

North Central Soybean Research Program

Soybean Entomology Research and Extension in the North Central Region Project

FARMERS' NEEDS RELATED TO SOYBEAN INSECT PESTS

Focus group interviews with soybean growers and crop consultants

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EXECUTIVE SUMMARY

In February and March 2021, as part of the North Central Soybean Research Program Project "Soybean Entomology Research and Extension in the North Central Region", four focus group interviews were conducted with soybean growers among 12 states who are leaders in state soybean associations or boards, and one focus group interview with crop consultants.

The purpose of the study was to find about farmers thoughts and feelings regarding soybean insect pests and what they desire from University entomologists to aid in management. The findings of this study will be used by Research and Extension entomologists to:

- Improve current pest management information, tools, and delivery methods
- Create new pest management information, tools, and delivery methods
- Guide future research

We heard **two main concerns/requests**:

- **Farmers and crop consultants would like real-time "alerts"** about current pest pressure, dispersal direction, and management options. farmers and crop consultants do not like surprises, particularly when it comes to insect pests. They want pests to be predictable and controllable.
- **Farmers and crop consultants are concerned about the overapplication of pesticides that is leading to resistance. They would like help from land grant universities and Extension to increase adoption of IPM recommendations.** As one crop consultant said, "See a bug, kill a bug" is not a strategy anyone should be using. Some farmers and crop consultants are concerned about retailers who promote excessive spraying. According to participants, adding insecticide to the tank when applying another pesticide, even when insect pests are not present or near economic thresholds, "happens pretty regularly." The practice is marketed as preventative, an "insurance policy," a time and money saver, a way to sleep easier.

These are potentially conflicting requests. The danger is that sending "alerts" would alarm farmers, fuel aggressive retailers, and unintentionally increase the misuse of insecticides.

Therefore, alerts should contain threshold information and remind growers of resistance issues related to over spraying.

We heard example after example of how decisions related to insecticide applications are not based on scouting and economic thresholds. Instead, participants said applications are sometimes based on fear, cheap insecticides, easy applications, or a bandwagon effect—if farmers see others spraying, they think they should, too. One farmer expressed concern that alerts may just get people worked up. Others said retailers already get farmers worked up about potential problems.

While some might argue that an alert would spur more scouting (a recommended IPM practice), several farmers suggested that it might spur inaccurate scouting or spraying without scouting:

If we are sending out an alert, we need to send out the thresholds and make it clear that if you do see a pest, when is the proper time to spray rather than just getting people worked up that there could be a problem. Sometimes it is, 'Let's look for aphids,' and you go out there and you see aphids. Probably pretty much every year you can go out and see some aphids if you are really looking for them. It does look bad but if you know what the threshold is, you can say, 'Well, we don't need to be too concerned yet.' So, along with an alert to be on the lookout, also an alert to know where we stand on the timing of spraying. (NE MI 2)

Farmers need an app that tells them, 'Hey, make sure you check before you go spray and spend all that money and have problems with the neighbors. Make sure the threshold is there.' Because ... as soon as something shows up, everyone is going to get excited and start spraying.

NCSRP entomologists will need to consider how to provide information about pests without contributing to the problem of overapplication of pesticides.

In addition, farmers and crop consultants would like:

- Technology that will make scouting easier, including:
 - Apps to ID insects, calculate economic thresholds, and know how to manage pests
 - Drone programs that can ID problem sites, insect pests, and calculate populations
- information that makes IPM recommendations easier to follow
- Educational resources that are easy to find (where to store information on the web was an issue), easy to use on different devices, and up to date
- Research on:
 - New and troublesome pests, like the soybean gall midge, resistant soybean cyst nematodes, Dectes stem borer

- Economic thresholds, return on investment, and economics of cultural practices—a few participants argued that IPM economic thresholds should be lower
- Insecticide resistance
- Environmental impacts of insecticide use
- Information/training on:
 - What information is already available and where to locate accurate information
 - Why resistance is a problem and what farmers can do mitigate the potential of resistance
 - Training on scouting
 - Knowing when to trust statistical data

Many of the participants in these focus group interviews said they trust land grant universities (LGUs) and Extension. They believe LGUs and Extension play an unbiased role and state the truth. Farmers are sensitive to how they are perceived by their neighbors and the urban public. They are concerned about the health of their own families. They are stewards of the land. But as numbers of Extension professionals dwindle, farmers are relying on their local retailers for management advice. Some farmers are concerned that this heavy reliance on salespeople results in overapplication of many products. The use of farm chemicals is a political, social, economic, and environmental issue. Participants said they want Extension and land grant universities to play an unbiased role. They believe land grants and Extension look out for the growers' best interest.

THINGS TO CONSIDER

When NCSRP entomologists wrote the proposal for these focus groups, they may have intended to get information to help them design their next insect pest management tools or point them to research on the next new pest. And, indeed, we did get insights on those. But we also heard a much larger theme:

Land grant universities and Extension entomologists should play a larger role in promoting IPM.

Farmers and crop consultants want Extension entomologists to play an increasing role in combatting the overuse of pesticides, which has led to resistance. In turn, resistance is leading to increased use of organophosphates, which are less safe for farmers. And ultimately, resistance may lead to the loss of chemistries. Many of these farmers and crop consultants said they trust land grant universities and Extension to support the best interest of farmers. Land grant universities and Extension entomologists may be the last line of defense against the misuse of pesticides.

NCSRP Extension entomologists are dealing with exceedingly complex issues.

The science of soybean insect pests is complex—how to deal with resistance issues; how to deal with new pests; how to make calculating economic thresholds easy despite multiple variables like stage of insect development, stage of plant development, presence of beneficial insects, presence of multiple pests, and on and on.

The complexity is increased because this science must be transmitted to the right people. But in most cases, information based on research is not enough to change our behaviors. As one farmer said when describing an incident in which he added insecticide to a tank before aphids were at threshold, “I knew better and I did it anyway.”

Persuading farmers to use IPM recommendations isn't just a science and education issue.

University research-based information is not enough to convince farmers to adopt IPM recommendations. Particularly when farmers seem to be relying less on Extension and more on chemical dealers for information and personalized help.

Consider teaming up with experts who know how to change behaviors.

The private sector uses experts (marketing teams) to craft strategies and messages to sell products to farmers. Likewise, entomologists could work with Extension social scientists, behavioral economists, and marketing experts to “nudge” farmers toward decisions that are in their own best interests, and in the interest of the greater good.

These experts can help create:

- The right message for the right people
- Strategies to decrease barriers to using IPM
- Strategies to increase incentives for using IPM

There are land grant university social scientists in the NC region with Extension appointments who do this type of work in agriculture. Here are two well-regarded, experienced researchers who have implemented and studied efforts designed to increase the adoption of conservation practices on farms:

- [Linda Prokopy, Purdue](#)
- [J Arbuckle, Iowa State](#)

And/or consider teaming with a consulting group well-versed in designing behavior change interventions. The advantage of working with consultants is that they tend to be nimble when designing and implementing efforts. Consider planning for a quick turnaround. When working with resistance issues, time is critical. You don't want to take years to come up with a strategy to implement. Consider going to big funders. As one participant suggested, decreasing pesticide use is an issue that many organizations and agencies could get behind.

Extension and land grant universities are uniquely credible to take on a leadership role

No individual, company, or agency is more capable to do this job. Extension has the research, the education platforms, and the reputation for being unbiased and working in the best interest of farmers.

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