

Leaflet L (Revised)

POTATO SCAB

New York Agricultural Experiment Station
Geneva, N. Y.

1914

Cause of scab. Potato scab is caused by a fungus—a delicate white mold—which grows on the skin of the potato. This fungus produces an immense number of spores which are capable of living over winter in the soil; also, on the tubers in storage. Hence, the planting of scabby seed usually (but not always) results in a scabby crop; and soil which has once produced scabby potatoes is almost sure to produce a scabby crop if planted with potatoes again the following season.

Soil conditions important. Scab is more troublesome in clay and loam than in sandy soil. Most important of all is the condition of the soil as regards acidity. On acid soil scab gives little or no trouble for the reason that the scab fungus does not thrive in an acid medium. Soils which are neutral or slightly alkaline are most favorable to scab. Unfortunately, the soil conditions most favorable to large yields are also most favorable to scab.

Manure, lime and ashes. The application of stable manure, lime or wood ashes to potato land tends, decidedly, to increase the trouble with scab. These substances do not cause scab, but they lessen the acidity of the soil and so make it more favorable for the growth of any scab fungus which may be in the soil.

Restoration of acidity. When the soil has become alkaline and it is desired to bring it back to an acid condition (in order to overcome scab) the best method is to plow under some green crop like clover or rye. This will surely help some, but cannot be relied upon to prevent scab entirely. Another good method is the application of sulphate of ammonia, which

materially reduces the loss from scab and at the same time supplies plant food. Some use flowers of sulphur applied in drills with the seed at the rate of 300 lbs. per acre; but this is an uncertain and expensive remedy of doubtful utility.

**Rotation
of crops.**

A rotation of crops will assist materially in the control of scab. On soil badly infested with scab it is usually cheaper to abandon potato culture for a time than otherwise to combat the disease. Scab may persist in the soil several years—just how long is unknown. Much depends on the treatment of the soil and kind of crops grown. Probably the time is shorter in tilled land than in sod. Beets harbor scab; so do turnips, probably.

**Disinfection
of seed.**

When potatoes are to be planted on land free from scab the seed tubers should be disinfected to prevent the introduction of the disease by means of scab spores on the seed; but if the land is already thoroughly infected this is of little use. Disinfection may be accomplished in different ways—by soaking the seed in corrosive sublimate solution or in formalin or by exposing it to formaldehyde gas.

**Corrosive
sublimate
treatment.**

Make a solution containing one ounce of corrosive sublimate in seven gallons of water. Soak the tubers in this for $1\frac{1}{2}$ hrs. This treatment has been largely superseded by the formalin treatment which is more convenient and safer. Corrosive sublimate is very poisonous.

**Formalin
treatment.**

Mix one pint of formalin (40 per formaldehyde) with 30 gals. water. Soak the uncut tubers in this solution 2

hrs. The same solution may be used several times. Care must be taken that treated tubers are not re-infected by coming in contact with bags or crates which have held scabby potatoes. The best results are obtained when the treatment is made only a few days before planting. Formalin is not poisonous. Treated tubers not needed for planting may be used for food or fed to animals with perfect safety.

Formaldehyde gas. When large quantities of potatoes are to be treated formaldehyde gas may be used as follows:

Place seed tubers in bushel crates or shallow slat-work bins in a tight room. For each 1000 cubic feet of space spread 23 ounces of potassium permanganate evenly over the bottom of a large, flaring pan or pail placed in the middle of the room. Pour over this 3 pints of formalin. Close room at once and do not open for 24 to 48 hrs. (For further details see Bul. 369.) The gas treatment is less reliable than the liquid treatments and should be used only when it is impracticable to use one or the other of the liquid treatments.

Resistant varieties. Scab attack some varieties of potatoes more severely than others; but little is definitely known concerning the relative susceptibility of the different varieties. Cambridge Russet is said to be but slightly affected. Carman No. 3, American Giant, Sir Walter Raleigh and Irish Cobbler show considerable resistance to scab, while Early Ohio is especially liable to it.