
The Promise of Areawide IPM

A conversation with Carrol O. Calkins, Agricultural Research Service's coordinator of the Codling Moth Areawide Suppression Program in the Western States.

Ag Res: What is areawide insect suppression?

Calkins: It's a strategy for controlling insect pests on land farmed by several neighboring growers. Covering an extensive area is crucial to minimizing accumulation of insects at orchard borders, pesticide drift, and immigration of pests. Otherwise, when individual growers battle insects in an unorganized, unplanned approach, the pests often get the upper hand.

Ag Res: How large are these areawide units?

Calkins: That depends on the commodity and the pest. In the case of codling moths in apples and pears, the area may be as small as 400 acres farmed by just a few growers. For something like corn rootworm, an areawide unit may involve thousands of acres. The size of the area largely depends on the mobility of the insect involved.

Ag Res: You are working on codling moth suppression, and you used corn rootworms as an example. Are there any other areawide ARS programs under way or in the planning stages?

Calkins: In Mississippi, the agency is undertaking an areawide program using a viral disease of the tobacco budworm, a pest of cotton. This program began in 1987, and ARS is now testing the technology on large geographical areas equivalent to 314 square miles. ARS intends to initiate one or more new projects this year, but the pests to be targeted are still under discussion and review.

Ag Res: Why is there such interest in these programs?

Calkins: The President has asked that 75 percent of the United States' cropland be under integrated pest management by the year 2000. The codling moth program, a part of that effort, will reduce the amount of insecticide used on apples and pears while still protecting the crops through use of economical alternatives. Also, the 1996 Food Quality Protection Act will limit the amount of residues allowed on food items.

Ag Res: What methods and technology are you using to suppress codling moths?

Calkins: The key component is mating disruption. We saturate an orchard with a synthetic sex pheromone that so confuses males in their quest to find females that few actually do mate. The result is that fewer insects are available to infest fruit. This permits a dramatic reduction in insecticide use. In turn, the absence of pesticide has allowed a buildup of natural enemies that attack secondary pests of pome fruits—leafminers, leafhoppers, and aphids.

Ag Res: Have growers come to accept this technology?

Calkins: When we first explained the program to growers, most of them were skeptical. Fortunately, a few were willing to take a chance and sign up. All of the growers in the program are very satisfied with the results and after 2 years, none have dropped out. In fact, many more growers in Washington, Oregon, and California have now asked to enter the program. And several in Colorado and Idaho have also expressed a keen interest in the program.

Ag Res: Has the technology caught on outside the program area?

Calkins: Several large and small growers have tried this on their own. Large growers were more successful than smaller ones, because their acreages were more extensive and they only experienced some damage near the orchard edges.

Ag Res: What has motivated growers to use mating disruption as part of their codling moth control effort?

Calkins: After the technology was initially developed in the 1970s at our laboratory in Yakima, several growers tried it. But they found an insecticide called Guthion [azinphosmethyl] was cheaper and easier to use. Later, codling moth began to show resistance to this chemical in California and in some areas in Washington. The growers then needed a new control technique, and mating disruption was the most promising.

Ag Res: What are the advantages of being enrolled in an areawide program?

Calkins: One is the bringing together of smaller growers so they can derive the same advantages of extensive acreage that large growers enjoy. Under this program, growers at the perimeter of the unit are most at risk from invading insects. We encourage these growers to get their immediate neighbors to come into the program so that the original participants are no longer on the perimeter. This areawide approach has become a bit of a sociological program as well. Neighbors have found they must work together to accomplish pest control, and they have. ♦