

UW-Madison entomologist helps farmers deal with tricky crop pest

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(PhysOrg.com) -- Historically, crop rotation has worked to keep the western corn rootworm in check in Wisconsin.

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After a [soybean](#) harvest, the state's farmers could rest assured that the corn they planted the following spring would be safe from this damaging pest.

Unfortunately, that's not always the case anymore. For a number of years, parts of Wisconsin have been home to a unique strain of western corn rootworm that figured out how to buck the system.

"It's become resistant to crop rotation," explains University of Wisconsin-Madison entomologist Eileen Cullen. "This is a behavioral variant strain of the normal western corn rootworm population. Rather than mating and laying eggs back in corn, the variant shifted its behavior to lay eggs in soybean fields. The pest has adapted to the fact that soybean fields will be corn the next year."

When the new pest first entered the state in 2003, Cullen, an associate professor of [entomology](#) and extension specialist, worked with farmers and local extension agents across 11 counties to monitor its spread.

During key periods of the 2003-08 growing seasons, the team set out

sticky traps in more than 70 soybean fields on a weekly basis to help assess the risk the insects posed to the following spring's corn crop.

At the same time, Cullen sent out more than 200 surveys to assess farmers' awareness of the new pest, as well as their willingness to scout their own soybean fields — as part of an integrated pest management (IPM) approach — to help decide whether to apply insecticide or plant a rootworm-resistant corn hybrid the next spring.

"We were right at the forefront of this pest coming in as it expanded its range from Illinois into southeastern Wisconsin," says Cullen. "So we weren't just working with the change of the insect, we were also working with the change of farmer awareness and their management attitudes toward this new pest."

On the IPM question, the survey results came back mixed. Many farmers expressed willingness to try scouting their fields, but were cautious about actually implementing the practice. They weren't convinced that the time, labor and trapping expenses would be worth it.

That concerned Cullen. In cases like these, she knows, farmers sometimes choose to protect their crops with preemptive "insurance treatments" that they may or may not actually need. It's an understandable response, explains Cullen, one that reflects the kinds of risk-management decisions farmers must make to attain profitable yields.

Cullen, however, would rather see farmers adopt the IPM approach, which, in the grand scheme of things, is more economical because it allows farmers to skip unnecessary, sometimes costly treatments.

To that end, Cullen teamed up with Paul Mitchell, a UW-Madison assistant professor of agricultural and applied economics, to come up

with IPM-based guidelines for making corn rootworm management decisions.

The two are creating an online decision-making tool to help [farmers](#) identify the most profitable way to protect their first-year corn based on the number of corn rootworms found in their soybean fields the previous fall. At the same time, they are trying to minimize the number of sticky traps and the sampling period needed for the tool to work.

In the meantime, Cullen continues promoting IPM to control this pest. To her, it just makes good sense.

"The positive economic and environmental benefits of collecting insect IPM scouting data before reaching an insect management decision should not be overlooked, particularly when applied over millions of acres in the [Corn Belt](#)," says Cullen. "To treat, if needed — that's profitable. To not treat, if it's not needed — that's profitable, too."

Provided by University of Wisconsin-Madison ([news](#) : [web](#))

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