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Soybean Loopers defoliating sunflower crops

Over the past couple of weeks there have been numerous reports of sunflower crops being defoliated by caterpillars.



The caterpillar has been identified as the **soybean looper**, and is the same species reported on a couple of weeks ago defoliating soybeans. There are two colour forms of the soybean looper (see pictures below). Although the colour differs, they are both the same species and behave the same way.



Soybean looper. Light phase (left) and dark phase (right).

Distinguishing loopers from Helicoverpa

The way the larvae move is an important clue. Loopers loop – as they move along they draw their rear legs right up to the front, resulting in the body forming a loop. Examining the larvae closely, you can see that loopers have 3 pairs of small true legs at the front, then a big gap without legs, and then 2 pairs of ventral prolegs at the rear (not counting the anal prolegs at the very rear of the larva).

Helicoverpa in contrast move without raising their bodies far above the leaf, rather they move with a “slink”. Helicoverpa larvae have 3 pairs of small true legs at the front, and 4 pairs of ventral prolegs at the rear.

Watch the videos of looper and Helicoverpa

When is control warranted?

There is no local trial data on looper damage to sunflowers or looper thresholds because severe looper infestations occur so rarely.

In the US, looper control in sunflower is recommended if defoliation reaches 25% of leaf area, and larvae are still small and the crop flowering or grain filling. When defoliation exceeds 50% yield losses were incurred.

The following is useful in making decisions:

- Yield loss will occur if the top third of leaves is not retained through budding and grain fill (powdery mildew data)
- One assessment of Helicoverpa defoliation of sunflowers (D. Murray, 1985) showed that 20% defoliation did not result in yield loss
- Loopers will consume 80% of their total food intake in the final 2 instars before pupating. Consequently, the rate of defoliation will speed up as larvae reach maturity.
- Loopers do not feed on the buds or developing heads in sunflower
- Large larvae (25-40 mm) will be close to maturity and likely to stop feeding and pupate within a few days.

If control is warranted

Loopers are susceptible to Bt (Dipel®) up to about 15 mm in length. If the bulk of the population is larger than 15 mm long, Bt may not control the population effectively, particularly where there is heavy pressure (e.g. ≥ 20 larvae /m²). However as up to at least 20% defoliation can be tolerated with no yield loss, there is no need to achieve near perfect control to protect crop yield.

Deltamethrin is the only other registered insecticide for looper control in sunflower.

Loopers will not be controlled by NPV (Vivus Max®) as it is only active against *Helicoverpa*. Check larvae on leaves and on the heads to see if there are *Helicoverpa* present. *Helicoverpa* only require control if there are more than 20 larvae per head.

Good coverage is important, particularly as the loopers are likely to be concentrated on the undersides of leaves.

Monitoring loopers in the crop

Look for looper larvae under the leaves. Small holes can be indicative of early looper activity. Turn leaves over gently and watch for larvae dropping off the leaves as they are disturbed. As the crop is progressively defoliated loopers will be more visible in the canopy.

Once loopers have been detected in a field the frequency of monitoring may need to increase. The rate of defoliation can increase rapidly over a period of 2-3 days as the loopers become medium and large. It is estimated that a caterpillar larva will eat 80% of its lifetime consumption in the final two instars (last week or so of development). So you can see how a crop can go from a little defoliation to a lot in a week.

Sometimes defoliation can happen suddenly as large looper larvae move from weeds in the field where eggs were laid and small larvae developed onto the sunflower plants. Typically this happens as the weeds are defoliated and the larvae look for other sources of food.

Other insect pests to consider in making decisions

Rutherglen bug, unless in high numbers (more than 30 in a budding crop) do not warrant control. From mid March, Rutherglen bug do not reproduce in sunflower so the risk of populations building and damaging developing seed is low.

Helicoverpa larvae will only cause damage to sunflowers at very high densities (more than 20 per head). *Helicoverpa* larvae will damage developing buds and heads by chewing stems, bracts, florets and developing seed. Often more damaging is feeding damage on the back of heads that allows the entry of head rots.

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