

# PLANT DISEASE AND INSECT ADVISORY



Department Entomology and Plant Pathology  
Oklahoma State University  
127 Noble Research Center  
Stillwater, OK 74078



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## Grasshopper Control in Winter Wheat Tom A. Royer, Extension Entomologist



Late summer rainfalls in certain parts of Oklahoma will signal the early planting of wheat for pasture and hay. Grasshoppers were numerous this summer, and like an unruly gang of teenagers, are still hanging around in many locations. Wheat seedlings could be vulnerable to attack by grasshoppers, especially as their other food sources begin to dry up. Because early-planted wheat is usually intended for forage or hay, control options are even more limited than they would be for wheat that is intended for grain production.

A non-chemical management option is to plant a thicker (double) seeding rate in a strip around the margin of the field, or plant some faster growing forage sorghum in a strip around the field. Grasshoppers tend to invade the margins of fields where wheat is just emerging, especially as their other food sources become depleted and they begin to search for egg-laying sites. Either of these strategies will produce a thick plant stand around the margins of the field and may hold the foraging grasshoppers long enough to allow the seedlings in the rest of the field to grow large enough to establish so they can withstand additional feeding. It should also reduce final plant stand loss in the margins of the field.

Another option is to apply an insecticide along the margins of the wheat field as the wheat seedlings begin to emerge. It may require up to a 150-foot wide band to get effective control, and a second application may be needed after 2 weeks or so. Several insecticides that are registered for control of grasshoppers in wheat are not useful for wheat that is intended for grazing. Di-Syston and Thimet have very long (70 days) grazing restrictions and require specialized application equipment. Wheat treated with Furadan cannot be grazed at all. Dimethoate, Lorsban 4E SG, methyl parathion, Mustang and Warrior can all be used in wheat intended for grazing. Dimethoate has some systemic activity when plants are actively growing. It can be applied with a ground or aerial application. Mustang, Warrior and Lorsban are also effective, and both can be applied with a ground or aerial application. Methyl parathion can be applied only by air. Mustang, dimethoate and Lorsban have a 14-day waiting period for grazing; methyl parathion has a 15-day grazing interval, and Warrior has a 30-day waiting period for grazing.

A producer should think long and hard about treating wheat pasture for grasshopper control. As more acres of wheat get planted, grasshoppers will spread out and probably not cause nearly as much damage. Numbers should exceed 3-6 grasshoppers per square yard in a field to even justify any type of control. Remember that when temperatures are as hot as they are now (90's to 100's), residual activity of the insecticide is reduced, so a repeat application may be necessary. Finally, if grasshopper populations are extremely high, complete control will be very difficult.

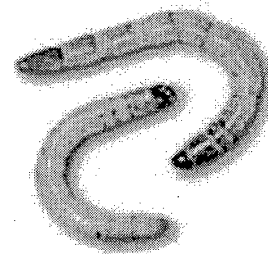
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## Protecting Wheat from Early-Season Pests

Tom A. Royer, Extension Entomologist

I received reports from Roger Gribble, Area Extension Specialist in Enid, about the presence of wireworms in some fields that are intended for wheat planting, so this is a good time to discuss options for false wireworm/wireworm management in winter wheat.

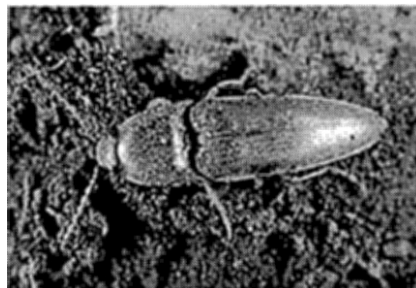
**False Wireworms and Wireworms** - Both false wireworms and wireworms live in the soil as beetle larvae. Their behavior and appearance are quite similar. False wireworms are the larval stage of darkling beetles and wireworms are the larval stage of click beetles. They feed on the seed and germinating seedling, causing stand loss that seems to occur in patches and seem to occur more commonly in the drier more western areas of the wheat belt.



