



Wheat Disease Update Bob Hunger, Extension Wheat Pathologist

During the past week or so I have become aware of the occurrence of several wheat diseases, including **wheat leaf rust**, **powdery mildew**, and **tan spot**. I have observed all of these in research plots located near Perkins & Stillwater, OK.

The **leaf rust** (Fig. 1) was on the variety Jagger, and represented a level that would be quite severe (in the 60-80 range). Remember that fall infection of leaf rust on susceptible varieties such as Jagger is quite common, but is not known to cause any major problems to the wheat. Often the infected leaves are removed by grazing, or the leaves die as freezing temperatures become more common. However, if favorable weather conditions through the winter allow the rust to overwinter, then these loci (=hotspots) of rust inoculum serve to “kick-start” the rust infections in the spring. Hence, I wouldn’t recommend trying to control the leaf rust in the fall, but I would watch the field more closely the next spring to see if the rust overwintered. This is especially true with a highly susceptible variety such as Jagger.



Fig 1. Wheat leaf rust.

The **powdery mildew** (Fig. 2) also was observed on the variety Jagger, which is highly susceptible to this disease. Basically, the things said about leaf rust in the previous paragraph also apply to fall infections of powdery mildew. This disease usually does not cause problems in wheat unless the mildew is severe on the flag leaf and head in the spring. In some fields of Jagger this did occur last spring, and some yield losses occurred. Again, watch the fields in the spring as heading occurs to decide if control measures are needed.

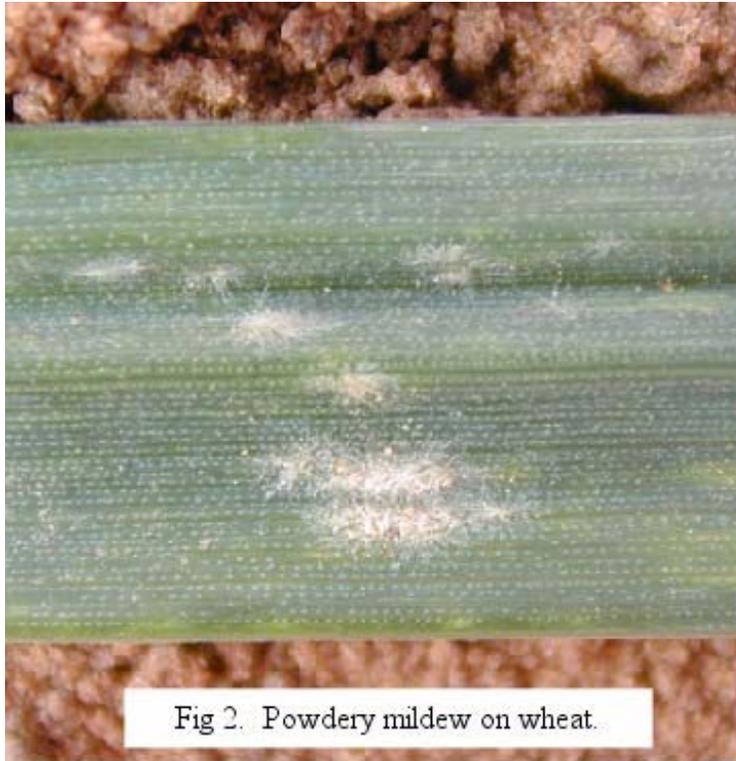


Fig 2. Powdery mildew on wheat.

The **tan spot** observed was on Jagalene planted in a no-till situation. Tan spot over-summers on wheat residue, so this is a disease that frequently will become more severe in no- or minimum-tillage situations. In this particular research plot, the black and swollen fruiting structures (Fig. 3 - called pseudothecia) of the fungus that causes tan spot could be easily found on the straw residue. Spores ejected from these fruiting structures have infected the lower leaves causing the typical tan spot lesion (Fig. 4) on many of the leaves. As with the other two diseases, no control recommendations for tan spot are made in the fall. However, these fall infections indicate the importance to watch for the incidence and progression of this

disease in the spring because tan spot can cause more severe losses than leaf rust or powdery mildew. Septoria leaf blotch and Stagonospora glume blotch also over-summer (and over-winter) on straw residue, so occurrence of these diseases also should be monitored closely in the spring.



