

SlugNet: Monitoring Wisconsin Crop Fields for Slugs

Background: Slugs are becoming an increasingly challenging pest for Wisconsin farmers who use conservation cropping practices like no-till and cover crops. The increased adoption of these practices, coupled with milder winters and wetter springs projected for Wisconsin in the future, may amplify the impact of slugs as pests in field crops.

To manage slugs more effectively in Wisconsin, we need to understand slug pressure across our state. To achieve this, the University of Wisconsin-Madison Extension is launching SlugNet, a statewide initiative to monitor slug populations in field crops. Data gathered through this network will contribute to the creation of open-access tools that can provide insights into the triggers for slug activity, help forecast the risk of damage in various regions across the state, and inform the level of management needed each season.

Fields will be monitored using refuge traps. Refuge traps consist of 1-ft² white roofing shingles secured to the soil surface with stakes. These traps provide a refuge for slugs to hide under during the daylight.

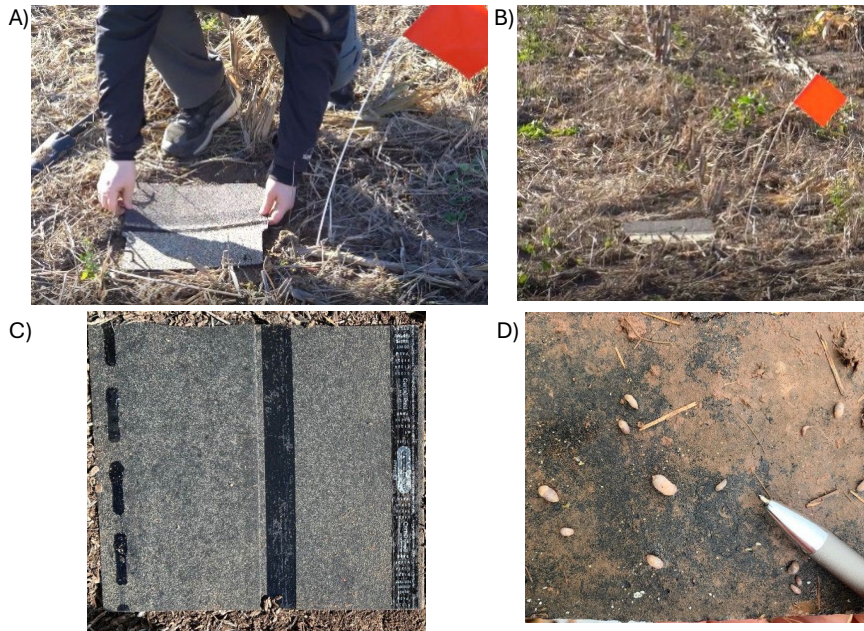
Participation: We are targeting UW-Madison Extension Educators and Outreach Specialists, agronomists, and farmers across Wisconsin to help with this effort. Volunteers must check the traps and submit data weekly for 10 weeks (2 weeks prior to crop planting and 8 weeks after planting). To submit data, volunteers will take pictures of the underside of the shingle trap and submit the photos to the SlugNet web-based app, which will geotag the photo and quantify the slugs automatically. Volunteers must also submit a field management history survey for each field they monitor. Each volunteer must monitor a minimum of one field, but monitoring more fields is encouraged. This project is well-suited for volunteers who conduct frequent field visits or are engaged in on-farm research.

Protocol

1. Field selection criteria
 - a. Fields should be planted to corn or soybean. Priority should be given to fields that utilize conservation cropping practices (e.g., cover crops/no-till), but conventionally managed fields (e.g., tillage) can be monitored as well. There is no minimum field size.
 - b. Previous management history should be available. Volunteers should complete as much of the field management history survey as possible for each field monitored.
2. Slug monitoring and data reporting
 - a. Volunteers must monitor one refuge trap per field.
 - b. Refuge traps consist of 1-ft² white roofing shingles secured to the soil surface with stakes. Traps should be placed flat on the soil surface in fields, moving aside residue if necessary. Traps should be placed 15-ft away from field edges (and from each other if monitoring more than 1 trap/field). Mark the trap with a flag to ensure you can find it again. **Traps, stakes, and flags will be provided to all volunteers.**
 - c. Traps must be checked weekly for 10 weeks (2 weeks prior to crop planting and 8 weeks after planting). Variability in the trap deployment date is expected due to different anticipated planting dates at each participating site. Volunteers should communicate with farmers to establish traps prior to planting.

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- d. Traps should be checked in the morning (before noon) by lifting the shingle trap and turning it over, so the dark side of the shingle is upright. Take an overhead/aerial view photograph of the shingle bottom. Try to just capture the shingle in the photo frame (minimize the surface around the shingle). Submit this photo to SlugNet.
- e. Reset the trap after submitting the photo to SlugNet. Do not remove the slugs.



A) Establishing a refuge trap in the field. B) Traps should be placed flat on the soil surface (moving aside residue if necessary), secured with stakes, and marked with a field flag. C) Example of photo that would be taken and submitted to SlugNet. D) Slugs on the bottom of a shingle, photo credit: Andrew Frankenfield, Penn State.

Outcomes

1. UW-Madison Extension will regularly share the observations and monitoring data reported to SlugNet to provide information on the risk posed by slugs to crop fields through the Crops and Soils website and the Wisconsin Crop Manager Newsletter. An end-of-year summary report will be compiled and shared as well.
2. Eventually, the data gathered through this network will contribute to the creation of open-access tools that can provide insights into the triggers for slug activity, help forecast the risk of damage in various regions, and inform the level of management needed each season.

Interested in joining SlugNet?

We are looking for volunteers throughout the state of Wisconsin. The more coverage we have, the better we can understand geographic variations in slug populations and damage risk to crops. If you are interested in volunteering or have questions, contact Dane Elmquist, UW-Madison Extension Conservation Cropping Outreach Specialist (dane.elmquist@wisc.edu) and Laura Flandermeyer, UW-Madison Extension Pest Management Outreach Specialist (laura.flandermeyer@wisc.edu).