PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE | UNIVERSITY OF MINNESOTA

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IN THIS ISSUE PAGE

WHEAT

HEAD SCAB AND VOMITOXIN IN MINNESOTA SPRING WHEAT—The wheat crop in west central Minnesota has been severely affected by head scab this season. Growers marketing this years crop are encountering buyers that are refusing this scabby wheat due to concerns over the presence of deoxynivalenol (DON). This fungal toxin (also known as vomitoxin) can be produced in wheat that is affected by head scab.

Head scab is caused by the fungus *Fusarium graminearum*. This same fungus causes stalk rot in corn. The fungus survives the winter in corn stubble and airborne spores can infect wheat at the time wheat flowers, especially during warm moist weather. Warm temperatures and heavy rains during the flowering period of this year's wheat crop have produced an unusually high incidence of scab in west central Minnesota. Cooler than normal temperatures favor the production of DON. Such conditions prevailed during early August and have contributed to concerns over DON.

Scabby wheat brought to market in west central Minnesota during late July was frequently subjected to a price dockage of up to $1.00 per bushel because of the head scab. During the last week, however, many elevators including those in Garfield, Lowrey, and Morris are refusing to buy grain because of perceived and real instances of contamination by DON.

As of last Friday, the Minnesota ASCS stopped loan payments for spring wheat in Traverse, Grant, Stevens, Big Stone, Swift, and Lac Qui Parle counties. Some additional counties may be added to this list but these counties represent the primary areas of severe head scab with regard to this years crop. Very little head scab was observed during the 1991 growing season north of Interstate 94 (**Figure 1**).

A lot of spring wheat (variety Wheaton) from Red Lake Falls contained 59% scabby seed and 32 ppm DON in 1986. Samples collected that year with less than 10% scab showed little or no detectable DON.

Management of DON

Deoxynivalenol can be detected in affected wheat and certain laboratories are equipped to preform this analysis. The Minnesota State Department of Agriculture, Division of Laboratory Services, 90 West Plato Blvd., St. Paul, Minn. will test suspected samples. Other laboratories to consider are the ones located in the department of veterinary medicine at the University of Minnesota and North Dakota State University. Romer Labs in Washington Mo. (Tel # 314-239-3009) and Ingman Labs in Mpls. (Tel. # 612-724-0121) are also able to run these analysis. Prices for the analysis vary but are in the neighborhood of $30.00 to $85.00. National Crop Insurance

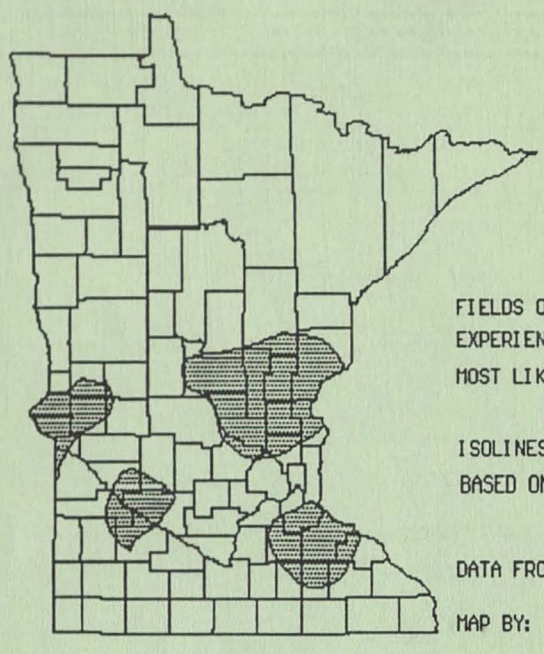
For more information regarding the Plant Pest Newsletter contact Extension Plant Pathology at 612-625-6290

UNIVERSITY OF MINNESOTA, U.S. DEPARTMENT OF AGRICULTURE, AND COUNTIES COOPERATING

FIGURE 1

WHEAT SCAB

AREAS WITH HIGHEST PROBABILITY OF 10% OR MORE HEADS INFECTED



FIELDS OR AREAS WITH SIGNIFICANT CORN ACREAGE AND EXPERIENCING HEAVY RAINFALL DURING FLOWERING ARE MOST LIKELY TO HAVE A HIGH INCIDENCE OF SCAB.

