

8-10-1998

## Be aware of corn leaf aphids

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### Recommended Citation

Pope, Richard O. and Tollefson, Jon J., "Be aware of corn leaf aphids" (1998). *Integrated Crop Management News*. 2260.  
<http://lib.dr.iastate.edu/cropnews/2260>

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# Be aware of corn leaf aphids

## **Abstract**

Field specialists and crop advisors in southern and western Iowa report the development of potentially serious corn leaf aphid infestations. Insecticide treatment is ineffective while the tassels are still in the whorl, but fields with in-whorl aphid populations need to be watched.

## **Keywords**

Entomology

## **Disciplines**

Agricultural Science | Agriculture | Entomology

# INTEGRATED CROP MANAGEMENT

## Be aware of corn leaf aphids

Field specialists and crop advisors in southern and western Iowa report the development of potentially serious corn leaf aphid infestations. Insecticide treatment is ineffective while the tassels are still in the whorl, but fields with in-whorl aphid populations need to be watched.



[1] **Corn leaf aphids on a corn tassel.**

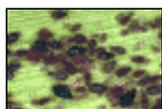
Aphids do not interfere with pollination unless most corn tassels are heavily covered with aphids and their honeydew secretions. Feeding by large colonies of aphids can reduce yields significantly. Aphid colonies can slowly kill the tassel and top few leaves of a corn plant. The plant responds by shunting nutrients to the feeding area and not to the developing ear, resulting in stunted ears or even barren plants.

Adult aphids are either winged or wingless and less than 1/25 inch long. Adults are greenish-blue with black cornicles (tubular structures on each side of the abdomen) and legs. Nymphs look similar to adults, but they are smaller, lighter in color, and wingless. Aphids molt and leave shriveled white skins amid the colony. Beneficial insects usually parasitize some aphids, which helps reduce the population. Parasitized aphids can be recognized as swollen brown mummies that stick to the leaf.



[2] **Aphid mummy - the result of parasitism.**

Corn leaf aphids overwinter in the southern United States and are carried into Iowa on prevailing winds each spring. By mid-June, the aphids infest corn and sorghum. Populations can increase rapidly because they become reproductive 11 days after birth, and they give birth to live young. When conditions are favorable (hot, dry weather), the aphid population can grow faster than the parasitoid population, resulting in increased damage.



[3] **Corn leaf aphids and molted skins.**

Assessing the potential for aphid damage involves both the determination of how dense the aphid populations are on individual plants and how prevalent the infested plants are in the field. Estimated economic thresholds for treatment have been developed for corn leaf aphid based on yield prospects, anticipated corn market price, and intensity of infestation (Table 1). Most damage from the aphids occurs just before and during pollination, and scouting is critical. You cannot treat aphids while they are protected in the whorl, even though they cause losses. Light infestations can develop into moderate or severe infestations within a week or two. Repeated scouting is needed as tassels emerge and shortly thereafter.

The decision to treat or not depends on considerable subjective assessment about the intensity of aphid infestations. Within the same field, you can have plants infested with different-sized populations of aphids. Use the information in Table 1 to help you plan treatment strategies. The data were generated from research first published in 1973 and have been refined in succeeding years.

The formula to calculate estimated treatment thresholds is as follows:

**treatment cost / (estimated yield X estimated market price X yield loss factor)**

An example for 120 bushels of corn worth \$2.10 per bushel with severe infestations (see Table 1) and moderate (intermediate) moisture conditions is as follows:

**\$13.00 cost / (120 bu/acre X \$2.10 per bu X 0.5) = \$13.00 X 126 = 10% plants infested.**

Yield loss factors for each infestation level are presented as a range, from little stress to high stress. For the example, we estimated that stress is intermediate, and therefore midway between the high and low points of 0.34 and 0.74, so we used 0.5 as a factor. If your treatment cost is significantly higher or lower, substitute that figure in the formula. Use the equation below to fill in numbers specific to your situation.

Your treatment cost / (your yield expectation X your corn price X your yield loss factor)

\_\_\_\_\_ / (\_\_\_\_\_ X \_\_\_\_\_ X \_\_\_\_\_ X \_\_\_\_\_) = \_\_\_\_\_ % plants infested

If aphids are present deep in the whorl and are feeding on the unemerged tassel, we recommend that you don't treat the crop because the insecticide (Table 2) cannot reach the aphids. If aphids are present outside the whorl or on the tassel, use the information in Table 1 and consider the percentage of plants that have moderate, severe, and very severe infestations. If 20 percent or more of the aphids is parasitized and predators (e.g., ladybug larvae) are actively feeding on the aphids, an insecticide application may not be needed.

**Table 1. Potential for aphid damage to corn.**

		<b>Percentage of plants infested, assuming moisture conditions are intermediate Anticipated yield and corn price</b>

Infestation level	Yield loss factor (no moisture stress/dry soils)	120 bu/\$2.10	150 bu/\$2.10	120 bu/\$2.40	150 bu/\$2.40
Very light (0-50 aphids)	0.00/0.00	*	*	*	*
Light (51-400 aphids)	0.04/0.06	*	*	*	75
Moderate (400 aphids on tassel)	0.07/0.25	34	28	30	24
Severe (aphids on most of tassel)	0.34/0.74	10	8	8	7
Very severe (aphids covering tassel and upper leaves)	1.0/1.0	5	4	4	4

\*Treatment not necessary.

**Table 2. Insecticides labeled for corn leaf aphid control.**

Insecticide	Amount of product per acre	Harvest interval (days)
Asana XL 0.66 EC*	5.8-9.6 ounces	21
Di-Syston 8 EC*	8-16 ounces	28
Lorsban 4E	1-2 pints	35
Metasystox-R 2SC*	1.5-2 pints	7
PennCap-M*	2-3 pints	12
Pydrin 2.4EC*	5.3-10.6 ounces	21
Warrior*	2.56-3.84 ounces	21

\*Restricted use pesticide.

This article originally appeared on pages 159-161 of the IC-480(21) -- August 10, 1998 issue.

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