

PLANT DISEASE AND INSECT ADVISORY



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Karnal Bunt Update

Bob Hunger, Extension Wheat Pathologist

Recently I attended a meeting held in Texas on bunts and smuts. One of the highlights of the meeting was a field tour of the USDA-APHIS Karnal bunt (KB) testing facilities at Olney, TX. Below are listed several items I learned while on this field tour regarding KB from last year and this year.

- According to APHIS, all of the grain from last year has been “handled.” Grain from last year that tested positive for KB was steam flaked and used as feed. Grain that was co-mingled (i.e., grain that tested negative for KB bunted kernels but came from the quarantined area or grain that was mixed with wheat from the quarantined area) was sold and exported to an overseas market. This was accomplished by moving the grain through a pathway normally used for sorghum. After the wheat was gone, the pathway returned to sorghum, which is a non-host of KB.
- Over 100,000 cattle have moved through the quarantined area (the four counties just south of Oklahoma) during this past wheat season. This meant that cattle were removed from fields before the wheat reached the soft dough stage or the cattle were fed a KB-free food for a minimum of five days after removal from the field.
- No KB has been found in the San Saba area in central Texas.
- To date, only four wheat-grain samples (four fields) have tested positive for bunted kernels in the four quarantined counties near Olney. This is out of 708 samples processed as of June 18th. One KB bunted kernel was found in each four-pound sample from three of the fields, and three KB bunted kernels were found in the four-pound sample from the fourth field.
- Five of 116 wheat-seed samples have tested positive for spores. Remember, spore testing is conducted if wheat is to be used as seed. If wheat is to be used as grain, then the wheat is tested for the presence of bunted kernels.

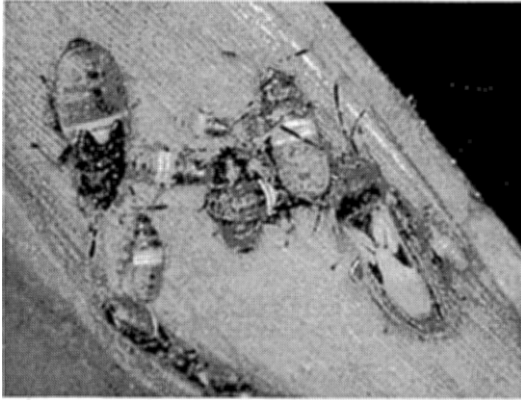
As of June 21st, no samples from Oklahoma have been processed. However, I received notice today that samples would begin to arrive from the Oklahoma Department of Agriculture early next week.

Chinch Bugs Moving into Sorghum

Tom Royer, Extension Entomologist

Chinch bugs have been noted moving out of mature wheat fields in Kay County. Adult chinch bugs typically overwinter in bunch grasses and move into wheat in spring. They remain in the wheat until it matures, and then migrate to nearby corn or sorghum fields, usually as partially

grown nymphs.



Adult chinch bugs are black with a white “X” on their back, and measure 3/16 inches. Immature nymphs are smaller and range in color from red to brown, and have a white band across their back. They typically feed on the lower leaves of the plant, or below ground if there are cracks that provide access below the soil surface. They feed by sucking plant juices through their straw-like mouthparts and appear to inject a toxic substance with their saliva. Injury symptoms on the feeding site may appear as reddish spots, and heavily infested plants appear to be wilting and drought stricken or injured by frost.

Smaller plants are more vulnerable to injury, and sorghum seems to be more susceptible than corn. As few as 2-3 chinch bugs can kill a seedling sorghum plant, but it will take 5-10 bugs per plant to kill larger plants.

There are several options for control of chinch bugs. If a producer has had consistent infestations for several years, he/she should consider treating the sorghum seed with Gaucho® or Cruiser® insecticide to reduce the risk of economic injury. A seed treatment will not provide complete control of chinch bugs, but it will “slow them down” for about three weeks and give the sorghum a head start.

For rescue management of chinch bugs, an insecticide can be applied as a border treatment or full field treatment. If the chinch bugs are moving in from a mature wheat field, consider a border treatment. The insecticide should be applied in a 30-60 foot strip along the boundary between the two crops. As the chinch bugs migrate, they will be controlled. One or possibly two applications may be needed. If the infestation occurs throughout the field, it should all be treated. With either method, ground applications using 20 to 30 gallons per acre and directed at the base of the plant provides vastly superior control compared to aerial applications. Consider banding the spray over the row. Several products are registered for control of chinch bug and are listed in the following table. Always remember to read and follow all label restrictions.

