

*Clover Inoculation Trials (in collaboration with the Mycologist).*—There are 123 trials which are being carried out to investigate the effect of inoculating red and white clover seed. In approximately 26 per cent. of trials carried out to date inoculation has given a definite stimulus to white clover establishment and subsequent growth. In a further 13 per cent. of trials inoculum appeared to assist establishment of clover, but differences were not apparent at a later stage. In the remaining 61 per cent. of cases no improvement was noted from inoculum. The positive results were not confined to any particular types of land or systems of farming. The importance of good white clover establishment is becoming more widely realized, and in view of the relative cheapness of treatment it may be considered desirable at a later stage to put clover inoculum on the same footing as lucerne culture.

*Investigations into effect of Pasture on Feed Flavour (in collaboration with the Agrostologist).*—One phase of the feed flavour in butter investigation has been conducted by the Fields Division on forty farms in the Morrinsville district. Detailed notes were made on the botanical composition of pastures, and records were obtained from the Morrinsville Dairy Factory of feed flavour intensities resulting from each grazing. The results tend to confirm previous findings that clover-dominant fields may give rise to high intensities of feed flavour, whereas when grass-dominant fields are grazed the cream is comparatively free from high feed flavours. On ten of the farms experiments were conducted to investigate methods of promoting grass dominance on pastures, but these were inconclusive and further trials on these lines are to be carried out next season.

#### *Annual Crops.*

*Wheat and Oat Manuring.*—The use of nitrogenous fertilizers on wheat and oat crops sown after a previous stubble crop was investigated in thirteen experiments. Five of these could not be harvested on account of unfavourable weather conditions. The responses to nitrogen varied considerably and in two experiments outstanding increases were recorded. On the other hand, in one trial on oats a depression in yield occurred from nitrogen, although it is interesting to record that in this case the nitrate content of the soil was extremely high when manured, and all treatments gave very high yields.

*Wheat Variety Trials.*—Ten experiments were carried out in collaboration with the Wheat Research Institute and in most of these, new varieties, particularly those considered suitable for spring sowing, were on trial. Two Portuguese varieties proved of outstanding merit, and although one of these seems to be superior for Canterbury conditions, the other has given more favourable results in Otago and Southland. It is anticipated that each of these varieties will eventually hold an important position among spring sown wheats in the districts mentioned. Where Cross 7 was tried in comparison with solid straw Tuscan the results were generally in favour of the former.

*Oat Variety Trials.*—In view of the importance of the oat crop in the Dominion it was considered desirable to institute oat variety trials and six experiments on these lines were carried out. Some of the newer varieties were included, and efforts were made in some of the experiments to obtain information in respect of suitability for grazing purposes as well as grain or chaff weights.

*Seed Treatment of Cereals (in collaboration with the Mycologist).*—Observational trials were carried out on twenty-nine farms to investigate further the merits of "Ceresan New" and "Agrosan G" for dry dusting of wheat, oats, and barley. In three trials actual yields of crop were taken but in two of these no significant differences were recorded. In one, however, in which Agrosan was not included, Ceresan gave an increase of 9 bushels per acre of wheat as compared with formalin treatment.

In the majority of trials both Ceresan and Agrosan appeared to give thicker and more vigorous crop establishment than such standard treatments as formalin, bluestone, or copper carbonate. In none of the experiments was any trace of smut found in plots treated by these dusts.

*Potato Manuring.*—Seventeen experiments were laid down in 1935, but the crops have not yet been dug. These trials investigate the effect of phosphate, nitrogen, and potash and also are intended to demonstrate the value of certified seed under different methods of manuring.

*Sweedes and Turnips: Varieties and Manuring.*—Seven trials are being carried out in connection with varieties or manuring of swedes and turnips, but results are not yet available.

*Control of "Mottled-heart" in Swedes (in collaboration with the Mycologist).*—As a result of success obtained overseas in the control of a swede disease similar to that known in New Zealand as "mottled-heart," nineteen trials were laid down to investigate the effect of adding borax at 10 lb. per acre to the fertilizer. Already there are indications that this treatment has been effective since in Westland, where "mottled-heart" is fairly prevalent, borax has so far controlled this disease as compared with severe infection on control plots in at least five of the experiments.

#### *Miscellaneous.*

*Pampas-grass.*—Several experiments have been established to obtain information on the growing and utilization of this species, and these will later be grazed to obtain information on the carrying-capacity and palatability of the plants under different conditions. In addition, a large number of plantations of pampas-grass have been visited by Instructors and careful record taken of the success or otherwise attending the planting. At this stage it is extremely evident that the establishment of pampas-grass by means of root-cuttings is a precarious undertaking, especially when the cuttings have to travel any distance from the source of supply. In the areas under observation the total number of surviving plants represents only 45 per cent. of the cuttings planted. Quite a number of cases are reported where only a few plants survived even after careful planting by the grower.

*Other Trials.*—Experiments which have not been classified above include trials with lupins in combination with other crops, the control of ragwort and other weeds by spraying, and experiments on the manuring of lucerne.