



Pasture webworm

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Importance

Pasture webworm is a relatively insignificant pest of pastures, but can cause large losses to establishing cereals. The caterpillars can attack establishing crops of wheat, barley and rye, and introduced grasses such as barley grass, silver grass and brome grass. They appear not to feed on oats (Avena) and ryegrass (Lolium species).

There are four different species of pasture webworm, all of the genus *Hednota*, which cause sporadic damage to cereal crops and pasture grasses in Victoria, South Australia, New South Wales and Western Australia. However, only one or two of these species are of economic importance in Victoria. The damage almost invariably results from a rotation of cereals following a pasture phase.

Description

Eggs are smaller than a pinhead, white when first laid and become red-orange as the embryo develops. They have a distinctively sculptured shell, with a series of longitudinal ribs which are divided by smaller transverse ribs, giving the surface a mesh-like appearance.

Larvae (caterpillars) are smooth bodied and greenish-brown with distinctively dark shiny heads. They are about 1 mm long when newly hatched and, after passing through six moults (or instars), reach a maximum length of about 18 mm. Most larvae, when found by growers, will be large enough to be identified by the presence of darker raised patches on each segment (Figure 1).

Pupae are about 12 mm long and 3 mm wide, creamy-yellow at first, turning honey-brown and then darkening shortly before moth emergence. Pupation occurs underground.

The adults are long-legged moths with the enlarged mouthparts arranged in a beak-like projection. They are about 12 mm long with a wingspan of about 22 mm. They are grey-brown, with darker markings on the forewings. At rest the wings fold closely around the body in a nearly vertical position, enabling the moth to blend with its surroundings.

Moths are easily detected. They fly up from pastures in the autumn; this serves as a warning of the risk of damage later that year.

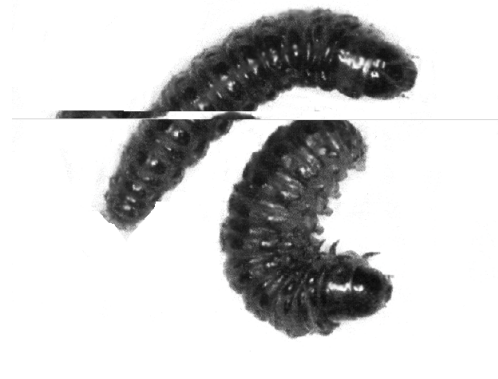


Figure 1. Pasture webworm larvae

Biology

Pasture webworms have only one generation a year (including an obligatory resting stage in which the larvae over-summer in the soil, see Figure 2). The adults emerge in autumn, predominantly in April/May. Mating occurs almost straight away and egg laying may begin a few hours after emergence. Females lay eggs near the ground on pasture grasses, or on newly emerged early sown cereals, and each female lays all her eggs within four days. However, the period of egg laying for all females lasts for about six weeks.

The eggs hatch about one to four weeks later, depending on temperature, and the larvae immediately begin feeding. Young larvae feed on grasses above the ground and form silken tubes among the leaf blades. Older larvae construct a vertical, web-lined tunnel in the soil from which they emerge at night to feed, often cutting the blades off at ground level and dragging them into their tunnels where they feed on one end of the blade from the safety of the tunnel entrance. The tunnels are often sited at the bases of severely damaged plants. During spring the fully grown larva deepens its burrow in the soil, ceases feeding and plugs the entrance with a heavily-webbed silk cap. It then turns a creamy yellow colour (which is probably associated with the accumulation of fatty

reserves) and enters an over-summering resting stage. Pupation occurs in early autumn and lasts for about three weeks.

Damage

In cereals, small denuded areas appear in the crop, usually within three weeks of plant emergence. These patches gradually enlarge and may give the impression that the crop has not emerged.

Newly hatched larvae climb up seedlings and feed on the upper surface of the blades only, which results in 'windows' in the leaf. Feeding generally occurs in the centre of the leaf, but may also occur on the margins. This type of damage on cereals resembles that caused by lucerne flea.

The young larvae usually remain on the blade or shelter in the sheath of the plant. Older larvae sever blades of grass, which they carry back to their burrows to eat.

Damage often occurs when minimum tillage crops are sown in turned-in grass pasture. Such crops should be checked 4-5 days after emergence for signs of webworm damage. Webworm are more likely to damage crops in warmer, drier conditions.

The damage in pastures is often less evident than in cereals because the damaged grasses may be hidden by capeweed, clovers and ryegrasses.

Sampling and detection

Crops should be checked every 4 to 5 days after emergence for all pests. However, wheat, barley and rye planted after a pasture phase are most susceptible to webworm damage. Monitoring should continue for 4 to 6 weeks after emergence for signs of webworm damage, especially in warm dry conditions.

Young larvae shelter between the leaf blades while older larvae shelter in web-lined tunnels in the soil. Inspect seedlings in 1 square metre of crop if small webworms are

suspected, or the top 20 millimetres of soil if large webworms are suspected.

The recommended treatment threshold is 10 damaged plants per square metre.

Control

Cultural

When preparing paddocks aim to lessen the amount of grassy residue present, if possible. This will reduce the attractiveness of a pasture to female moths seeking egg-laying sites and will also reduce the available food, so that any webworm larvae already present will starve.

Suggested management practices, which may help reduce the likelihood of infestation and can be used alone or in combination, are:

- summer fallowing;
- prolonging the period between initial cultivation and sowing;
- heavy grazing or mowing in late summer;
- shorter rotational programs to decrease the likelihood of pastures becoming grass dominant.

Chemical

Spot spraying of crops is possible when infestations are in localised pockets. A buffer zone of 20 metres around the infestation should also be sprayed. Providing the leaves of the plant crown are green, spraying will allow quite badly affected crops to recover satisfactorily.

Chlorpyrifos (350 g active ingredient per hectare or 700 ml of 500 g/L product), is the only registered chemical for control of pasture webworm in pastures and forage crops. There is a two-day withholding period.

Life cycle of pasture webworm

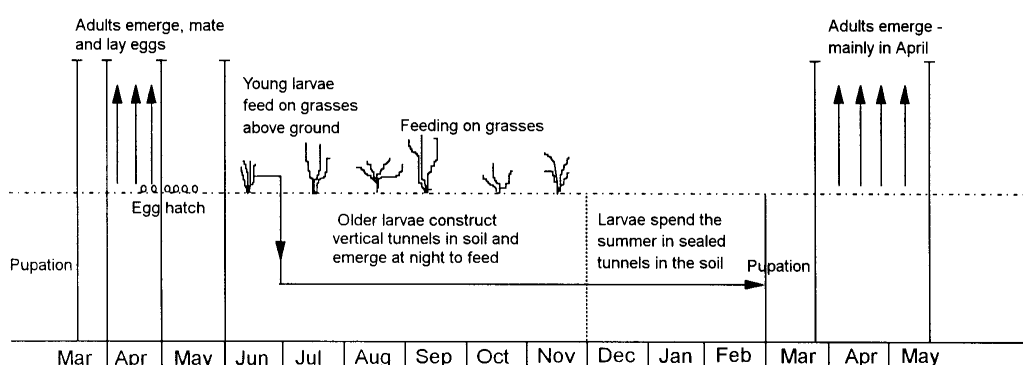


Figure 2. Annual life cycle of the pasture webworm

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