

Sclerotinia Disease of Potatoes

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By H. S. Potter, *Extension Specialist in Plant Pathology*
and
W. J. Hooker, *Research Potato Pathologist*

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Sclerotinia vine rot of potato was identified in 1966 for the first time in Michigan potatoes. The disease was present in Presque Isle County and at the Michigan State University Muck Farm at Bath. The disease developed late in the season, causing only minor damage to the vines.

Symptoms consist of tan-pinkish lesions (diseased spots) with white centers on the stems. Often the border of the lesion is zonate, or ringed. Stems decay quite rapidly, with the pith being destroyed and cavities forming inside the affected stem. A snow white, cottony fungus growth grows within the cavities of affected tissue and also on the surface of the lesion.

Portions of the vine above the infected stem wilt, and occasionally small aerial tubers form on the stem above the lesion.

Within the cavity in the stem, black, round, hard resting bodies of the fungus develop. These start as balls of white mold growth and then later harden and turn black. The black structures are called "sclerotia" and serve to carry the fungus over the winter.

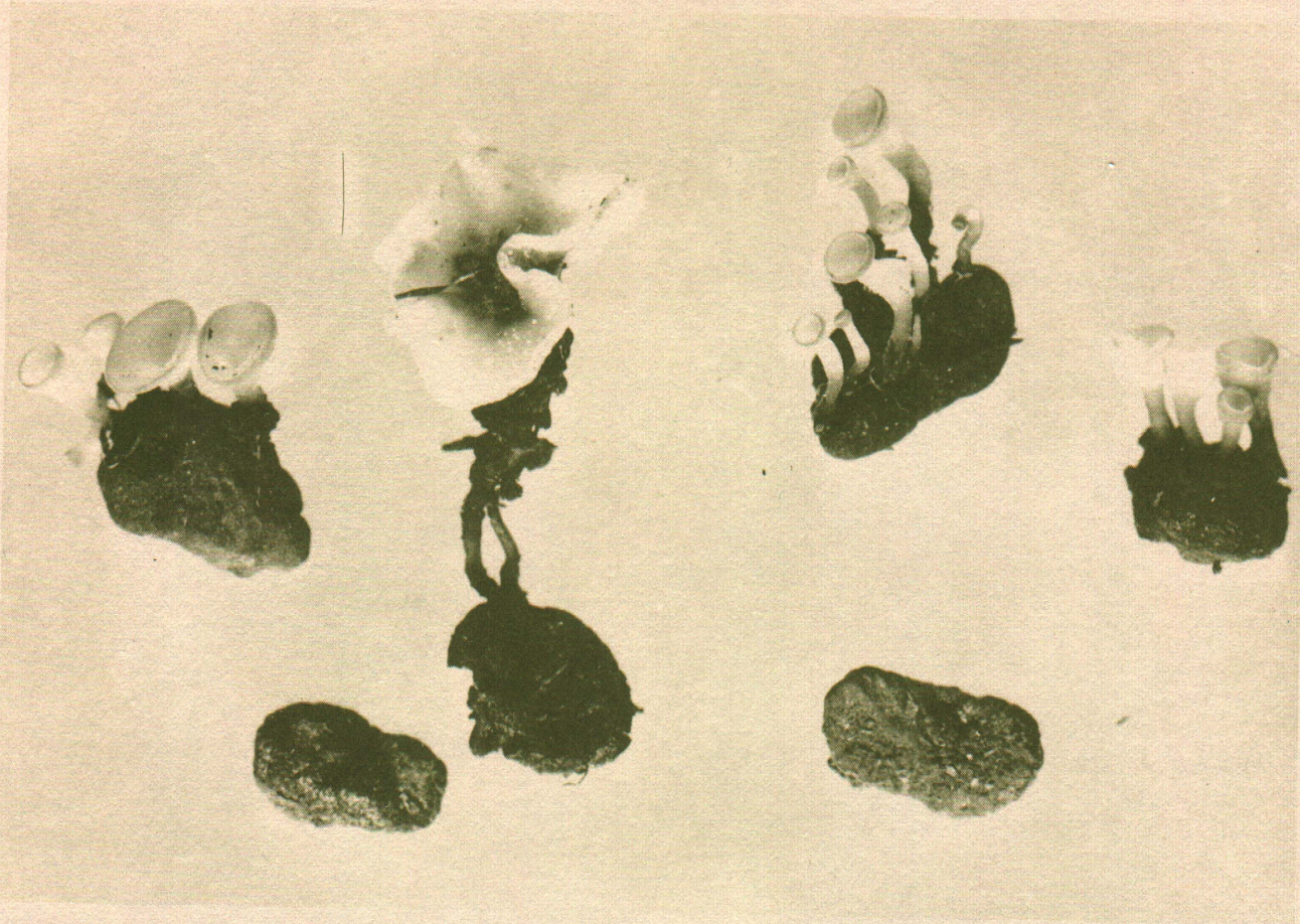
In the spring, the black sclerotia germinate producing one or more small, fleshy, orange-to-brown, cup-like mushrooms approximately $\frac{1}{4}$ inch across. Spores from this mushroom will be discharged into the air to infect a wide range of susceptible plants, which include bean, celery, carrot, cabbage, lettuce, and many other vegetable crops.

