



Pest e-alerts



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Wheat Disease Update

Bob Hunger, Extension Wheat Pathologist



Although still no confirmed reports of foliar disease in Oklahoma wheat, the recent moisture will facilitate foliar disease development as temperature raises as we enter March. Symptoms of wheat soilborne mosaic/wheat spindle streak mosaic are evident in that disease nursery here at Stillwater, and with the wet/cold weather of this and last week should become more prominent as we get into March.

Below are reports from several other states that I have received recently in which you may have an interest. I would call your attention to the sentences in the report from Dr. Harrison (Louisiana) that I have underlined as these describe the appearance of stripe rust on seedling wheat, which typically does not produce the characteristic striping associated with stripe rust on adult plants.

Texas Dr. Amir Ibrahim (Prof, Small Grains Breeding and Genetics, Texas A&M University) 23-24 Feb-2013: The following are leaf and stripe rusts conditions at Uvalde, Castroville, and College Station in South Texas:



Uvalde (2/23/2013): The wheat crop is at Feekes 4-5. Leaf rust continues to develop uniformly at this location and is severe on susceptible cultivars such as 'TAM 110'. Strip rust continues to develop but might be slowed by increasing temperatures at this location. It seems we have the same race that was virulent on 'Everest' and 'TAM 111' last year. I could not detect stripe rust on lines that have Yr17. I noticed the severest reaction on 'Garrison' as expected based on last year's reaction. 'TAM 111' and 'Armour' were rated 10S each, and Everest was rated 5S.

Castroville (2/23/2013): The rust evaluation nursery looks very pretty and lush. Leaf rust continues to develop uniformly at this location. Powdery mildew is heavy in the lower and

middle canopy of susceptible lines and heavy in the upper canopy of highly susceptible lines such as 'TAM W-101'. I could not detect stripe rust at this location.

College Station (2/24/2013): The crop is at the Feekes 4-5 stage at this location except for earlier planted increase strips which range from jointing to heading. Stripe rust was rated as 60S and 20S on early planted (10-10-2012) increase strips of two of our lines. It is still early for leaf rust to establish at this location. Crown rust is breaking on susceptible oat 'Nora'.

We have not seen indications pointing to leaf or stripe rust race changes in South Texas. We will keep monitoring wheat and oat rusts here in South Texas and we will keep you updated.



Leaves of young wheat showing sporulation of leaf rust (left – photo credit Dr. Amir Ibrahim, Texas A&M University) and stripe rust (right).



Louisiana Dr. Stephen Harrison (Professor/Wheat Breeder, LSU AgCenter) 21-Feb-2013: Stripe rust has been found in several fields in Louisiana in the past week. I suspect it has been there for a while but it has been so wet that we have not been in fields as much as normal. The two varieties that have been positively identified as having stripe rust are highly susceptible. Boyd Padgett identified stripe rust in a fungicide trial of Progeny 117. I received a call and photos this morning of stripe rust in the variety, Arcadia. Boyd also found stripe rust on several other varieties in the wheat performance trials at the Dean Lee Research Station.

Keep in mind that seedling stripe rust does not typically form the diagnostic stripes. It does tend to form in thumb-nail sized clumps or clusters on the leaves and has a yellowish-orange color (hence the global name, yellow rust). I encourage you to scout your wheat for stripe rust and be aggressive in applying a fungicide for control where the disease is found on a susceptible variety. [See above photos for a comparison of leaf rust and stripe rust on seedling wheat].

Mississippi Dr. Tom Allen (Assoc Professor/MS Delta Extension Plant Pathologist) 21-Feb-2013: Stripe rust was confirmed in two fields from the Greenwood, MS area this morning. Wheat in one of the fields ranged from Feekes 6-7 and the variety was Armor Ricochet. The second wheat field was Feekes 7 and Coker 9553.



Plant Disease Corner – February

Jen Olson, Plant Disease Diagnostician

It may be cold, but home gardeners are starting to venture out into their landscape. We have received several tree samples over the past few weeks and you may find similar problems on plants in your area. Please review the information below and let me know if you have any questions (jen.olson@okstate.edu). I look forward to receiving your samples!

Southwest Injury or Sunscald

We have received several samples of young trees that have been damaged by a disorder known as southwest injury or sunscald. This problem is most often on the south and west sides of the plant, hence the common name for the disorder. Newly planted or thin-barked trees are most

likely to develop southwest injury, and the damage remains visible for many years. Older trees have thicker, more resistant bark which is less likely to be damaged by sunscald.

