

NDSU Expands Root Maggot Surveys to Help Area Sugarbeet Growers Manage Persistent Pest

Public Value Statement

Severe infestations of the sugarbeet root maggot occurred in 2018 and 2019. Field surveys and research-based recommendations were used to help growers manage outbreaks and to reduce pesticide use where not needed.

The Situation

The sugarbeet root maggot is the most important insect pest of sugarbeet in the Red River Valley (RRV). It can reduce sugar yield by 45% and gross revenue by over \$400/ac if not effectively controlled. Root maggot infestations in 2018 and 2019 doubled those in 2017, and they were the 3rd- and 2nd-highest in the past 13 years. Another concern during 2018 and 2019 was that root maggot flies emerged and entered beet fields nearly three weeks ahead of average. These factors presented major management challenges for sugarbeet producers.

Extension Response

Collaboration: NDSU Extension acquired external funding and engaged agriculturists from a local sugarbeet grower cooperative to extensively monitor and manage the rising root maggot populations.

In 2019, a total of 119 grower-operated fields were monitored for sugarbeet root maggot flies, essentially tripling the intensity of the surveys in comparison to those of most previous years. Fly counts were coupled with the NDSU Root Maggot Model to provide site-specific forecasts on the expected timing and intensity of peak root maggot fly activity. Web-based and mobile app technologies, and a cellular “text-alert” system were also used to provide timely information on the location and severity of fly outbreaks and to advise growers on effective control tools to protect fields. NDSU personnel posted fly counts online on each trapping day for near-real-time reports on infestation areas.

Training Collaborators: A “Root Maggot ID and Monitoring Clinic” was held on the NDSU campus in Fargo in May 2019 to train sugar cooperative agriculturists on accurately identifying root maggot flies and properly deploying traps for monitoring them in the field. A question and answer session was also held during the clinic to train agriculturists about effective root maggot management tactics.

Outreach: Grower seminars, The International Sugarbeet Institute, field plot tours, and updated

versions of the “North Dakota Field Crop Insect Management Guide” and “Sugarbeet Production Guide” (hardcopy and online formats) were used to educate growers and crop advisors on management strategies. During the growing season, the NDSU Crop & Pest Report and mass media outlets (e.g., radio, a web page and internet podcasts) were used to alert producers and crop advisors about emerging root maggot hotspots and to provide control advice.

Impacts

- 119 grower-owned fields were monitored 3X per week, with the near-real-time counts being posted online each survey day.
- About 700 people were trained on root maggot management during Extension seminars, field days, and the Root Maggot ID & Monitoring Clinic.
- 83% of growers in problem areas rated the effectiveness of their root maggot control as good to excellent when using NDSU recommendations.

Feedback

“The root maggot has become a big problem in my area. My growers and I are going to be vigilant about it next year. Thank you!”

Grand Forks Grower Seminar attendee

“I enjoyed your talk – I always learn something new!”

Grafton Grower Seminar attendee

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Non-Extension Collaborators

American Crystal Sugar Company

Resource Links

<https://www.ndsu.edu/entomology/people/faculty/boetel/flycounts/>

<https://ndawn.ndsu.nodak.edu/sugarbeet-root-maggot.html>