

10 lb., but to be on the safe side from 12 lb. to 15 lb. is advocated. The average farmer is inclined to sow lucerne-seed too deeply, which means that much of the seed sown is lost, and unless special care is taken it is well to look upon a 15 lb. seeding as the standard. The practice at Galloway is 12 lb. per acre.

Where a drill is not available, sowing can be carried out in several ways, the chief among which are the use of the "hurdy-gurdy," the "fiddle," the wheelbarrow seeder, or the hand method. Where any of these methods are adopted it is usually advisable to sow half the seed one way across the field and the other half at right angles to the line of the first sowing. The seed should then be covered with a light harrow. Probably the best harrow for this purpose is a home-made one constructed by lacing together a few long strips of wire netting side by side, attaching them to a light drawbar, and fastening a few bolts to the end of the strips. A brush harrow made of manuka or wild-irishman is also quite suitable. If the soil is inclined to be too loose it may be rolled with a light roller, although this is not generally desirable. Before sowing seed broadcast it is usually good practice to roll the field with a Cambridge roller. This firms the soil, leaves the surface rough, and makes it possible to cover the seed well by cross-harrowing.

Under irrigation conditions the sowing of lucerne in wide drills of 21 in. or 14 in. apart, as is sometimes advocated, is not recommended; it allows too much room for the intrusion of grass and other weeds, and exposes too much soil-surface to the sun and wind, causing great loss by evaporation. The intertillage of lucerne sown in this manner is an expensive and ever-recurring operation, and in view of the excellent results obtained by sowing through every coulter of the drill or broadcast there appears to be no advantage in doing otherwise with regard to irrigated lucerne.

#### INOCULATION.

In Central Otago, with few exceptions, artificial inoculation of the soil is unnecessary for the successful growth of lucerne. In certain localities where difficulty has been experienced in establishing a stand it is probably advisable to inoculate before sowing, but the general experience where lucerne has been growing for a number of years with every success is that inoculation is a useless expense.

There are two general methods of inoculating soil. The first and cheapest consists of spreading soil from an old and well-established field at the rate of 2 cwt. per acre. Provided the soil is not exposed to the sunlight for a length of time, nor allowed to dry, good results will probably be obtained by this method. A cloudy day is most suitable, and the soil should be harrowed in immediately after it is spread. The second method is that of using cultures for inoculating the seed. The culture is usually contained in a special bottle, and when used according to the directions the seed is inoculated with the organisms.

In certain parts of the Dominion soil-inoculation appears to be quite necessary to ensure the successful establishment of a lucerne stand. Probably, then, where inoculation does not mean much labour or expense it would be advantageous to take this precaution prior to