



Pest e-alerts



Entomology and Plant Pathology, Oklahoma State University
127 Noble Research Center, Stillwater, OK74078
405.744.5527

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Brown Wheat Mite Showing Up in Winter Wheat

Tom Royer, Extension Entomologist

Our Plant Disease and Insect Diagnostic Lab received several samples of wheat that were damaged by brown wheat mites. Producers need to remain alert so that they don't mistake damaged wheat from brown wheat mite for drought or virus disease.

Brown wheat mite is small (about the size of this period.) with a metallic brown to black body and 4 pair of yellowish legs. The forelegs are distinctly longer than the other three pair. Brown wheat mites can complete a cycle in as little as 10-14 days. Brown wheat mite causes problems in wheat that is stressed from lack of moisture. They feed by piercing plant cells in the leaf, which results in "stippling" (see below right). As injury continues the plants become yellow, then dry out and die. They are very susceptible to hard, driving rains which many areas have now experienced, but until then they can cause yield loss when present in large numbers.





We typically experience 3 generations per year. However, in this sample, the mites had already caused considerable damage and had laid significant numbers of diapausing white eggs that tell us they have completed their last generation of the growing season and these eggs will overwinter.

Research suggests that a treatment threshold of 25-50 brown wheat mites per leaf in wheat that is 6-9 inches tall is economically warranted. An alternative estimation is "several hundred" per foot of row.

If you find active brown wheat mites in your field, check CR-7194, Management of Insect and Mite Pests in Small Grains for registered insecticides, application rates, and grazing/harvest waiting periods. It can be obtained from any County Extension Office, or from OSU: <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2601/CR-7194web2008.pdf>

Cold temperature injury or fire blight disease?

Jen Olson, Plant Disease Diagnostician

In cold springs, it can be difficult to determine if injury to trees and shrubs is caused by cold temperature injury (frost and freeze) or fire blight disease (Fig 1). Early detection is important if growers want to prevent the bacterial pathogen (*Erwinia amylovora*) from invading wood, resulting in cankers and branch dieback.



Fig 1. Is the black discoloration on this pear leaf caused by cold temperatures or fire blight?. Image courtesy John Haase, Rogers Co. OCES.

As you examine shrubs and trees this spring, consider the following.

1. Determine if the plant is a host for fire blight disease.

Most plants in the Rosaceae family are susceptible to fire blight, but some hosts are more commonly affected than others (Table 1). Plants in other families are not susceptible to fire blight.

Table 1. Short list of plants that are hosts for fire blight*.

More common hosts	Less common hosts
Apple	Almond
Crab apple	Apricot
Cotoneaster	Blackberry
Hawthorn	Cherry
Mountain ash	Chokecherry
Pear	Loquat
Photinia	Plum
Pyracantha	Raspberry
Quince	Rose
Spirea	Strawberry

*Other plants in the Roseacea family may also be hosts

2. Examine other plants in the area for discoloration.

Damage caused by frost or freezing temperatures is not selective. Other plants in the area may also show symptoms of cold temperature injury (Fig 2).



Fig 2. These ash shoots exhibit discoloration and a shepherd's crook. These symptoms are due to cold temperature injury. Ash is not a host for fire blight disease.

3. Determine if the discoloration is associated with flowers or fruits.

Most often, the fire blight bacteria enter the plant through the flowers. In most cases, remnants of flowers or fruits are attached to the brown-black shoots (Fig 3). If no flowers or fruits are present, fire blight disease is unlikely.



Fig 3. Fire blight bacteria most commonly enter through flowers. Therefore, discolored flowers or fruit are usually present on the damaged shoots.

4. Internally examine the affected shoots.

Cold temperature injury is usually restricted to the leaves. If branch or stem tissue is discolored internally, it suggests fire blight may be the cause. Under the bark, red to brown discoloration may be present in the damaged wood (Fig 4).

5. When in doubt, have it checked out.

The PDIDL can test for the fire blight bacterium using a quick test. Results are generally available one day after receipt.

In the meantime, remember that the fire blight bacterium is easily spread. As a precaution, clean tools with a disinfectant between cuts when taking samples or removing damaged shoots. If the problem is due to fire blight, management begins by removing affected shoots at least 12 inches (preferably 18-24 inches) below the discolored area. Bacteria replicate rapidly and the bacteria may have invaded a long distance into visibly healthy wood. The wood does not

become discolored immediately. The discoloration occurs when the tissue has been killed by the bacteria, and this may take a few weeks or longer.



Fig 4. Both shoots have had the thin layer of bark removed to expose the internal sapwood. A normal shoot is shown on the left, including a normal, young pear fruit. On the right, a shoot with internal discoloration is displayed. This discoloration is characteristic of fire blight disease.

Throughout the season, continue to monitor for discoloration on the surface of branches. If new discoloration is present, this suggests that the disease was not effectively pruned out. Make additional cuts using excellent sanitation. Next season, susceptible plants should be treated with a bactericide pre-bloom and during bloom. Bactericides containing copper hydroxide and streptomycin sulfate are commonly used.

Dr. Richard Grantham - Director, Plant Disease and Insect Diagnostic Laboratory

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