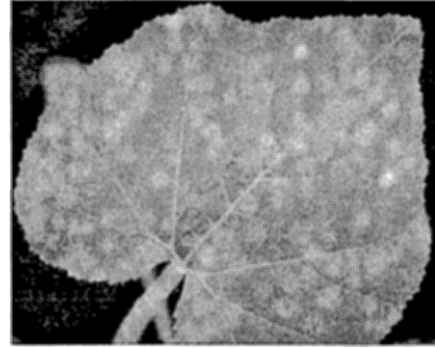
Control Suggestions for Chinch Bug in Sorghum

Product	Rate Product/A	Pre-harvest Interval
Gaucho	8 fl oz product/ cwt seed	Commercial seed treater only. 45 day waiting period for grazing.
Cruizer	5.1 fl oz product/ cwt seed	Commercial seed treater only. Do not feed treated seed.
Baythroid	1.3-2.8 fl oz	14 days to grazing or harvest
Karate	3.84 fl oz	Do NOT graze or harvest for forage. 30 day waiting period for harvest
Lorsban 4E	1-2 pt	30 days if 0.05 lb ai/A is applied; 60 days if over 0.5 lb ai/A is applied.
Parathion (ethyl)	0.75 pt	12 days for harvest or forage (aerial application only)
Sevin XLR	1-2 qt	21 days for grain, 0 days for grazing

Procure Fungicide Labeled for Powdery Mildew Control on Cucurbits

John Damicone, Extension Plant Pathologist

Procure (triflumizole) is a new triazole fungicide marketed by Crompton/Uniroyal Chemical Co. that just received registration for control of powdery mildew on cucurbits. Powdery mildew is a chronic problem on squash, pumpkin, and susceptible cantaloupe varieties; and is an increasing problem on watermelon. Triazoles are a systemic group of fungicides including Tilt, Nova, and Folicur which act similarly to inhibit sterol production in fungi. Procure at 6 oz/A has provided excellent disease control, similar to Flint and Nova, in field trials in Oklahoma and other states. The labeled rate is 4 to 8 oz/A. Because powdery mildew can rapidly (in one season) develop fungicide resistance, rotating fungicide classes is recommended. Triazoles (Nova, Procure) and strobilurins (Quadris, Flint) should be alternated with each other or with protectant fungicides (Bravo, sulfur) in spray programs for powdery mildew. On watermelon, it is important to know that triazoles do not control anthracnose or downy mildew.



Because the manufacturer has not yet completed data requirements for Procure on cucurbits, plant-back restrictions are severe. Leafy and root vegetables may be planted 30 and 60 days, respectively, following application. All other crops, except those on which Procure is registered (tree fruits, strawberries, cucurbits) cannot be planted within one year.

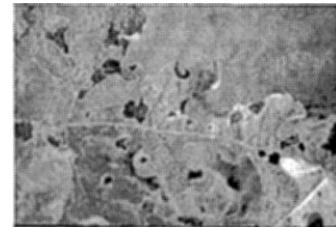
Vegetable Disease Update

John Damicone, Extension Plant Pathologist



The rains we have recently experienced have been favorable for disease development on vegetable crops. In my recent travels I have observed the widespread occurrence of bacterial spot and speck on tomato. These diseases are very similar and almost impossible to distinguish. Symptoms appear as tiny, dark brown spots on lower leaves followed by leaf yellowing and eventually leaf drop. Bacterial spot and/or speck have been identified in commercial fields near OKC and in gardens and plots in central and eastern Oklahoma. Spray programs with copper products (Kocide, etc.), preferably in combination with maneb or mancozeb, should be maintained to minimize defoliation and fruit spotting.

Watermelon anthracnose was observed in a large watermelon field in southern Oklahoma. The grower had implemented a fungicide program soon after symptoms first appeared and the disease appeared to be localized. Anthracnose is a splash dispersed disease which can eventually cause spotting of fruit. Fungicide programs are critical in fields where anthracnose appears or is a threat.



Symptoms of mosaic virus were widespread in a watermelon field in southern Oklahoma. The virus was identified as papaya ringspot virus (PRSV), formerly known as watermelon mosaic

virus 1. Symptoms were most severe along the edges of the field and included plant stunting, leaf stunting and narrowing, mild mosaic, and yellowing of plants. New growth on plants infected later was unusually upright, producing the so called "snake head" symptom. PRSV is one of three potyviruses that affect cucurbits. Potyviruses are spread by aphids that visit virus infected plants, acquire the virus on their mouthparts while probing, and transmit the virus to healthy plants within seconds while probing plants to find suitable hosts. Over 20 species of aphids are known to transmit PSRV, but the melon aphid is about the only species that colonizes cucurbits. Because the vectors are mostly transient, insecticide programs have not been beneficial for control of virus diseases. The only reported sources of PRSV are wild and cultivated cucurbits. Wild gourds were found along the borders of the field, but tested negative for the virus.

