

sand-dunes received their full force. Considerable damage was done to the ice-plant (*Mesembryanthemum*) and lupins planted nearest to high-water mark, but these will be replanted during the ensuing autumn. During last autumn spinifex-seed was sown with good results, and about four thousand marram-plants were put in during the month of June. The latter have done very well. A small nursery has also been established, in which eight hundred marram-roots were planted, and it is estimated that these will produce three or four thousand plants for the larger areas. A number of plants were planted on the dunes during last winter, including several which have done remarkably well viz., ice-plant, *Agropyrum repens*, giant sea-grass, *Paspalum distichum*, and sea-lyme.

*Experimental Areas on Gum Lands.* The Otaika-Puwera plots are now well established: 109 varieties of grasses, clovers, lucernes, and forage seeds were sown thereon during last spring. The Lands Department is handing over to the Department of Agriculture an area of about 30 acres of virgin scrub, swamp, and hill land adjoining the present plots. This additional area is in a very rough state, and the bringing of it into cultivation will be a demonstration to persons interested as to what can be done to make these poor lands productive.

The Otaika-Kaitara area comprises about 500 acres, of which about 40 acres have been fenced by the Department. A fire recently burnt about 40 acres of scrub, and grass-seed has been sown on this land. Twenty-one head of cattle on the established pasture are looking well, and there is plenty of feed for them.

The Albany experimental plots are still of great interest to farmers and students. They are constantly visited by the public, including farmers, intending settlers, and scholars from the various schools and colleges. About a hundred varieties of grasses and clovers and other crop plants are now growing there.

#### *Hamilton Supervisorate.*

Apart from the fact that circumstances have not been propitious for carrying on local experimental work, the large amount of demonstration and experimental work at the Ruakura Farm of Instruction obviates the necessity therefor in the Waikato, to a large extent.

Further grazing records were obtained on the pasture formed some years ago on the poor pumice land at Kaingaroa. Unfortunately, the suspicions previously entertained regarding the possibility of bush sickness manifesting itself here were confirmed through the cattle grazed on this area during the past summer. An officer of the Live-stock Division who visited the area for the purpose of inquiring into the cause of the cattle pining diagnosed the trouble as bush sickness.

No further work has been done at the Taupo pumice area, but additional land has been acquired with the object of extending the work. The enlarged area will enable a man to be regularly employed in carrying out operations. The following points will be subjected to experimental determination:

- (1) The most suitable and economical procedure in breaking in the pumice—*e.g.*, (a) surface-sowing inferior cheap grasses after burning off native vegetation; (b) sowing certain pasture constituents on pumice ploughed out of original vegetation; (c) grassing after turnips; (d) grassing after a preparatory improving crop, such as red clover.
- (2) The choice of brown-top, Yorkshire fog, *Poa pratensis*, danthonia, &c., as dominating grass species.
- (3) The question whether superior feeding-grasses, such as cocksfoot and dogstail, can be advantageously included in pasture mixtures.
- (4) Whether any other plants can be used to better advantage for soil-improvement than red clover.
- (5) Whether and to what extent cheap mineral phosphates can be used profitably in conjunction with soluble phosphates in the growing of turnips, oats, and pasture.
- (6) Whether combined nitrogen is of any service in pumice cropping.
- (7) The most suitable kinds of summer forage for the high pumice country.
- (8) Whether such early-maturing oats as Sixty-day, Fulghum, &c., would be better than Algerian.
- (9) Whether any variety of turnip has special adaptation to the pumice.

#### *Napier Supervisorate.*

The work in connection with the Hawke's Bay Farming Development Association has proceeded, but the wet season has greatly impeded much of the preparation necessary, the shortage of labour being also a contributing factor. Some of the areas are already in full swing, and the remainder are being got ready as speedily as possible. At Waipukurau the number of sheep carried on top-dressed land is being recorded. At Takapau the association is dealing with an area with a view to increasing the carrying-capacity of the land by the utilization of grazing-crops suited to same, and the production of better and more permanent pasture. At Takapau, Rissington, and also at Patoka, grass plots are to be established for the benefit of the district generally. At Rukumoana two areas have been put in, one for permanent and the other for temporary pasture, and some attention is also being given as to methods of sowing and preparing this particular class of country for pasture seeds.

#### *Wanganui Supervisorate.*

Owing to the unsettled conditions very little experimental work was attempted, more time being devoted to advising farmers and watching results. A little is being done at the Stratford Model Farm, but here extension of the work is delayed until the place is in better order. This farm was taken over in August. A concrete shed and yards have been erected, and considerable fencing has been done. Twenty acres have been stumped and sown in root and fodder crops, consisting of oats, turnips, swedes, mangolds, and small plots of maize, kales, and similar crops. Special attention was given to the preparation of the land, and all root crops are good. Demonstration work has been confined to the testing of varieties and a few manurial trials. A summary of results is being published in the Department's *Journal*.