

## Seed Potatoes in Relation to Disease

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IN Ontario during the past three years the yield per acre of potatoes has been abnormally low. Running out of varieties, and adverse weather conditions have been the explanations offered for the poor crops. These factors have helped no doubt to reduce the yields, but in the opinion of the writer one of the chief causes of the poor crops of potatoes obtained in many parts of the Province has been the prevalence of certain of the so-called "physiological diseases" of potatoes such as Leaf Roll, Mosaic and Curly Dwarf.

In order to understand the importance of these diseases in the reduction of the crop and in their relation to seed potatoes, it is necessary to consider each of them briefly.

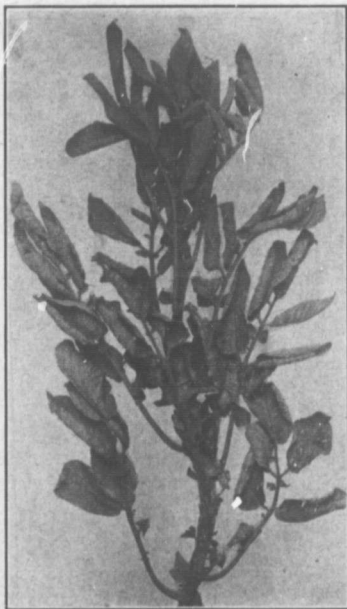
### LEAF ROLL

The cause of this disease is unknown. It has been observed in numerous fields in the potato growing districts of Old Ontario. In some fields examined this summer (1917) over 60% of the plants were affected with Leaf Roll.

**Economic Importance.**—Experiments and observations show that Leaf Roll may reduce the yield to a very marked extent. In experiments conducted by Mr. Murphy, assistant in charge of the Dominion Field Laboratory of Plant Pathology at Charlottetown, P. E. I., it was found that the average yield of plants diseased with Leaf Roll in Prince Edward Island is 1.66 ozs., while healthy plants of the same variety yield 19.0 ozs. The corresponding yields per acre would be 26 bushels and 297 bushels.

**Symptoms.**—Symptoms of Leaf Roll are very variable. Affected plants are always more or less dwarfed and in some varieties the leaves assume a characteristic upright, almost staring

habit instead of drooping over in the normal way. This symptom is sometimes absent, the plants presenting instead a low-headed, bushy appearance. When the crop is badly affected the poor growth of the foliage is very noticeable. It is practically never as



LEAF ROLL

green on affected plants as on healthy ones and occasionally on certain varieties it takes on a purplish or reddish color at the tips and around the margins of the leaves. Rolling of the lower leaves is always associated with the disease. This is often rather incon-