

Blemish of Tablestock Tubers

Andy Robinson, Potato Extension Agronomist, NDSU / U of M
Gary Secor, Plant Pathologist, NDSU

North Dakota and Minnesota are known for their red-skinned, white-fleshed potato varieties. Recent data shows an increase in consumption of red- and yellow-skinned potato varieties in the United States. One of the challenges of providing a high quality potato is to produce tubers free from blemishes because consumers will “buy with their eyes” as they naturally gravitate to tubers free from blemishes. Silver scurf disease is the most important cause of potato tuber blemish. It is most often caused by the fungal pathogen *Helminthosporium solani*, but in recent years black dot, caused by the fungal pathogen *Colletotrichum coccodes*, has also become an important cause of blemish. Silver scurf is a seed borne disease, whereas black dot is both a seed- and soil-borne disease. Management of silver scurf blemish requires an integrated approach, and continues to be a serious problem for tablestock growers despite implementation of integrated control measures.

With funding from the Minnesota Area II Potato Growers Council, two field trials were established in 2013 to determine where silver scurf can persist in the soil, and evaluate the effect of fungicide seed and in-furrow treatments on blemish of disease of tubers by Dr. Gary Secor. Greenhosue produced minitubers of silver scurf susceptible variety Dakota Pearl and a yellow-fleshed variety, Agata, were used in the trial. Seed tubers, free from silver scurf, were provided by Valley Tissue Culture. Planting occurred on May 6 as four replications of 10 minitubers in five fields near Becker, MN. The time since potatoes were planted in each of the five fields were 0, 1, 2, 5, and 7 years. After harvest on September 4, tubers were incubated in plastic boxes for three weeks to induce sporulation and examine visually using a dissecting microscope for the presence of silver scurf. Fifty tubers per replication from each field were examined for silver scurf.

Data indicated that no silver scurf was observed on any of the tubers examined. It is concluded that silver scurf did not survive or persist in soil in these fields, and support the previous conclusion that silver scurf is a seed-borne disease, not soil-borne. During tuber assay, many tubers with blemish caused by black dot were observed, indicating that soil inoculum of black dot can be the source of tuber blemish.

In addition to the previous study, an on-farm trial was planted on May 7, 2013 in a commercial field in Becker, MN. Yukon Gold seed tubers with 20-25% silver scurf, were inoculated with silver scurf prior to planting by dipping tubers in a suspension of *H. solani* spores at a concentration of 10,000 spores/mL. The trial was harvested on September 5, 2013 and 50 tubers per replication in each treatment were evaluated for silver scurf. No silver scurf was observed on any of the harvested tubers, but most, if not all tubers, were affected with black dot blemish. No difference among treatments was found for plant stand, yield, or grade (Table 1). There was a difference in blemish, but none of the treatments resulted in a reduction of tuber black dot blemish compared to the untreated check. No silver scurf was observed despite planting infected seed and inoculating prior to planting. Additional work will be necessary to confirm black dot as the major blemish disease, and to further evaluate fungicide treatments that reduce black dot of harvested tubers.



Figure 1. Silver scurf on red-skinned tuber. Notice the distinct edges.



Figure 2. Silver scurf on yellow-skinned tuber. Notice the distinct edges.



Figure 3. Black dot on red-skinned potato. Notice the irregularly shaped patches of brownish color that have less defined margins.

