

# INTEGRATED CROP MANAGEMENT

## Scouting for European corn borers

European corn borers are flying across the state and laying eggs, especially on the taller corn. This article provides an overview of first-generation European corn borer damage, scouting suggestions, economic thresholds, and possible insecticides for control.

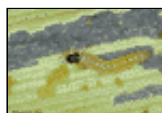
### How much yield loss can first generation corn borers cause?

It really varies by hybrid and environmental stress. Research has shown that a single corn borer will cause a 6 percent yield loss tunneling into 10-leaf-stage corn or 5 percent yield loss tunneling into 16-leaf-stage corn. This yield loss can be multiplied by the number of corn borers per plant up to six larvae per plant, so yield loss can be severe with large infestations.



[1]

**Newly-hatched larvae are very small and may be hard to find in the corn whorls.**



[2]

**Newly-hatched European corn borers have a black head and light-colored body.**

### What does corn borer injury look like?

Young larvae crawl deep inside the whorl after hatching and eat small holes in the leaves. When the whorl leaves emerge, the small holes (called shotholes) are easy to see. Shotholes indicate that larvae were feeding inside the whorl, although they may have since died or moved to a different plant. Therefore, do not spray fields based on shothole damage; you must find and count the European corn borers.



**[3] Corn borer shotholes in corn leaves.**

### Where should scouting start?

The moths are most attracted to the tallest corn, so begin there. Look for shotholes in the

leaves after corn reaches 17 to 21 inches in extended leaf height. When shotholes or larvae are found in the taller corn, then scout fields with smaller corn. There is very little reason to scout a field for larvae if no shotholes are being found in the leaves.

## How do you scout a field?

Walk at least 100 feet in from the field edge. Each field and each variety within a field should be scouted separately. Pull the whorls from five plants at five locations across the field (10 plants at five locations would be even better). Whorls should be selected at random. Do not pull whorls only from plants with shotholed leaves because this approach will overestimate the European corn borer population. Unwrap the whorl leaves and count the number of live larvae. Counting larvae inside the whorls is important because you need to estimate the potential yield loss. Do not count shotholed plants because this approach cannot determine the number of live European corn borers inside the whorl.

## Is an insecticide application necessary?

This depends on the average number of European corn borers per plant, the expected corn yield, the market value of the corn, and the insecticide and application costs. Use the economic threshold chart below to make this decision by following these instructions:

1. Estimate the crop value in dollars per acre (expected yield multiplied by crop value per bushel). Look down the left-hand column of the chart until you find this crop value.
2. Determine the treatment costs per acre (insecticide plus application cost).
3. Look down the treatment cost per acre column until it intersects the appropriate row with the crop value. Where the row and column intersect, this number is the European corn borer economic threshold. If the average number of European corn borers per plant in your field equals or exceeds the economic threshold, then the benefits (saved bushels of corn) should exceed the costs (insecticide and application) and provide an economic return.

As an example, if the expected crop value is \$400 per acre and treatment costs are \$16 per acre, then the European corn borer population would need to average 0.83 or more insects per plant before you could justify an insecticide application.

## When should a field be sprayed?

First, do not spray too early. If most of the larvae found are small (less than 1/4 inch), then wait 3-5 days for additional larvae to hatch or possibly for larvae to die from natural causes such as inclement weather (rainstorms, high wind, or high temperatures), disease, or from predation by beneficial insects. Second, if an insecticide is needed, be sure to spray before very many larvae are 1/16 inches in length (about the length of a dime). Larvae this length are in the 4th instar. At this stage they leave the whorl or leaf midrib and tunnel into the stalk where an insecticide cannot kill them. Larvae can be controlled with an insecticide but application must be done before they begin boring into the stalk. The economic thresholds assume 80 percent control by an insecticide.

## What if the economic threshold is not reached?

Wait 3 to 5 days for additional larvae to hatch, then scout the field again. More larvae may be found and the economic threshold reached. However, some of the earlier-hatched larvae may have died from natural causes such as disease, predation by beneficial insects, or inclement weather during this time. Do not add the previous counts to the most recent field counts. Discontinue scouting when no newly hatched larvae are found and large larvae are tunneling into the stalk.

## What insecticides are labeled?

The most commonly available products are listed herein. Be sure to consult the insecticide label for complete details regarding use. Liquid and granular formulations of the same insecticide work about equally well when used with ground equipment. The percentage of control may decrease when liquids are applied by air so granules may be the best choice if an airplane is used.

Manufacturer label rates are shown for the amount of product per acre unless stated otherwise: Ambush 2E (6.4-12.8 ounces), Asana XL (7.8-9.6 ounces), Bacillus thuringiensis (see label for specific product rates), Capture 2EC (2.1-6.4 ounces) Furadan 4F (1.5-2 pints), Lorsban 15G (6-8 ounces per 1,000 row feet or 5-6.5 pounds broadcast), Lorsban 4E (1.5-2 pints), PennCap-M (2 pints banded or 3-4 pints broadcast), Pounce 1.5G (8-16 ounces per 1,000 row feet or 6.7-13.3 pounds broadcast), Pounce 3.2EC (4-8 ounces), and Warrior T or 1E (2.56-3.84 ounces).

**Table 1.** Economic thresholds for first-generation European corn borers.\*

	<b>Treatment costs per acre (insecticide + application)</b>						
Crop value (\$ per acre)	\$8	\$10	\$12	\$14	\$16	\$18	\$20
300	0.56	0.69	0.83	0.97	1.11	1.25	1.39
325	0.51	0.64	0.77	0.90	1.02	1.15	1.28
350	0.48	0.59	0.71	0.83	0.95	1.07	1.19
375	0.44	0.56	0.67	0.78	0.89	1.00	1.11
400	0.42	0.52	0.63	0.73	0.83	0.94	1.04
425	0.39	0.49	0.59	0.69	0.78	0.88	0.98
450	0.37	0.46	0.56	0.65	0.74	0.83	0.93
475	0.35	0.44	0.53	0.61	0.70	0.79	0.88
500	0.33	0.42	0.50	0.58	0.67	0.75	0.83
525	0.32	0.40	0.48	0.56	0.63	0.71	0.79
550	0.30	0.38	0.45	0.53	0.61	0.68	0.76

575	0.29	0.36	0.43	0.51	0.58	0.65	0.72
600	0.28	0.35	0.42	0.49	0.56	0.63	0.69
625	0.27	0.33	0.40	0.47	0.53	0.60	0.67
650	0.26	0.32	0.38	0.45	0.51	0.58	0.64

\*Control is justified if the number of European corn borers per plant equals or exceeds the economic threshold.

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