

PLANT DISEASE AND INSECT ADVISORY



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Early Season Disease Management for Wine Grapes Sharon von Broembsen, Extension Plant Pathologist



Dormant Season: All mummies, prunings and other debris should be removed from vineyards during the dormant season, as these can serve as an important overwintering source of inoculum for several diseases. An application of lime sulfur solution can be made prior to bud break to suppress early season diseases from developing from overwintering inoculum. In vineyards where black rot has been a problem, mummy removal and early preventative fungicide spray programs are essential.

New Shoot Growth Stage: Depending on weather conditions and history of diseases in a vineyard, fungicides may need to be applied as new shoots develop. If black rot was not a serious problem in the previous season, these applications may not be necessary. If *Phomopsis* cane/ leaf spot was a problem during the previous season, a fungicide should be applied at the one-five inch stage. The protectant fungicide, mancozeb, is highly effective against black rot, downy mildew and *Phomopsis* cane/ leaf spot, all of which get started early in the season. This fungicide is a good choice for early season applications during new shoot growth because of both its broad-spectrum effectiveness and its lower cost.

Bloom Stage: Beginning at the initiation of bloom, the picture becomes more complex. Strategies will vary depending on the susceptibility of cultivars being grown to several important diseases. The systemic sterol inhibiting fungicides, Nova and Elite, give excellent control of black rot. They are more expensive than older fungicides like mancozeb, so you will probably want to wait to use them to protect the fruit crop starting at bloom. They are not effective against downy mildew. If powdery mildew is also likely to be a problem, one of the newer strobilurin fungicides (Abound, Flint, and Sovran) may be the best choice. These are nearly as effective against black rot as Nova and Elite and give control of powdery mildew. Rubigan is also highly effective against powdery mildew, but does not give control of black rot. No matter which fungicide is used, the two most critical applications of the season are at the initiation of bloom (immediately pre-bloom or very early bloom) and at the first post-bloom stage 10-14 days after that. If disease pressure is high and environmental conditions are favorable for disease, an

additional cover spray (second post-bloom) 10-14 days later may also be necessary for susceptible cultivars. Whenever possible, bloom and cover sprays should be combined with insecticide applications to save on application costs.

Wheat Disease Update

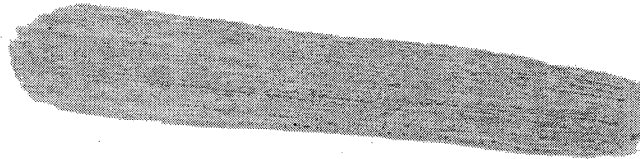
Bob Hunger, Extension Wheat Pathologist

Thursday, March 28th I scouted wheat fields & variety demonstrations located on the route from Stillwater, to Chickasha, Frederick, Altus, Olustee, Mangum, Granite, Woodward, Kingfisher and Hennessey. From Stillwater south to Chickasha and Frederick and over to Altus, wheat fields varied from looking good to poor. As I drove from Frederick to Altus the incidence of poor stands and/or abandoned fields became greater. Such fields became even more frequent as I drove from Altus to Mangum to Granite and then to Woodward. The wheat again became better (i.e., thicker stands and more growth) as I drove east from Woodward to Kingfisher and then north to Hennessey.

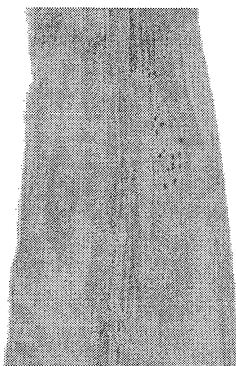
The maturity/growth stage of wheat on this route varied greatly from field to field. Some wheat was barely ankle-high, while in one field I was able to find the second node right at the soil surface. However, most of the wheat in fields with fair to good stands was in the "first node detectable" stage, unless it obviously had been planted late last fall.

Foliar Diseases: The only rust I found was 4 or 5 pustules of **wheat leaf rust** on the lowest leaves of Jagger in the variety-demonstration plot located near Frederick.

The other report of leaf rust I have received from Oklahoma was from Phil Pratt, who found several pustules of leaf rust (along with powdery mildew) on the lower leaves of Jagger on 15 March in plots located near Haskell. Thus, significant infections by either leaf or stripe rust do not appear to be conspicuous in Oklahoma. This, however, is not the case in Texas, where Dr. Art Klatt indicated to me that he received a report of **severe leaf rust and also stripe rust in fields near Uvalde, TX** (about 90 miles west of San Antonio). There also is a report from Dr. Gene Milus of **stripe rust in east-central Arkansas** (no leaf rust however), so it appears that there is inoculum of both rusts in adjacent states that can be blown into Oklahoma to initiate epidemics given the right conditions.



Other Foliar Diseases: The only other foliar disease that I saw on 28 March was **septoria** in a planting on the Altus station; however, I would suspect that septoria is present in other parts of Oklahoma but at low levels. The lack of powdery mildew indicates the relatively dry conditions that have occurred statewide.



Virus Diseases: I have seen strong symptoms of **wheat soilborne mosaic virus (WSBMV)** and **wheat spindle streak mosaic virus (WSSMV)** in our WSBMV/WSSMV nursery just west of Stillwater. However, symptoms are not as strong as in most years, and we have not received a single sample in the Diagnostic Lab related to WSBMV or WSSMV.

