

## SUGARBEET INSECT PEST PROBLEMS IN THE RED RIVER VALLEY – 2008

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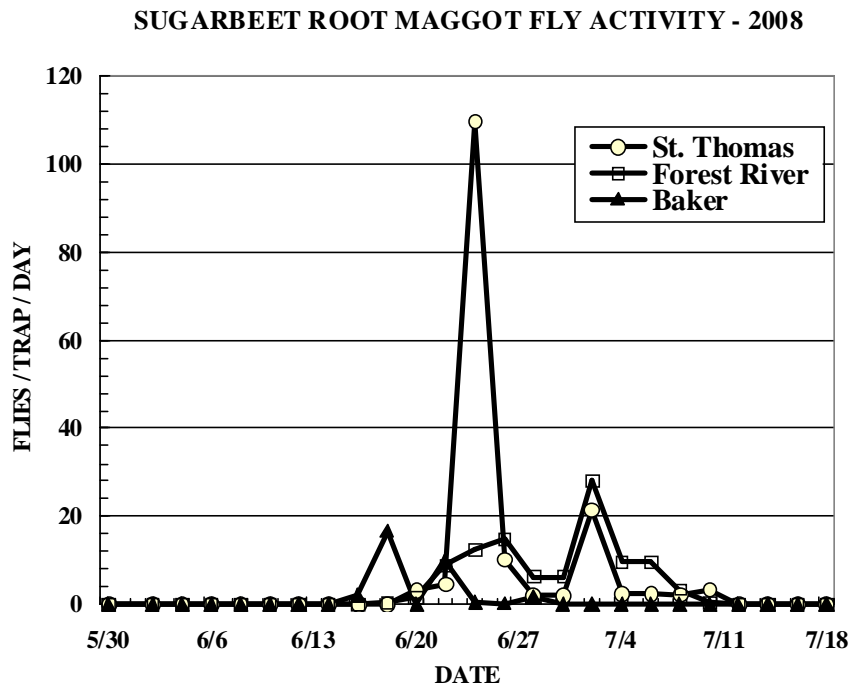
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The sugarbeet root maggot was the most problematic insect pest for sugarbeet producers in the Red River Valley of North Dakota and Minnesota in 2008. Other insect pests that caused problems in the growing area included subterranean springtails, cutworms, white grubs, and wireworms, with cutworms being the most frequently reported non-maggot insect pest problem.

### Sugarbeet Root Maggot:

Sugarbeet root maggot fly activity was monitored during the 2008 growing season at 40 commercial field sites in the Red River Valley by personnel from North Dakota State University, Pembina County Extension, and the Minn-Dak Farmers Cooperative. This work was jointly funded by the Sugarbeet Research & Education Board of Minnesota and North Dakota and the American Crystal Sugar Company.

During most years, root maggot fly activity in current-year beet fields of the Red River Valley typically begins in mid-May and peaks during the second week of June. In the 2008 growing season, fly activity began much later than normal due to persistent unseasonably cool temperatures in May and early June. The first flies of 2008 were detected on sticky stakes on 28 May. Activity increased slightly around the third week of June. It peaked in the St. Thomas area on 24 June, about two weeks later than normal (Fig. 1). There also appeared to be a smaller



**Fig. 1. Sugarbeet root maggot fly activity, St. Thomas, ND, 2008**  
(counts represent flies captured on sticky stakes on a per-trap, per-day basis).

secondary peak around 2 July. Activity in the Forest River area was lower than in the St. Thomas area, but followed a similar pattern. Counts indicated that peak activity for the Forest River site occurred near the end of June, although unfavorable localized weather may have impeded activity somewhat. Fly activity was lighter in the Baker area, and peak occurred around 18 June, nearly one week earlier than the main peak in activity at St. Thomas.

All 40 fly monitoring sites were assessed for root maggot feeding injury after the root maggot larval feeding period was completed. Moderately high levels of feeding injury were observed in the traditional root maggot problem areas of Pembina and Walsh Counties in North Dakota, and also in the Euclid area of Polk County, Minnesota. As observed during the past few years, the Baker/Sabin area of Minnesota also continued to have moderate to higher pressure. Other areas where moderate injury was detected included rural Oslo, Ada, and Borup, Minnesota, and the Grand Forks and Hillsboro areas in North Dakota. Although populations in those areas are not expected to be extremely high, fields should be monitored closely in 2009.

A late peak in fly activity, as observed in 2008, typically leads to a later onset of larval feeding activity. This can allow plants to grow larger and become more tolerant to root maggot feeding injury, thus minimizing impacts on yield. However, one disadvantage of delayed root maggot development can be that planting-time insecticides may not be as effective, thus allowing for more larval survival and maggot population increases during the following year. Therefore, growers should be vigilant and monitor fields for fly activity in 2009 to determine the need for postemergence control measures. Even moderate levels of root maggot survival in one season can be sufficient to result in economically damaging populations in the following year.

#### **Cutworms:**

Cutworms were a problem for many Red River Valley growers during the 2008 growing season. The infestations were reported in several counties throughout the growing area. Dark-sided and red-backed cutworms were most likely the species causing early-season problems, and variegated cutworm infestations in sugarbeet were reported in mid- to late-July. Black cutworms can also cause problems later on in the season. Soil moisture often dictates the likelihood of a successful insecticide application. Cutworm larvae are more likely to feed at or above the soil surface and on plant leaves if field conditions are moist to saturated. Larvae will spend much of their time below the surface if soil is dry. Under moderate soil moisture conditions, larvae will remain under the soil surface during daylight hours and feed at night. Afternoon and evening applications of foliar liquid insecticides tend to perform very well against cutworms under such conditions. If soil conditions allow, treatment will usually be warranted if 4 to 5% of seedlings have been cut.

#### **Springtails:**

Springtails were reported as causing damage in several sugarbeet fields during the 2008 growing season. Most of the infested fields in which significant damage occurred were not treated with a planting-time insecticide. As reported in previous years, most problems with springtails occurred in the southern Red River Valley; however, a few infestations were also detected in the central portion of the growing area.

#### **White grubs:**

A few isolated infestations of white grubs were reported in the southern portion of the Red River Valley. Damage occurred in the form of early season seedling injury and associated stand losses. A few different species of white grub can cause injury to crop plants in the northern Great Plains. White grub problems in North Dakota and western Minnesota are difficult to predict because the species that usually infests sugarbeet has a three-year life cycle, and a mixture of different stages can be present in the same field. The June Beetle is the adult stage of the white grub species that feeds on sugarbeet in this region. Typically, if a heavy flight of June Beetles is observed in an area in one growing season, there is an increased likelihood for having white grub problems in that area during the following growing season.