

Soybean Gall Midge: Identifying Management Opportunities for an Emerging Soybean Pest

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Principal Investigator

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Overview of project objectives

Soybean gall midge is rapidly emerging as a potential major threat to soybean production. To get a handle on understanding the pest, researchers in Nebraska, South Dakota, Iowa, and Minnesota have been monitoring its distribution – states where significant damage has occurred since 2018. Initially, documentation of soybean gall midge in infested counties of these four states was primarily based on calls from area farmers. One goal of this study is to increase opportunities for systematic, consistent field surveys as well.

In areas with extensive damage and an historical presence of soybean gall midge, soybean fields are now being randomly scouted and scored as a proportion of plants infested at each location. Documenting distribution is critical to raise awareness, to direct research efforts and to determine the ability of soybean gall midge to spread to other states. Documentation efforts are expanding to include those states in the North Central region where soybean gall midge has not been found, and alerting farmers about the pest and sampling soybean fields from early pod development to beginning maturity. Other research objectives include:

- Determining emergence timing and source of adult soybean gall midge
- Screening soybean varieties for resistance or tolerance to soybean gall midge
- Disseminating information to stakeholders on current management options

Key results

Most North Central states have participated in surveys to determine the distribution and severity of soybean gall midge. Research plots have been established in several of them to monitor adult emergence, timing and source and to evaluate seed treatments, granular at-plant and foliar insecticides, as well as cultural practices and genetic and biology-related studies.

Packaging and coordinating the field screen of U.S. germplasm for resistance or tolerance to soybean gall midge is also underway. A complete set of accession lines was tested in 2020 and in 2021. To date, no commercial soybean varieties have been identified as resistant to soybean gall midge. A successful screening process will greatly reduce the number of insecticide applications, reducing issues with secondary pests and soybean gall midge developing insecticidal resistance.

Benefit to farmers

Large, widespread wind events like the derecho in 2020 provide strong justification for scouting fields for this new species and determining its distribution. NCSRP funds have established a new website, soybeangallmidge.org, that houses daily maps of activity at all monitoring sites. Field surveys can also provide soybean farmers with an estimate of the level of risk for injury in their area.

For soybean farmers with fields already infested with soybean gall midge, using this new alert network and implementing current management recommendations is paramount. Tactics include border spray applications, tillage treatments and mowing vegetation around the field to mitigate losses. The site also can make other farmers aware of the pest and provide details on how to manage it.

USB National Soybean Checkoff Research Database link

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