

2018 Wheat Insect Control Recommendations

Many farmers in Tennessee use wheat as a double-crop with soybeans. As with any crop, wheat has several insect pests that may reduce yields if not effectively controlled in the field. Yields can be improved if more producers take time to inspect their fields during the growing season for insect pests. This publication is designed to acquaint the producer with the major insect pests of wheat, the damage they cause and measures used to control the pests.

Aphids: Several aphids feed on the leaves and grain heads of wheat. These pests are significant in that they are capable of transmitting diseases to the plant such as barley yellow dwarf virus in addition to the damage inflicted by their feeding habits. Adult aphids are only about 1/8 inch long, and adults may or may not have two pairs of nearly transparent wings.

Oat-Bird Cherry Aphid is dark green in color and is the primary species responsible for transmission of the barley yellow dwarf virus. This and the English grain aphid are usually the most common species observed in wheat.

English Grain Aphid is pale green in color with black antennae and black cornicles, and the cornicles and antennae are longer than other aphid species normally observed in wheat.

Greenbug is pale green, having a dark green stripe down the back of the wingless forms. The tips of the legs and cornicles are black, and the antennae are mostly black.

Corn Leaf Aphid is bluish-green and all of the legs, cornicles and antennae are black.

Rice Root Aphid occurs on the roots of wheat and has been known to transmit barley yellow dwarf virus.

Armyworms: Armyworms can be serious pests of wheat when populations reach large numbers. Armyworms get their name from their migrating habit, as they sometimes start at one portion of the field and devour everything in their path.

True Armyworm: Damaging infestations of true armyworm normally occur in the spring. Mature larvae are smooth, almost without any hairs, greenish-brown to reddish-brown, with a dark stripe along each side. A broad dorsal stripe runs down the length of the back. This species differs from the fall armyworm by having a dark lateral band on the outer portion of each proleg. Besides

feeding on foliage, larvae will sometimes cut the heads of maturing wheat plants.

Fall Armyworm: As the name implies, the fall armyworm is normally a pest of early planted seedling wheat. These insects can completely defoliate a wheat field when populations are very large. This insect differs from the true armyworm by having a prominent inverted Y on the front of the head and no dark bands on the outer portion of the prolegs.

Hessian Fly: These small insects have been responsible for tremendous wheat losses in the past. Hessian fly larvae feed on stems at the base of plants, hidden behind the leaf sheaths. Larvae are reddish at first emergence and turn white or greenish white; they are shiny and without legs. Larvae are legless, resembling small grains of rice, and are approximately 1/4 inch long when full grown. The pupae, or flax seed stage, are brown in color but are otherwise similar to the larvae. Tennessee typically does not have significant problems with this pest. However, early planted wheat is susceptible to infestation. Planting after Oct. 15 (i.e., the “fly free date”) will greatly reduce the likelihood of serious Hessian fly infestations. Also, avoid planting wheat as a cover crop prior to the fly free date. Volunteer wheat is a good fall host for this pest, and any volunteer wheat should be destroyed before September. Plowing under wheat stubble after harvest may help reduce subsequent infestations in the fall. Although some varieties are available with resistance to Hessian flies, there are no varieties with adequate resistance to the fly biotype most common in Tennessee (Biotype L).

Cereal Leaf Beetle: The cereal leaf beetle is a pest of wheat, oats, barley and other cereal crops. It has been found in most all counties in Tennessee, and may be present from April to June. The larvae are pale yellow and soft-bodied, but they are normally covered with their fecal material giving them a dark goeey, shiny appearance. Adults are shiny, black beetles with red legs and thorax and are approximately 3/16 inch long. Adults and larvae skeletonize the leaf tissue between the veins.

When to Treat

Aphids: One of the most consistent management approaches of preventing aphid infestations and infection with barley yellow dwarf viruses is to plant during the recommended planting window. Early planted wheat is more likely to be infested by aphids during the fall and often results in higher infection with virus during the seedling stage. Consequently, planting is not recommended until October 15 or later, which also helps avoid infestations from Hessian fly.

