunate to have an efficient port facility at Napier. This is continually expanding to cater for increases in local production particularly in horticulture and silviculture. It is a first port of entry, i.e., it accommodates customs and excise and is the fourth-largest export port in New Zealand handling 2.2 million t of cargo per year.

Problems in Hawke's Bay

- Erosion is quite serious in coastal hill country and the ranges, and substantial assistance is being given by the Hawke's Bay Regional Council for stabilisation, and retirement.
- Underground water can be quite a problem as experienced in 1961, 1971 and 1974. Installation of subsoil drainage has continued to expand for intensive farming enterprises.
- River development and protection has also been extensive to prevent flooding such as occurred in the early days of European settlement in Hawke's Bay.
- With the expansion of the horticulture, viticulture and dairy industries on the plains, the area of land under irrigation has also expanded, which is putting pressure on the underground water supply. Close monitoring by our Regional Council is now necessary particularly in years of drought as experienced in the 1997/98 and 1998/99 years.
- The expansion of viticulture on the light soils is a benefit in that it reduces the potential for wind erosion.

Development and changes since the NZGA conferences in 1955 and 1975

Land area

The number of farm holdings has continued to decline mainly due to amalgamation and conversion to forestry, particularly in the Wairoa and southern Hawke's Bay areas. The land area farmed would have shown an increase in the late 1970s to early 1980s due to land development being encouraged by a number of government initiatives. But, in the late 1980s and 1990s the area declined as forestry plantings expanded. Statistical data on farm numbers and area farmed for the district are not sufficiently detailed to allow valid comparisons.

Stock

Livestock numbers continued to climb in the late 1970s peaking at 12.4 million stock units in 1981 before the drought and have continued to decline to the present day total of approximately 10.4 million stock units. This decline has been influenced by farming returns, conversion to forestry and a change in emphasis of farm management practices to capitalise on changes in market demand.

Within the time frame between the conferences, the ratio of sheep to cattle has fluctuated according to their respective returns and the climatic conditions. In fact, cattle numbers peaked in 1977 at 894 000 and sheep in 1984 at 9.28 million.

During the 24-year period from the last conference here, dairying has had a change in fortune. Dairy cow numbers continued to decline until 1980 after which there was a gradual increase due to amalgamation and expansion in the southern areas around Dannevirke, Woodville and Pahiatua. In the last 10 years, there has been a significant expansion of large herds on dairy conversion farms in the Patoka and Central Hawke's Bay areas. In fact, there have been 33 dairy conversions with an average herd size of 535 cows on approximately 7200 ha. The herds range up to 1100 milking cows although one enterprise manages about 2100 cows in several herds.

The following table provides an indication of the comparative stock numbers farmed at the time of the conferences.

	Numbers		
Stock class	1955	1975	1999
Dairy cattle	85 600	64 200	145 000
Beef cattle	441 350	740 910	575 000
Sheep	4 899 360	6 823 810	6 115 000
Deer			102 000
Goats			15 000

Deer farming slowly developed in the mid-1970s and numbers peaked in the early to mid-1990s at 137 000. Numbers have fluctuated according to political intervention and market returns for both venison and velvet. The region supports its own slaughter and process facilities.

Goat farming rapidly expanded in the 1980s with farmed goat numbers peaking at approximately 184 000 in 1989. Since then, there has been a gradual decline.

As noted in 1975, cross breeding particularly in sheep, has increased. This follows a period of stabilisation in the 1980s after the influx and decline of the Perendale and Coopworth. Presently the main emphasis is the infusion of the Finn and East Friesian genetics, plus Texel crosses. There has also been an increase in numbers of terminal sires in sheep flocks as some farmers have stopped rearing replacements and others are attempting to provide more flexibility to combat our more frequent dry seasons.

Almost every exotic cattle breed is still found in Hawke's Bay, but the major differences is the number of dairy-origin cattle particularly Friesian bulls, which were frowned upon in the 1970s. Cattle production has changed. Cow numbers in the district have declined due to management difficulties in dry seasons and poor financial returns. The proportion of finishing cattle has increased significantly particularly with Friesian bulls.

Fertliser and lime

Although it's a prime farm input, fertiliser applications in the region have fluctuated according to the farming incomes. The total tonnage applied would be about half of that applied in the 1970s, at approximately 120 000 t. In addition, the type of fertiliser applied has changed with a higher tonnage of products containing Nitrogen being applied, e.g., DAP and DAP 135. The use of reactive rock, and liquid materials has increased too.

Cash and fodder cropping

In general, cash cropping has been a 'catch' crop in a pasture renewal programme, except for a few specialist arable farmers. The area under cereal crop has decreased since the 1970s mainly due to inconsistent yields and low returns, to approximately 1000 ha.

