

SDSU cautions producers to watch for scab in wheat seed

August 15 2011

Unusually wet conditions in many parts of South Dakota during the wheat growing season in 2011 have resulted in visible scab damage in at least half of the winter wheat samples tested thus far at South Dakota State University.

Scab, also known as head blight, head scab or pink mold, is a [fungal disease](#) that can attack spring and [winter wheat](#) as well as other small [grains](#), and it can even infect many other [grass species](#). *Fusarium* spp. are the causal agents in scab.

"At this time, early August, it is too soon to know the extent and severity of the scab infection across the state, but the SDSU Seed Testing Lab is estimating more than 50 percent of the samples received thus far have some level of scab damage," said Brent Turnipseed, manager of the SDSU Seed Testing Lab.

Visual symptoms of infected seed are not always present on seed or grain, but usually scab-infected wheat kernels are shriveled, discolored with a white, pink or light brown scaly appearance. These kernels are often referred to as "tombstones." Infection of scab can also lead to production of mycotoxins in the seed. The most prevalent one deoxynivalenol, also known as DON, is often tested for as it can cause problems for grain utilization.

Winter wheat seed producers will need to rigorously condition seed with a gravity table to remove lightweight, scab-infected kernels and should

plan to use seed fungicide treatments this fall on winter wheat.

"Spring wheat producers will probably have similar problems from what we have been hearing from clients and producers. Planting seed lots that have scab damage does not mean you will have scab next year, as disease development depends on environmental conditions at the time of flowering," Turnipseed said.

Germination

Scab-infected seed, if not dead, will have lower vigor and be more susceptible to other field fungi when the seeds germinate in the soil, and plants will remain vulnerable to infections in the seedling stage. In germination testing, infected seeds/seedlings can reduce germination percentages because of primary or secondary infections. The SDSU lab has been planting suspect scabby wheat samples in eight replications of 50 seeds to spread out seeds/seedlings to reduce secondary infections, providing a more accurate test. Normally tests consist of four replications of 100 seeds. From past experience, the practice of planting 8 x 50 can increase the rate of normal seedlings, those that have all essential structures for growth by up to 10 percent.

Seed Treatment

Another option that growers should be using is a fungicide seed treatment. Using a seed treatment will not enable germination of dead seed, but it will protect live seeds and seedlings from early season fungal infections. It will also suppress surface-based or endosperm-based Fusarium, less severe infections, from growing during the germination test and prevent infection of the seedling, thus allowing that seedling a chance to grow into a productive plant. From past experience, this practice usually increases the rate of normal seedlings, those that have all

essential structures for growth, on average by 10 percent or higher.

The SDSU Seed Testing Lab offers a treated germination test, using Raxil, or Stamina or Charter F2, along with the standard, untreated, germination test to compare potential germination benefits provided by seed treatment. There are several effective fungicides on the market, and SDSU does not endorse one over the other. Contact should be made with county Extension educators, crop consultants, local cooperatives or the SDSU Extension Service for treatment products and options.

Testing

A germination test or a treated germination test on cereal crops at the SDSU Seed Testing Lab costs \$17, \$19 for planted 8 x 50, plus tax, a small price to pay to determine the germ quality of seed, said Turnipseed. Many producers will request both an untreated germination test and a treated germination test, \$36 plus tax for both, at the same time due to the length of germination testing. Another test some producers ask for when they are in a hurry or late with germination testing is a Tetrazolium test. The TZ test is a biochemical test that can provide estimated germination results in 24 hours. A major drawback with the TZ test on scabby wheat is that it will overestimate, sometimes by 20 percent, the actual germination rate, as TZ does not distinguish scab damage. On non-diseased wheat seed the TZ test is usually very accurate.

Germination testing takes approximately two weeks on new crop and about one week on old crop. Clients should make sure samples are marked as new crop, 2011 production, or old crop. There is a five-day difference in testing time. New crop must be pre-chilled for five days to break any dormancy. Producers should make sure to ask for a seed count, free with germination test, to better calculate planting rates. Seed counts in wheat can range from 10,000 to 26,000 seeds per pound.

Payment does not need to be sent with the sample. The lab bills clients for samples after testing is complete.

Send samples to:

-- SDSU Seed Testing Lab, Box 2207-A, Brookings, SD, 57007 (US Postal Service)

-- SDSU Seed Testing Lab, 2380 Research Parkway, Brookings, SD 57006 (UPS/FedEx/Spree-Dee)

Tests needed should be indicated, along with name and mailing address and telephone number of the person requesting. To receive email results for faster turn-around, an email address should be included. Additional information on the lab is available at their [website](#).

Seed sample envelopes may be obtained from county Extension offices. Growers of certified [seed](#) are to use the mailing bag supplied to them after field inspection.

Provided by South Dakota State University

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