

Distinctions were so pronounced on these plots that it took no verbal argument to convince those present at the demonstration of the combined efficiency of liming, inoculation, and manuring. To many New Zealand farmers these truths may be considered timeworn. It may be pointed out, however, that on the lower portions of the Wairau Plain usually little result is obtained from artificial inoculation, the lucerne bacteria being already largely present in the Blenheim soils. Again, on the papa-country of the Awatere district the relatively high lime-percentage in the soil (at Kaparu ranging from 17 to 25 per cent.) makes lucerne-growing easy. The same is true of the limestone and papa country at Ward. The sea-beaches at Kekerangu, where the salt content is not excessive, and where pulverized shells exist in abundance, also provide favourable conditions. With the last-named soils, it might be mentioned, it is a good plan to sow marram-grass to stop the sand-drifts, and then sow lucerne among the clumps of marram.

As compared with the conditions of all these latter localities those at Hillersden are comparatively very unfavourable. The soil, as already indicated, has been largely denuded, and has had much of its lime washed out and carried down on to the lower plains. Generally speaking, it may be said that lucerne is not only more difficult to grow in Hillersden, but more expensive to maintain when it is grown. Lime delivered on a Hillersden farm costs in the vicinity of £2 per ton, manure approximately 10s. per bag. If we allow for labour costs at rates current in the district an acre established on similar lines on a similar soil to that on which this co-operative stand has been grown would cost approximately from £4 10s. to £5 per acre. If the stand lasted for, say, five years, with a top-dressing of 1¼ cwt. (one bag) of first-grade superphosphate per annum, lucerne-establishment would undoubtedly pay the Hillersden farmer. This statement is, of course, subject to the modification that sufficiently small areas would have to be established to allow of their efficient treatment. It is also necessary that localities should be carefully selected. The soil on which the present stand is situated, while typical of a number of soils in the district, is not wholly typical. The fact that the soil on which the plots are situated cannot be regarded as a particularly favourable one is the more encouraging.

#### PASTURES.

The second series of trials, on Mr. Bishell's farm, are with various grass-mixtures, all of which were sown on 16th March, 1923.

Plot 1 is a typical temporary pasture (to last one season) consisting of 30 lb. Western Wolths rye-grass and 5 lb. cow-grass. As the plot has been down over eighteen months the Western Wolths has almost entirely disappeared. The cow-grass has remained, while a little perennial rye-grass and white clover have been introduced through stocking. *Danthonia* and sweet vernal, however, are beginning to take possession.

Plot 2, sown with 30 lb. perennial rye-grass and 5 lb. red clover, may be regarded as fairly typical of any flat-land pasture in the Hillersden district sown down at the same time. Already both rye and clover are showing signs of running out.

Plot 3 is a type of permanent pasture which has held well, and which has shown itself to be well adapted to Hillersden conditions. The