THE BLACK LEG DISEASE OF POTATOES

caused by *Bacillus solanisaprus.*

BY

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Black Leg is a destructive disease of the potato causing the plants to die prematurely with the production of little or no crop.

SYMPTOMS.

Affected plants are prominent in July, as a rule before any other disease makes its appearance. They are characterized by pale green or yellowish foliage and the leaves have a tendency to roll up. They cease to grow and generally appear somewhat smaller than healthy plants. The branches look stiffer and more upright than normal, and the whole plant is unthrifty and soon dies. (Fig. A.) The symptoms are very well marked and constant, and, once recognized, cannot easily be mistaken.

If an affected plant be pulled up one finds that it leaves the ground easily. A suspicious looking plant may be tested in this way, for if it be gently pulled it will come away readily if it has the Black Leg. The part of the stalk which was in the soil will be found to be black and rotten, and this is a certain symptom of the disease. (Fig. B). The set will be found to be rotten also, and if the connection can be traced it will be seen in almost every case that the rot in stalk and set is continuous. Since the disease comes from the set it almost invariably happens that if one stalk in a hill shows the disease the others will sooner or later show it too. This can be easily verified by pulling them up, when it may be seen that no matter how healthy they appear the rot is working its way through the lowest parts of the stem, soon to make its presence visible in the foliage. *In removing diseased plants, therefore, the whole hill should be taken out.*

If any new tubers are formed, the infection spreads to them also along the "rhizome" or stem on which they are borne. One can often see cases in which the rot has progressed part of the way along the rhizome towards the new potato.

The disease manifests itself in the tuber as a rapid soft rot, which always starts from the stem end. (Figs. C, D). On the outside, the rotting tuber is soft and moist looking, and a blackish line under the skin shows the boundary of diseased and healthy tissue. Such a tuber when cut open has characteristically a black cavity in the centre (Figs. E, F) while the remainder of the flesh is soft but not much discoloured. Sometimes the whole of the interior is filled with a white slime. Once the disease gets into a tuber it rots almost at once, and under normal circumstances affected tubers never live over winter, most of them rotting in the field.

LIFE HISTORY OF THE CAUSAL ORGANISM.

The disease is caused by one of the most minute of organisms, known as bacteria —the name of which is *Bacillus solanisaprus,* Harrison. This organism was first described by Professor Harrison of Macdonald College. Various other almost identical