

Grass Sawfly and True Armyworm

Control in Small Grains

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Life History and Phenology

Grass Sawfly - Adult sawflies emerge in early April, mate and begin to lay eggs in the leaf margins of small grains. Most egg laying is complete by early May. The first larvae can be found by early May feeding on the lower leaf blades. Mature larvae can be distinguished by their solid green color, amber head with a brown band and many legs. Larval development takes approximately 21-30 days. By mid-June, larvae burrow into the ground and begin a period of summer diapause (hibernation) in the prepupal stage.

True Armyworm - Armyworms overwinter as partially grown larvae in the soil and in plant debris of crops and woodland. Moth emergence and egg laying begins in late April. Moth activity peaks by late April. Egg laying is often concentrated in weedy and lodged areas of a field. The first small larvae can be found on lower leaf tissue in early May. Larval development takes 20-28 days. In late May through June, larvae often move to other crops. Mature larvae burrow into the soil or under debris to pupate. Three to four generations occur each year, but only the first one attacks small grains.

Damage

Grass Sawfly - Barley and wheat are both damaged by sawflies. During years of high population pressure, barley may experience more damage. Sawfly larvae prefer to feed on the stems and are potentially more damaging than armyworms. Larvae begin to climb and feed on stems when the larvae are half grown and the grain is in the tiller to head stage. Stem clipping often occurs before leaf feeding is complete and/or the grain reaches physiological maturity. Head clipping often peaks by May 10 which is generally ten days before peak armyworm damage.

True Armyworm - Young larvae (less than 1/2 inch long) generally feed on the upper leaf surface. Larger larvae feed heavily on the leaf blades and weeds. The last instar (1.5 inches long and greater) will consume 80 percent of all the plant material eaten during their larval development. This stage lasts six to eight days before moving into the soil to pupate. Heavy

defoliation of the flag level can result in significant economic loss. Unlike the sawfly, armyworms begin head clipping only when all vegetation is consumed and the last succulent part of the plant is the stem just below the grain head. Larvae can feed on the kernel tips of wheat, resulting in premature ripening and lower test weight. On barley, significant stem clipping can occur in a short time.

Sampling and Decision Making

Sampling for both insects should begin in late April to detect small larvae before head clipping begins. Although sawflies tend to be found earlier than armyworms, they are often found together. Examine fields for clipped heads and larvae throughout the field as well as along field margins and in lodged areas.

Sawflies - Young sawflies often blend into the vegetation. A sweep net is helpful in detecting the initial presence of sawflies in a field. Since sawflies feed during the day and can be found on the plants, sample plants by shaking the wheat stalks of two rows toward the innerspace between the rows. Examine 5 linear feet between two rows in at least 10 sites. Count the number of worms and note any head clipping at each site.

True Armyworm - Armyworms often escape detection during the day since they hide under debris and weeds and feed at night. Check for small armyworms curled in a C-shape at the base of plants or under debris and weeds. Examine 5 linear foot of row in at least 10 locations through out a field, count the worms and note any head clipping.

The following thresholds can be used to make a control decision

Insect	Crop	No. per Foot of Row
Grass Sawfly	Barley and Wheat	0.4
True Armyworm	Barley	1.0
	Wheat	2.0
	High Management Wheat (4" rows)	3-5 per sq. ft.

Grass Sawfly and True Armyworm - Chemical Control Options

NOTE – The label is the law. Be sure to read the label before making any pesticide applications and observe all label restrictions

Insecticide	Rate/Acre	Days to Harvest	Remarks (see labels for restrictions)
Baythroid XL	1.8 – 2.4 oz	30	Restricted Use. Wheat Only.
Lannate 2.4 LV (methomyl)	0.75 - 1.5 pt	7	Restricted Use. Only Armyworm on label.
Mustang MAX 0.8 EC (zeta-cypermethrin)	1.76 - 4.0 oz (True Army Worm) 3.2. – 4.0 oz (Grass Sawfly)	14	Restricted Use. Wheat and Triticale Only.
Penncap-M 2F (microencapsulated methyl parathion)	2.0 – 3.0 pt	15	Restricted Use. Barley, Oats, and Wheat Only. Harvest for grain or grazing.
Proaxis (gamma-cyhalothrin)	2.56 – 3.84 oz (True Armyworm) 3.2 – 3.84 oz (Grass Sawfly)	30	Restricted Use. Wheat and Triticale Only.
Sevin XLR Plus (carbaryl)	2.0 – 3.0 pt	21	Restricted Use. Wheat Only. Only True Armyworm on label.

<p>Warrior II (lambda-cyhalothrin)</p>	<p>1.28 -1.92 oz (True Armyworm)</p> <p>1.6 – 1.92 oz (Grass Sawfly)</p>	<p>30</p>	<p>Restricted Use. Barley, Oats, Rye, and Wheat Only.</p>
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