mixed in equal proportions for about a week before the seed was brought into contact with the mixture. Evidence that the required organisms are present in adequate numbers is provided by the development of curious growths known as nodules on the roots of the lucerne. Excellent nodule-formation also occurs when seed-sowing is effected by mixing inoculated seed with rock phosphate and basic slag. If desired, superphosphate can be used with safety, provided it is broadcast or drilled before seed-sowing, or that the manure and seed are distributed from different boxes of the drill, even though they pass through the same coulter. The cultures remain viable on seed for three weeks after treatment, but poor results have been obtained when they were on the seed for longer periods. The cultures as supplied by the Department of Agriculture may be kept for at least six weeks without any loss in their efficiency.

Manuring.

On the basis of experience in many districts it has become the practice of successful growers of lucerne to apply 2 to 4 cwt. of phosphate at or about the time of sowing the seed. Superphosphate, unless carefully used in the manner already described, may have a detrimental effect on the germination of the seed and on the inoculating organisms. Hence, for safety, some favour the use at this stage of basic slag or a mixture of equal parts of superphosphate and lime. In most districts it is very advisable to dress lucerne at least annually with 2 to 3 cwt. of superphosphate, which is at times successfully replaced by basic slag in the wetter climates. In some districts, such as in parts of Central Otago, there does not appear to be a profitable response to phosphatic manuring, but in other districts failure to apply phosphates has been a primary cause of past failures with lucerne. A number of successful growers of lucerne advocate two phosphatic dressings annually, and the amount of mineral matter absorbed from the soil by a really productive crop supports such a practice, except in case of unusually fertile soils. Under conditions in which grass is prone to invade lucerne as a serious weed, phosphatic dressings should not be applied in the winter or early spring while the lucerne is still dormant. If applied at this stage the fertilizer would stimulate the grass and make it a stronger competitor of the lucerne—an effect the reverse of what is desirable. The manurial dressing may be applied with good results as soon as the lucerne has definitely made appreciable new season's growth, or after the first cut of the season has been removed, if this occurs early, as is usually the case when the first cut is utilized for ensilage. When a second dressing in a season is practised it is usually applied in late February or early March.

Available evidence does not indicate any general need for the application of potassic or nitrogenous fertilizers to lucerne.

Treatment during First Year.

The practice that should be adopted during the first year will vary greatly with circumstances. If annual weeds such as fat-hen and thistles have developed rapidly, and threaten by their competition to weaken or even destroy the young seedlings, then it will probably