Fig 3. Pseudothecia (spore producing structures) of the fungus that causes tan spot of wheat. Spores formed in the black structures are ejected onto seedling wheat leaves.



Fig 4. Typical foliar lesions of tan spot. Note the heavy layer of residue on the soil surface which served as the source of the spores causing these lesions.

Other than these observations, I received one report of wheat dying in southwestern OK from Gary Strickland (Jackson County). It was difficult to be certain of the exact cause (or causes), but possibly one of the root rots along with a combination of heat and drought stress probably contributed to the dead and dying spots in the field. I haven't heard of any other reported problems in wheat from the surrounding states.

One additional personnel note is a welcome to Dr. Jim Stack, who joined the faculty at Kansas State University with responsibility for small grains extension. I first met Jim back when I was in graduate school, and I know he will be excellent in providing the expertise needed in this area.

Bed Bugs on the Rise?

Richard Grantham, Dir, PDIDL



A recent newspaper article in the Nov. 6th edition of the *Oklahoman* may cause an increase in the number of calls concerning bedbugs. The article indicates pest control operators around the state are receiving increased calls on bed bugs this year. Although the lab has not received any samples, I thought some additional information may help you in the county offices.

Cimex lectularius, the common bed bug, is a bloodsucking parasite of man. They tend not to live on humans and their only contact is for the blood meal. Most blood feeding occurs at night, and they generally seek shelter during the day and become inactive while digesting the blood meal. Cimex feeds by piercing the host with its mouthparts (hollow tubes). Saliva injected at the time of feeding is

associated with local and sometimes widespread hives. There are five juvenile stages known as nymphs, which are miniature versions of the adults in appearance. Each nymphal stage requires at least one blood meal to molt to the next stage and it takes 5-10 minutes for complete engorgement to occur. The entire nymphal development takes 6-8 weeks, while the adult bed bugs can live on average for 6-12 months. There may be several generations per year. All nymphal stages and adults of both sexes require blood for nutrition and development. After mating, each female lays 2-3 eggs a day throughout her lifespan. The cream colored eggs (1mm in length) are cemented on rough surfaces of hiding places, and will hatch around 10 days at room temperature. The bugs apparently locate the host by detecting warmth and carbon dioxide. The bite itself is said to be painless, however the deposition of saliva on the abraded epidermis results in localized wheals or hives. Reactions to the bites may be delayed up to 9 days before lesions appear. Common areas of the body that are affected involve the arms and shoulders.

Bed bugs shelter in a variety of dark locations, mostly close to where people sleep. These include under mattresses, floorboards, carpets, behind paintings, skirting, in various cracks and crevices of walls, within bed frames and other furniture, and behind loose wallpaper. Bed bugs tend to stay in close contact with each other and heavy infestations are accompanied by a distinctive sweet sickly smell. Blood spotting on mattresses and nearby furnishings is often a tell tale sign of an infestation.

Bed bugs have not been linked to the transmission of any disease. It has been suggested that they might play a role in the spread of hepatitis B, however, experimental evidence does not support this. The transmission of hepatitis is theoretically possible by contamination from crushing the bug, contamination from infected feces, or from regurgitation during the bite.

These pests have become less important over the last 50 years with general improvements in household and personal cleanliness, and with the use of effective insecticides. Resistance to insecticides has been seen and varies by region. Control is achieved by thoroughly cleaning bed cloths, mattresses, and pillows. Insecticide is then used to treat the bed frame, springs, slats, and nearby crevices around doors, windows, and baseboards. Please consult E-832 Extension Agents Handbook (pg 364) for a list of current chemical treatments.

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