

# Corn Rootworms Cause Havoc

UNIVERSITY PARK (Centre Co.) — A Penn State entomologist said this year's growing season is proving to be one of the worst in recent memory for stalk lodging and yield reductions caused by corn rootworm.

"Corn growers in the state have seen drought-stressed corn plants fall over after receiving much-needed moisture from recent rains," said Dennis Calvin professor of entomology in the College of Agricultural Sciences. "These plants had few roots left after the ravenous feeding of corn rootworm larvae. Rains softened the soil and winds blew the plants over because the weakened root systems could not hold them up."

Calvin said the rootworm effect on corn yield depends on the percentage of the field that is "lodged," a term used by entomologists to describe plants that have fallen over due to damage by the corn pest. Another factor affecting yield is the moisture conditions for the remainder of the growing season.

"Corn plants have a remarkable ability to recover from insect injury, but it's really dependent on moisture conditions," Calvin said. "Good moisture conditions will allow many plants to regenerate a root system, but these plants still will sustain a 10 to 20 percent reduction in grain yield if they have been lodged."

Calvin estimates grain yield reductions may reach 50 percent in some fields if moisture conditions remain poor during the growing season. However, if corn plants remain erect and adequate moisture is present, they will sustain very little reduction in yield.

Calvin said favorable weather conditions and other factors allowed corn rootworms to thrive this year. "A mild winter provided an excellent climate for egg survival," he explained. "A warm and dry April was followed by an extended cool period in May that delayed corn emergence and corn rootworm development. This delay in emergence led to corn plants with root systems that were smaller and more vulnerable to injury from rootworm larvae."

Because of cool spring weather, the corn rootworm egg hatch also was delayed. The rootworm larvae usually appear in May, but this year's weather conditions put off the pests' emergence until mid- to late June.

"Soil insecticides are designed to protect the corn's root system against corn rootworm larvae for only six to eight weeks," Calvin said. "An insecticide applied to a corn field that was planted in late April would have degraded to a level too low to protect vulnerable corn roots by the time egg hatch began. Even fields planted in mid-May had lost much of the soil insecticide's

ability to protect the root system by late in the insect's egg hatch period.

"To make matters worse, drought conditions developed during the period when corn rootworm larvae were actively feeding, preventing corn plants from regenerating new roots to compensate for those lost," Calvin said. "These factors in combination have led to extremely high numbers of adult beetles feeding on newly emerging silks. In a number of fields, silk feeding becomes so intense that it interferes with corn pollination, causing further yield reductions."

Calvin said farmers can use insecticides in mid- to late August to control adult corn rootworm beetles under certain conditions. "If five or more adults are counted per plant feeding on green silks and the silks are being cut back into the silk channel of the husk, then pesticide control is justified to prevent interference with pollination," Calvin said. "Keep in mind that high numbers of beetles on whorl-stage corn should not be used to make a treatment decision. Adults in these fields will tend to move to fields in green silk when available. The females are drawn to freshly



# CORN TALK NEWS

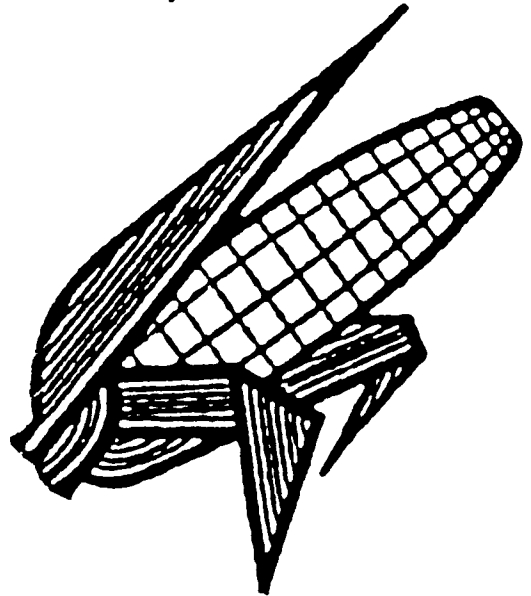
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silking fields because they offer pollen that is needed to develop their eggs. An insecticide applied to whorl-stage corn will kill the majority of corn rootworm beetles, but will not last long enough to protect the plants from silk clipping.

"Once green silks begin to emerge, new beetles will be drawn into the field from surrounding fields," he said. "If the insecticide has broken down, it cannot protect the field over the 10- to 14-day period required for pollination, potentially making a second application necessary. An in-

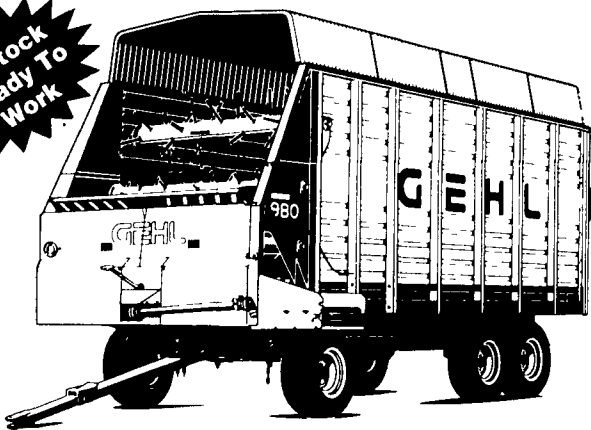
secticide application for adult control should be timed to the beginning of silk emergence."

Calvin said farmers should be prepared to harvest early to minimize harvesting problems due to root system degeneration. "Once roots have degraded, plants will pull out of the ground as the corn picker moves through the field, causing problems with plugging," Calvin says. "In severely lodged fields, harvesting will be considerably slower because of the difficulty in finding and staying in the row."



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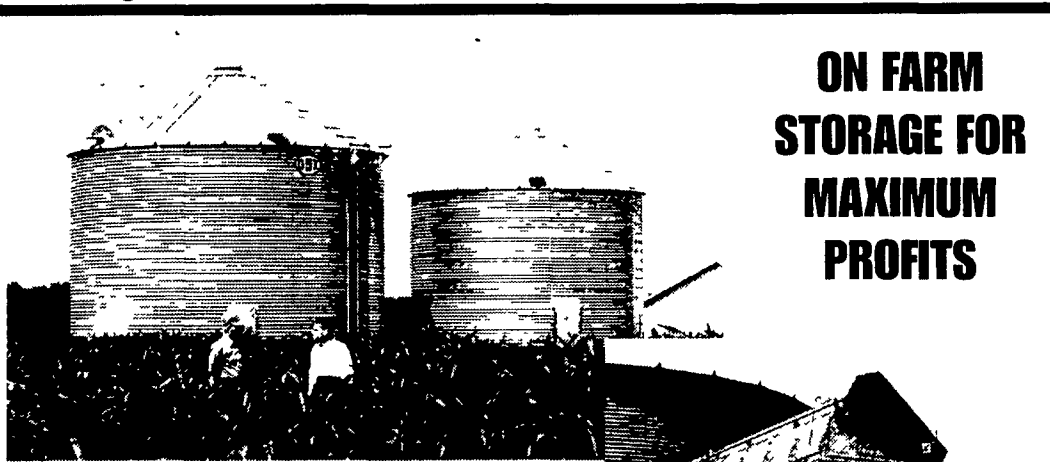
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