

to bring to the notice of farmers the value of this forage plant as an addition to the economy of the farm, offered annually to supply free to a limited number lucerne-seed, lime, and inoculated soil sufficient to test 1 acre of land on their farms. This offer has been taken advantage of by farmers in both Islands, particularly in the South Island, to its utmost limit, quite five hundred farmers participating in tests during the time mentioned. These tests have been carried out on quite a variety of soils, in most cases successfully. From reports of these tests conducted in the South Island, compiled by the District Field Inspectors, I am in a position to say that where failures have occurred they have been shown to have resulted in most cases through ignorance on the part of the farmer in not understanding the habit of the plant he was dealing with, and neglecting to follow the directions given in regard to sowing and keeping the area free from weeds during the early growth of the lucerne-plant and until it was fairly established.

It was recognized that lucerne could be grown successfully on good to medium soils, if not wet and sour, so long as the drainage was good and the water-level not less than 5 ft. below the surface (the further away the better, even 50 ft.) and the soil in good heart and properly cultivated. Early attention was then given to the testing of poor and comparatively unprofitable soils on the shingle plains of Canterbury, on land that was considered too poor to grow grass even in fairly good years; on sand areas deemed worthless for growing vegetation; and on the high plateaus of the Mackenzie Country and in Central Otago, now almost denuded of native vegetation through overstocking, unseasonable fires, and so on. All these classes of land were tackled and successful results obtained, indicating that such areas now contributing but little to the wealth of the country can be brought to grow several crops of lucerne in the driest of years without irrigation. Reports of results of lucerne grown on some of these areas—viz., School for the Deaf, Sumner; Te Oranga Home, Burwood; and the Industrial School, Burnham—will appear in the *Agricultural Journal*.

The lucerne tests conducted by farmers demonstrated that in very few instances was the application of lime or inoculated soil necessary to secure a good stand; that the majority of soils were in a condition capable of growing the plant if the advice in regard to cultural methods given by the Department of Agriculture were strictly adhered to. It is advocated, however, that farmers would do well before sowing an extensive area in lucerne to first test an acre divided into four plots as follows: No. 1, lime; No. 2, inoculated soil; No. 3, no lime or inoculated soil; No. 4, lime and inoculated soil. No encouragement was given to apply stable or artificial manures either before sowing, with the seed, or after the plant was established as a top-dressing. In some few instances farmers did top-dress with disastrous results, checking the growth of the plant and bringing the grasses and weeds into competition with the lucerne, which soon got choked out.

Notwithstanding the action of the Department of Agriculture in making these free demonstration tests as widely distributed as possible throughout the Dominion to bring them under the notice of farmers, it has to be admitted that the effect to date has not been what it should, farmers being either too apathetic or too content with their present methods and income to bother with this fodder plant, of the value of which as a fodder they appear to know nothing and are under the impression that it is difficult to grow. It is quite evident that had the farmers in the Oamaru and other districts now suffering from the long-continued spell of dry weather taken the precaution to have established stands of lucerne on their farms they would not be in the position they now find themselves in to-day of being obliged to appeal to the Government for assistance for their stock. As proof of this it may be well to mention one instance out of many—that at the Government School for the Deaf, situated at Sumner (an area which, equally with Oamaru, has experienced a long dry spell). With less than one-half acre of a lucerne stand grown on poor soil (almost pure sand) six cows have been kept in perfect condition since the beginning of October last, there being no grass or other feed for them, all being burnt up. Six crops have been cut from this less than half-an-acre area during the present season, the first four cuts averaging 3 ft. in height, or a total growth of 17 ft. high if the six cuts were extended their length one above the other. About one-quarter acre was sown to lucerne two years ago, and the other quarter-acre was sown about fifteen months ago. No irrigation or manures were applied to give the above results. These results indicate that the problem of our non-producing dry land areas will be solved through lucerne-growing.

The growing of lucerne requires a little higher order of system than many of our most successful farmers employ in their work. It requires explicit attention in all details during its early growth and until it is fairly established. *Lucerne can do best only when it is in exclusive possession of the land, with no other plant growing there. Weeds and grass are its enemies; lucerne fails immediately the land is allowed to get weedy. When established lucerne is hardy, when young it is delicate.* In some tests in New Zealand as many as three crops have been obtained within one year from date of sowing.

In this report I have endeavoured to show what is being done in the direction of the extension of lucerne-growing in some parts of the United States and Canada, and how strongly the matter is being taken up and advocated, even in Saskatchewan, where agricultural societies, bankers, and other commercial institutions, backed by the Provincial Government, conducted a province-wide competition in growing lucerne, offering substantial money prizes with the object of introducing it prominently in a practical way to the farming community as a crop that should be universally grown. A matter of vital importance to the Dominion and to its advancement is that farmers should be in a position to secure without any doubt pure and viable seeds to sow. In Canada this is recognized, as the sale of seed is there regulated by law. Under present conditions it may safely be said that New Zealand is often used as the dumping-ground for bad seeds. It is a noteworthy fact that exceedingly bad lines of seed are met with as soon as a scarcity of any