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GRASSLAND FARMING IN NORTHLAND

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INTRODUCTION

Dairying, sheep and beef farming have financed the regional growth and development of Northland this century. There are now well over a million dairy and beef cattle grazed in the nine counties of the North Auckland peninsula, and with sheep approaching 3 million, total farm gate sales from pastoral industries, last year, were close to $400m. Dairying continues as the predominant revenue earner, contributing two thirds of this total.

GEOGRAPHY

The Northland statistical district, since 1960, has included the seven northern counties Mangonui, Whangaroa, Hokianga, Bay of Islands, Whangarei, Hobson and Otamatea. It's about 350 km from the Harbour Bridge to Cape Reinga, but it's only after you pass Wellsford, that you enter the 80 km wide northern peninsula. The coastline is probably the most distinctive physical feature, it's extremly long. Rocky promotories, safe harbours, sandy bays, mangrove swamps and pohutakawas are features of the east coast, in contrast to the west coast, where the currents of the Tasman sea have produced a shoreline of smoother contour. Many miles of windswept beaches are backed by extensive sand dunes, and broken only by the Kaipara and Hokianga Harbours that extend well into the interior.

Soils

There are 255 different soil types mapped and warm heavy clays predomiante with their thin topsoils and low sub-soil fertility. They need lots of lime, fertiliser and drainage. The main soil groups are the yellow brown clays from sandstone, mudstone and greywacke and the coastal sands, both of which have substantial areas of gumland resulting from Kauri/podocarp forests. Then there are the volcanic soils, red and brown from basalt and igneous rocks, limestone country, and alluvial and peat flats.

Climate

Proximity to the sea, and a sub-tropical latitude ensure warm humid, drought prone summers and relatively mild wet winters. Mean annual rainfall varies from 1000 to 1500mm in low lying coastal districts to over 2500mm in the central high lands. Rain falls on more than half the days of the year. Mean temperature at 15°C is the highest for New Zealand thanks to much higher July figures.

Topography

Northland's inlandlandscape is rolling hill country broken by inumerable rivers, inlets and harbours. The only extensive flats are at Awanui, Northern Wairoa and Ruawai. With the exception of the Northern Wairoa River, rivers are generally short, unspectacular, slow flowing and silt laden. Large areas of steepland are found, up to 750 metres high in the central bush clad ranges.

Rural Dependancy

The Maori people make up 26% of the total population of 112,500. Half the population is rural occupying some 6,500 farm holdings. Of these farms, 75% depend on grassland farming for the major part of their income. Of the non-rural work force half are employed in servicing, or adding value to the land based industries eg. Dairy Companies 940, Meat Works 1500.

Rural Northland earned about $300m at the farm gate last year (3/5 from dairy), and the importance of thriving pastoral based industries cannot be over stated.

HISTORY

Hosting a third annual conference in Whangarei has one major advantage, the 15th in 1953 provided outstanding references, for the soils by Taylor and Sutherland, the history by Arnold and Scott, and to pasture productivity, potential and drainage, by many others. Then in 1967, the 29th concentrated on promoting pastoral land development, both private and state. For the 47th the temptation was to suggest you read the earlier publications, and to concentrate on the future, but the history is so interesting that a compromise pen sketch was decided on.

Northland is the cradle of agricultural farming in New Zealand. In 1819, 166 years ago the Rev. Samuel Marsden established the first European farm at Kerikeri, with a bull and two cows from His Majesty's herd. Previously, in 1769, Captain Cook had noted in his diary, some 40-50 acres cultivated and planted by the Maori people in the Bay of Islands. But it is the diary of the Rev. John Butler in 1821, that records sowing the first two acres in English grasses.

However, it was the products of the soil that were in demand — the timber, Kauri gum, and flax that were to lay the foundations of the City of Auckland. Coal was discovered in the 1860's and was mined with other minerals, but agricultural activity only increased slowly from the 1870's, when Kauri gum exports exceeded butter and cheese. The 7,000 diggers left quite a mess and it was only after this colonial extractive phase had exhausted the natural wealth at the turn of the century, that any real farming took place. The Kauri Gum Commission at that time were pushing for the first experimental farm, to demonstrate gorse pastures sown on burnt over gumland.

