



Flea Beetle

In Kansas, various species of flea beetles can affect wheat in early spring plus seedling corn or sorghum. An occasional pest, populations of four or more flea beetles per plant may kill young corn or sorghum plants, especially during poor growing conditions. They also may transmit Stewart's bacterial wilt in corn, but this is uncommon in Kansas.



Figure 1

Description

Adult flea beetles are shiny black, 2 to 3 mm long, with enlarged hind legs (Figure 1). They are known for their jumping ability, thus the name "flea" beetle. Females lay oblong, whitish eggs approximately 0.46

mm long. Larvae are milky white, cylindrical, segmented, with three pairs of legs near the brown head capsule. They grow to a length of about 6 to 7 mm. Pupae are soft-bodied, white, and about 4 mm long.

Life cycle

In Kansas, flea beetles overwinter as adults beneath leaf litter and plant debris or in clumps of weeds or other vegetation. When spring temperatures reach 50 to 55 degrees Fahrenheit, flea beetles feed on various plants and weeds until their preferred host becomes available, then feed voraciously for several days. Depending on the species, mated females deposit eggs singly or in groups of three or four in the upper 5 inches of soil adjacent to the roots of

host plants. Eggs hatch in about 10 days, then larvae feed on the root system for 3 to 4 weeks. Mature larvae form earthen cells and pupate for about 2 weeks. Adults emerge in early to mid-July and feed late into the fall before overwintering. Depending on the species, flea beetles produce one or two generations per year (Figure 2).



Figure 3

Damage

Feeding damage caused by flea beetle larvae has not been quantified.

Significant adult populations (four or more beetles per plant at the two-leaf stage) can rapidly destroy corn or sorghum seedlings by stripping the upper leaf surface that protects against desiccation and leaf death (Figure 3). Occasionally, flea beetles have been a problem in early spring wheat when it breaks dormancy. Damaged plants have long, narrow, whitish streaks on the upper leaf surfaces followed by a brown, dried appearance (Figure 4). Infestations in wheat are often limited to field borders adjacent to corn or sorghum stubble.



Figure 4

Flea beetles may carry the bacterium, *Erwinia stewartii* (*Pantoea stewartii*) that causes Stewart bacterial wilt, and occasionally transmit this infection to corn. The bacterium is harbored in the gut and released with excrement where it may enter the plant via feeding wounds. Plants infested with Stewart's wilt often have numerous irregular lesions around flea beetle feeding sites.

Management options

Field corn, forage sorghum or weedy borders provide refuge for summer flea beetle populations that can migrate to newly emerged, fall-seeded wheat plants as well as overwintered wheat as it emerges from winter dormancy. Injury to corn and sorghum is more likely to occur if beetles are present as seedlings emerge. Populations of four to five beetles

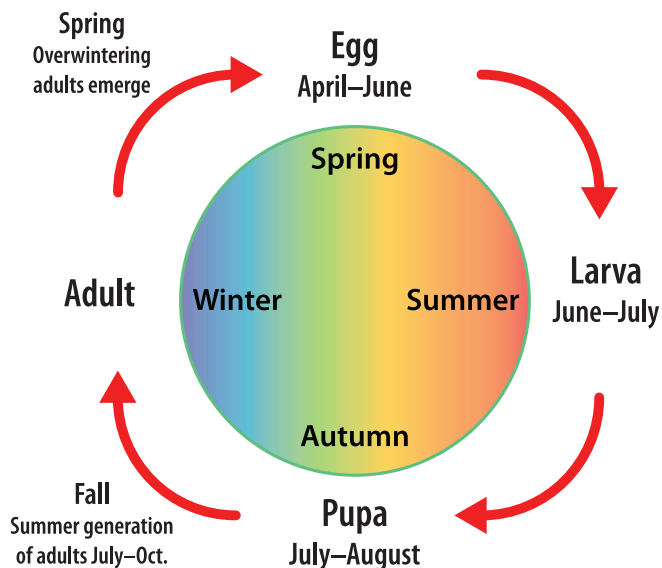


Figure 2

per plant can kill seedlings. But, if the growing point is not killed and growing conditions are favorable, plants should recover with little effect on yields. Because damage is often localized along a field border, insecticide treatment of only the affected rows may be sufficient to control populations.

Seed treatment: Seed treated with systemic insecticides containing the active ingredients thiamethoxam or imidacloprid provide reasonable protection against flea beetle injury in corn and sorghum. Unless flea beetles are a recurring problem or there is another controllable threat, seed treatments are not warranted for flea beetles alone.

Soil insecticide: Nonsystemic insecticides applied as planting-time soil treatment seed protectants against other early season pests in corn and sorghum are not effective against flea beetles, which do not feed on seeds.

Foliar treatment: Foliar insecticides provide good control and are recommended in corn and sorghum if the action threshold (four or more beetles per plant) is reached. Foliar insecticides used to control armyworms, grasshoppers, and other pests on wheat also reduce flea beetle populations.

Photo Credits

Figure 1. Photograph courtesy of USDA, APHIS.

Figure 2. Kansas State University
Dept. of Communications

Figure 3. Marlin Rice, Iowa State University

Figure 4. Phil Sloderbeck, Kansas State University

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