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SUGARBEET INSECT PROBLEMS IN 2003

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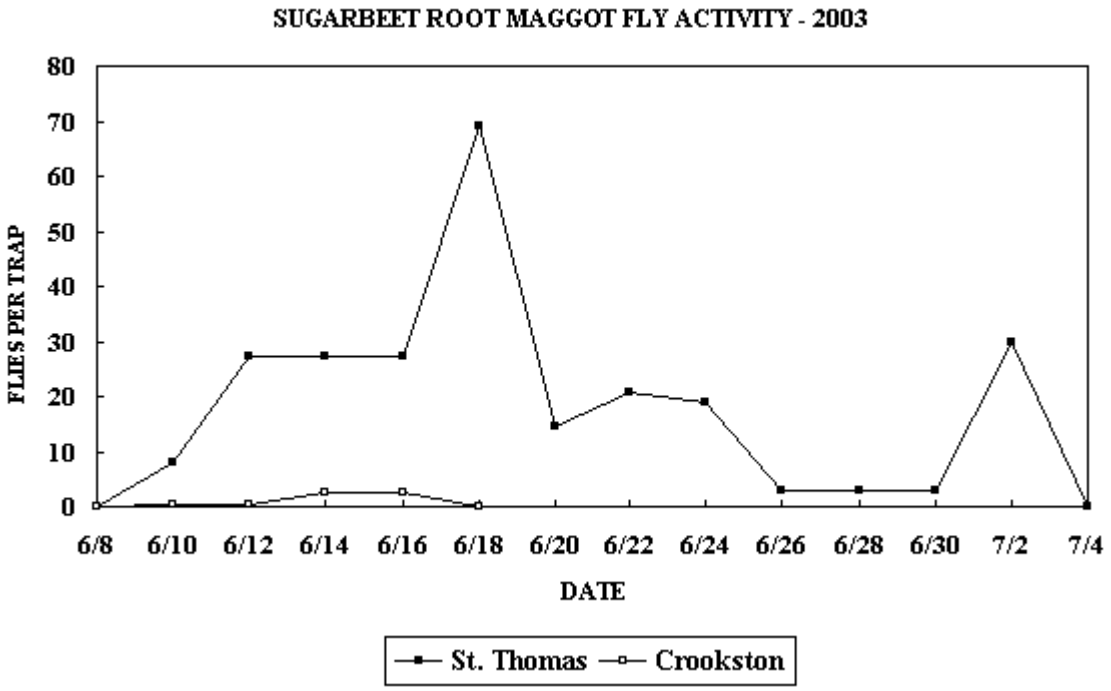
Sugarbeet Root Maggot:



Most Red River Valley sugarbeet producers were able to initiate seedbed preparations early in the spring of 2003 due to the mild late-winter and early-spring weather. Planting operations in the Hillsboro and Grand Forks factory districts of the American Crystal growing area were slightly delayed due to excessive soil moisture. The month of May was generally very mild and soil moisture levels were generally good throughout most of the production area. The combination of early planting and favorable soil moisture resulted in sugarbeet seedlings getting off to a good start for the season. Periodic rainfall was also received in most fields throughout May and into June. The timely rainfall events resulted in excellent insecticide performance because of two major factors: 1) the materials were efficiently activated off of granular carriers; and 2) good sub-soil moisture kept root maggots higher in the soil profile and most feeding injury occurred high up on the root surface rather than near the narrow tip of the beet tap root. Therefore, neither plant stands nor yields should have been impacted in fields where planting-time soil insecticides were applied. Fly activity was monitored during 2003 in a cooperative effort between NDSU, UMN, and Minnesota Department of Agriculture personnel using sticky-stake traps. Trapping results indicated relatively low fly population levels at Crookston, MN, with activity peaking in current-year sugarbeet fields between June 14 and 16. Activity was much higher near St. Thomas and peaked on June 18 (Fig. 1). Significant activity remained into late June, and a spike occurred during the first week of July. Fly capture results also indicated very low population levels in the southern and central areas of the Valley (not presented). Similar to the past several years, the highest fly activity levels were recorded in Pembina and Walsh Counties of North Dakota, and populations dropped off considerably in heavier-soil areas to the east and south.

