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Controlling aphids on small grain



Controlling aphids on small grain

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The three most important aphids on small grain in South Dakota are the greenbug, the oat-bird cherry aphid, and the English grain aphid. Any of these aphids may cause serious economic loss as a direct result of their feeding. They may also carry barley yellow dwarf virus, and thus be indirectly responsible for severe stunting of plants and sharply reduced yields.

These cereal aphids are not known to overwinter in large numbers in South Dakota; winged females are blown in on southerly winds each year. All of these aphids feed and reproduce on all small grains and on many cultivated and wild grasses.

Greenbug

Greenbugs are pale green; adults have a dark green stripe along the mid-line of the back. Adults attain a length of approximately 1/16 inch and are winged or wingless. Winged forms are distinguished by having brownish-yellow heads and black lobes on the back of the thorax. Their filmy wings have about a 1/4 inch expanse from wing tip to wing tip.

Females blown in from the south begin to deposit living young, which are all females, almost immediately upon arrival. Immature greenbugs mature rapidly (7-18 days, depending on temperature) and then reproduce asexually for up to 30 days. Each female may give birth to 80 young during her lifetime. This reproductive potential, combined with the short maturation time, permits aphid

populations to increase explosively in infested fields.

Greenbugs may be the most destructive of the cereal aphids. During the feeding process they inject a toxic saliva into the plants. The brown stippling where feeding punctures were made are distinctive and can be used to diagnose greenbug feeding damage even if the greenbugs are absent.

Oat-Bird Cherry Aphid

Wingless oat-bird cherry aphids are dark olive green with a large red area on the back of the abdomen. The tips of the legs, the cornicles (two tubes projecting backward from each side of the abdomen), and the antennae are black. Winged aphids are dark green and black. Colonies of this aphid typically form on the lower portions of the stems or on underground parts of plant crowns, and later appear on leaf surfaces.

English Grain Aphid

The English grain aphid is pale green, with black antennae and cornicles and legs widely banded with black. Winged and wingless forms are about the same size and color.

This insect usually passes the winter in fully or partly grown forms in the southern states, however it is also capable of wintering in those areas in the egg stage. This insect feeds on small grains as well as wild and cultivated grasses.

Nature and Extent of Injury

Aphid feeding in small grains can cause fewer grain heads, lower numbers of kernels per head, reduced kernel weight, or all of these. Yield

losses are most likely to be caused by aphids feeding on seedlings, but some losses can occur from feeding at boot stage.

Greenbug numbers averaging as low as 10 to 15 per stem on seedling (two-leaf) plants can cause measurable loss of yield at harvest. Average populations of 20 to 30 per stem may reduce kernel numbers and weight by 50%. Heavy greenbug infestations will kill plants and reduce stand, or destroy the plants in an entire field.

Comparable numbers of the oat-bird cherry aphid can cause similar losses. Aphid numbers of 40 to 50 per plant at boot stage may reduce yields 20 to 30%, depending upon drought stress, plant nutrition, and stand density.

English grain aphids usually do not become numerous until small grains are mature and must reach numbers of 100 per plant or more to reduce yield. If this aphid does become abundant during the boot stage or earlier, populations of 50 to 60 per plant can reduce harvest yields by 50%.

With all of these aphid species, natural enemies in the spring help to hold the populations in check. However, during cool springs these aphids can become a problem.

No endorsement of specific products or equipment named is intended, nor is criticism implied of those not mentioned.

Granular Insecticides

Table 1. Insecticides currently registered and recommended for planting time treatments for aphid control on small grains.

	Rate A.I. Acre ¹	Restrictions
Thimet	1 lb	See latest insecticide label for restrictions on forage and grain harvest.
Di-Syston ²	1 lb	See latest insecticide label for restrictions on forage and grain harvest.

¹Based on 7-inch drill spacings.

²Approved under a 24C label in South Dakota.

Only granular formulations of these



Wheat or small grain fields infested with greenbugs usually show deadened areas. The dark area in the photo at left was treated with an insecticide for greenbug control. The lighter area in that photo was untreated.

insecticides are recommended at planting time as liquid formulations will not give complete fall protection. A systemic treatment at planting time at recommended rates eliminates any need for a foliar spray during the growing season.

These granular insecticide formulations cannot be directly mixed with the seed in the drill box. Application can be made with a properly calibrated grass seeder attachment on the drill. The grass seeder tube attachments should be placed into the seed tube so that the insecticide is placed in the seed furrow along with the seed. For rates of application and calibration see Table 2.

Table 2. Calibration and rates of application of granular insecticide for use on small grains.

Row Spacings	15% granules/acre		10% granules/acre	
	15% granules/acre		10% granules/acre	
7- or 8-inch rows	6.5 lb		10 lb	
10-inch rows	5.5 lb		8 lb	
12-inch rows	4.5 lb		7 lb	
14-inch rows	4.0 lb		6 lb	

Calibrate the seeder or granular applicator by measuring off 330 feet and catching the granules from two insecticide tubes for this distance. When properly calibrated, there should be a total of 1 ounce of 15% granules or 1.5 ounce of 10% granules delivered from the two tubes over the 330-foot distance. Use a small diameter plastic glass or tube as a measuring device. Preweigh 1 ounce and 1.5 ounce samples and mark these levels on the measuring tube before using it in the field.

Insecticide Sprays

Where damaging infestations of aphids become established, foliar applications of insecticides are recommended (Table 3).

Table 3. Insecticides for aphid control on small grain.

Insecticide	Crop	Rate A.I./Acre	Restrictions
Dimethoate (Defend, Cygon)	Wheat	4 oz	Do not apply within 14 days of grazing, or 60 days of grain harvest.
*Di-Syston	Wheat	8 oz	Do not apply within 21 days of harvest. Post warning signs on treated fields to prevent re-entry for 3 days.
*Parathion	Wheat Oats Barley	8 oz	Do not harvest for 15 days. Post warning signs on treated fields to prevent re-entry for 3 days.
Penncap M	Wheat	8 oz	Do not harvest for 15 days.
Malathion	Wheat Oats Barley	1 lb	Do not apply within 7 days of harvest.

*Di-Syston and parathion are recommended only for use by commercial aerial applicators. See insecticide label for latest information before using.

The only insecticides recommended for ground sprayers are dimethoate, (Cygon and Defend), Penncap M, and malathion, because the toxicity range is such that they can be applied safely by ground sprayers. Both Di-Syston

and parathion are highly toxic in liquid formulations. Ground spraying equipment should be calibrated to deliver 4 to 10 gallons of water. Most farm weed sprayers are satisfactory. During the fall when temperatures are usually below 60°F, the use of parathion or malathion is not recommended. Dimethoate and Di-Syston will effectively control aphids at lower temperatures.

Aerial Application

When insecticide treatments are applied by air, any of the recommended treatments may be used. It is suggested that 1 to 2 gallons of water per acre be used, if necessary for good coverage.

Precautions

Insecticides are poisonous; handle and store them with care. Be sure to read the label and follow the directions. Keep children and pets out of the area where chemicals are stored, mixed, or used.

Do not contaminate feed, feed containers, or water troughs. Carefully clean all contaminated planting equipment. Destroy all emptied containers so they cannot be used for any purpose. Post warning signs on treated fields as recommended.

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