Insecticide seed treatments such as Gaucho (imidacloprid), Cruiser (thiamethoxam) and NipsIt Inside (clothianidin) also can reduce transmission of barley yellow dwarf (BYD). Early planted wheat is most likely to benefit from use of a seed treatment. If a seed treatment is not used, a foliar insecticide application for aphid control during the fall (e.g., approximately 30 days after planting) and/or late winter (prior to March) may also reduce BYD. Insecticide applications should be made before aphid populations exceed 6-8 per linear foot of row; otherwise, any virus transmission may have already occurred. However, infection with BYD becomes less damaging as plants grow, and applications after jointing are less likely to increase yield.

Greenbug: This aphid injects a toxin while feeding. Treatment should be made when aphids are killing three or more leaves per plant. For wheat less than 6 inches tall, treatment should also be considered if greenbugs number 50 or more per linear foot. Treatment should also be made if greenbugs number 200 or more per foot in wheat 6-10 inches tall.

Armyworms: Treatment for fall armyworm during the fall should be considered when four or more larvae are present per square foot. For true armyworm infestations that occur during the spring, use a threshold of 6-8 larvae per square foot if wheat is still in the milk stage. Once past the milk stage, wheat can tolerate higher populations and treatment is not usually recommended unless larvae are cutting wheat heads.

Hessian Fly: Foliar insecticide applications for this pest are difficult to time, and thus only marginally effective. Plant after the fly free date (October 15) and use resistant varieties if they are available. Insecticide seed treatments will provide some protection against fall infestations of Hessian fly, especially when used at the highest labeled rates.

Cereal Leaf Beetle: Check 10 plants per sample site for larvae and adults. Treatment is necessary if 25 or more larvae are present per 100 tillers and wheat is still in the milk stage.

Suggestions for Chemical Control of Wheat Insects

Insect	Insecticide (Trade Names)	Rate Product Per Acre
Aphids	Seed Treatments clothianidin (NipsIt Inside 5) imidacloprid (Gaucho 600) thiamethoxam (Cruiser 5)	0.75 - 1.79 oz per 100 lb seed 0.8 - 2.4 oz per 100 lb seed 0.75 - 1.33 oz per 100 lb seed
(see label for suggested insecticide rates for different species)	Foliar Treatments dimethoate 4* methomyl (Lannate LV 2.4)* methyl parathion 4 (Methyl 4)* β-cyfluthrin (Baythroid XL 1) γ-cyhalothrin (Declare 1.25) λ-cyhalothrin (Karate 2.08, Warrior II) Z-cypermethrin (Mustang Max 0.8)	8 - 12 oz 12 - 24 oz 8 - 24 oz 1.8 - 2.4 oz 1.54 oz 1.28 - 1.92 oz 3.2 - 4 oz
Armyworms (True & Fall)	carbaryl (Sevin XLR Plus 4) chlorantraniliprole (Prevathon 0.43 SC) chlorantraniliprole, λ-cyhalothrin (Besiege) methyl parathion 4 (Methyl 4)* methomyl (Lannate LV 2.4)* spinetoram (Radiant SC 1) spinosad (Blackhawk 36% WDG) β-cyfluthrin (Baythroid XL 1) γ-cyhalothrin (Declare 1.25) λ-cyhalothrin (Karate 2.08, Warrior II) Z-cypermethrin (Mustang Max 0.8)	32 - 48 oz 14 - 20 oz 6 - 10 oz 24 oz 12 - 24 oz 3 - 6 oz 1.7 - 3.3 oz 1.8 - 2.4 oz 1.02 - 1.54 oz 1.28 - 1.92 oz 3.2 - 4 oz
Cereal Leaf Beetle	carbaryl (Sevin XLR Plus 4) methomyl (Lannate LV, 2.4)* spinosad (Blackhawk 36% WDG) β-cyfluthrin (Baythroid XL 1) γ-cyhalothrin (Declare 1.25) λ-cyhalothrin (Karate 2.08, Warrior II) Z-cypermethrin (Mustang Max 0.8)	32 oz 12 - 24 oz 1.1 - 3.3 oz 1 - 1.8 oz 1.02 - 1.54 oz 1.28 - 1.92 oz 1.76 - 4 oz

*Use extra caution when handling these insecticides.