COMMON SMALL GRAIN INSECTS

For safe and effective use of insecticides, always identify the problem correctly.

1. Cereal leaf beetle adult, eggs, larva, and damage
2. Greenbug and damage
3. Thrips (greatly enlarged)
4. Hessian fly larva, and puparium showing location behind lower leaf sheaths
5. Armyworm
6. Grasshopper
7. Chinch bug nymphs and adult, and adult greatly enlarged
8. Wheat stem maggot
9. Wheat stem sawfly
10. Common stalk borer
11. Wireworm and damage to seed

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COMMON SMALL GRAIN INSECTS

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1. **Cereal leaf beetle** was found in eastern Missouri in 1972 and is expected to slowly spread westward, eventually throughout the state. The overwintering adult beetle is about 3/16 inch in length with metallic blue-black head and wing covers; while legs and thorax are orange. These adults fly into small grains during early spring where feeding, mating and egg laying begins. Spring seeded oats are the preferred host, but any of the small grains and several grasses may be attacked. Eggs hatch into small, hump-backed, slug-like larvae which feed by skeletonizing the leaves giving a heavily damaged field a silvery or frosted appearance. When mature, the larvae pupate in the soil and emerge as beetles during early summer. These beetles soon become inactive and seek hibernation areas in preparation for overwintering.

2. **Greenbug** is a small, light green aphid having a narrow, darker green stripe down the center of its back and with the tips of the legs, cornicles and all of the antennae black. Occasionally, greenbugs may successfully overwinter in portions of Missouri; however, the majority of our problems stem from winged females migrating with the prevailing southwesterly winds during March. Injury first appears as a yellowish ring around the feeding puncture into which toxin has been injected and plant sap withdrawn. Eventually, injured leaf tissue becomes reddish and then brown as the tissue dies. Colonies of this aphid occur on underside of leaf blades, in the crowns, and occasionally on the stems. Other aphid species, such as English grain aphid, corn leaf aphid and apple grain aphid may also be found on winter wheat, barley and oats; but, their feeding does not result in discolored or dead leaf tissue.

3. **Thrips** feed by rasping plant surfaces and sucking the exuding sap. Several species can be found on small grains and other pasture and meadow grasses. Rarely are they considered economic pests of small grains in Missouri.

4. **Hessian fly** has two generations annually. The maggots of the late summer or early fall generation work their way under the leaf sheaths near the crown and feed by rasping the straw and sucking the exuding sap. Such feeding weakens and stunts plants and subjects them to abnormal winter kill. This generation completes its growth and overwinters under the leaf sheaths in a brown puparia known as "flaxseed." The very small black flies emerge in the spring and lay eggs for the second generation. Larval feeding results in poorly filled heads and lodged straws. They change into "flaxseed" before grain harvest and remain in this stage on the stubble throughout the summer. Using resistant varieties and planting after one or more consecutive dry years is a reliable means of avoiding losses from this pest.

5. **Armyworms** have become more or less annual problems on wheat, barley and rye, particularly over southern Missouri. Moths from overwintering pupae begin emerging during late March and early April. Additional moths migrate into Missouri from the southern states. Eggs are deposited on the more rank and dense fields of small grains and grasses. It takes about three weeks for the worms to mature. These larvae prefer to feed upon green blades, and when numerous, may completely strip the grain of leaves. When growth has not been completed by the time grain ripens, they may feed on or cut off the heads or migrate by crawling to adjacent grass or corn. Cool and wet weather is more favorable for armyworm development. The spring generation is always the most severe, but second and third generation may also damage grasses or corn during July and late August.

6. **Grasshoppers** may become a problem in the early fall along the borders of small grain fields. Several drill widths may be destroyed by adult grasshoppers feeding on seedling plants. Small grasshoppers rarely hatch from eggs early enough in the spring to cause problems in the maturing small grains.

7. **Chinch bugs** are more likely to become problems following one or more consecutive dry years. Adults overwinter in bunch grasses and migrate to small grains in the spring where the first generation is produced. These red and white immature chinch bugs suck sap from the straws near the base of the plants. Heavy feeding causes plants to appear drought stressed. Small grains usually ripen before this first generation reaches the adult stage. These immature bugs migrate into nearby corn, sorghum or other grass host fields where they become adults and produce a second generation. Thick stands with adequate fertility apparently is unfavorable for chinch bug development.

8. **Wheat stem maggots** overwinter as pale greenish larvae in the straws near the crown. Fall injury is similar to that caused by Hessian fly. Another generation occurs about the time wheat has headed. Maggots feed within the straws just above the last or next to last joint. This spring feeding results in heads drying, becoming white, and producing no grain. Normally, less than 1 per cent of stand is infested.

9. **Wheat stem sawfly** is not known to be an economic problem in Missouri. The larval stage of this small black wasp damages the straw by boring down through the joints, girdling the stem, and resulting in straw breakage similar to that caused by Hessian fly.

10. **Common stalk borers** attack the stems of heading small grains, grasses, weeds, corn and several garden crops. Injury from the larval stage of this pest tunneling in the straws results in whitened, unfilled heads, similar in appearance to that caused by wheat stem maggot. Infestation is heavier along field margins, but rarely exceeds 1 per cent of the stand.

11. **Wireworm and false wireworm** may attack the seed prior to germination or feed upon the roots and underground portion of the crown. Both of these pests are rarely of economic importance to small grains in Missouri. However, following consecutive dry years, false wireworms have caused some damage in the southwestern and west central areas of the state. When necessary, these problems are usually controlled by using a seed treatment insecticide at the time of planting.