

Key to cutworm control may be in corn plants

NEWARK, Del. — The most visible spokesmen for Integrated Pest Management in Delaware are the county agents and pest management specialists of the Delaware Extension Service. But their pest management recommendations are based on extensive research into non-chemical as well as chemical controls by an equally important group, the entomology and insect ecology researchers of the Delaware Agricultural Experiment Station.

John Reese's current work with cutworms is a good case in point.

The black cutworm is a major pest of corn which also attacks over 70 other

crop plants. Although this pest is sporadic in Delaware, there's a good chance we'll be seeing more of it in the future as more farmers turn to no-tillage, according to Delaware extension pest management specialist Mark Graustein.

Recent doubts cast upon the safety of Toxaphene, one of the most frequently used chemicals in cutworm control, make non-chemical controls for this pest all the more desirable.

Reese said he feels the key to non-chemical control for cutworms may be found in the corn plants themselves.

"If every plant were totally susceptible to every insect," Reese explains, "there would be no plants by now. All plants probably

have built-in mechanisms to protect themselves against certain insects. We need much more information about these mechanisms."

It's a well established fact that black cutworms can hurt corn plants, but Reese and his graduate student Merry Field have been demonstrating that certain corn lines can be equally bad for the cutworms' health.

In the laboratory Reese has been allowing cutworm larvae to infest corn seedlings of different breeding lines. At the end of the experimental period when he examines the cutworms, he finds that some have grown well and others have grown poorly. Reese is trying to identify

the mechanisms in certain corn breeding lines that slow down the cutworms' growth, thereby making the insect more susceptible to parasites and predators.

He's working with Experiment Station researcher Jim Hawk to breed these mechanisms into new corn varieties along with such other desirable characteristics as drought resistance and high yield.

Identifying the mechanisms is challenging because they can take several forms.

One corn line may contain a chemical that is slightly toxic to cutworms, while another may have such a high fiber content that the worms would eat the plants without obtaining enough nutrition to survive.

At present the only way to look for these mechanisms is through trial and error — or process of elimination — exposing each individual corn line to the cutworms and waiting to see what happens.

But Reese is working to develop a more efficient, standardized technique for pinpointing the mechanisms that interfere with cutworm growth. Eventually he hopes to be able to tell if a plant contains such a mechanism by analyzing a sample of the plant tissue itself.

This way he would be able to evaluate greater numbers

of plants, thus approaching the goal of deliberately and foresightedly designing insect resistant plants. Selective breeding for cutworm resistance might then proceed much faster.

Graustein feels Reese's work shows great promise

for Integrated Pest Management. The specialist says he's enthusiastic about any approach to pest management that relies on nature's own mechanisms, thereby helping growers cut back on the need for chemicals.

Grain marketing official foresees hog-tied industry

ST. LOUIS, Mo. — A grain company official said Thursday that increased government involvement in agricultural business could trigger a "gridlock" — a regulatory traffic snarl threatening the existence of companies unable or unwilling to cope.

Clarence Palmby, vice president of Continental Grain Company, told a marketing seminar of the American Feed Manufacturers Association here that "over-regulation is a growing concern to every industry and every business established and financed to earn a satisfactory return on investment."

Attacking short-sighted government policymaking and resultant flawed legislation, Palmby cited the plan whereby corn to be used for gasohol would be made available, under certain conditions, to such manufacturers at preferential prices.

Calling this concept "disruptive to established marketing, transporting and handling mechanisms", he asked: "Why not let the corn

come from the marketplace?"

In reviewing upcoming legislative proposals, Palmby was critical of the suggestion that production costs be included in farm programs to be considered.

He said inclusion of the cost of production principle would assign the U.S. Department of Agriculture a "task that cannot be done with any degree of accuracy."

Palmby argued that producers benefit most when allowed to use their own judgment in forward planning.

"They always suffer," he added, "sometimes after a delay of several years, if they are offered benefits tied to a historical past."

He noted the price of corn in this country and the world has not kept pace with most other traded commodities such as petroleum, silver and gold, inviting intercession by the "quick fixers."

"I am aware of loud voices from quarters uninformed on either the history or the sensitivity of the corn

pricing structure," he said.

He sees as a plus the fact that the United States has both the ability to produce and the financial and technological wherewithal to carry inventory.

"Many of our largest importing customer countries buy on a 'hand-to-mouth' basis. This being the case, we should acknowledge and exploit the fact that domestic carryovers can be dollar earners," he continued.

"To adopt a policy any less ambitious would certainly jeopardize our present price discovery system."

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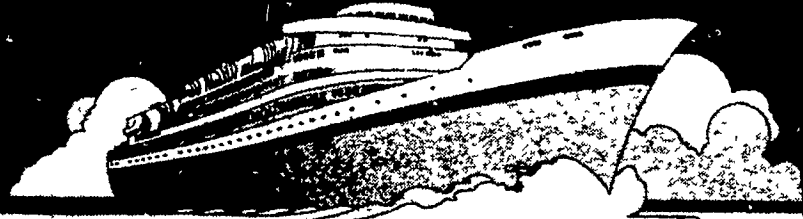
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