While the larvae are not easily distinguished from each other, the adult beetles are quite different. False wireworm beetles are generally dark brown to black in color and measure about 1 inch in length. Their wing covers may be smooth or ridged but are usually fused together, which makes them unable to fly. These beetles walk rapidly, and can often be seen crossing roads as they move from place to place. They walk with their abdomen raised, giving them the appearance that they are trying to stand on their heads. If adult beetle activity is very noticeable during the summer, it may be an early

warning that there could be damaging infestations in winter wheat. False wireworms have a one-year lifecycle, but may live for up to 3 years as an adult beetle.

Click beetles have an elongated, flattened body and a freely-moving prothorax that they can use to flip upright with a distinct clicking sound if they are overturned. Click beetles vary in length, measuring from one tenth to nearly two inches long, depending on the species. Adult activity levels are rarely useful for predicting potential for damaging infestations in wheat. Wireworm larvae may live in the soil for 2-3 years before pupating, so if an area has a history of problems, controls may be needed.



It is very difficult to predict if these pests will be a problem in a given field. One suggestion is to take one-square-foot samples of soil at a depth of four inches and sift them through a piece of

hardware cloth with one-quarter inch mesh, being sure to sample in about 10 locations in the field. If you detect more than one wireworm/false wireworm per 3 square feet, treatment may be justified, especially if conditions are dry.

Both false wireworms and wireworms can be managed with a seed treatment of lindane at the labeled rate. In addition, Gaucho seed treatment is labeled for control of wireworms, but will not control false wireworms. Seed can be treated with lindane on-farm, but Gaucho can only be applied to seed by a commercial seed treater.

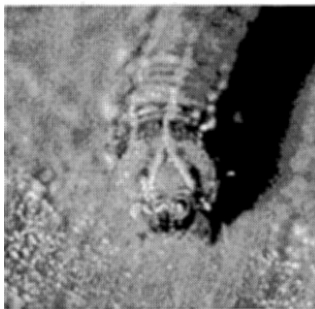
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## Fall Armyworm Problems in Pasture

Tom A. Royer, Extension Entomologist

Chris Rice, Area Agronomist in the SE District reported fall armyworm infestations in bermuda pastures in Atoka, Johnston, Coal and Pontotoc Counties. They recently examined a bermuda pasture and counted 14-17 armyworms per square foot. While it is difficult to predict whether these reports signal the beginning of a widespread outbreak, producers should be on the lookout for this insect until we get a killing frost. We easily could see another generation of caterpillars later unless weather conditions and natural enemies knock them back.

Fall armyworms are surface dwelling "climbing cutworm" caterpillars. More often than not, economically damaging numbers do not occur in Oklahoma, but with the right weather conditions, they can build up and cause problems pasture, particularly fescue pasture. Fall armyworms get their name because they generally occur in greater numbers in the fall, and they have a tendency to move in large numbers and "march" to their next meal.



Mature fall armyworms measure 1½ inches long. Their body color can range from green, to brown to black. When looking for them, pay particular attention to their head capsule and the presence of a prominent inverted white "y" on its head. Female moths lay eggs at night on grasses or other plants and hatch a few days after being laid. One female can lay up to 1000 eggs. Small larvae do not eat through the leaf tissue, but instead, scrape off all of the green tissue and leave a clear membrane that gives the leaf a "window pane" appearance. Larger larvae can feed voraciously on newly emerged leaves, chewing completely through them. Full-grown larvae pupate in the soil, and will emerge in 2 weeks.

Scout for fall armyworms by examining plants in several locations within the field. Look for leaves that seem to have had all of their green tissue removed, and gives the leaf a "window pane" appearance. No treatment guidelines are available for pastures; however, they can take out the bermuda grass very rapidly if numbers are large.

Sevin, malathion, Lannate (for bermuda pasture only), Confirm and methyl parathion are labeled for control of fall armyworm in pasture. Small larvae are much more easily controlled than large ones, so if a pasture must be protected, it is better to spray them when they are small. Carefully read and follow all label restrictions for application and grazing restrictions.

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