The area of fodder crop grown would be identical at approximately 8000 ha as farmers attempt to provide high-quality feed over the summer for lamb finishing, and protection against facial eczema, ryegrass staggers, droughts, etc.

Also on the heavier soils, particularly on the Heretaunga plains, there has been a significant change in land use to higher-returning opportunities, e.g., fruit trees, squash, maize, etc.

Farm management
Managerial skills in pasture and stock have improved – aided by the research from innovative farmers and consultancy teams. Fencing has continued to contribute considerably to the present more efficient production, as it provides the ability to fully utilise the land relative to its potential. Livestock systems are being analysed in more detail and the enterprise mix on farms is more in line with the pasture curve and financial returns. Fertiliser is more strategically applied according to the land capability plus the use of nitrogen has increased. Planning, goal-setting and monitoring are all features of the top-performing farmers who are ensuring that farm management techniques will keep up with the future demand on farmers' skills.

Hay and silage
The area harvested has declined as stock numbers, especially breeding cows have decreased and farm management practices have changed. In recent years, there has been a move to the large bales and more recently the wrapped bales because of ease of handling and quality of conserved feed.

Irrigation
The demand for water from rivers, streams and underground aquifers has increased significantly with the expansion of the vegetable (mainly squash), horticulture, viticulture and dairy industries. There has been limited development of border-dyke and wild flood schemes. Most systems are trickle irrigation for horticulture or big gun irrigators in the field crops and dairy farms. Recently, central pivot and travelling overhead irrigators have been installed to improve water efficiency on some larger enterprises.

With the increase in the number of irrigation systems and in the demand for water, it is likely that restrictions on water extraction from river, streams and bores will be more frequent, especially if dry periods similar to the last 2 years continue.

Sub-soil drainage
Sub-soil drainage has continued to expand with the development of more plains land for horticulture and viticulture. Without the ability to control the water table, high tree and crop losses can occur as was the case in 1961, 1971, and 1974.

Meat processing
Significant changes have occurred since the last conference in Hawke's Bay. At that time, our two giant processors for sheep and cattle, namely Whakatu and Tomoana, were active. At their peak they both could process 21 000 lambs per day plus cattle. In addition to these plants, a beef-only processing facility had just been commissioned and Affco processed sheep and cattle at Wairoa. Over the past 25 years, a further five sheep plants (eight chains) and two beef plants were opened, followed by rationalisation and the closure of Whakatu and Tomoana plants, two beef plants and the moth-balling of a sheep plant. This leaves eight lamb and sheep processing chains and two beef processing facilities owned by three companies. The combined capacity of the sheep chains today is approximately equivalent to either Tomoana or Whakatu at their peak.

Fruit handling
At the time of the last conference, the majority of fruit was packed in the owner's shed, except for a grower co-operative packhouse handling 10 000 t or 540 000 TCE. Presently, there are only 54 packhouses but this number is more likely to reduce to eight to ten in the next 3–5 years as compliance costs rise and specialist equipment is required. The eight major packhouses have a through-put of 6.1 million TCE or 113 000 t.

Fruit cool storage
From initially relying on the Apple and Pear Board to cool-store fruit for export, there are now 10 private companies providing the majority of controlled atmosphere and air storage with a combined capacity of 6.7 million TCE or 124 000 t.

Lucerne factory – U.E.B.
This factory didn't survive due to the down-turn in market demand and value, and the variable lucerne yield due to the changing climate and the invasion of aphids and bacteria.

Viticulture and wine
In recent years there has been a large expansion of grape plantings in Hawke's Bay, mainly focusing on boutique wines and on country considered marginal for livestock production, i.e., the stony red metal country west of Hastings, plus other light, stony country and limestone country on the Heretaunga plains and up the river valleys.

The following table graphically shows the recent and predicted expansions:

Year	Area Planted
1970	1052 ha
1989	1800 ha
1999	2200 ha
2000	2680 ha
2002	3280 ha

Before the grape pull in 1983, most of the grapes were planted on heavy alluvial soils, which provided higher yields.

For the recent expansion on the lighter soils, the varieties planted have moved away from bulk production of mainly Mullar Thurgau to quality production of Chardonnay, Sauvignon Blanc, Cabernet, Pinot Noir, Merlot, etc. The yeilds are generally lower at 8–9 t/ha (c.f. 14 t/ha) and the quantity of wine per tonne is lower 650 litres/t (c.f. 750 litres/t) but the quality is superior. Wine exported in 1999 was worth $127m and by 2010 it is expected to be $600m, mainly to the United Kingdom but the USA market is rapidly expanding. A point to note is that New Zealand wines are only 0.2% of the world market but they are averaging $1.63/bottle more in the UK than wines from other countries because of quality. The number of wine makers locally has increased from 12 in 1990 to 36 in 1998.

