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Lesser cornstalk borer, Elasmopalpus lignosellus (Zeller)

(LEPIDOPTERA: PYRALIDAE)[1]

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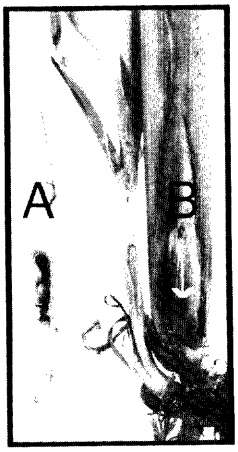
INTRODUCTION: The lesser cornstalk borer, Elasmopalpus lignosellus (Zeller), attacks a variety of agricultural crop species (Metcalf et al., 1962). Less well known is the fact that seedlings of forest nurseries are susceptible to infestation and may incur severe damage or mortality. In 1981, nearly 1 million seedlings were killed by larvae of the lesser cornstalk borer in a forest nursery located in Central Florida.

DESCRIPTION: Adult moth is light to dark brown with a wingspan of 16-24 mm (fig. 1). Forewings of female uniformly dark brown to black; male forewings differ in their lighter coloration and presence of gray to black margins. Egg is 0.5 mm long, pitted, and greenish-white when laid, turning to deep red prior to hatch. Mature larva (6th instar) is bright green to turquoise, striped longitudinally with brown, and the head capsule is dark brown to black. Length 17-20 mm (King et al., 1961).

DISTRIBUTION: The lesser cornstalk borer occurs throughout the southern United States, Central America, South America, and the West Indies (Luginbill and Ainslie, 1917).

HOSTS: It is commonly associated with Arachis hypogaea L., Digitaria spp., Glycine max (L.) Merr., and Zea mays L. Over 40 other agricultural species are suitable host plants, but space limitation prevents a complete listing. Isley and Miner (1944) observed an apparent preference of the larvae for members of the grass family (Gramineae). Recorded tree species include: Cornus florida L., Cupressus arizonica Greene, Juniperus silicicola (Small) Bailey, Nyssa sylvatica Marsh., Pinus clausa (Chapm.) Vasey, Pinus elliottii Engelm., Pinus taeda L., Platanus occidentalis L., Robinia pseudoacacia L., and Taxodium distichum (L.) Rich. (Baker, 1972; Craighead, 1950; Davis et al., 1974; Metcalf et al., 1962).



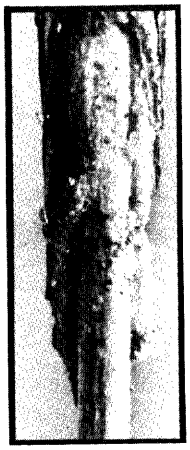


Fig. 1. Adult Elasmopalpus lignosellus (Zeller) (4.4X).

Fig. 2. Host plant- pearl millet, Pennisetum americanum (L.) K. Schum.: (A) outer tissue removed to show tunnel constructed by borer larva; (B) small entrance hole made by larva of E. lignosellus.

Fig. 3. Stem girdling of Taxodium distichum by larva of E. lignosellus. Photographs by Jane Windsor, FDACS, DPI, Gainesville; negative numbers 702320-8, 702305-3, and 702369.

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BIOLOGY: After emerging from the soil in late spring, adult moths mate, and females deposit eggs singly in the soil at the base of host plants or on stems and lower leaves. Eggs hatch within 1 week, and larvae mine lowermost branches or begin subterranean feeding on stems and roots. Silk tunnels, radiating from feeding sites, protect larvae when inactive or disturbed. The larval feeding period lasts 2-3 weeks. Pupation occurs in the silk tunnels or soil litter, requiring 2-3 weeks to complete. The new adults emerge, mate, and may live up to 10 days. Each female lays ca. 125 eggs. By late summer, most life stages can be found due to generation overlap; there are 2-4 generations/year. Larvae or pupae survive the winter in the soil or soil litter (Leuck, 1966).

SURVEY AND DETECTION: In agricultural crops, e.g., corn, look for distorted, wilted, or curled plants. Below ground, small entrance holes and tunnels extending into and up (25-50 mm) the heart of a plant are indicative of larval feeding (fig. 2). One or more larvae may be present. In forest nurseries, severely damaged seedlings die and remain upright or fall over; often several seedlings in a drill are attacked. Below ground, larval feeding is indicated by stem girdling (fig. 3), gall-like stem formation, or callous tissue around a feeding wound. Larvae are difficult to find, but wriggle vigorously when captured. Adult flight is primarily nocturnal (Holloway and Smith, 1975). When disturbed during daylight hours, its flight pattern is short, jerky, and just above tops of host plants.

CONTROL: A lesser cornstalk borer infestation is favored by susceptible host plants, sandy soils, and drought weather. Fall or winter cleanup of plant residue and rotations with nonsusceptible plant species can reduce a borer problem. Preventive insecticides include Furadan 10 G, Dasanit 15 G, Diazinon 14 G, or Parathion 10 G, which are generally applied at time of sowing. A remedial insecticide treatment, e.g., Sevin XLR, may be necessary later in the growing season. It is applied as a soil drench. The silk tube of the lesser cornstalk borer larva makes it especially difficult to ensure adequate exposure to the insecticide. Always read the label before using a pesticide.

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