ISOLINES ARE COMPUTER FITTED PROBABILITIES BASED ON LIMITED SAMPLE SIZE AND DISTRIBUTION.

DATA FROM: FIELD SURVEY, MN DEPARTMENT OF AGRICULTURE
PLANT INDUSTRY DIVISION

MAP BY: MN COOPERATIVE PEST SURVEY PROGRAM
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won't pay claims without a quantitative test.

The level of concern in the wheat entering the milling process use is 2 ppm according to the Food and Drug Administration. Other levels of concern for DON are 1 ppm for finished wheat products for human consumption, and 4 ppm for animal feed. The agency also recommends that vomitoxin-contaminated ingredients be limited to not more than 10% of swine diets and not more than 50% of diets of beef cattle and broilers (*Food Chemical News* Oct. 1982).

Scab is frequently associated with shriveled grain. Experience in 1986 has shown that cleaning removes a lot of scab and can reduce vomitoxin levels. However, the 1991 crop was generally low in test weight and it may be necessary to use gravity tables to clean certain seed lots if standard air systems fail to work. Attempts should be made to clean grain to desired levels based on the intended end use.

Clean to below 2 parts per million (ppm) for bread milling purposes. There is research evidence to show that grain containing up to 10 ppm can be fed to beef cattle and poultry. Dairy cattle are relatively insensitive to dietary concentrations of DON but decreased milk production has been associated with Fusarium infected feed. This effect is presumably caused by other toxins associated with Fusarium infested feeds. Sheep are in the same feeding category as beef cattle. Rations containing DON should not be fed to breeding stock. Hogs are the most sensitive to DON. Research shows that feed intake and rate of gain are affected when consuming rations with 1-3 ppm. The higher the concentration of DON in the feed the greater the degree of refusal. Screenings or extremely contaminated lots can be used to for producing ethanol although the DON will accumulate in the meal cake and this should not be further utilized.

Control of Scab

In-season control of head scab with foliar fungicides has not proven to be effective. Currently, there are no varieties that are resistant to scab. Crop rotation, sanitation, soil preparation (tillage), and seed treatment are important control measures. Covering the crop residue completely when plowing and treating the seed with effective seed treatment fungicides will aid in control of head scab and seedling blight respectively.

Inoculum of the head scab fungus occurs widely throughout the corn and wheat producing areas of the upper mid-West. Corn stalks left on the soil surface are ideal sources of inoculum and will produce large quantities of spores during moist conditions. When this much inoculum is generated and wet conditions prevail during flowering of the wheat crop, the benefits of crop rotation are reduced.

Certain seed treatments were effective in 1987 trials using 1986 seed. Seed treatments containing the fungicide thiram (Vitavax 200R) or those containing imazalil (Flo-Pro IMZR, Nu-Zone 10MER, or Agsco-RRR) were shown to will represent cost effective choices for 1992 if scabby seed must be planted. More information will be developed on this topic in future newsletters.

Roger K. Jones and Richard A. Meronuck
Extension Plant Pathologists

MISCELLANEOUS

DIAL U

County Agents: Please Alert
Master Gardeners of the Following Items

WASPS—It is turning out to be an above average year for wasps due to the warm spring we experienced. Wasp nests found in out-of-the way locations should be left alone. Nests adjacent to human activity should be eradicated, especially if there are concerns about stings.

Nests hidden within buildings, e.g. in wall voids, should be treated immediately. The later in autumn before the nest is sprayed, the greater the chance the wasps will be forced into the home's interior when the nest is treated. Use caution if spraying now because there are already reports of wasps entering homes after nests hidden within walls have been treated. Wasps will die when hard frosts arrive, but they may enter homes even if nests are not sprayed. It is a calculated risk either way.

Do not seal wasp nests unless you are sure all wasps are dead; if any are alive, they may enter indoors. If insecticides are desired, spray nest entrances with resmethrin or Baygon during the evening when wasps are less active. Respray nests after several days if there are workers still alive. See AG-FO-3732, *Are they wasps or bees?*

TURF PROBLEMS are still common. An accurate diagnosis is often difficult. Where diseases are involved, fungicides are seldom necessary. Review and implement proper turf management practices. *Patch Diseases of Lawns*, AG-FO 3034, touches on many of the critical issues involved in managing sodded lawns.