Land of reasonable access and fertility was quickly developed and the first dairy factory opened in 1884. But the dairy industry had to wait until 1900 and the advent of refrigerated shipping and the milking machine to get established. Shortly afterwards in 1921 the freezing works opened at Moerewa, at a time when there were still vast areas of problem soils, isolated by poor access, and from both appearance and reputation unattractive to capital investment. Thus until the comparatively late 1950's we find slow progress in livestock farming, with lack of knowledge leading to lack of confidence, a syndrome that ensured a reputation as a backward difficult farming region.

What happened in the 1950's. Most significant was the entry of the Lands Department into large scale development. Their initial work based on experience gained on the young pumice soils at Rotorua had as many failures as the local. Then along with the establishment of the DSIR Grasslands Substation at Kaikohe in 1956 came the appreciation of the essential need for 'crash programmes' involving very heavy initial lime and fertiliser and the break through had been established. With confidence came capital, young innovative settlers, better quality stock, and a fertiliser works in 1964. From 1953 to 1967 sheep numbers increased 200% to 2 million, beef 100% to 380,000 and dairy 11% to 450,000. The full significance of this dramatic period can best be appreciated by the respective subsequent increases to 1984 being 11%, 15% and 14.8%. However in fairness to dairying per cow production for the example years was 98,110 and 143 kg.

FERTILISER USAGE

Northland is probably the heaviest user of fertiliser in New Zealand. Therefore trends in fertiliser use are a barometer of the present strength of grassland farming, and of the likely prosperity in the future. Historically fertiliser has been used as a 'money in the bank' deposit, with higher than needed applications as a buffer against hard times ahead. This may well be to Northland's advantage in coping with the

present industry set backs.

In the year ending June 1984, 431,461 ha or 62.5% of the improved grassland received 174,826 tonnes of phosphate fertiliser, to give an applied rate of 405 kg/ha or 3.22 cwt/acre. Comparative values for 1951-54 were 51% at 3.3 cwt, and for 1964-65, 70% at 3.7 cwt, the latter heavy rate being associated with the land development boom. The 1984 application represents 24.5 kg/s.u. overall. The New Zealand Meat and Wool Board suggest a mean national requirement of 20 kg/s.u. for sheep and cattle farms, so the low national level of 16 kg for 1984 is of interest when compared with our Northland model sheep and dairy farms at 21 kg/s.u. and 42 kg/s.u. respectively.

Last year the Northland Fertiliser Company's sales dropped 11.2% and this year they are down by about 15%, trends that should be of concern to all involved with future pastoral industry planning.

GRASSLAND POTENTIAL

At June 1984, Northland had 7.14 million stock units (2.8m beef, 2.3m dairy and 2.04m sheep). With 700,000 ha of grazeable land, this averages IO.2 s.u./ha, down from the 10.4 of 1982, and back to the same level as 1979, while improved pasture has increased by 13,000 ha over the same period.

Trends noted over the last two years are a steady growth in milking cows, a sharp decline in beef as breeding cows give way to increased finishing of cattle, and an easing back in total sheep (Fig. 1) as greater emphasis goes into per animal performance. While it is technically possible to use available management skills to lift this overall carrying capacity by 40%, this is unlikely to happen in the forseeable future. Given the uncertainity of export markets, there will be a reluctance to finance development, and as more grassland farmers are faced with solvency problems their immediate goals will be directed towards increased per animal, rather than per ha performance.

DAIRYING PROSPECTS

Dairying is the regions major industry. In the 1983-84 production season there were 1859 herds in Northland. Of these 1822 were factory supply herds with 10 or more cows giving a total of 233,125 cows in milk, an average herd size of 128 (New Zealand 140), an average production of 143 kg/cow, but significantly, only 240 kg/ha compared to New Zealand at 350 kg/ha. We may still have a big tail, but with 31 herds now over 300 cows, and a steady fall in suppliers the docking process is well underway.

Northland is down to two dairy companies, Northern Wairoa and Northland. They are both dynamic, well structuredco-operatives, and the signals that their suppliers are receiving must be encouraging. Northland, for example, with 1500 suppliers processes 500 million litres of wholemilk and it has well advanced plans for a new $50m complex just north of Whangarei.