Fig. 1. Sugarbeet root maggot fly activity, St. Thomas, ND and Crookston, MN, 2003 (counts represent flies captured on sticky stakes on a per-trap per-day basis).

Springtails:

Springtails were problematic for sugarbeet growers in early spring of 2003 in southern end of the Red River Valley (Richland County) and in western ND (Williams County), as well as in the sugarbeet growing areas of eastern Montana (near Fairview and Sidney). Infestations were so severe in some cases that large patches within several fields were destroyed and required replanting. Lighter infestations were also detected in fields near Manvel, ND (Grand Forks County), although those populations were not high enough to measurably impact stands or yields.

Lygus Bugs:

Infestations of Lygus bugs were very patchy in sugarbeet during 2003. Activity was first reported during the second week of August, and populations continued to develop into the first week of September. Most reports were from the Crookston, Perley, and Wolverton areas of Minnesota, and near Christine, Hillsboro, Grand Forks, and Hoople of North Dakota. Most infestations averaged less than 1 Lygus bug per plant. The highest infestations occurred near Wolverton and Hoople, and averaged about 2 per plant (adults and immatures combined).

Leafminers:

Leafminers are the larval (worm) stage of a small, clear-winged fly. The larva is pale- to lime-green and tapered from front to back. After hatching from a white oval egg, the larva quickly works its way between the upper and lower leaf surface and creates "mines" as it feeds on the interveinal area of the leaf. Eventually, the areas most heavily fed upon will become necrotic and turn tan to brown in color. Most reports of leafminer infestations in 2003 came from the Grand Forks area in late June. Although some infestations in sugarbeet hovered around the economic threshold level (50% of plants infested with eggs and/or larvae), no major economic losses were reported.

Grasshoppers:

A few sugarbeet fields in the Moorhead factory district of the American Crystal growing area were infested with grasshoppers in the 3rd week of May in 2003. Beets were very small and vulnerable to attack from foliage-feeding insects like grasshoppers at that time and, thus, a few insecticide applications were needed. It is important to note that early-season grasshoppers are not always going to be a major threat to the crop. Many of the early-season grasshopper species have overwintered as adults and are not major economic pests. Field scouting to estimate the grasshopper infestation level is extremely important – insecticide treatment is advised if grasshopper densities are at 20 per square yard in the neighboring field margin or ditch, or if counts in the beet field reach 8 or more per yard. Late-season infestations on more mature beets will not cause economic injury unless they reach at least 14 grasshoppers per yard.

Flea Beetles:

Flea beetles are tiny (1/8 inch long), oval-shaped, shiny insects with grasshopper-like jumping hind legs. Feeding injury appears as small, rounded holes, that the insects chew in beet leaves. Flea beetle impacts on sugarbeet are most pronounced in early spring during the seedling stage of development. Treatment with an insecticide is usually justified in sugarbeet if flea beetles threaten to reduce stands below 35,000 plants per acre. Some sugarbeets in the Minn-Dak growing area were infested with damaging populations of flea beetles in early May of 2003, and insecticides were needed to save the fields.

Cutworms:

A few growers in the Southern Minnesota growing area experienced problems with cutworms in the first 2 weeks of May. Insecticides were applied to some fields, and the infestations were successfully controlled. Generally, darksided and redbacked cutworms are the species most likely to cause early-season problems in sugarbeet. Black cutworms and variegated cutworms can also cause problems later on in the season. Soil moisture often dictates the likelihood of a successful insecticide application. Under extremely moist soil conditions, cutworms are more likely to be foraging at or above the soil surface and on plant leaves. If soils are dry the larvae will spend much of their time below the surface, and controlling them can be difficult to impossible. If soil conditions allow, treatment will usually be warranted if 4 to 5% of seedlings have been cut.