

# TOPDRESSING: A WAIKATO STUDY

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**T**WENTY years after the Ruakura Experimental Station had issued its recommendations for the artificial manuring of Waikato permanent pasture, a procedure which had been stumbled on by pioneers in the Cambridge district, the system had reached its logical conclusion, and the intensive all-grass farm, on which crops played no part, had become a characteristic of the Waikato.

**M**EANWHILE there had been a very large influx of new settlers; new land had been broken in and old estates cut up; the era of speculation at the close of the First World War had caused much trafficking in land titles; but even so there were some farms which did not change ownership, and whose owners, therefore, had witnessed the gradual evolution of the new system of farming, and perhaps had kept records of what had happened on their own properties. On investigation a number of such farms were found, and this article will deal with three dairy farms and one fat-lamb farm in widely separated parts of Waikato and Waipa Counties.

A short account of the main events in grassland development since the adoption of topdressing will, however, first be necessary, because, although topdressing was by far the most important single innovation, it brought problems in the management and utilisation of pasture which were not solved all at once and are still to some extent unsolved.

The year 1920 can be taken as the start of the modern period in the growth of the Waikato, since it was marked not only by the large-scale amalgamation under the New Zealand Co-operative Dairy Company, but also by the virtual disappearance of cash crops from the pattern of farming, as a result of high butterfat prices. Supplementary crops lingered on for a few more years until the remnants of the old browntop, chewings fescue, and ratstail pastures had been replaced and until the horses retained for cultivation and haymaking and for carting cream to the gate had been weaned off hard feed on to grass. Swedes and turnips, which were the first crops grown in the Waikato after its confiscation from the Maoris, were the last to go out because of their usefulness as feed for dairy cows and in the bringing in of new land. The table in the next column gives the figures for the decline in cropping



The rolling country on Mr. A. Main's property at Tamahere is typical of much of the Hamilton clay loam soil of the Waikato.

## THE DECLINE IN CROPPING IN WAIKATO AND WAIPA COUNTIES

Season	Cereals for threshing (acres)	Roots and green fodder (acres)	Oats for chaff (acres)	Hay and silage* (acres)
1921-22	247	16,891	2,546	17,528
1926-27	65	13,706	919	28,069
1930-31	25	5,616	459	45,236

\* The area for hay and silage is shown for comparison.

The salient feature of the modern Waikato is milk production by the conversion of pasture into cow's milk for dairy products and pig meat and into ewe's milk for fat lambs. The true conception of milk production is said to have been introduced about 1900 by new arrivals from Taranaki who settled on the estates, bringing with them not only the dairy breeds of cattle, but also their hard-won experience in co-operative dairy-factory organisation. On their arrival they found that Waikato dairying was a sideline to wheat and meat production, the cows being "dual-purpose" Short-horns, whose surplus calves could be fattened on wheat straw and swedes, or sold to pioneers on bush-burn country in the Raglan hills. The Taranaki conception of milk production, aided by climate and circumstances, eventually prevailed in the Waikato, but of course it developed local peculiarities, the chief of which were the emphasis on butter rather than cheese, the raising of pigs on skimmed milk, the use of breeding ewes as "followers-on", and the big rise in fat-lamb production

Some important happenings and their dates are the opening of the Horotiu meat works in 1916, the dairy-company

amalgamation in 1920, the pioneering of group herd testing in 1922, the resurgence of sheep numbers in 1923, the formation of bobby-calf and pig marketing associations in 1927, and the foundation of pig-recording clubs in 1930. All these events were notable landmarks in the progress of animal husbandry in the Waikato, a progress which was due not nearly as much to the extension of the area of grassland as to the improvement in its carrying capacity. Whereas the average carrying capacity of Waikato grassland (expressed as "sheep units" in which 1 cattle beast equals 5 sheep) had been about 1½ sheep to the acre in 1900, it rose to 2.1 in 1920 and to 4.2 in 1945. This improvement in the quality of pasture and its exploitation by increased numbers of cows and ewes are illustrated by statistics in the table below.

## NUMBERS OF MILK ANIMALS IN WAIKATO AND WAIPA COUNTIES

	Area farmed (acres)	Cows in milk	Breeding ewes
1920	321,000	51,000	36,000
1925	371,000	81,000	55,000
1930	350,000	106,000	127,000
1935	406,000	144,000	158,000
1940	414,000	147,000	255,000
1945	404,000	145,000	356,000

Evidently the improvement was not due altogether to topdressing, which was fairly widespread by 1920. It is known now that it was due as much to the farming system known as "intensive grassland management" or "controlled rotational grazing," by which the pasture could be fed off, cut for hay and silage, or conserved for winter grazing, as its most nutritious