Life History and Control of Sod Webworms in Grass Seed Production

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Several species of sod webworms infest commercial grass seed crops in the Pacific Northwest. The biology of these species is different depending on the rate of seasonal development and time of year. Eggs of some species hatch in May, others in early fall. The resulting larvae pass the winter in various stages of development and maximum feeding injury coincides with the time of year larvae mature. Some species feed only on blades of grass but *Chrysoteuchia topiaria* (formerly *Crambus topiarius*) feeds on crowns and roots and will be discussed below.

Under Willamette Valley conditions plants grow rapidly in May and June, resulting in large amounts of foliage which hinders or prevents insecticide penetration into crowns where webworms feed. Sporadic outbreaks and spotty infestations make it difficult to diagnose the problem before heavy feeding injury in the fall and spring.

Life History

The mating pair of adults (Fig. 1) show color differences between males and females of the same species. The females are lighter and the males darker colored. Adults of this family are commonly called "snout moths" because part of their mouthparts form a distinct structure projecting from the front of the head. Adults fly in quick jerky movements for short distances and often can be seen flying up as one walks through a grass field. They are attracted to lights at night.

Females may lay up to 500 eggs in crowns and on blades. All are white at first but soon turn orange or red if they are fertile (Fig .2). Egg laying starts in June as most grasses are nearing maturity. Subsequent larvae are well protected by dense foliage which prevents penetration of insecticides. Larvae feed voraciously in late August and September and destroy root systems of orchard and bluegrasses (Fig. 3). Feeding stops in October, at which time the larvae spin silken cocoons where they spend the winter (Figs. 4 & 5).

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Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Control

Insecticides are not available or effective for controlling this pest. Observations indicated a high mortality of larvae during the winter, which prevents more widespread plant damage. Burning straw and stubble has little affect on larvae, which are well protected within the plant crowns.

Birds such as starlings, kildeer, sandpipers, and blackbirds probe crowns of grass in search of larvae after harvest and field burning. Probing holes are evident in crowns during and after searching by the birds (Fig. 6). Predation by birds has reduced the sod webworm population in some fields

Figure 6

by as much as 80 percent; no field has been observed to escape predation by birds.

About 3 percent of the larvae are killed by a fungus *Beauveria bassiana* which destroy the blood cells (Fig. 7). White mycelia of the fungus is present on diseased worms. Attempts to produce an epidemic of the fungus disease by treating with commercially prepared spores have failed, probably due to lack of moisture during September and October.

Various parasites also play an important part in control. Studies show about 8.5 percent larval mortality is due to a fly *Lydina polidoides,* which lays its eggs on grass. Parasitic larvae then burrow through the crowns searching for sod webworm larvae and eventually penetrate the worm's body wall. Parasitized larvae which don't complete development appear brown as compared to the healthy white larvae (Fig. 8). Parasites emerge from dead worms and pupate in the brown puparia in the soil (Fig. 9).

The combined mortality caused by birds, disease, and parasites is about 91 percent of mature larvae. The remaining 9 percent often are concentrated in spots in the field where little or no seed is produced the following year. As a result, even with the 91 percent mortality an economic problem still may exist. However, the sod webworm problem would be much worse without natural predation and parasitism. The use of an insecticide in autumn may actually increase the sod webworm population by killing birds and insect parasites.

Figure 7

Figure 8

Figure 9

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