

Aphid Control in Small Grains

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Life History and Phenology

The most common aphid species found in Delaware small grain fields are the English grain aphid, bird cherry-oat aphid, corn leaf aphid, and the greenbug. These four species overwinter on small grains as eggs or as females which give rise to offspring in the spring. Wingless females will produce offspring without mating for a number of generations. As small grains mature in late spring to early summer, winged females move to other wild or cultivated grasses for the summer. In the fall, they return to newly planted small grain fields to overwinter.



D. Cappaert, MSU, Bugwood.org
bird cherry-oat aphid

Damage

Aphids injure small grains by removing plant juices from the leaves, stems, and grain heads. The greenbug secretes a toxic substance into the plants that kills plant tissue. Extensive feeding in the fall and early spring may result in circular yellow to brown spots with dead spots in the center. Infested plants appear stunted and discolored. A lack of moisture in midwinter and a cool spring result in more significant damage. The most significant damage occurs when large numbers of aphids feed on the grain head causing shriveled or blasted heads. All four species can also transmit barley yellow dwarf mosaic, a serious yield-limiting virus. Aphid outbreaks are favored by a mild winter followed by a cool, dry spring. Under these conditions, aphids reproduce rapidly whereas their natural enemies reproduce slowly.



F. Peairs, CSU, Bugwood.org

greenbug aphid



M. Shepard, G. Carner, & P. Ooi, Bugwood.org

corn leaf aphid

Sampling and Decision Making

Check small grains once a week, starting the first week in April. Infestations of the greenbug and corn leaf aphid can occasionally build up in the fall. On tillering grain, examine 5 linear foot of row in at least 10 areas of a field. Examine areas that exhibit plant stress. At each site, count or estimate the number of aphids per linear foot of row. During heading, check 50 to 100 heads throughout a field. While counting aphid populations, be sure to check for natural enemies. Lady beetle adults and larvae, syrphid fly maggots, lacewing larvae, damsel bugs, and parasitic wasps often help to keep aphid populations in check. A ratio of one predator to every 50 to 100 aphids is sufficient to achieve biological control.



W. Brown Jr., Bugwood.org

barley yellow dwarf
mosaic virus

Treatment in the fall and early spring are generally not necessary. However, if populations are increasing and the weather is unusually mild, consider treatment. If populations of 150 aphids per linear foot of row are evenly distributed throughout a field and few beneficials are present, consider an insecticide. In high management wheat where there is evidence of fall virus transmission, consider treatment when the number of winged aphids exceeds 15 to 25 per linear foot of row. At grain head emergence, a treatment may be necessary once populations exceed 20-25 per head. If the crop is approaching the hard-dough stage and there is good beneficial insect activity, no control should be needed.

Small Grain Aphids - 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 label for restrictions)
Baythroid XL (beta-cyfluthrin)	1.8 – 2.4 oz	30	Restricted Use. Barley, Oats, Rye, Triticale and Wheat Only.
Dimethoate 4 EC (dimethoate)	0.5 - 0.75 pt	35	Restricted Use. Wheat Only.
Lannate LV (methomyl)	0.75 – 1.5 pt	7	Restricted Use. Barley, Oats , Rye and Wheat Only.
Malathion 57 EC (malathion)	1.5 - 2.0 pt (Barley) 1.5 pt (Oats, Rye, Wheat)	7	Restricted Use. Barley, Oats, Rye, and Wheat Only.
Mustang MAX 0.8 EC (zeta-cypermethrin)	3.2 – 4.0 oz	14	Restricted Use. Wheat and Triticale Only.
Warrior II (lambda-cyhalothrin)	1.28 – 1.92 oz 1.92 oz (greenbug)	30	Restricted Use. Barley, Oats, Rye, Triticale, and Wheat Only.

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