Plant Disease and Insect Advisory

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Armyworms in Wheat

Tom A. Royer, Extension Entomologist

Armyworm infestations should become visible in wheat over the next few weeks. Dean Kindler, Research Entomologist with the Plant Science and Water Conservation Laboratory in Stillwater reported seeing a field with 2nd instar armyworms.

This caterpillar measures 1¼ inches when mature, and has a dark brown to grayish body with two pale yellow-orange bands extending down the back. Early signs of an infestation include leaves with ragged margins that have been chewed. You may find "frass" i.e. the excrement from armyworm caterpillars, around the base of wheat stems. Armyworm infestations occur more frequently around waterways, areas of lush growth, or areas with lodged plants. These areas should be checked first to determine the extent of the infestation.

Generally, if wheat is **past** the soft dough stage, control is not warranted unless obvious head clipping can be seen, and caterpillars are still present and feeding. Worms feeding on the awns when plants are past soft dough will not cause enough yield loss to justify the expense of an insecticide application.

To scout for armyworms, select several locations and search the ground and plant material for armyworms in at least five random locations. Armyworm caterpillars tend to feed at night, so a good strategy is to bring a flashlight and look at fields after dusk when they are feeding up on the plant stems. Armyworms have a number of natural enemies that help keep populations in check, if given a chance. In particular, parasitic wasps and flies attack them. Parasitized armyworms can often be recognized by the presence of small white eggs attached behind its "neck". The eggs are about the size of a period on a newspaper.

The suggested treatment threshold for armyworms is 4-5 unparasitized caterpillars per linear foot of row. If control is needed, the following products are registered. Follow all application and pre-harvest restrictions.

Product	Rate (amount of product/acre)	Grazing/Harvest Waiting Period
Fury (Mustang Max)	1.9 - 4.3 fl oz	14 days
Lannate	0.75 - 1.5 pt	14 days
Methyl parathion	1.5 pt	15 days
Sevin XLR	1 - 1.5 qt	21 days
Tracer	1.5 - 3 fl oz	21 days
Warrior	2.56 – 3.84 fl oz	30 days

2003 Grasshopper Hatch Should Occur Soon

Tom A. Royer, Extension Entomologist

Over the last few years, Oklahoma ranchers have experienced economic numbers of grasshoppers in counties bordering the Red River, and grasshopper numbers seem to be increasing throughout western Oklahoma during this past year. Grasshoppers should begin hatching any time now, so ranchers and producers should be looking for "hot spots" of young grasshoppers hatching within the next few weeks.

It is nearly impossible to predict whether grasshoppers will become enough of a problem to justify the expense of a spray application. Often, large numbers of nymphs will hatch, but as time, weather and natural enemies take their toll, they may not develop into a severe problem. This presents a dilemma, because the best time to control grasshoppers is when they are nymphs (which should occur from early May through late June). Full-grown, mobile adults are nearly impossible to control. If the infestations are spotted early, an insecticide application in egg hatching areas may reduce numbers to the extent that few acres will require chemical treatment later on. Egg hatching areas include fencerows, grassy terraces and roadside ditches.

I will provide some more detailed information on control options once the main hatch is underway. I do want to alert all hay producers that Dimilin 2L has been registered for use in improved pasture as of this past fall. Dimilin is very effective on grasshoppers when applied at the proper time. The label states that up to 2 fl. oz of product can be applied, either as one application, or two. If two applications are used, the sprays should be spread about 2-3 weeks apart. If one application is applied, hay should not be harvested for at least 1 day after application. I suggest that the wait should be longer (at least 3 days) to make sure the resident population has had a chance to ingest the product. RAAT applications (Reduced Area and Agent Treatments) which allows for Dimilin to be applied as a strip spray should be used only in native rangeland situations. Improved pasture has denser, more rapidly growing vegetation, and requires thorough coverage for Dimilin to be effective.

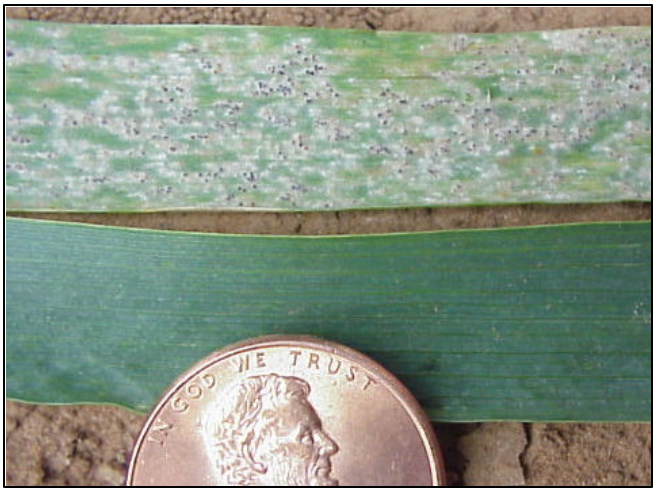
Wheat Disease Update – Oklahoma – 02 May, 2003