Peanut Disease Update
John Damicone, Extension Plant Pathologist

Conditions have been favorable state-wide for the development of early leaf spot of peanut. Table 1 shows the cumulative infection hours from the MESONET early leaf spot advisory program (<http://www.mesonet.ou.edu/premium/agmodels.html>) for some of the peanut growing areas. It takes about 36 infection hours for infection. Symptoms then appear about 12-days later. The spray date indicates that spanish peanuts 30-days old or runner varieties 45 days old on or before this date are candidates for a fungicide application. While it is early in the season for most growers to begin spray programs, growers with spanish varieties in fields previous cropped to peanuts may want to consider treatment. Expenses will end up being lower if the disease is controlled early in the season. A few symptomatic leaves may be evident at this time or appear shortly. These leaves probably will go unnoticed, but will serves as a source for rapid disease build-up should conditions again become favorable later in the season.

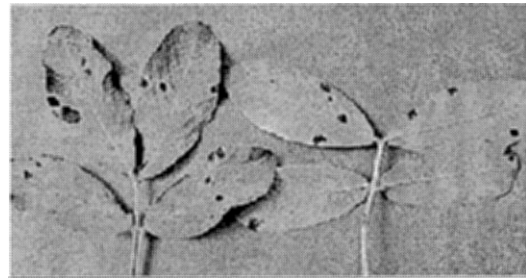


Table 1. Cumulative infection hours for early leaf spot advisory program as of 20 June 2002

<u>Location</u>	<u>Infection hrs</u>	<u>Spray date</u>
Burneyville	199.6	06/15
Hollis	117.4	06/06
Tipton	132.2	06/09
Altus	104.8	06/07
Mangum	119.8	06/07
Eric	142.6	06/08
Ft. Cobb	134.3	06/09
Hinton	218.2	06/13
Chickasha	205.2	06/14

Suggestions for Control of Grasshoppers in the Lawn and Garden

Tom A. Royer, Extension Entomologist

Grasshoppers are again a hot topic for Oklahoma ranchers and homeowners this year. It sometimes seems like these grasshopper numbers “exploded” overnight; however, such outbreaks actually have been “in the making” since 1997. Factors, such as rainfall, winter severity, presence of diseases and natural enemies and the number of eggs laid by the previous year’s grasshopper population all interact to “create” this year’s grasshopper outbreak. One question that I frequently get asked is, WHY NOW? My best conclusion is that we had a warm fall, which allowed grasshoppers to continue to lay eggs for a long time. Then, we had a very mild, dry winter that favored survival of the eggs. While we have had some heavy rains this spring, in general, the rains probably came too late to stimulate a disease outbreak. Finally there simply were not enough of the grasshopper’s natural disease organisms around to create a disease outbreak. The bottom line is that all of these factors add up to an explosion of very hungry grasshoppers!



More than 80 species of grasshoppers occur in Oklahoma, but most never become pests. Homeowners usually battle four or five species in the home garden and landscape. They include the differential grasshopper, the red-legged grasshopper, the migratory grasshopper, the two-striped grasshopper, and the Packard’s grasshopper.

The lifecycle of a grasshopper includes three stages; the egg, nymph, and adult. All but the migratory grasshopper produce one generation per year. The migratory grasshopper is unusual because it produces two generations each year, which makes it more likely to build up in numbers. Grasshopper eggs are deposited in the soil, often in clusters, during late summer and fall. The eggs begin development in the fall, then “go to sleep” during the cold part of the winter. They resume development as soil temperatures warm, and hatch from late April through July. Peak hatch usually occurs from late May to mid-June. Different species will hatch at different times during the spring and early summer. After hatch, a newborn grasshopper will have to shed its outer skin six times before reaching adulthood. This process is known as molting. Newly hatched grasshopper nymphs are very small, measuring less than ¼ inches long, and may go unnoticed by the homeowner. They continue to eat, and grow as the spring and summer progress.

The species of grasshoppers commonly encountered by homeowners typically feed on a variety of plants, but may favor some plants over others. According to Texas researchers, they tend to prefer the following plants: Butterfly bush, Holly, Russian olive, Liriope, Lavender, Hibiscus, Amaryllis, Canna lily, Chrysanthemum, Daylily, Iris, Mahonia, Mondo grass, Peach, Privet, Rose, Salvia, and Wisteria.

