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The Agricultural Experiment Station

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POTATO FAILURES.

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In the spring of 1901 the Experiment Station issued a press bulletin on the subject of potato failures. No experimental evidence was at hand at the time, but it seemed evident from observation that plant diseases were the cause of the failure of the potato crop in many localities. Accordingly a line of treatment was outlined which it was hoped would be helpful in overcoming the difficulty.

Since that time this subject has formed one of the principal lines of investigation of the Horticultural section. The results of the work are to be published soon as Bulletin No. 70 of this Station. Copies will be sent to the names on the mailing list and to any other person who makes a request for them. But in the meantime this leaflet is issued for the purpose of calling attention to the subject at once as the planting of potatoes has already begun.

While the experiments are by no means complete, it has been proven that our first impression of the difficulty is correct. We now know that some of the conditions which have been ascribed to peculiarities of altitude and climate are due to the attacks of a fungus on the underground portions of the potato plant. Some of the effects of this disease with which many farmers are familiar are as follows: Large vines which produce few or no tubers, or an abnormal number of small, worthless tubers. In other instances, much of the seed fails to come up, or weak plants are produced which die in the fore part of the season, thus resulting in a poor stand.

The fungus lives over winter on the potato unnoticed and is planted with them. Under favorable conditions it soon starts into growth and attacks the young plants, and the injuries produced may result in one or more of the conditions described above. The

treatment of the disease is complicated by the fact that after it has been introduced into the soil it will live for a number of years on decaying vegetable matter and on the roots of many different kinds of plants. In order to entirely overcome the disease, then, it will be seen that clean seed must be planted in soil which is free from the fungus.

In order to approach this ideal, seed potatoes should be sorted carefully, then disinfected by soaking in one of the solutions given in the formulas below. Then in localities where failures have been most severe, potatoes should not be planted on land that has grown this crop for five years.

The fungus thrives best in heavy, poorly-drained land, therefore such soils should be avoided if possible.

Formulæ for Treating Diseased Seed Potatoes.

Corrosive sublimate..... 1 ounce
Water 8 gallons

Dissolve the corrosive sublimate in one gallon of hot water, then dilute with seven gallons of water. Allow the potatoes to soak one and one-half hours. When dry they may be cut and planted, though it has been found to be good practice to treat the potatoes a week or more before planting, since the treatment may retard germination if done just before planting.

Corrosive sublimate is a deadly poison, and it should be used in wooden or earthen vessels, since it corrodes metals.

Formalin. 8 ounces
Water 15 gallons

Soak the potatoes two hours in this solution, preferably but a short time before planting. This solution is somewhat more expensive than the corrosive sublimate treatment, but it has the advantage of being non-poisonous, and it may be used in any kind of vessel.