

Bt Corn: Should You Buy It?

Steve Spangler
Entomologist
Penn State

Since about 1920, corn growers in the East have been dealing with yield losses from the European corn borer.

This insect takes a bite out of our corn production because it eats into the stems (see photo) and shanks of the ears, causing stalk and ear breakage, eats holes into the leaves in June ("shothole" damage), and eats the ear kernels. And if this is not enough for us, this damage can

create entrance for plant diseases which cause stalk and ear rots, and may increase mycotoxin levels.

On the average, this insect takes about 3 to 6 percent of our yields, with some fields showing no economic losses but some showing much more than this average amount of loss.

The most obvious evidence of corn borer at this time of year is stalk and ear droppage and holes in the stems with "frass" (sawdust-looking material).

To look for this damage, take a kitchen knife (please be care-

ful!), cut the plant off, and cut lengthwise down the stalk. Look for stalk tunnels and larvae. Also, take off the ear leaves and look for damage, and also on the shank.

Are you seeing significant stalk tunneling and larvae? Remember, each larva tunneling through a plant and making it to full size takes about 3-7 percent of your corn grain yield.

How many of you have actually done anything to control corn borer? Probably very few. Estimates in Pennsylvania indi-



CORN TALK NEWS

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An example of a corn stalk showing European corn borer larvae and pupae and the tunneling caused by this insect.

cate that only about 1 percent of our corn fields have used an insecticide to control corn borer — and probably for good economic reasons. It costs about \$15 per acre to apply an insecticide (that doesn't include the costs of scouting for the insect) and you will only achieve an average of about 70 percent kill of corn borer. Put these two factors together and most growers have been making good economic decisions in not controlling corn borer. Also, in past years we have been dealing with grain prices of about \$2.50/bushel.

Bt corn might be changing this picture. We now have plants ("Bt corn") which, because of biotechnology, have a new gene in them which produces a toxin that kills corn borer. This toxin is present in tissues, particularly the green tissues, and kills the young larvae or "worms" when they chew into the plant.

The effect on corn borer is quite dramatic: 95-100 percent of the young larvae are killed, compared to about 70 percent with normal insecticides. The


other factor that this new technology has changed is the cost of control. Seed companies are stating that they will charge about a \$7 per acre premium on a bag of Bt seed over a non-Bt seed. Compare this with the \$15 or so cost of applying a conventional insecticide to control corn borer.

The result of these differences is that now, the use of Bt corn will pay off in 50-80 percent of the corn fields in the U.S. as opposed to less than 10 percent of the fields justifying a conventional pesticide treatment that we have had to date.


Also, don't forget the \$4.50/bushel price we are seeing now — that may make both Bt corn and normal corn borer control more economical to use.

But there is an important assumption to this analysis which states that Bt corn will pay off in 50-80 percent of the corn fields in the U.S. The Bt hybrids have equal yield potential of the non-Bt hybrids. If the Bt gene is put into a hybrid that has superior yield potential to

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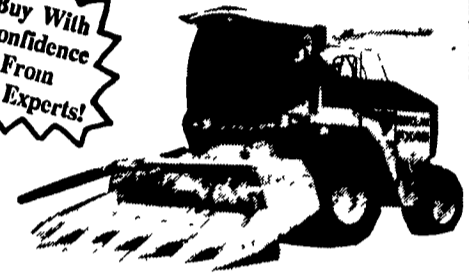


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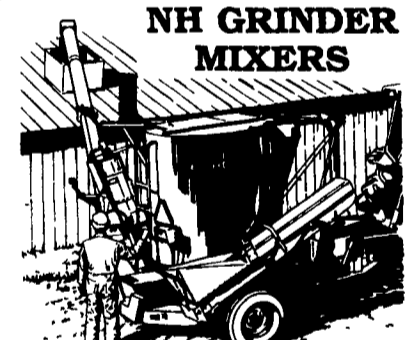
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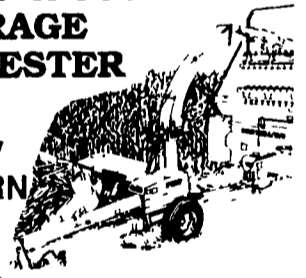


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