

*Providing Leadership in Environmental Entomology*

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## CEREAL APHIDS AND THEIR MANAGEMENT

Aphids are small insects (up to 3/16" length in wheat) that typically can be recognized by the cornicles ("dual exhaust pipes") protruding from the back of the body. Aphid populations can expand very rapidly. They give birth to live young, nearly all of which are female and capable of reproduction without mating. These young can give birth themselves in less than a week. Under South Carolina conditions, reproduction can occur throughout the winter, with many generations per year. Aphids damage wheat and other small grains by direct feeding injury and by transmitting barley yellow dwarf virus. There are five species of aphids commonly found on wheat in South Carolina.

**Greenbug** - Greenbugs are pale yellow-green aphids with a darker green stripe running down the middle of the back. Their cornicles are short (less than 1/10 body length) and pale, with black tips. Greenbugs can often be recognized by their feeding injury on



Greenbugs on tillering wheat.

seedling and tillering wheat. The leaves have a pale area with dark spots where a greenbug colony is feeding. Greenbugs are the first aphids to colonize seedling wheat in South Carolina. Their populations typically peak in December and then decline for the rest of the growing season. Greenbugs are not believed to cause much economic injury to wheat in our state.

### **Bird Cherry - Oat Aphid and Rice Root Aphid -**

These two aphids are closely related and look very much alike except under high magnification. The immature (wingless) stages of both have a green body with a reddish rear-end surrounding the base of the cornicles.



Bird-cherry oat aphids on tillering wheat.



Rice root aphid below soil line.

Winged adults are dark-colored, looking almost black to the naked eye. One way to help distinguish the immature stages is that the bird cherry-oat aphid (BCOA) is found above ground and the rice root aphid (RRA) is often on the stem below the soil line. Under high magnification, the wingless RRA has long hairs on the antennae which are absent on BCOA. Both of these aphids can vector (transmit) the pre-dominant strain of barley yellow dwarf virus found in South Carolina. BCOA in particular is an important economic pest of wheat because it has been correlated with yield loss from this virus. BCOA populations usually increase through January and February, then peak in March. Wheat needs to be checked for BCOA during the tillering stages in Jan. and Feb. to prevent virus transmission.

**English Grain Aphid** - These aphids can be or pink as immatures. They have cornicles which are black



English grain aphids on flag leaf.

for while later-infected plants are their entire length instead of being black-tipped susceptible to this virus like the greenbug. The winged form

of EGA is light green with long black cornicles. EGA is usually the last aphid to colonize wheat. EGA can be found at low levels early in the growing season (Dec. - Jan.), then it increases on leaves in March and April before colonizing the emerging heads. Because this aphid can occur in very high numbers on the heads, it is the species that usually gets noticed and treated -

often after it is too late to do any good. EGA causes direct feeding injury to the flag leaf and head, and is also capable of transmitting barley yellow dwarf virus.

**Corn Leaf Aphid** - The corn leaf aphid is pale bluegreen with short black cornicles. The cornicles have a distinctive dark area at their base. This aphid is relatively rare in South Carolina wheat and is not of major economic importance.

**Barley Yellow Dwarf Virus** - This aphid-vectored disease may cause yellow, stunted areas in tillering or jointing wheat, but more typically the symptom first appears on the flag leaf. Depending on variety, the flag leaf may be yellow and/or red at the tip and extending down the leaf margins. These flag leaves turn brown prematurely and the heads may turn dark and have shriveled kernels. Early infection causes "bowl-shaped" areas in the field because the first

plants infected are stunted, while later-infected plants are of normal height but have the flag leaf symptoms.



Barley yellow dwarf virus symptoms on flag leaves.

Early planted fields are most susceptible to this virus because they tend to have the highest aphid populations. Coincidentally these same fields often have the highest yield potential and therefore greatest risk of economic loss.



Shriveled kernels from BYDV.

**Scouting for Aphids** - Aphid scouting is a job for the trained crop consultant. High management wheat fields should be periodically checked for aphids from tillering in Nov. - Dec. until the milk stage in April. The practical approach is to scout for aphids just before other field practices are performed such as early season weed control, N application or fungicide treatment. To scout during tillering and early jointing, place a 6" rule along the row and carefully examine the leaves, stems and soil surface for aphids. About six of these samples will usually provide a good indication of aphid infestation. As with any



Closely examine tillering plants and soil surface.

field sampling program, more samples are needed to make a decision in borderline threshold fields, and fewer are needed when the population is consistently very high or low. At least once during tillering, carefully uproot the plants and examine the white stems just below the soil surface for rice root aphids. After wheat reaches the two-joint stage, it is more practical to count aphids per stem rather than per row ft.

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**APHID TREATMENT GUIDELINES:**

Wheat growth stage	Aphid Species	Treatment Guideline
tillering - jointing	bird cherry - oat aphid	8 / row foot
jointing	English grain aphid	2-3 / stem
head emergence to bloom	English grain aphid	5 /stem
milk	English grain aphid	10 /stem
dough	Too Late	

FOLIAR APHID TREATMENT				
Product	Formulation Rate	Lbs ai/ac	Comments	Min. days to harvest
lambda-cyhalothrin WARRIOR T	1 gal / 50-33 ac	0.02 - 0.03	READ THE LABEL	30
SEED TREATMENT				
imidacloprid GAUCHO 480	1 ½ fl oz / 100 lb	Gaucho seed treatment provides effective early season control of aphids and suppresses barley yellow dwarf virus. Also suppresses Hessian fly.		