

SUGARBEET ROOT MAGGOT FLY MONITORING IN THE RED RIVER VALLEY – 2016

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Sugarbeet root maggot (SBRM), *Tetanops myopaeformis* (Röder), fly activity was monitored at 48 grower field sites throughout the Red River Valley during the 2016 growing season. The trap monitoring program was a result of a collaborative effort between the Entomology Department at North Dakota State University and the Minn-Dak Farmers Cooperative. The project was jointly funded by the Sugarbeet Research & Education Board of Minnesota and North Dakota and the American Crystal Sugar Company.

Root maggot fly activity levels during 2016 were the third-highest in the past decade (Figure 1); however, it is encouraging to note that overall counts for the Red River Valley, on a season-long, per-trap basis, decreased by about 48% from a high of 210 flies per trap 2015 to 110 per trap in 2016. This suggests that control efforts carried out in 2015 may have been effective in reducing overall population levels throughout the production area.

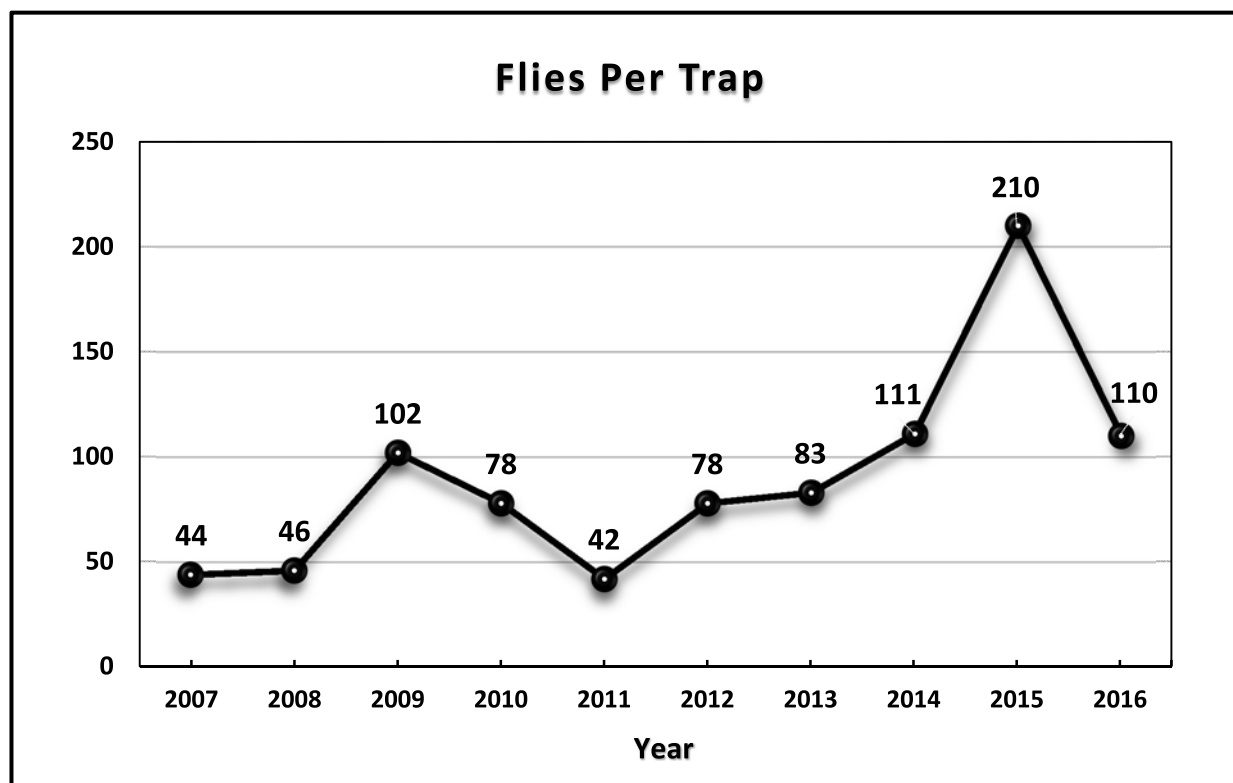


Figure 1. Yearly averages of sugarbeet root maggot flies captured on sticky-stake traps (Blickenstaff and Peckenpaugh, 1976) in the Red River Valley from 2007 to 2015.

The highest levels of SBRM fly activity were observed near Auburn, Cavalier, Merrifield/Grand Forks, St. Thomas, and Thompson, ND, as well as Ada, MN. Moderately high levels of activity were recorded near Buxton, Drayton, Minto, Oakwood, and Reynolds, ND, and also near Crookston and Euclid, MN. Fly activity in most of the southern portion of the Valley remained at relatively low or undetectable levels throughout the growing season.

Figure 2 presents SBRM fly monitoring results from three representative sites (i.e., St. Thomas and Grand Forks [Merrifield], ND, and Ada, MN). The onset of root maggot fly activity began in late May, with the first captures of flies on sticky stakes being recorded on May 25. Significant increases in fly activity occurred during the second week of June, with main peaks in activity occurring between June 9th and 10th in most areas affected by the pest.

