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AGRICULTURAL EXPERIMENT STATION
KANSAS STATE AGRICULTURAL COLLEGE

DEPARTMENT OF BOTANY

Potato Seed Diseases and Their Treatment

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The potato crop of Kansas was greatly damaged last season by losses from Blackleg, Black Scurf (Rhizoctonia), Dry-rot or "Wilt," and Scab. Anywhere from 1 to 26 percent of the crop in most fields was lost. A number of other potato diseases are also beginning to get a foot-hold in the state.

The two main causes for this loss were: (1) Infected seed shipped into Kansas, and (2) the failure to apply preventive treatment before planting.

BLACKLEG

This is a bacterial disease living on the surface or inside of the seed. Infected seed produces blackened sprouts which soon die. This is one of the causes of "missing hills."

Control.—1. Treat all seed in corrosive sublimate or formaldehyde. Corrosive sublimate is to be preferred, since it kills other potato seed diseases which are not affected by formaldehyde.

2. Do not plant seed showing internal blackening.

3. Remove all affected plants from the field.

BLACK SCURF (Rhizoctonia)

This is a fungus disease causing young plants to die in the field. By rotting the young sprouts it is often responsible for "missing hills." Some of the diseased plants produce small potatoes which have small black specks on their surface. These are fungus masses which transmit the disease to the next season's crop.

Control.—1. Practice rotation, using a legume or cereal crop.

2. Disinfect the seed before planting, using corrosive sublimate solution.

DRY ROT OR "WILT"

Infected seed show blackened streaks in the flesh at the stem end. The leaves turn yellow and curl slightly. The entire plant wilts and gradually dies.

Control.—1. Rotate crops for 3 or 4 years in fields showing the disease.

2. Treat uncut seed in corrosive sublimate or formaldehyde.

3. Plant clean seed in disease-free soil.

4. Remove and destroy diseased plants when they appear.

SCAB

This is caused by a parasitic fungus attacking the skin of the tubers. The disease is carried over on the seed, in the soil, and in manure.

Control.—1. Practice crop rotation.

2. Avoid using excessive amounts of manure, lime, or alkaline fertilizers.

3. Treat seed with formaldehyde or corrosive sublimate.

CORROSIVE SUBLIMATE OR MERCURIC BICHLORIDE TREATMENT

This treatment is recommended in preference to the formaldehyde treatment for potato tuber diseases occurring in Kansas.

1. Prepare a solution by mixing 4 ounces of corrosive sublimate, which can be secured from the local drug store, in 30 gallons of water. Powdered corrosive sublimate is preferred and should first be mixed with 1 quart of hot water, since this causes it to dissolve more rapidly. When completely dissolved add enough water to make 30 gallons.

2. Do not use metal vessels or containers for this solution, since it corrodes metals. Barrels, wooden tubs or concrete vats may be used. It is a deadly poison and must be kept away from children and animals. It will not injure the hands. Treated seed is also poisonous and must not be eaten or fed to stock.

(OVER)

3. Place the uncut tubers in sacks and submerge in the solution for 1 1/2 hour. Remove and drain the sacks, or spread the seed to dry, after which it may be cut. Use a fresh solution after every third or fourth batch of seed treated, since it loses its strength rapidly.

THE FORMALDEHYDE TREATMENT

Place the uncut tubers in sacks and submerge in a solution made by mixing 1 pint of 40 percent formaldehyde with 30 gallons of water. The tubers are allowed to soak for 2 hours, and the same equipment used for the corrosive sublimate treatment may be employed here. This solution does not lose its strength and may be used indefinitely. It does not corrode metal, therefore any container will serve. This treatment is satisfactory for potato scab, but is not recommended for the more prevalent and serious Rhizoctonia and Blackleg. Formaldehyde may be secured from local drug stores or bought in larger quantities from chemical supply houses.

For further information write to the

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