REPEAT QUESTIONS—We're getting lots of repeat questions on crabgrass control (often confused with quackgrass), along with concerns about the safety of harvesting rhubarb this late. We're also getting reports of premature fall color on shade trees, primarily maples. Please refer to the last issue of *Plant Pest Newsletter* for a discussion of these topics.

FOREIGN GRAIN BEETLES are very small (about 1/12 inch long), reddish-brown and readily fly. They are often described as fruit flies or fleas and usually found around sinks, basins, tubs, or other sources of moisture. They are common now because of the rainfall and high humidity. Because of their small size, foreign grain beetles can easily enter homes. Once inside, these insects are just nuisances although they are capable of infesting dry food products, including grains and cereals. Only moldy food is infested in large numbers. There is no practical control to prevent foreign grain beetles from entering homes. Once inside physical removal is the only practical control. Be sure that food is properly stored in insect-proof containers to prevent potential infestations. Drier weather (less than 60% humidity) effectively reduces foreign grain beetle numbers.

LEAF SPOTS/RUST—Late summer leaf spot and rust fungi are making an appearance on many trees and shrubs at this time. Control is not easily accomplished and fortunately not necessary. Leaf spot/rust infections often result in early fall defoliation.

FERTILIZING LANDSCAPE PLANTS—To allow roses to harden off for winter, stop fertilizing in mid-August. This is late to fertilize trees, shrubs, and perennial flowers also. You may fertilize trees and shrubs much later this fall, after they're dormant and have dropped their leaves. Essentially, you'd be putting down the fertilizer so it's right there and available the moment the ground warms and thaws next spring. Obviously, you could also wait till next spring to do it.

You certainly may fertilize annual flowers now if they're looking a little pale, since you needn't worry about overwintering them. And they'll probably bloom better from now till frost.

BRONZE BIRCH BORER—People may see dieback on their birch at this time of year. This is due to bronze birch borers. They attack unhealthy and stressed birch, causing branches to die from the tips back. This can be distinguished from birch leafminer damage which is scattered throughout the tree and usually has some green left on the leaves. Small limbs can be pruned safely now as the adult borers are no longer active. Cut the limb two feet beyond the end of the dieback to ensure the borer is removed. Large limbs and trunks that are infested indicate the tree is dying. Pruning them out will not save the tree. See AG-FS-1417, *The Bronze Birch Borer.*

ARMILLARIA ROOT ROT and TWO-LINED CHESTNUT BORER are the "last straw" for many oak trees in Minnesota. Many trees, including oak, are still fighting off the effects of several years of drought. Symptoms may resemble oak wilt. Minnesota Extension Service offices have a Dial U Brief on Armillaria Root Rot and NR-MI-3174-S, *Oak Wilt in Minnesota.*

PLANTING TIME—This is the best time of year to plant grass from seed. Longer, cooler nights coupled with heavy dew and more frequent rain make the job of keeping the new seedlings moist much easier. You also avoid the competition of weed seeds sprouting. Most are programmed to sprout in spring and summer.

You can also plant shade trees, evergreens, shrubbery and many perennials this time of year. Just be sure to mulch them well, going into winter.

LATE SEASON TREE AND SHRUB INSECTS—We continue to receive a wide assortment of calls and samples of insect attacking woody ornamentals. In addition to those reported in the last *PPN*, walnut caterpillars, yellownecked caterpillars, oak slug sawflies, elm leaf beetle larvae, and aphids, particularly on apples, are being reported. Control is not important at this late stage of summer; in many cases defoliating insects are near the end of their feeding.

PLANT ID; WILD CUCUMBER—We've seen samples and heard from a number of people who have spotted a rank-growing vine with tiny whitish flowers at the side of the road. It often scrambles up cornstalks or the outside of fences, small trees and shrubs, reaching 15 to 25 ft. in length. Eventually it has cucumber-like fruit, covered with sharp spines. This vine is an annual that self-seeds and does particularly well in low-lying, moist areas, which probably explains why we're seeing so much of it this year.

WINGED ANTS—We received several samples of winged ants in mid August. One sample was cornfield ants and several others were field ants (*Formica spp.*). Both cornfield ants and field ants nest in the soil and do not harm buildings. Virtually all ants have winged forms, but they swarm at different times of the year. People may be concerned about carpenter ants but they normally swarm in late winter or spring. Swarming usually indicates the mating flight of new queens and males. Close examination of the veins in the wings is necessary to identify winged queens.

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