

Topdressing in Auckland Province

Review of Field Experiments In Waikato District

J. F. SHEPHERD, Fields Instructor, Hamilton.

IN the Waikato, perhaps to a greater extent than in any other part of the Dominion, the topdressing of pasture land plays a striking part in the maintenance of production. In fact, it may be said with a great deal of conviction that the Waikato owes much of its prosperity as a dairying and fat lamb producing area to the fact that farmers in that district have quickly appreciated the great aid that manure can offer in building up pasture production.

Early Topdressing

When topdressing was first introduced the fertilisers used were almost entirely phosphatic. In the main, these were bonedust and basic slag. Our present nearby supplies of rock phosphate and a product of these—superphosphate—were then practically unknown to New Zealand farmers. However, with the outbreak of war in 1914, European supplies of basic slag were cut off, while the rapidly-rising cost of bonedust made its use for pasture topdressing quite prohibitive.

As a result, other supplies of phosphate—chiefly rock phosphate—had to be obtained, and, from these, increasingly large quantities of superphosphate were manufactured. Thus, superphosphate became the standard manure, and, through its general efficiency, it has retained a position of pre-eminence in the Waikato.

While phosphates were satisfactory over a wide area, it was found that there were localities which did not respond well to straight phosphatic manures. Results in some districts were even very disappointing. Consequently, in an endeavour to get better results, many farmers adopted "hit or miss" practices of including quantities of lime, potash, and nitrogenous manures in their mixtures. Where these succeeded all was well, but very frequently their inclusion resulted in

The Waikato district is selected for discussion in this, the second of a series of articles on topdressing practice in various parts of the Auckland Province. Summarised, the position in the Waikato is that phosphates generally are necessary for pasture production.

little or no change in the pasture position, but certainly in a distinct loss on fertiliser to the farmers concerned.

Obviously the choice of fertilisers for a particular locality should be based on some foundation of knowledge concerning the particular requirements of that area. Chemical analyses do not supply that knowledge in such a way that it can be readily used by the farmer, but a study of soil types, coupled with

country in the Te Awamutu, Hamilton, and Morrinsville districts. On these soils the response to phosphate is good, but is further improved by liming.

Clay loams and loams are alluvial deposits which are fairly heavy and hold soil moisture well. They respond very well to phosphates and lime. Where these soils gradually merge into sandy deposits the addition of potash has a beneficial effect. Generally speaking, however, the soils indicated in Groups (1) and (2) above are most economically manured by applying 3 cwt. to 6 cwt. of superphosphate with 5 cwt. lime per acre annually on all dairying lands, or on those farms having a high concentration of sheep.

The following table will indicate the results obtained from a number of experiments carried out on these soil types.

TABLE 1.

Farmer.	Soil Type.	Improvement Over No Manure.			
		Lime.	Super.	Potash.	Lime + Super
A. Parkin ..	Hamilton Clay	Slight	Fair	Nil	Good
C. J. Pierce ..	Ohaupo Silt ..	Slight	Fair	Slight	V. Good
F. D. Maisey ..	Clay ..	Slight	V. Fair	Slight	Good
A. Lovett ..	Clay Loam ..	Slight	Slight	Slight	Good
R. Chilcott ..	Clay Loam ..	Slight	V. Fair	V. Slight	V. Good
H. Lee ..	Clay ..	Slight	Fair	V. Slight	Good
F. S. Hill ..	Clay Loam ..	Slight	Good	Slight	V. Good

an examination of field experiments laid down on these soils, does much to elucidate the correct manurial procedure for any locality.

Waikato Soil Types

So far as the Waikato is concerned, there are several main soil types, with many variations. Briefly, these main types are:—

- (1) Clays and Silts.
- (2) Clay Loams and Loams.
- (3) Sandy Loams and Sandy Soils.
- (4) Peaty Loams and Peat Soils.

Of these types the clay and silt types are represented by much of the rolling

The sandy loams and sandy soils of Group (3) are river deposits of varying depth and fineness. In places these merge into other soil types, but, on the whole, are in fairly well-defined areas. On these soils the response to phosphate is quite satisfactory, but is improved by the addition of potash and lime. In other words, a dressing of all three manures is the most efficient on these soils.

In many respects the peaty soils closely follow the sandy soils in manurial requirements. Here, too, a manure containing phosphate, potash, and lime is required.