Hence, it would seem that these viruses are having a minimal impact in Oklahoma this spring. In contrast, Dr. Gene Milus has indicated that both viruses have been reported quite readily in Arkansas.

I didn't see any aphids or strong symptoms of **barley yellow dwarf virus (BYDV)** in any fields or nurseries that I visited, which seems somewhat unusual given the reports of aphids last fall and through early winter. Perhaps the wheat has not yet grown sufficiently to see the BYDV symptoms, or perhaps the aphid outbreaks last fall were more in northern and northwestern OK than in southern, southwestern, and central OK where I was touring.

Summary: Small amounts of leaf rust are scattered across Oklahoma, but to date, no stripe rust has been observed. Other foliar diseases are sparse. WSBMV and WSSMV are present, but will not cause strong symptoms this year. The extent and severity of BYDV is not yet obvious, but because of aphid infestations last fall, this virus disease may still become a problem.

Stored Grain Pest Management

Gerrit Cuperus

Sanitation is the key to successful grain storage

Sweep up and remove all debris from the bin. Remove and destroy any grain from beneath, around or near the bin area that may harbor or provide a food supply for stored grain pests. A shop vacuum, broom and scoop are very useful in a cleanup job, and all collected material should be discarded properly.

Chloropicrin may be used as a "clean-out" fumigant for empty bins and applied to the boots of elevators, beneath false floors, etc. to kill any remaining insects. This fumigant is significantly heavier than air, which makes it ideal for fumigating subfloor aeration ducts or the space under aeration floors. Only the lower openings on the bin need to be sealed. Application rate is 1 qt for small bins (5,000-25,000 bu); 2qt for 30,000-100,000 bu bins; and 3 qt for bins over 100,000 bu in capacity.

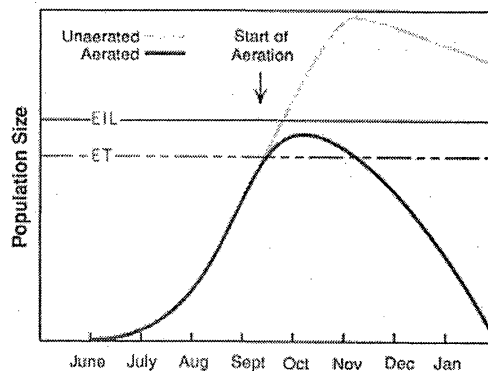
Distribution of insects

Most stored grain insects are very good fliers and migrate to bins and food warehouses. The typical population dynamics is shown in Fig. 1. Any area that has an opening is a possible starting place for insects. Table 1 details trap catch at points of access in steel bins. The grain surface and access points are critical locations for access.

Table 1. Insects collected in sticky traps on steel bins at an elevator on grain bins

Height	Trap catch
Eaves	4.89
2/3 height	2.78
1/3 height	2.36
Ground	2.18

Fig 1. Economic threshold concept.



Residual bin sprays

Residual insecticides should be used to spray the inside and outside surfaces of storage facilities to help eliminate insects within the storage area. Residual sprays also create a barrier for insects that may migrate into a storage area or any incidental insects that were not removed during the cleanup operation. The following are available residual pesticides and rates of application.

Tempo 20WP – 9.5 grams (1 scoopful)/1000 ft²

Tempo 2EC – 8 ml/gal/1000 ft²

Methoxychlor 25% EC – 3 ¾ pt per 5 gal water. Apply liberally

Reldan 4E – ½ pt per 3 gal water. Apply 1 gal/1000 ft²

Diatomaceous earth – 1 lb/1000 ft³

These insecticides should be applied liberally to all seams, cracks, crevices, floors, ceilings, and walls of the bin to the point of runoff. Be sure to apply to “sheltered” areas, such as under false floors, aeration floor ducts, and unload conveyors. The best time to apply a residual spray is two to three weeks before new grain is binned.

To prevent insects from migrating into the bin, a residual spray can be applied in and around the fan, aeration ducts, auger, door openings, and hatch covers. We recommend keeping the bin sealed to reduce migration. The outside walls and floor foundations should be sprayed as well as a perimeter spray around the outside of the bin.

Dichlorvos strips

Dichlorvos (vaponax) is presently cleared for use in headspaces of grain storage. Dichlorvos strips eliminate Indianmeal moth adults as they attempt to reproduce, therefore breaking the life cycle. It is recommended that 1 strip/1000 ft³ be used. For small bins (<25,000), 2-3 strips should be used. Large bins will require more strips. If IMM has been a problem, strips should be used in the summer and the next spring.

Summary of how to protect stored grain

1. Clean bin by sweeping and/or use of a shop vacuum.
2. If Indianmeal moths are a problem, place a treatment of Reldan, Actellic, or *Bacillus thuringiensis* (Dipel, Top-Side, etc) on the surface of the grain or treat the last four inches of grain moving into the bin. Dipel is available as a wettable powder formulation, which is mixed with the grain. An option for control of Indianmeal moth adults is to place Dichlorvos resin strips above the grain mass in the bin when moths are active.
3. Inspect grain on a monthly basis using either a grain trier or insect traps.
4. Aerate to cool grain as soon as possible. This is important in the fall as outside temperatures drop. Fall is a critical time when many insect populations can be detected and controlled.
5. If the grain is to be stored for an extended period of time or the structure is high risk, a protectant should be considered. **A note of caution, OSU does not recommend malathion.**

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