Over the next decade therefore, our top dairymen are expected to break the 600 kg/ha milkfat barrier. Northland's best dairy pastures are growing 17,000 kg/ha of dry matter (D.M.) a year. Of this total about 14,500 kg could be harvested by the milking herd. Using a conversion of 24 kg D.M. to one kg of milkfat, we can theoretically achieve the 600 kg/ha target. To achieve this in the north, the stocking rate will need to be four milking cows/ha producing 150 kg/cow. The herd will be wintered off the intensively managed, fully improved and drained home farm for 4 to 6 weeks, and the replacements will be grazed off all year. Our top herds are already committed to this system that takes full advantage of Northland's strength; the ability to grow, and carry forward winter grass. At 3.2 cows/ha, 500 kg/ha has already been passed, taking advantage of better bred and fed young stock, and providing for the essential full feeding after calving.

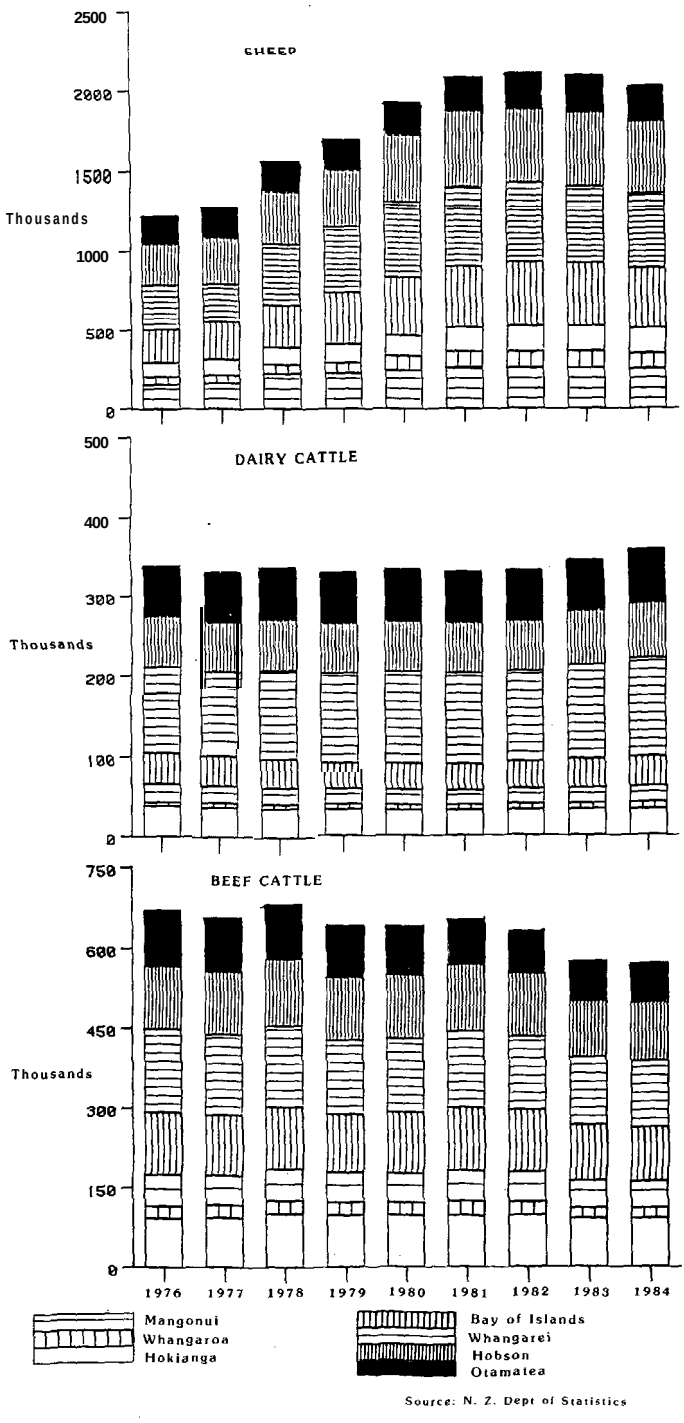

FIGURE 1: Total sheep, beef cattle and dairy cattle by county in Northland (June year).

