

No definite figures are available in regard to the annual loss experienced by farmers as a result of club-root infection, and it will be realized that such pecuniary loss will vary considerably with the seasons, being lower in a dry and higher in a wet one. Estimating the average yield of turnips over all classes of country in Otago and Southland as about 15 tons per acre, and giving those turnips a value of £1 per ton, it then follows that the gross value per acre works out at £15. According to official statistics 205,000 acres of turnips were grown in 1923-24 in those districts, thus representing a monetary value of approximately £3,075,000. Making a deduction from this sum of 15 per cent., estimated as the loss incurred by club-root infection—namely, £461,250—it can at once be realized of what importance is the finding of some means of counteracting this disease. Including resultant losses directly due to the primary loss just indicated, the total amount would probably be brought well up to the million sterling mark.

#### PLAN OF THE EXPERIMENTS.

Seeds of the following varieties were submitted for trial: (1) Irvine's Purple-top swede, (2) Irvine's Green-top Yellow turnip, (3) Sutton's Hardy White swede, (4) Mein's Purple-top swede, (5) Mein's Green-top Yellow turnip, (6) Mein's Purple-top Yellow turnip, (7) Bangholm swede.

In planning the experiments it was realized that, as the infection of the different fields varied considerably, an endeavour would have to be made to obtain the same intensity of infection by sowing the trial seed along with a control in various portions of the fields. Accordingly the ordinary turnip-ridger was employed, each drill of the ridger sowing different seed. For example, one drill would sow Bangholm seed, and the other a commercial strain of turnip similar in qualities to Bangholm swede. When the drilling was completed the field consisted of alternate rows of Bangholm and commercial swede, so that the variety under trial and the control were as nearly as practicable subjected to similar conditions in so far as soil infection was concerned. This method was adopted in the case of each variety of seed under trial, commercial seed being used as a control, this being selected to conform as nearly as possible with the type of turnip under trial. The fields selected for trial were known to be infected with club-root.

When the crops were matured  $\frac{1}{2}$ -chain strips of adjacent rows of trial and control turnips were examined microscopically for club-root and dry-rot. These  $\frac{1}{2}$ -chain rows were also weighed. Double rows were taken in this manner at varying places of the fields. The results obtained from this preliminary investigation are given below, a commentary being made on each result:—

#### IRVINE'S PURPLE-TOP SWEDE.

Three trials of this variety were carried out, two at Gore Experimental Area and one on the property of Mr. W. Scott, Mataura.