Bob Hunger, Extension Wheat Pathologist

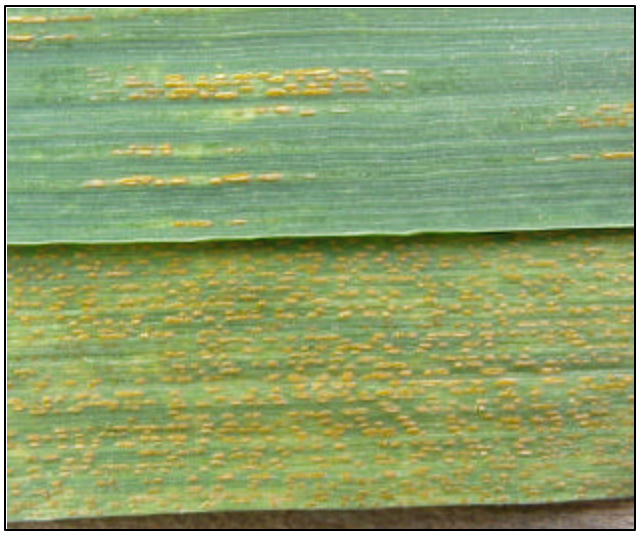
Here's the latest of what I have seen or heard regarding wheat diseases around the state. Thanks to those of you that relayed information to me.

Disease situation in Oklahoma:

Powdery mildew. Although I'm still seeing powdery mildew (PM) on leaves of susceptible varieties, I have yet to see PM lesions on flag leaves and have seen only scattered lesions on the F-1 leaves (leaves just below the flag). However, leaves below the F-1 leaf are sometimes heavily covered with PM. As the weather warms and the season progresses, "black dots" will begin to appear on leaves with heavy PM. These are cleistothecia, and are the overwintering/oversummering dormant bodies of the fungus that causes PM. Phil Pratt (Area Extension Specialist in Eastern OK) reported that PM was heavy or moderate on many varieties at the Eastern Experiment Station (near Haskell, OK) except for 2174, AP502CL, Above, Ok102, and 2137, which all had light or no PM.



Leaf rust. Wheat leaf rust continues to be light across Oklahoma. In **southwestern OK**, Dr. Brett Carver reported he saw no leaf rust in his breeder nursery near Altus, OK, which is expected because of the dry weather. In more **central OK**, Dr. Carver saw light or no leaf rust in trials near Kingfisher & Apache. **Around Stillwater** I've seen scattered pustules of leaf rust on flag leaves of susceptible varieties, but still not at a level that would be considered significant. Scattered leaf rust pustules also were seen by Phil and Ken Jackson **in eastern OK** at the variety-demo near Haskell, where the wheat was reported to be generally at the flowering stage. Finally, Brian Olson (Plant Disease Diagnostician at OSU) reported seeing only scattered leaf rust pustules (if any) across **central to northwestern OK** on a trip he took from Stillwater to Ponca City to Medford to Alva to north of Freedom and then back through Mooreland, Seiling, Canton, Okeene, Hennessey and back to Stillwater. In the fields visited on this trip across **central to northern OK,** the wheat was generally fully flowering; however, some was just fully headed and not yet flowering.



Stripe rust. There definitely are "hot spots" of stripe rust especially **in central to north central OK**. A couple of these are just west of Stillwater, where in the old varieties of 'Loros' and 'Danne' many leaves were totally covered with stripe rust pustules. On

these varieties, even flag leaves were heavily covered with sporulating "stripes." Dr. Carver reported moderate to fairly heavy stripe rust in the variety-demos at Kingfisher and Apache, and Brian found a field about two miles east of Hennessey that was heavily rusted with stripe rust. Hence, although I don't think the severity of stripe rust will be what it was 3 years ago, without doubt there will be some losses due to stripe rust again this year in Oklahoma.

Barley yellow dwarf virus (BYDV). BYDV symptoms continue to be observed over most of the state. In general, these symptoms seem to be occurring in "spots" in the field rather than over entire fields or large areas of fields. Brian reported that his impression was that symptoms and severity of BYDV seemed to get worse as he traveled to the north and west from Stillwater (he didn't get to the panhandle); however, he also felt that although BYDV was showing-up in most fields, it was occurring mostly in spots rather than over entire fields.

Other diseases. Brian brought back one sample of wheat from **a field close to Drummond** that appears to have symptoms of **either wheat streak mosaic virus or wheat soilborne mosaic virus**. He will run tests to see which virus is present.