The future then is likely to bring further reductions in dairy factory suppliers but the survivors will be the highly skilled specialists. Some will become the managers of syndicated 'large herds', but the majority will still be the owner/operators of increasingly intensified family farms consisting of around 40 ha, 160 cow, high performance home units, supported by a further 40 ha as a more extensively managed buffer. A place to rear the replacements, to provide wintering of the milkers and increasingly to grow crossbred beef through to slaughter. Once established, and financially secure the observed trend is away from one product vulnerability. Moves are already underway to diversify into horticulture, deer (3642 head), and beef studs for example. A growth in mixed farming seems inevitable, given dairy holdings that are large by New Zealand standards, and owners seeking a way around the employment of awkward, scarce, half-men.

SHEEP AND BEEF PROSPECTS

More than 2000 farmers get the bulk of their income from beef and about 900 from sheep. For these people the signals about the immediate future must be as confusing as the range of senders. Most farm hill country that has thin topsoil, has a limited fertility reserve and a proneness to regular summer droughts.

Our best hill country pastures produce 10-12,000 kg/ha D.M annually. Assuming a required amount of 500 kg D.M./year for our generally lighter bodyweight stock unit, 20 s.u./ha could theoretically be fed in our best pasture growing years.

But Northland has a maverick climate, with unpredictable seasonal growth, often out of step with peak feed demand. A late autumn and winter surpulus can usually be expected, but spring growth can be slow and utilisation difficult on wet soils. By Christmas in most years a four month dry spell is underway, bringing cricket damage to pastures, facial eczema risk with close grazing, and a major psychological barrier to high stocking rate, the 'lack of killing space' syndrome. To compound these limitations there is a tendency to widen the sheep/cattle ratios as carrying capacity lifts. The Lands Department is a typical successful developer with sheep/cattle ratios at 45:55. Ratios on improved land tend to reverse to 55:45. On drier coastal country, a further widening in favour of sheep will inevitably increase pasture damage, from prolonged over-grazing in the summer.

These limiting factors are described, to support the view that Northland sheep and beef farmers are now unlikely to risk added stress by lifting carrying capacity above 18 s.u./ha. Top farmers are carrying 15 s.u./ha with a minimum of 1 cattle beast/ha on the high rainfall central hill country, and 1 to 2 ha on the drier coastal blocks. Any dramatic move away from sheep to cattle is unlikely in the short term, given the much higher equivalent capital required. However, given the present market signals, beef ratios are expected to steadily increase through selective cross breeding and the already noted increase in finishing cattle for slaughter.

Substitution in the short term is expected to come from the upgrading of the substantial feral goat population for fibre production, while for the financially secure, a likely move will be to spread the risk, and to add value through Agro-forestry. For the majority of the financially secure sheep and beef farmers, the predicted improvement to carry 18 s.u./ha will continue, but slowly. Advisory plans to counter facial eczema, to increase summer producing pasture species, to upgrade animal performance and to budget more effectively for use of the extra feed grown, will all help. Programmes of a more capital intensive, development type, have been adjusted of necessity to match a 30% drop in clients income, and our changed role as caretakers in a region that almost overnight became a safari park.

The substantial areas of non-productive scrublands will continue to breed kiwis, unless development incentives are provided. The marginal hill country farmers will be forced to stop topdressing, in order to meet their financial commitments. Insolvency

will inevitably follow, and hopefully a forestry company will arrive with a purchase offer, before the reversion is too advanced. There is no grassland management solution for debt servicing as it climbs to a third of gross income.

STRATEGIC PLANNING

To conclude with a plea for more effective regional planning to ensure added value through grassland farming. On the 15th October the Northland Regional Development Council was reported as appointing a co-ordinator for a $50,000 update of Northland's most comprehensive document on regional resources. Government is to be asked to fund a review of a document, that when originally published in 1978, already included information that was 3-5 years old. The value of access to factual data is not questioned and for agriculture, soils, climate, and basic land use data is readily available. What is more important, is awareness of and acess to all the regularly published sources of information on an annually updated basis.