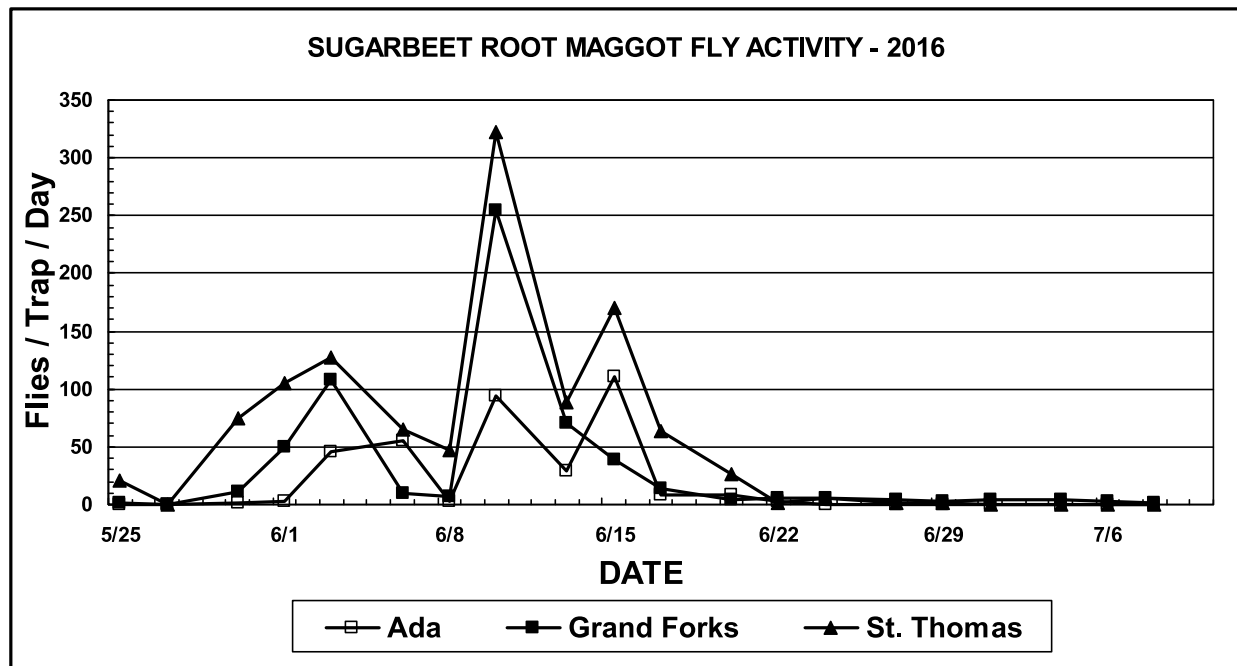


Fig. 2. Sugarbeet root maggot flies captured on sticky-stake traps at selected sites in the Red River Valley.

After the larval feeding period was completed in August, all 48 fly monitoring sites were rated for sugarbeet root maggot feeding injury in accordance with the 0-9 scale of Campbell et al. (2000). This is carried out on an annual basis as a means of determining whether fly outbreaks and larval infestations were managed effectively.

Root maggot feeding injury in most fields was encouragingly low. The highest root injury ratings were observed in fields near Cavalier (N. Cavalier township [TWP]), Forest River (Ops TWP), and St. Thomas (S. St. Thomas TWP), ND (2.8, 1.8, and 4.14, respectively). Areas in which low to moderate feeding injury levels were observed, but still could produce isolated damaging infestations next year included Auburn, Drayton, Grand Forks, Merrifield, Reynolds, and Thompson, ND, as well as Ada, Crookston, and Euclid, MN. Root injury observed in all other sampled fields was exceptionally low. The nearly universal low root injury in those grower fields, despite the occurrence of very high fly activity levels earlier in the season, suggests that control efforts made by producers were effective at managing SBRM infestations in 2016. Careful monitoring of fly infestations by growers in moderate- and high-risk areas (see Forecast Map, Fig. 1 in subsequent report) will be critical in 2017 to detect unanticipated flare-ups of SBRM fly activity and to prevent economic loss. Vigilant monitoring and effective SBRM management on an individual-field basis by sugarbeet producers may also help prevent significant population increases from one year to another because even moderate levels of root maggot survival in one year can be sufficient to result in economically damaging populations in the following year.

References Cited:

- Campbell, L. G., J. D. Eide, L. J. Smith, and G. A. Smith. 2000.** Control of the sugarbeet root maggot with the fungus *Metarhizium anisopliae*. J. Sugar Beet Res. 37: 57–69.
- Blickenstaff, C.C., and R.E. Peckenpough. 1976.** Sticky-Stake traps for monitoring fly populations of the sugarbeet root maggot and predicting maggot population and damage ratings. J. Am. Soc. Sugar Beet Technol. 19: 112–117.