

Grass sawfly (*Pachynematus* sp) feeding in Michigan wheat fields

CDD #029
June 2010

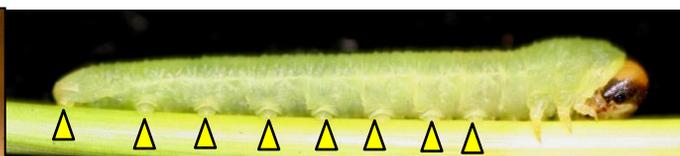
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Picture credits:
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Howard Russell, Ben Yost & Chris DiFonzo

Sawflies are in the insect Order Hymenoptera with bees, wasps, and ants. They are named for their saw-like ovipositor, or egg laying device, used to insert eggs into plant material. Sawfly larvae resemble caterpillars, but they are easily distinguished by the number of fleshy prolegs. Moth and butterfly caterpillars have 5 or fewer pairs of prolegs, while sawfly larvae have 7 to 8 pairs. Many sawfly species feed on trees and are forest pests, but some feed on grasses and cereal crops.



Sawfly adult



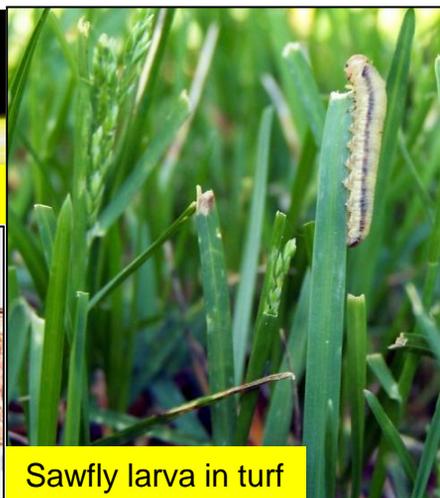
Older sawfly larva with many fleshy prolegs



Young larva



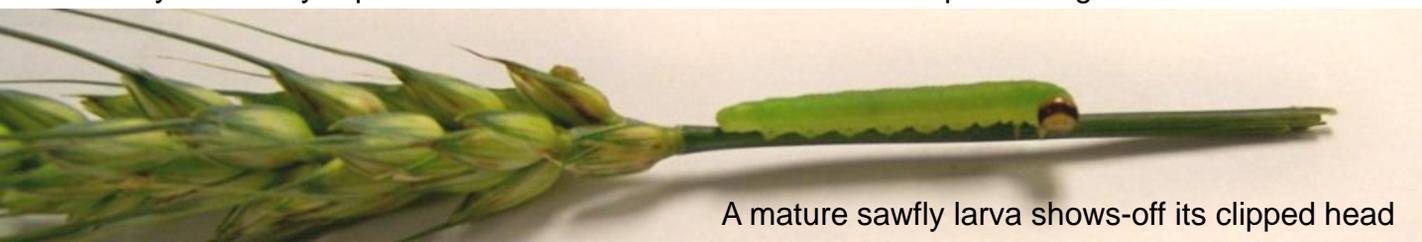
Sawflies & AW



Sawfly larva in turf

Small grains are damaged by sawflies in the genus *Pachynematus*. Sawfly adults emerge early in the year and lay eggs in April to early May. In the eastern U.S., outbreaks usually occur after an abnormally warm spring creates ideal egg-laying conditions. Young larvae have a light brown head capsule, but older larvae develop a distinct dark stripe between their eyes (described as wrap-around sunglasses or a raccoon mask). Larval development takes 3 to 4 weeks. In June, mature larvae drop to the ground, and spend the rest of the year underground. Adults emerge the following spring (i.e. there is only 1 generation per year). Because this insect pupates and overwinters underground, the increase in reduced and no-till acres in ag production may favor its survival.

Grass sawflies can occur at the same time, and in the same fields, as true armyworm, but the two pests differ in color, number of prolegs (true armyworm = 5 pairs, *Pachynematus* = 8 pairs), and activity time. Armyworms are most active at night and on cloudy days, while sawflies feed during the day. Sawfly larvae feed on leaves of small grains, but more importantly they clip heads. In Michigan in 2010, an increase in head-clipped wheat was attributed to sawflies. Even in mixed populations of armyworm and sawfly, sawflies appeared to be responsible for most of the clipping. One sawfly larva may clip 10 to 12 heads before it matures and drops to the ground.



A mature sawfly larva shows-off its clipped head



Besides simply clipping heads, grass sawflies may do other sorts of interesting feeding, including stem chopping (for lack of a better term). The stems of the wheat plants above were meticulously cut up into equally-sized segments by sawfly larvae. Larvae sometimes appear to 'drink' the liquid oozing from the cut stem (right). Perhaps the chopping behavior creates fresh ends (far right) to get at plant juices.



Scouting

It is important to catch sawflies early before they clip heads. Scout wheat in early May by shaking stems so larvae drop, then examine the ground for both armyworms and sawflies. If larvae are present, then do a more thorough examination of the field to determine # of larvae per square foot. Use one of the guidelines below to make a spray decision.

Reasonable Guideline: *In a pinch, but untested by the authors*
Apply the at-heading threshold for armyworm (2 per square foot) to mixed populations of armyworm and sawfly.

Threshold from University of MD: *Better, but more complicated*
Larvae are smaller than $\frac{3}{4}$ inch AND
number more than 0.4 per linear ft of row or 0.7 per square ft

Optimal spray timing is likely mid-May when larvae are small. If larvae are over 1 inch, have the dark bar on the head capsule, and have clipped many heads, it is probably too late to treat.
(University of Maryland)

Sawfly larvae are reported to be more difficult to control than armyworms. Thus if you are targeting sawfly, use a high rate of a pyrethroid or Lannate. Note that pre-harvest intervals vary from 7 to 30 days, and that many insecticides are registered ONLY for use on wheat, not for barley, oats, or rye.

Thank you to Joanne Whalen (University of Delaware) and Galen Dively (University of Maryland) for information on sawfly biology and control on the east coast.

Source for additional information and pictures: *Leaf-feeding sawflies in wheat*. 2003. Oregon State University
<http://extension.oregonstate.edu/umatilla/sites/default/files/cereals/Publications/em8839-e.pdf>