

Lesser Cornstalk Borer

Elasmopalpus lignosellus (Zeller)

Description:

Immature stages – The eggs are oval, measuring about 0.6 mm in length and 0.4 mm in width. When first deposited, they are greenish, soon turning pinkish, and eventually reddish. The number of instars can range from five to nine. During the early instars, larvae are yellowish green, with reddish pigmentation dorsally, tending to form transverse bands. As the larvae mature, whitish longitudinal stripes develop, so that by the fifth instar they are pronounced. The mature larvae are bluish green, but tend toward reddish brown with fairly distinct yellowish white stripes dorsally. Head capsules are dark in color. At larval maturity, caterpillars construct pupal cells of sand and silk at the end of the tunnels. Cocoons measure about 16 mm in length and 6 mm in width. The pupae are yellowish initially turning brown and then almost black just before adults emerge. Pupae are about 8 mm long and 2 mm wide.

Adult stages – Moths are fairly small, measuring 17 to 22 mm in wingspan. Sexual dimorphism is pronounced. Variability in color of wings and wing patterns have been reported in male and female moths. In general, the forewing of the male moth is yellowish centrally, bordered by a broad dark band bearing purplish scales. In females, the entire forewing is dark, sometimes almost black, but also bearing reddish or purplish scales.

Biology:

Life Cycle – There are three to four generations annually in the southeast. Activity extends from June to November, with the generations overlapping considerably and little evidence of breaks between generations. Overwintering apparently occurs in the larval and pupal stage, and diapause is not present. A complete life cycle usually requires 30 to 60 days.

Distribution – The lesser cornstalk borer occurs widely in the western hemisphere and is present throughout the southern United States. Despite its wide distribution, damage is limited principally to crops in sandy soil, so it tends to cause injury in the coastal plain of the southeastern states. Lesser cornstalk borers tend to be more abundant and damaging following unusually warm, dry weather.

Damage to Crop:

Lesser cornstalk borer attacks several crops throughout the southeastern United States. Vegetables and field crops injured by lesser cornstalk borer are: bean, beet, cabbage, cantaloupe, corn, cowpea, oat, pea, peanut, pepper, rice, rye, sorghum, soybean, sudangrass, sugarcane, sweetpotato, tomato, turnip, wheat. The larval stage causes damage when it feeds upon, and tunnels within, the stems of plants. Normally the tunneling is restricted to the basal region of stalks, including the belowground



Larva feeding inside stem



Adult moth



Feeding damage on peanut

portion, and girdling may occur. Wilting is one of the first signs of attack in affected plants, but buds may wither, and stunting and plant deformities are common. Plant death is not uncommon, and infested areas of fields often have a very thin stand. Sweet corn plants that do not die after the damage of lesser cornstalk borer produce several bushy and stunted suckers with no marketable ears. The growing points of the plants can die off, leading to dead hearts symptoms that are similar to the attack of wireworms. Dead hearts symptoms are caused by the larva boring into the stalk at the soil level and tunneling upward.

Management:

Sampling: The egg stage is difficult to sample because eggs are small and resemble sand grains. However, eggs can be separated by flotation. Larval populations are aggregated, and can be separated from soil by sieving or flotation. To scout for lesser cornstalk borer, uproot small plants in 10 locations in a field. If live larvae and pupae are found in 10% of plants, then treatment is recommended.

Adults are attracted to light traps, but are difficult to monitor with this technique because lesser cornstalk borer moths are difficult to distinguish from many other species. This is especially true of the females, which are less distinctive than the males. Pheromone traps have been used successfully to monitor adult populations, and adults can be flushed from fields by beating the vegetation. Adult pheromone trap catches and flush counts are correlated. Adult and larval counts are often highly correlated, indicating that flush counts can be used to predict the abundance of larvae in subsequent weeks.

Insecticides: Insecticides applied for suppression of lesser cornstalk borer are usually applied in a granular formulation in the seed furrow or in a band over the seed bed, using restricted pesticides according to label recommendations. Liquid formulations can also be applied, but it is important that they be directed to the root zone.

Cultural practices: Modified planting practices have long been used to minimize crop loss. Populations tend to increase over the course of a season, so some damage can be avoided by early planting. Tillage and destruction of weeds are recommended prior to planting because this helps to destroy larvae that may be present in the soil and might damage seedlings, the stage most susceptible to destruction. However, crop culture that uses conservation tillage (i.e., retention of crop residue at the soil surface) experiences less injury from lesser cornstalk borer feeding because the larvae feed freely on crop residue and other organic matter, sparing the young crop plants.

Frequent irrigation is also an important agronomic practice for the management of lesser cornstalk borer because moist soils discourage female moths from laying eggs and also suppress larval populations in the soil. Mulching may reduce incidence of lesser cornstalk borer attack.

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