When discussing the grassland potential, an attempt was made to demonstrate the special expertise that MAF advisory staff can bring to future regional planning. How much more effective this could be if they were to be joined by similar non-political representatives, who are already employed to guide and implement land use policies. 'Think tank' groups need to re-act immediately to national or local developments, to identify needed regional responses, to promote opportunities for local industries consideration and suggestions for the politicians endorsement. The United Council has given a commendable lead with its Foresty and Pastoral network, as progress with Agro-forestry promotion will endorse. Now, with the career structure of their planners limiting, there is a need for the Advisory Service of the MAF and the Forest Service to get together and take a higher profile in policy formulation.

Major land use changes are already affecting grassland farming in the region (Fig. 2). Horticulture has increased rapidly with 1000 horticulturalists now occupying 2,000 of 9,000 ha of elite free draining soils available in Northland. Funding for irrigaiton and for the capital intensive development phase is currently limiting their needed expansion, but grassland farmers generally support this regional trend. This support was not so forthcoming when exotic forestry companies made substantial purchases of fess productive hill country over recent years. In order to establish a base forest, one of the larger companies for example has a target of 50,000 ha in pines. To date they have purchased about 21,000 ha of the 25,000 ha they plan to own. In doing so 33 units of varying size and viability, have changed hands. Their previous carrying capacity has been estimated at 118,000 s.u.

Exotic forests at 77,500 ha have beeng growing at around 8,00 ha anually and there is every probability that a target of 150,000 ha will be planted by 1990 and 200,000 by 1995. This should be a complementary regional development with pastoral farming. For example a high 304,000 ha or 28.5% of the occupied land in Northland is non-productive, and 860 holdings are idle. Maori owners have 70,000 ha of this type of land and a published commitment to establish 50,000 ha of this in exotic forests. A strong and influential 'think tank' group could put this all together and guide this regional opportunity to reality.

The alternative, given strongly rumoured intent to remove all incentives for land development, must inevitably be a move by forest interests to purchase readily available hill country pastoral land. A loss of 100,000 ha of hill country pasture carrying 10 s.u./ha must have a substantial impact on all involved with the servicing, and should be planned for. This example is not intended as anti-forestry propoganda but as an example of the need for members of this Grassland Association to become actively involved in forward planning and thinking; regional and national. Agro-forestry, facial eczema, the goat fibre industry and minimum fertiliser requirements are all suited to the task force approach, as is an analysis of the $10m annually being

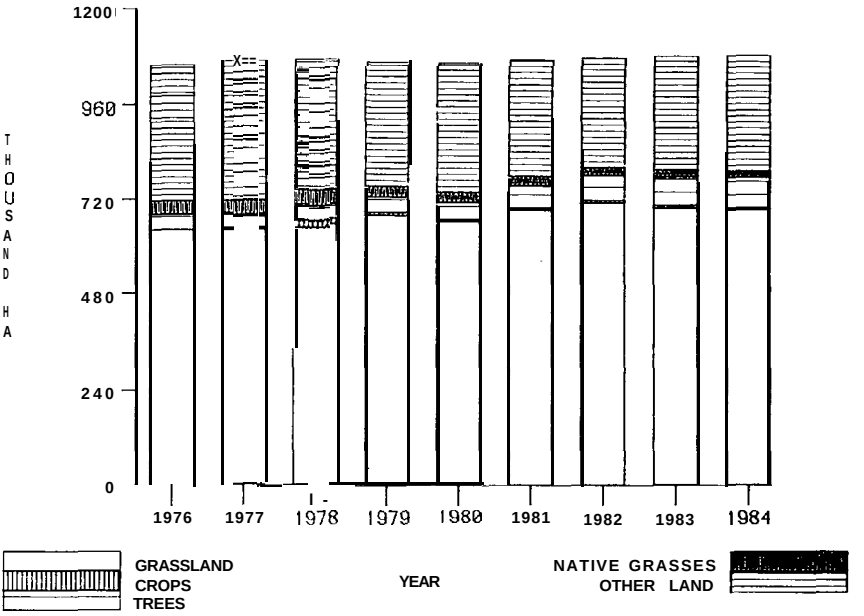

FIGURE 2: Changing land use pattern in Northland (June year).

advance by the Rural Bank in Northland. Your expertise will be needed to ensure the continued prosperity of the pastoral industires that we have all helped to build.

ACKNOWLEDGMENTS

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