Southwest injury occurs when the warm winter sun greatly increases the temperature inside the bark of the tree. The heat is greatest on the south and west side of the tree while the north side of the tree remains very cold. These warmed cells will become active earlier than cells in other parts of the tree. When the freezing night temperatures cause the cells to cool rapidly, they can be damaged or ruptured. This results in a killed area of bark up and down the southwest side of the tree. The trunk is more commonly affected than branches since there is no shading from leaves or twigs. Home gardeners will usually notice the problem when bark cracking and sloughing off of surface bark becomes severe (Fig 1 and 2).



Fig 1. Young pecan with southwest injury, photo courtesy Chris Harris (Haskell Co. OCES).



Fig 2. Young apple tree with bark cracking due to southwest injury, photo courtesy Kourtney Coats (Logan Co. OCES).

Young or thin-barked trees are most likely to develop southwest injury. Trees that are most commonly affected are shown in Table 1. However, young trees in general have thinner bark and most any species can develop sunscald injury under certain conditions. Growers can protect trees from the winter sun by placing a tree wrap on young trees. Plastic wraps may protect more than paper wraps, but any tree wrap is preferable to no protection. Some growers will paint the lower trunks of trees with white latex paint to prevent southwest injury, but this may be aesthetically unpleasing in the landscape. Latex paint can be diluted 1:1 with water prior to application.

Tree wraps can be purchased at garden centers or some home gardeners will wrap the trunk in strips of burlap. The wrap should be somewhat loose so that it does not damage the tree or remain wet for long periods. The normal time frame for tree wraps in Oklahoma is from October through March. The wraps should be removed by the first of April. Tree wraps are generally used to protect the tree during at least the first two growing seasons, but can be used longer for thin-barked trees.

Table 1. Partial list of trees that are commonly affected by southwest injury in Oklahoma.

Genus	Common names
<i>Acer</i>	Maple
<i>Cercis</i>	Redbud
<i>Fraxinus</i>	Ash
<i>Gleditsia</i>	Honeylocust
<i>Malus</i>	Apple and Crabapple
<i>Quercus</i>	Oak
<i>Populus</i>	Poplar and Cottonwood
<i>Prunus</i>	Cherry and Peach
<i>Salix</i>	Willow
<i>Tilia</i>	Linden or Basswood

Trees that have been under drought stress are more susceptible to southwest injury than trees that have been adequately watered. Young trees should be well-watered in the fall, before the ground freezes. Trees should be watered deeply (12-18 inches) and a layer of mulch around the base of the tree may be helpful.

Trees that were damaged by southwest injury at a young age may be killed. However, many trees recover and will grow normally. The damaged area should not be treated or covered with any substances. The injury site may be more prone to insect attack and may serve as an entry point for pathogens. If the tree is young, it may be better to replace the tree earlier rather than wait to see if the damage leads to problems in the future.

Biscogniauxia (Hypoxylon) Canker

We continue to receive samples from hardwood trees with signs of Biscogniauxia (Hypoxylon) canker (Fig 3). Last year, Fact Sheet EPP-7620 Biscogniauxia (Hypoxylon) Canker and Dieback of Trees underwent a major revision. This week, it was revised again to add new information and to clarify control guidelines.



Fig 3. Fungal stroma visible on log of English oak with Biscogniauxia canker and dieback.

Please note that we have observed Biscogniauxia canker on trees other than oak species. Other hosts in Oklahoma include pecan, hickory, maple, goldenraintree and sycamore. We have also observed Biscogniauxia canker on young trees (10-15 years old) although the disease is more common on mature trees.

I have received several questions regarding control recommendations for diseased trees. The *Biscogniauxia* fungus causes wood decay, so it is advised to remove diseased trees before they become hazardous. If the damage is limited to the branches, it may be possible to remove the disease by pruning and destroying infected branches. Many clients have asked about the need to destroy diseased wood. The fungus remains active on diseased wood and produces

numerous spores. When diseased wood is destroyed, it reduces the load of spores in local areas. This may reduce the likelihood that healthy trees in the area will become infected. However, the spores can be wind-blown so spores may blow in from other areas and infect trees. Research has shown that trees are often colonized by the fungus several years before the canker develops. The best recommendation to prevent *Biscogniauxia* canker is to maintain trees in a healthy and vigorous condition. Trees should be watered throughout the year (including winter) and adequate fertilization should be maintained. Growers should avoid wounding trees and remove dead and declining limbs by pruning as they appear.

If you observe *Biscogniauxia* canker and dieback on trees in your county, please send a sample of the fungal stroma to the PDIDL. We are collecting isolates of the fungus for a future project to determine if the *Bisconiauxia* spp. we find on oak are the same species that we identify on other hardwoods. We do not need a large sample, but only a small piece of the stroma which can be sent in a sealed plastic bag (Fig 4).



Fig 4. Sealed plastic bag containing sections of a stroma from an English oak with *Biscogniauxia* canker.

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