Adult grasshoppers are very mobile, and will likely re-infest a yard several times if suitable food is present. When numbers are high, they may abandon any “preference” and feed on nearly anything alive. As they get bigger and more mobile, they also become more difficult to kill with insecticides. This is when homeowners become frustrated, so it is crucial that control programs are initiated before they reach that stage. There are a number of products available for grasshopper control in the yard and garden. They include: Diazinon 25% EC, Orthene 9.4% EC, and Sevin 50% WP

The label MUST be followed because some insecticide products can injure sensitive plants. There are products registered for perimeter treatments around household structures, such as Bayer Advanced Home® or Ortho Home Defense® that are effective as well. Another suggestion is to purchase floating plant covers made of Remay fabric. These can be used to cover your “prized” plants when grasshopper numbers are large. They are available at some nurseries or from mail-order garden suppliers.

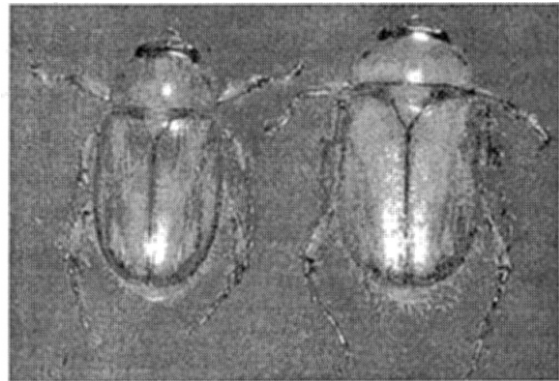
This information was compiled from *Grasshoppers in Gardens and Landscapes*-Factsheet Ent-1038, written by Mike Merchant, Urban Entomologist with the Texas Agricultural Extension Service in Dallas, and from *Grasshoppers in the Lawn and Garden*-Entomology 487, written by Robert J. Bauernfiend, Extension Specialist with Kansas State University, Manhattan.

Annual White Grub Control: Options

Tom A. Royer, Extension Entomologist

Nathan Walker, Assistant Professor, Turf IPM

Southern masked chafers, (*Cyclocephala lurida*) the adult beetles that produce annual white grubs, are busy laying eggs in turf now. We have noticed increased egg-laying activity in Stillwater this past week, which means that control options need to be considered. There are a couple of options available for the control of white grubs. The first option involves an early-season application of imidacloprid (Merit®) or halofenozide (Mach 2®), which are registered for prevention of turf damage from grubs. Both insecticides take about 3 weeks to kill grubs but last for several months. They are most effective on small, newly hatched grubs. Both insecticides are also available to homeowners. In addition, imidacloprid is available as Bayer Advanced Lawn® Season Long Grub Control, as a ready-to-spread granular, or a ready-to-spray formulation. Halofenozide, available from The Scotts Company® and acknowledged by the EPA to be a green chemistry or one which is environmentally friendly, is sold on a granular as Grub-ex or Grub-B-Gone.



It is important that these two insecticides are watered in within one week of application with at least 1/4 inch of water, unless the turf received that much rainfall. Both insecticides are quite water-soluble, and dried residue readily washes off the grass and into the root zone with rainfall. The masked chafer grubs will not hatch until early-mid July, so the insecticide must be in the soil at that time to provide maximum activity against them when they hatch. A delay of a week will allow sunlight to break down the product enough that it becomes less effective. Also, another group of grub beetles (*Phyllophaga* spp.) have already been laying eggs for a month or more, so application of these two insecticide choices should not be postponed.

If an early application of either of these two insecticides was not conducted, another option for control of grub beetles can be used later in the summer. The insecticides trichlorfon, sold as Dylox®, or diazinon, formulated as a liquid or 5% granule, can be applied after the eggs have hatched and when the small grubs are feeding near the soil surface. These two products don't persist for more than two weeks, so two applications spaced a month apart may be required to

obtain satisfactory control. Diazinon can not be used on sod farms or golf courses, and all outdoor turf uses will be phased out after December 2003.

Regardless of the insecticide choice, it is important to remember that grub injury can resemble other turf disorders, and grub presence should be confirmed before initiating controls. To confirm the presence of grubs, peel back a strip of sod and examine the soil and thatch for their presence. Pay attention to bird activity in the spring; often crows or other birds will work grub-infested turf very actively in the spring.

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