

FILE COPY  
DO NOT REMOVE

PUBLISHED BY

# MICHIGAN AGRICULTURAL COLLEGE EXTENSION DIVISION

R. J. BALDWIN, DIRECTOR

EAST LANSING

Printed and distributed in furtherance of the purposes of the cooperative agricultural extension work provided for in the Act of Congress, May 8, 1914.

Michigan Agricultural College and U. S. Department of Agricultural cooperating.

BULLETIN No. 3

EXTENSION SERIES

APRIL, 1916

## SOME SEED POTATO QUESTIONS ANSWERED.

BY C. W. WAID.

### 1. *Can Potatoes From Fields Which Were Affected With Late Blight Safely Be Used For Seed?*

Potatoes which did not develop a large amount of late blight rot in storage if carefully sorted so that *practically all of the tubers* which show any external or internal evidence of late blight have been removed, can be used for seed. Potatoes from fields which were not blighted will be safer for seed but are not always available.

If the potatoes are clean and the skin bright, it is not difficult to sort out the tubers affected with late blight. If they are dirty or the skin is dark and rough, it will not be an easy matter to detect all of the tubers which have blight producing organisms in them. Unless the grower is quite certain that practically all blight-carrying potatoes have been removed, it will be best to secure other seed.

Seed potatoes which have blight organisms in them will either produce no plants or weak plants. Such tubers will also become the source of infection for the late blight if the weather conditions are favorable for the development of the disease.

The external evidence of late blight on the tubers in the first stage of its development is a brownish discoloration of the skin in irregular shaped spots which vary in size. These spots increase in size and become somewhat sunken as the disease develops. Internal evidence of late blight in the tubers is shown by brownish discoloration of the flesh in areas corresponding in size and shape with the external spots and extending below the skin to a depth of one-eighth inch or more.

In the later stages of the disease, the tubers become shrunken with dry rot or decay. The odor from potatoes which have decayed with soft rot as the result of the late blight is very offensive.

2. *Should Potatoes be Planted in Soil Where Potatoes Blighted the Previous Season?*

It is not advisable to plant potatoes in soil in which potatoes were grown the previous season whether late blight was present or not.

It has been quite certainly proven that late blight does not live over winter in the soil, except occasionally on blighted potatoes which escape freezing. Scab, Black Scurf (*Rhizoctonia*) and *Fusarium* Wilt do however, live over in the soil from one season to another and are for that reason likely to cause more damage when no rotation is followed than when there is a change of crops. Furthermore, a rotation of crops, especially when clover precedes the potato crop, will keep the soil in much better condition for potatoes than it will be when potatoes are planted on the same soil one season after another.

3. *Should Potatoes From Vines Which Were Killed by an Early Frost be Used for Seed?*

Early freezing of the vines will not injure the tubers for seed purposes, except that it will reduce the yield, if the potatoes grow to be as large as a hen's egg or larger. It is a common practice in the South to plant potatoes for seed so late that the vines are green when killing frosts occur. These so-called "Second Crop" potatoes are considered superior for seed purposes to those planted earlier in the season.

4. *Should Frosted Tubers be Used for Seed?*

In no case should tubers which have been frosted be used for seed. Potatoes which have been chilled if used for seed will give a poor stand. If there is a suspicion that the potatoes may have been frosted but evidence does not show on the tubers, it will be a good plan to place a number of them in the greenhouse, hotbed or a sunny window in a warm room and test their germinating ability. If a number of the sprouts make a weak growth the potatoes should not be used for seed.

5. *How Can Seed Potatoes be Kept in Good Condition Until Planting Time?*

Seed potatoes stored in cold storage or in well-located and properly constructed potato cellars or pits will usually keep in good condition until time to plant.

When the temperature in the storage place begins to rise in the spring and there is danger of the potatoes sprouting considerably they can be kept in good condition by removing them to a barn floor or other large space where the tubers can be spread out, one layer deep, and exposed to the light.

This is what is known as "Green Sprouting" or "Greening." The effect of this treatment on the tubers is to retard sprouting and the sprouts which do start are so stocky and strong that they do not break off easily by subsequent handling.

The potatoes should be treated for Scab and Black Scurf (Question 8) when they are taken from the storage to "Green-Sprout." They can

be kept in this manner for at least six weeks without becoming injured for seed purposes.

6. *How Should Seed Potatoes be Selected?*

Seed potatoes should be selected from the healthy, most productive and otherwise *most desirable hills* in a part of the potato field set aside for that purpose. All tubers which show external or internal evidence of disease should be rejected from the Seed Stock.

The diseases most likely to be found on Michigan grown potatoes are Common Scab, Black Scurf (*Rhizoctonia*), Dry or Late Blight Rot and Fusarium Wilt. Powdery Scab might be introduced in seed stock imported from other states.

7. *Should Small Potatoes be Used for Seed?*

Small potatoes from healthy productive hills are satisfactory for seed purposes.

Small potatoes from seed stock which has not been hill selected or from which the diseased and weak hills were not removed should not be used for seed.

8. *How Should Seed Potatoes be Treated to Prevent Scab and Black Scurf?*

When there is little or no evidence of Black Scurf on the tubers they should be treated with Formaldehyde. It is as effective against scab as Corrosive Sublimate and because it is not so poisonous is less dangerous to use. Formaldehyde can be used safely after the tubers have begun to sprout as well as when they are dormant.

Corrosive Sublimate is more effective than Formaldehyde when used to control Black Scurf. It should, therefore, be used when the tubers show considerable evidence of Black Scurf or when this disease has been serious the previous season. *It should be used only when the tubers are dormant* (not sprouted).

MATERIALS—METHOD OF PREPARING AND LENGTH OF TREATMENT.

Formaldehyde (40 per cent strength) is used at the rate of one pound or pint to thirty gallons of water. The seed should be soaked one and one-half to two hours. It does not lose its strength very rapidly while being used nor when standing if the container is tightly covered.

Corrosive Sublimate is used at the rate of one ounce of crystals to seven and one-half gallons of water. The seed should be soaked in this solution one and one-half hours and no longer. The sublimate should be renewed after three or four batches of potatoes have been treated as it loses its strength quite rapidly.

*Corrosive Sublimate is a deadly poison and should be kept away from children and live stock.*

WHEN AND HOW TO TREAT.

The potatoes can be treated with either material several weeks, if desired, before planting. Care should be taken, however, not to re-infect the tubers by placing them in used crates or sack which have not been disinfected.

When only a few bushels of potatoes are to be treated they can be placed in gunny sacks and submerged in a barrel from which the head has been removed.

When large quantities are to be treated a tank should be provided for the purpose. The tank should be wide enough to allow two rows of potato crates to be placed in it side by side, and deep enough so the potatoes, crates and all, can be submerged. It can be made any length desired.

9. *Should Seed Potatoes be Imported from Other States?*

As a general thing there is nothing to gain and a good deal to lose from indiscriminate buying of seed potatoes from other states. If the growers will take more pains in the selection of their seed stock there will be little need of importing seed every few years.

10. *How Can the Grower Secure Help to Improve His Potato Seed Stock?*

By getting in touch with the Extension Division of the Michigan Agricultural College through your County Agent or if there is no agent in your county, write R. J. Baldwin, Extension Director.