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# MICHIGAN AGRICULTURAL COLLEGE

EXTENSION DIVISION

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## TREATMENT OF SEED POTATOES TO PREVENT DISEASES.



Typical Extension School in the Potato field.

Each year farmers lose a large percentage of the potato crop through preventable diseases. The poor stand in some fields can be directly traced to disease-attack in the majority of cases. Scabby and scurfed tubers, missing hills, stunted, and unthrifty plants are the results of disease. Efficiency on the farm demands prevention of these losses.



## POTATO SCAB.

Every farmer knows the losses caused by Potato Scab. The scabby deformed potatoes are a source of loss in the field and at the car door. They are cull potatoes and bring a cull price. From 10 to 15 per cent of Michigan's potato crop is lost because of Scab.



Potato Scab.

Potato Scab is a germ disease. It is caused by a bacterial organism which can live in the soil. The dangerous source of the germs is scabby seed stock, or potatoes contaminated by such tubers. Practically no seed stock is completely free from scab — it must all be treated to become safe.

Scab is favored by alkaline soil conditions, and checked by acid soils. Liming favors scab if the germ is present.

The planting of scabby seed puts a "nest" of virulent germs in the position to do the greatest harm.

Control of Potato Scab hinges upon crop rotation and seed treatment to cleanse the stock of virulent bacteria.

## BLACK SCURF—*Rhizoctonia*.

If you examine your seed tubers you will find occasional tubers covered with brown, scurfy, dirt-like bodies. These do not wash off, and when the potato is wet they stand out plainly as purple-black lumps.

This blemish is serious, because it will lead to poor stands if such tubers are planted. The lumps are fungous growths, and from them fine threads grow which attack the sprouts and frequently cause the growing tips to rot off in the ground. This is especially important in wet seasons and in poorly drained, crusty soils.

In cases of lighter attack the sprouts are girdled by the fungus. This leads to cankered stems. Such diseased plants develop large tops which set a large number of small, misshaped tubers, usually worthless for marketing.

This disease is so serious that no farmer can afford to overlook its injuries nor neglect the control measures recommended.

Efficient control depends upon crop rotation and proper seed treatment.



Black Scurf.



#### BLACK LEG.

This disease has been introduced into Lower Michigan with seed imported in the spring of 1917, and unless controlled will probably increase greatly in extent. It causes a blackening of the stems of young potatoes, and cases of delayed attack may result in the death of mature plants. It causes a black rot of the tuber. Such rotted tubers contaminate the surrounding potatoes. Wounded, bruised or partly rotted tubers harbor the bacteria over winter.

This disease has been known to cause failure of entire fields of potatoes. It is most severe in wet seasons.

To control this disease it is necessary to safeguard the seed stock by close sorting to remove all wounded, bruised or rotted tubers, and to disinfect the tubers as directed.



Black Leg on a young plant.



Tuber rotted by Black Leg bacteria.

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The diseases of potatoes are numerous. A knowledge of them and their control is essential to successful potato growing. The outline for control of potato diseases given on the next page should be put in practice on every farm. Those interested in a more complete account of these diseases should write for Michigan Experiment Station Special Bulletin 85.



## WHAT TO DO.

1. Sort the seed tubers to remove all scabby, rotted and bruised potatoes.
2. TREAT BEFORE CUTTING, USING EITHER METHOD A OR B.

We advise Method A unless sorting during the cutting of "seed" is thorough and removes all BLACK SCURF.

3. Cut by *hand*.

The first cut should take off a  $\frac{1}{4}$ -inch slice from the butt end. Reject this. Do not plant any tuber showing flesh discoloration.

4. Plant in good soil.

Use a manured clover or alfalfa sod. Do not follow potatoes with potatoes.

5. Cultivate frequently while potatoes are young; sparingly later.

6. Spray for "Bugs" and Blight.

Get poison and blue vitriol early.

7. Ask your county agent to show you how to develop a seed plot.



USE 4 OZS. CORROSIVE  
SUBLIMATE TO 30 GAL.  
OF WATER.

## METHODS FOR SEED TREATMENT.

A.

### CORROSIVE SUBLIMATE

*Deadly poison*

Dissolve 4 ounces of the crystals in a little hot water in a glass or earthen dish.

Pour this solution into 30 gallons of water in a barrel.

Soak uncut potatoes 30 minutes.

It is dangerous to soak seed tubers longer than  $1\frac{1}{2}$  to 2 hours.

*The solution gets weaker with use. Add 1 ounce of crystals (dissolved) after each lot of tubers is dipped.*

Cut and plant at once.

If weather interferes, spread out to dry.

**THIS TREATMENT CONTROLS  
BLACK LEG, SCAB AND BLACK  
SCURF.**

B.

### FORMALDEHYDE

*Irritating, not so poisonous.*

Pour 1 pint of Formaldehyde 40% into 30 gallons of water.

Soak uncut potatoes 15 minutes.

It is dangerous to soak tubers longer than  $1\frac{1}{2}$  to 2 hours.

*The solution does not get weaker with use.  
It can be used over and over.*

Cut and plant at once.

If weather interferes, rinse in water, then spread out to dry.

**THIS TREATMENT CONTROLS  
BLACK LEG AND SCAB. POTATOES  
WITH BLACK SCURF MUST  
BE SORTED OUT.**

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This bulletin was prepared by Dr. G. H. Coons, of the Botany Department, Michigan Agricultural College, East Lansing, Mich. For further information, write directly to him.