

Farmers Go to School in Integrated Pest Management

GATESVILLE—Summer school is in progress on a misty morning in Gates County, but not at the local high school. The students are farmers, their classroom is a cotton field, and their teachers are agricultural extension agents.

The day's subject is entomology—the study of insects—and the farmers are learning how to identify the bugs that can damage their cotton crops. But, perhaps most significantly, the farmers are learning when *not* to spray their fields with pesticides. They're also learning how to recognize the beneficial insects that can control pests without chemicals.

“Contrary to what people might think, I don't think most farmers are out to destroy

the environment,” says one of the student-farmers, W.H. Lassiter of Sunbury. “We've got to live in it too. We use chemicals because we have to. Anytime I can cut back, I'd be glad to.”

Lassiter is among a group of several dozen farmers taking a class in “Integrated Pest Management,” or IPM, offered through the N.C. Cooperative Extension Service. IPM is a systematic approach to farming that seeks to reduce the use of pesticides and other agricultural chemicals.

Integrated Pest Management represents a middle ground between agri-chemical proponents who say that pesticides are nothing to

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Farmers and extension agents “scout” a Gates County cotton field for insect pests.



Tom Mather

Farmers

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worry about and environmentalists who say such chemicals are too dangerous to use at all. Unlike organic farmers, IPM proponents don't shun the use of all pesticides and fertilizers. But IPM users recognize that cutting back on chemicals can save them money while posing fewer hazards to their health and the environment.

"I'm concerned about pesticide use—that's why I'm in integrated pest management," says Mike Linker, IPM coordinator for the N.C. Cooperative Extension Service. "But the thing about pesticides is that they're as close to a miracle for farmers as medicine was for doctors. And pesticides, in my opinion, ought to be used just like medicine. You don't use them just because it's Tuesday or because you've got a headache. You use them only when you get sick."

One of IPM's success stories is the cultivation of cotton. Virtually all of the state's cotton crop is now grown using IPM techniques—which have helped drastically reduce the amount of pesticide applications. In the early 1970s, Linker says, a typical cotton farmer would spray his crop a dozen or more times during the growing season. Now, he says, the typical cotton farmer sprays only two or three times—and some get by with no applications at all. In addition, today's pesticides are much more effective at killing insects, so that a farmer would typically apply only 2 ounces of chemical per acre—compared to 2 pounds per acre in the past.

The use of IPM techniques has helped contribute to an explosion in cotton production in North Carolina in recent years. Another vital factor has been the eradication of the boll weevil—the former nemesis of cotton growers—through an intensive insecticide spraying program in the late 1980s.

"I grew some cotton back in the early 1960s," says Lassiter, the farmer from Sunbury. "The boll weevil and the labor were the main reasons I stopped at the time. At that point, it just wasn't economical." Zackie Harrell, director of the Gates County extension service, says many other area farmers are growing cotton again because of the reduced need for spraying. "That's why we're seeing cotton coming back," he says. "The use of pesticides has been greatly, greatly reduced due to the eradication of the boll weevil. Most people in this county now don't spray but two or three times the whole year."

Integrated Pest Management is actually a collective term for a variety of production methods specific to different crops. Such methods include a number of age-old farming techniques, such as cultivating fields, rotating crops, and timing the planting of seeds to avoid the hatchings of serious pests. IPM also makes use of newer techniques, such as releasing insects that naturally prey on pests. For example, ladybugs can be used to control aphids—one of the most serious insect pests for many crops.

One of the key IPM techniques is "scouting," that is, learning how to recognize harmful and beneficial insects in the field. The farmers in Gates County are learning how to

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—MIKE LINKER, IPM COORDINATOR, N.C. COOPERATIVE EXTENSION SERVICE

Two critically important facts have been overlooked in designing the modern insect control programs. The first is that the really effective control of insects is that applied by nature, not by man. ... The second neglected fact is the truly explosive power of a species to reproduce once the resistance of the environment has been weakened.

—RACHEL CARSON, *SILENT SPRING*

scout for a particular kind of moth and its eggs, which will hatch into caterpillars called boll worms.

"The boll worm is the No. 1 cotton pest in this area," says Marjorie Rayburn, an IPM specialist with the extension service in Edenton. "What we're trying to do is teach the farmers to recognize the worm in its early stages." The key to scouting, she says, is determining whether the number of moth eggs is large enough to warrant spraying. In cotton, that so-called economic threshold occurs when farmers find eggs on more than 10 percent of the plants they check in their fields. Below that level, the cost of spraying would be higher than the damage likely to result from worms. Above that level, the worms could devastate a crop if not sprayed.

"With treatments based on scouting reports, you're not treating unless you absolutely have to," Rayburn says. "What we don't want to do is go out into the field and find a whole bunch of chunky, long worms eating up the cotton. They're harder to treat, it takes a lot more pesticide to kill them, and they've already done a whole lot of damage by that point."

Reginald Askew, a farmer from Eure, says that scouting and other IPM techniques have dramatically reduced the amount of insecticides he sprays on his cotton fields. "We don't use what you call the shotgun approach

anymore," Askew says. "We treat a field only if it needs it. When you find an egg threshold, you spray. Then five days later, you spray again. If we could figure out a way to get rid of the boll worm, virtually all of the need for spraying would be gone."

—Tom Mather



John Van Duyn, an entomology professor with N.C. State University, shows farmers how to spot boll worms, one of the most serious cotton pests.

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