Also, Dr. Gene Krenzer reported seeing multiple **sharp-eyespot lesions** on wheat planted in plots in the grazing research-demo area near Marshall. Lesions were on lower stems of wheat planted both early and late, but seemed to be more numerous on the early planted wheat. The wheat, however, looked quite good at this point. Whether root rots will be a significant problem in Oklahoma wheat this year or not remains to be seen, and probably depends mostly on the type of weather we have through May. However, there have been enough observations of especially sharp eyespot (Rhizoctonia root rot) to suggest that if hot and dry conditions persist during the filling period, there likely will be some losses from root rots.

Reports from other states: I haven't heard anything new from other states.

Suggestions for Control of Grasshoppers in the Lawn and Garden

Tom A. Royer, Extension Entomologist

Grasshoppers were a hot topic for Oklahoma ranchers and homeowners last year. One question that I frequently get asked is, "What will grasshopper populations be like this year?" My best answer is "if I could predict the weather accurately, I might have a 50/50 chance of predicting grasshopper numbers." Temperature and rainfall are primary factors for determining grasshopper survival, but the presence of diseases and natural enemies, and the number of eggs laid by the previous year's population also affect final grasshopper numbers.

Joe Bullard, Extension Educator Agriculture in LeFlore County reported that grasshoppers have begun hatching this past week. These grasshoppers came from eggs that were deposited in the soil and started to develop last fall. During the coldest part of the winter, they "go to sleep" and resume developing in the spring. Peak egg-hatch usually occurs from late May to mid-June, and

different species will hatch at different times during the spring and early summer. Newly hatched grasshopper nymphs are very small, measuring less than ¼ inches long, and may go unnoticed by the homeowner. After hatching, a grasshopper nymph will have to molt (shed its outer skin) six times in order to reach adulthood which will occur by early July.

While the preceding information is informative, most people I talk to want to know what they can do about their grasshopper problem. Unfortunately we, as homeowners often have very limited control over our surroundings (with the exception of our own yard); therefore our options for management are also limited. Homeowners really have three options available to them: (1) use of non-preferred plants in the landscape; (2) use of geotextile fabrics for physical protection of plants; and (3) use of residual insecticides.

Pest grasshoppers commonly encountered by homeowners feed on a variety of plants, but seem to favor certain plants over others. Dr. Mike Merchant, Extension Entomologist for Texas A&M University summarized some observations conducted by an extension horticulture agent and some Master Gardeners with regard to feeding preferences by hungry grasshoppers in 1998. Consider using some of the non-preferred plants in the landscape to keep some color and foliage in the landscape, even during a grasshopper onslaught.

Preferred plants (Grasshoppers love them): Althea Amaryllis, Bachelor's buttons, Bush honeysuckle, Butterfly bush, Canna lily, Cherry laurel, Day lily, Eleagnus, Hibiscus, Holly, Iris, Liriope, Mondograss, Peach, Photinia, Privet, Rose, Salvia, and Wisteria.

Non-Preferred: American beautyberry, Artemesia, Bridal wreath spirea, Coralberry, crape myrtle, Dwarf yaupon, Dwarf burning bush, Dwarf Mexican petunia, Eldarica (Afgan) pine, Euonymus, Forsythia, Juniper, Lantana, Moss rose, Nandina, Passion vine, Perennial dianthus, Persian lilac, Rock rose, Salvia greggii, Verbena (perennial) and Vitex.

Geotextile fabrics can be used as a physical barrier to help protect prized plants. They are made of a lightweight, spun fabric (Remay and others) that allow limited air circulation and permit sunlight to penetrate, but serve as a mechanical barrier. These fabrics can be found at garden centers or through garden supply catalogues. If grasshoppers become really numerous, they may start to feed on the fabric. In that situation, it might be necessary to apply a residual insecticide to the fabric before placing it on the plant. Select the insecticide based upon which products are labeled for the plant being protected.

Several products are available for grasshopper control in the yard and garden. They may have to be reapplied every 5-7 days to obtain adequate protection from large numbers of grasshopper adults. Products containing bifenthrin (Ortho Home Defense®) cyfluthrin (Bayer® Advanced Lawn and Garden Products) or lambda-cyhalothrin (Scimitar®) will probably provide longest residual control and quickest knockdown. Others containing permethrin (Spectracide Bug Stop®), esfenvalerate (Ortho Bug-B-Gone®), or carbaryl will work, but have slightly shorter residual activity. It is crucial that the label be followed because some insecticide products can injure sensitive plants.

Homeowners should realize that grasshopper adults are very mobile, and when they occur in large numbers, will likely overwhelm a landscape late in the year. They will likely abandon any "preference" and feed on nearly anything (including painted house siding). As adults they will

be more difficult to kill with insecticides. This will lead to a high frustration level, so control programs should be initiated before they reach that stage.

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