GALLIAN, JOHN J.[1], KELLY V. TINDALL[1], DAVID M. ELISON[2] and DALE L. BAKER[3], [1]University of Idaho, Twin Falls R&E Center, P.O. Box 1827, Twin Falls, ID 83303-1827, [2]Amalgamated Sugar Company, P.O. Box 700, Paul, ID 83347 and [3]University of Idaho, 85 E. Baseline, Rupert, ID 83350. **The effect of seed treatment and post-emergence insecticides on emergence, phytotoxicity, sugarbeet root maggot damage and root yield.**

## ABSTRACT

Sugarbeet root maggot (*Tetanops myopaeformis*) is the most important insect pest of sugarbeet in Idaho. The most severe injury has traditionally been in Minidoka and Cassia Counties of southern Idaho, with peak adult fly emergence occurring approximately June 1. The cumulative count of adult root maggot flies on sticky stake traps considered to be economic threshold is 38-40, and the Minidoka County average fly count for 38 locations in 2002 was 818, with the highest single location count of 1,921. Prior to 2002, root maggot counts have steadily increased, with losses of nearly 100% without insecticide treatment. Since 2002, adult fly counts have declined to a low of only 124 in 2006. The purpose of this study was to determine whether seed treatment insecticides would enhance the efficacy of standard insecticide applications for control of sugarbeet root maggot.

Five seed treatment insecticides were tested with and without post-emergence insecticide application for emergence, phytotoxicity, root maggot damage and yield on a sprinkler irrigated grower's field in Minidoka County near Paul, Idaho, in an area with historically high root maggot pressure. The experiment was a randomized complete block design with 16 treatments, two untreated controls, and six replications. Plots were 6 rows wide on a 22 inch row spacing and 42 ft long. The trial was planted on April 22 and emergence counts were taken on May 1, 9 and 15. On June 1, granular insecticides Counter, Temik and Thimet were band applied at label rates and hand incorporated, and Vydate was spray applied in a 10 inch band. The second applications of granular Temik and liquid Vydate were applied on June 8. Plots were also rated for percent injury on June 8. Ten roots/plot were rated for sugarbeet root maggot damage on July 19 and 20 using a 0-9 rating scale. The experiment was harvested on October 10-11.

All seed treatment rates of Cruiser (20, 40, 60 and 80 g ai thiamethoxam/100,000 seed), Lannate (23.2 g ai methomyl/100,000 seed) and Vydate (19.2 g ai oxamyl/100,000 seed) significantly delayed emergence. Final emergence was lower with the Cruiser 20, 60 and 80 g ai and the Lannate 23.2 g ai seed treatments. Final emergence was not affected by seed treatment of Poncho (60 g ai clothianidin) alone or by Poncho-Beta (60 g ai clothianidin + 8 g ai beta-cyfluthrin/100,000 seed). Percent injury compared with the controls was higher with the Lannate treatment than all other seed treatments (43.3% injury). Root maggot pressure was light and there were no differences in damage ratings among treatments. The root yields of the Poncho Beta seed treatment + Temik, the Poncho-Beta seed treatment, and the split post-emergence application of Temik treatment were higher than the Lannate seed treatment. Although no conclusions may be drawn regarding the efficacy of the seed treatments for control of root maggot, Lannate and the high rates of Cruiser may not be suitable for treatment of sugarbeet seed due to phytotoxicity.

Beginning in 2003, growers began tank mixing either Asana XL or Mustang insecticides with their post-emergence weed control, and by 2005 nearly 100% of the growers are now making this insecticide application. The decline of root maggot in Minidoka and Cassia Counties of Idaho since 2002 may be attributed to 1) the widespread application of the insecticides Asana and Mustang, and 2) more precise timing and placement of post-emergence granular insecticide applications, primarily Temik and Counter.