Heinz Wattie

As the name suggests, the ownership has changed since 1975. I think Dr O'Reilly enjoyed his earlier football trips with the Lions so decided to invest here. Through various restructurings and acquisitions, Heinz have now expanded and occupy the old Tomoana freezing plant area, which they have converted for jam, pet food, portion control units and ready-made pouch products. The original plant still processes sweetcorn, pears, plums, peaches, asparagus and tomatoes for canning plus apple pulp for the Japanese drink trade. Approximately 170 000 t of finished product is sold annually.

Ostrich farming

This is a fledging industry in Hawke's Bay with 40 farmers grazing about 500 birds. Processing for meat, and small-goods is being developed; skins can be used for purses, wallets, bags and jackets. The initially high prices for birds have settled back to more realistic farming values relative to the markets.

Farm servicing industries

Like the meat processing industry, there has been dramatic change in the region in farm servicing. From seven stock firms and one trading society plus one or two independent agents, there are now only two stock firms (due to a series of mergers and takeovers), Farmlands (Trading Society) and a number of independent stock agents. The bigger companies are continually rationalising to remain competitive, and to provide core business service to clients and not include such things as groceries.

Forestry

Following the establishment of the Whirinaki pulp and saw mill, which had a limited period of guaranteed supply from the Kaingaroa forest of 6.23 million m^3, forestry plantings in the region quickly expanded. Initially, the majority of plantings were state-owned, but now due to changes in government policy, the forests are owned by individuals, forestry companies, forestry investment partnerships or overseas forestry investment companies.

The plantings of 25 000 ha in 1975 have grown to approximately 136 000 ha.

Wool

Wool production in the region has dropped significantly since 1975 due to the drop in sheep numbers. Wool handling and sales have changed from being a large, seasonal labour employer to having a minimum impact on the casual labour pool. Shearing patterns have changed so spreading the inward flow of wool. This and the mechanical handling of bales, wool testing, sale by sample and more sales per year (now 40), have significantly reduced the labour input per bale, and the number of wool stores. Wool is sold by auction only at Napier and Christchurch and the number of sales has doubled but the number of buyers has halved. Although the auction system is probably the main price-setting mechanism only about 45% is sold by auction – 163 000 bales in 1998/99 c.f. 280 000 bales in 1974/75.

Whakatu

Following the closure of Hawke's Bay Farmers Meat Company at Whakatu, there has been a gradual redevelopment of the site into an industrial park. The cool stores were utilised immediately but progressively, other industries have taken up space such as fruit packing, onion processing, fish processing, pet food manufacturing, light engineering, to name a few. From the ashes new growth can occur.

Rest and retire villages

Beautiful climate and lovely people always attract others. There are now approximately 40 retirement villages and rest homes in the region and more are being constructed. It is a rapidly expanding business.

Crown holiday home

Prison development has also seen a rapid expansion in Hawke's Bay. As I stated, good climate and people always attract others.

Tertiary education

The Hawke's Bay Community College opened in 1975 and over the past 25 years, has expanded rapidly in the number of students attending and the wide array of education it provides. Due to these factors, it has changed its name twice from Community College to

Polytechnic to the present Eastern Institute of Technology to more correctly represent what it provides to its students and the local community. From the original 120 students in the first year enrolments for three apprentice-type courses, the number of students has grown to 5400 full- and part-time students. Courses now range from certificates, diplomas and degrees, across Arts, Social Science, Business Studies, Health Studies, Maori Studies and Science and Technology. This institute has been a valuable asset to the region but it still has not prevented the migration of several key All Blacks and Black Caps.

Organic farming

There has been a small number of farmers and growers developing organic management systems for the past 8–10 years but interest has increased over the past 4–5 years. Initially, with the support from Heinz Wattie, the focus was on sweetcorn and peas. Now squash onions, potatoes, carrots and tomatoes have joined the list of potential crops. About 3 years ago, some pip and stone fruit growers became active and this year produced for export 400 000 TCE or 7400 t of organic fruit. This is 5% of the total Hawke's Bay crop but the proportion is growing. Heinz Wattie also produce organic meat sauce for canning. Further expansion is expected in the future if growers can afford to switch.

The future

- Accepting the fact that a large proportion of the economy is rurally orientated, the future for the region is good because of its diversity of land and the opportunities unavailable in other districts.
- The rapid expansion of the wine industry is improving the returns that were achievable from livestock on the same land. Also, it is offsetting some of the fluctuation in employment opportunities and district income.
- Management practices and efficiency in both agriculture and horticulture are improving and increasing the returns from our major limiting resources – the land.
- Smaller industries are replacing the larger industries, which collapsed in the 1980s; some are now exporting, e.g., prefabricated bridges.
- The climate, proximity to the coast and availability of fresh food is attracting people contemplating retirement.

In conclusion, because we have a good asset-base of land, labour, and entrepreneurs, we have the ability to attract capital to make progress in both land-based and commercial industries.

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