

## CLUB-ROOT IN TURNIPS.

### TRIALS WITH "DISEASE-RESISTANT" VARIETIES IN OTAGO AND SOUTHLAND.

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DURING the season 1923-24 field trials of several varieties of turnips claimed to be highly resistant to club-root were conducted in Otago and Southland. In the present article a brief description of the economic importance of this disease is given, together with a record of the observations made in connection with the trials. The occurrence of dry-rot disease in the same plots is also recorded incidentally. Where the general term "turnip" is used it is intended to include both soft and swede varieties.

The turnip crop may be regarded as the most important cultivated crop, apart from grass, grown in Otago and Southland, approximately 205,000 acres having been grown there during the season 1923-24. The value of the crop to the southern farmer lies in the comparative ease with which it may be grown, coupled with its relatively high yield and great utility as a winter feed for stock. Such features give it a leading place in the farming practice of the South rivalled by no other crop. Consequently, when weather conditions, or the incidence of certain bacterial or fungoid diseases, or the attack of insects, are such as to reduce the yield per acre, such a visitation is a most serious one for the farmer, seeing that the successful wintering of his stock is to a large measure regulated by the success or failure of his turnips.

Turnip-growing was introduced into Otago and Southland by the early Scottish farmers who settled in that part of the Dominion. With increased settlement turnip-growing also increased, and each succeeding year saw larger areas laid down. With the increased acreages shorter rotations between turnip crops were evolved, this to a large measure accounting for the spread of various diseases. Also the common practice of purchasing turnips—a large portion of which are often infected with club-root—and feeding such roots on clean land is a common means whereby disease is spread from farm to farm. It is only by a realization of the danger of carrying out this practice that the farmer can hope to prevent the introduction of disease on his property. The position to-day is that in certain localities of Otago and Southland turnip-growing is, to say the best, a most precarious undertaking. A large number of farmers find that they can only grow turnips with great difficulty, that failure is more often likely to accrue than success, and, in short, that they have been forced to abandon turnip-growing as a reliable farm practice, thus being forced into growing less satisfactory substitutes.

The two chief diseases to which the turnip is susceptible in Otago and Southland are club-root or finger-and-toe (*Plasmidophora brassicae*) and dry-rot (*Phoma napo brassicae*.) In this article, however, only minor reference is made to the latter disease, the main observations being concerned with club-root.