Early season infection of potato stems would be expected to cause a wilt of the plant and early death. We have seen no evidence that early season infection of potatoes is common in Michigan.

Botrytis blight and Sclerotinia are often present on the same plant and tissue killed by Sclerotinia is quickly invaded by Botrytis. Because of this, it is probable that Sclerotinia may to some extent have escaped notice.

Weather conditions determine whether infection will occur, even when the fungus is present. Spore production by the mushroom-like growth is favored by cool, wet conditions, and apparently infection from spores does not occur when the temperature rises above 75 degrees F. In contrast, the vegetative structure of the fungus mycelium, which grows in the soil, is active over a much wider range of temperatures. This may account for infection taking place when the mushroom-like spore-producing structures are not apparent.

This disease will become more serious in potatoes where cultural practices which stimulate luxuriant vine growth are emphasized. Such practices include increased use of fertilizers and increased irrigation. Heavy vine growth, causing reduced light penetration and reduced air movement, lower soil temperatures, and increased soil moisture levels are conditions which favor infection by Sclerotinia.



Germinating sclerotia producing the small cup-shaped mushroom from which spores are discharged into the

air. It is not yet certain that this is an important factor in early season infection of Michigan potatoes.

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Cavities within the pith of potato stems partially filled with white, cottony fungus growth containing black sclerotia. A few sclerotia have been removed and are shown between the stems. Sclerotia are seldom over $\frac{1}{4}$ inch in length.

Sclerotinia is not usually a disease causing tuber decay in either field or storage. Sclerotinia has been known to attack potato tubers under experimental conditions. When tubers have been infected, invasion was typically through wounds. We have not yet found this phase of the disease in the field.

Potatoes are generally considered to be relatively resistant to Sclerotinia and losses usually are not extensive. The disease has been observed with some degree of severity in Long Island and in Florida.

At this time, it is not anticipated that the disease should become a matter for alarm to Michigan potato growers. Rather, it is important to recognize that it is present and to be alert for early season occurrence. The same organism at-

tacks beans, causing white mold in that crop. On muck soils, lettuce, carrots, and celery should also be considered as important crops causing an increase in the amount of disease-producing inoculum in a rotation program.

Control - Sclerotinia is believed to be a minor disease of potatoes and it may not become a problem in Michigan potato production.

Cultural practices stimulating excessive vine growth should be avoided. Particular attention should be given to avoid excessive irrigation and over-fertilization.

Fungicides may be useful in controlling Sclerotinia, but it has not been established that the losses from Sclerotinia justify the cost of additional fungicides.



Sclerotinia lesions on potato stems, showing the pinkish-brown ringed margins, and the white fungus growth in the center of the lesion on the left.

