Silver Scurf in Wisconsin

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Silver scurf is caused by the fungus *Helminthosporium solani*. This organism grows slowly and is easily cultured from potato tuber surfaces. The disease has become more severe in recent years presumably due to selection for resistance to Mertect in the fungal population. In most locations where this fungicide is used the population of *H. solani* has become almost uniformly resistant. In Wisconsin we have looked at approximately 100 potato samples for the presence of the fungus and for its resistance to TBZ, the active ingredient in Mertect. We have found that over 90% of the isolates from commercial storage have resistance to the fungicide.

A strategy that we propose for reducing fungicide resistances that less Mertect be used on seed. We found that less resistance to fungicide from samples taken from early generation seed. In fact seed from the State Seed Certification Farm was uniformly susceptible in 1994. By contrast in 1995 33% of the isolates obtained from the Seed Farm were resistant. The State Farm started using Mertect at about this time. In addition, we found that G1 seed had a higher percentage of susceptible isolates of the fungus then G2 seed. Where Mertect was being applied.

This strategy assumes that a major source of silver scurf is seed. It is also possible that the fungus is present in the soil and seed is a relatively minor source of inoculum for this disease! There is evidence that both seed and soil are sources of inoculum but it is not clear how important they are relative to each other. In an experiment where the same seed was planted in old and new fields with respect to potato production we found that the percentage of isolates recovered from potatoes after the season had ended differed. In the new field where E1 or E2 seed had been planted 100% of the isolates recovered were susceptible to TBZ. In the old field only 33% of the isolates where susceptible! When looking at G1 and G2 seed the difference was small. Approximately 28% of the isolates from potatoes harvested from the new field were susceptible and 22% from the old field.

Given that both seed and soil are sources of inoculum it would be valuable to know if cultural practices during the season play a role in the epidemiology of this disease. As a starting point we treated plots of Red Norland potatoes differently near the end of the growing season at Hancock by covering some of the plots with a tarp to shed rain and irrigation water. We hypothesized that high soil moisture near harvest might increase severity of silver scurf.

Another question that has been asked is whether seed treatments at planting might reduce silver scurf by reducing inoculum, or inoculum effectiveness, on seed tubers. In cooperation with Dr. Stevenson we have collected samples from field plots treated with different seed treatments. In some plots we were able to inoculate with silver scurf by placing grain that had been colonized by the fungus in the furrow with the seed at planting. In 1995 there were no differences between any of the treatments.