

## FIELD EXPERIMENTS AT HILLERSDEN.

### LUCERNE AND PASTURE ESTABLISHMENT.

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FOR the past year or two co-operative experimental work has been in progress on two farms in the Hillersden district, Upper Wairau Valley—on those of Mr. D. Black and Mr. A. Bishell respectively. An inspection of the plots was made on the occasion of a field-day held in October last, when observations were recorded as below.

#### LUCERNE.

The experiments on Mr. Black's property deal with lucerne-culture. The lucerne in question was sown on 16th November, 1923, with Marlborough-grown seed, at the rate of 14 lb. per acre. Where inoculation was used, Farmogerm bacterial culture, mixed with moist soil, was employed. This method of inoculation is not usually practised, it being more usual to treat the lucerne-seed with Farmogerm. Where manure was employed it consisted of 1 cwt. of a mixture composed of  $\frac{1}{2}$  cwt. blood-and-bone and  $\frac{1}{2}$  cwt. superphosphate. Lime, when used, was applied at the rate of 1 ton per acre during the winter previous to sowing.

For those not well acquainted with Wairau Valley soil-conditions it may be explained that while on the lower reaches of the plain the soil ranks with the best in the Dominion, Hillersden is situated at the upper or western end of the valley, where the soils have been subjected to much erosion in the past through river-action. Consequently Hillersden soils generally are fairly poor, and markedly deficient in lime. The typical flats of the district consist of a clay loam with a fair admixture of stones and shingle. Such soils as these, it will be at once seen, present various difficulties where lucerne-establishment is concerned.

The experimental plots, working from east to west, are as follows: No. 1, limed, manured, and inoculated; No. 2, manured and inoculated; No. 3, limed and manured; No. 4, limed and inoculated; No. 5, limed only; No. 6, manured only; No. 7, inoculated only; No. 8, control plot—no inoculation, lime, nor manure.

From a comparative standpoint these plots provided most instructive results. No. 1 was of a rich dark-green colour, the lucerne being of uniform growth and fully 5 in. or 6 in. higher than that on Plot 2. This might lead one to suppose that lime had in this instance been a controlling factor. In Plot 2 the lucerne was uniformly developed, but the growth somewhat stunted. On Plot 3 the darker green colour, due to the presence of lime, was more in evidence than on Plot 2. Plot 4, which had been both limed and inoculated, while not quite as forward as Plot 1 (treated with lime, inoculation, and manure), was yet easily the second best. Plot 5, on which lime alone was employed, was distinctly inferior to Plot 4, but much better than Plots 6 and 7, on which manure alone and inoculation alone had been respectively employed. No. 8, the control plot, was easily the worst plot on the field.