American Crystal Sugar Company
AgNotes

# 531 - Variety Selection and Insecticide Management

December 03, 2009

Sugarbeet root maggot severity increased in many areas of the RRV in 2009. Notable increases were in the Hillsboro, Moorhead, Crookston and East Grand Forks districts. Most problems were localized to a few townships or less. Springtails and wireworms were very severe in isolated areas throughout the RRV as well. Since registration of seed treatment insecticides growers must place seed orders that could determine insecticide management options in December or no later than January. Review the following information to make the best informed decision for insect management in 2010.

Factors Influencing Insect Control

- Insects anticipated in each field
- Insect severity in each field
- Price of each insecticide
- Equipment available for insecticide application

A Three-Year Assessment of Seed Treatment Insecticides for Sugarbeet Root Maggot Control

Table 1. Three-year combined analysis of root feeding injury in plots treated with seed treatment insecticides or Counter 15G at planting for sugarbeet root maggot control, St. Thomas, ND, 2007-2009

| Treatment/Form. | Placement / Timing | Rate (Product/ac) | Rate (a.i./ac) | Root Injury (0-9) |
|---|---|---|---|---|
| Counter 15G | BAND | 12 lb | 1.8 lb | 2.9 c |
| Counter 15G | BAND | 10 lb | 1.5 lb | 3.0 c |

Table 1. Three-year combined analysis of root feeding injury in plots treated with seed treatment insecticides or Counter 15G at planting for sugarbeet root maggot control, St. Thomas, ND, 2007-2009

| Treatment/Form. | Placement / Timing | Rate (Product/ac) | Rate (a.i./ac) | Root Injury (0-9) |
|---|---|---|---|---|
| Poncho Beta | SEED | --- | 68 g a.i./unit seed | 3.8 b |
| NipsIt Inside | SEED | --- | 60 g a.i./unit seed | 4.1 b |
| Cruiser 5FS | SEED | --- | 60 g a.i./unit seed | 4.1 b |
| Check | --- | --- | --- | 5.3 a |
| LSD (0.05) | | | | 0.64 |

SBRM Feeding Injury. The sugarbeet root maggot (SBRM) injury recorded in the untreated check plots (5.3 on the 0 to 9 scale of Campbell et al., 2000) indicated that moderate infestations were present during the three-year duration of this study (Table 1).

Counter 15G provided the best root protection from SBRM feeding injury, irrespective of whether the moderate (10 lb product/ac) or high labeled rate (12 lb/ac) of the at-plant granule was used. Both rates of Counter were statistically superior to all insecticidal seed treatments in this study and there was no significant difference between the two rates of Counter.

All seed treatments provided significant reductions in SBRM feeding injury when compared with that sustained in the untreated checks. There were no statistical differences in root protection among seed treatments.

Yield and Economic Return. Yield data corresponded well with findings from root injury ratings. For example, both rates of Counter 15G were statistically superior to all seed treatment entries with respect to recoverable sucrose yield, root tonnage, and gross economic return (Table 2). Revenue benefits from using Counter 15G for SBRM control, compared with returns from check plots, ranged from $229 to $271 per acre, depending on Counter application rate.

Also similar to root injury results was that all seed treatments provided significant increases in recoverable sucrose, root yield, percent sucrose, and there were no

differences between seed treatment entries with respect to sucrose yield, root yield, or revenue. Economic benefits from using seed treatment insecticides to manage SBRM ranged between $89 and $116 per acre when compared with revenue from harvest of the untreated check plots.

| Treatment/Form. | Placement/Timing | Rate (product/ac) | Recoverable Sucrose (lb/ac) | Root Yield (T/ac) | Sucrose (%) | Gross Return ($/ac) |
|---|---|---|---|---|---|---|
| Counter 15G | BAND | 12 lb | 6087.4 a | 23.8 a | 14.2 a | 643 a |
| Counter 15G | BAND | 10 lb | 5837.3 a | 23.3 a | 14.0 ab | 601 a |
| Poncho Beta | SEED | --- | 4903.3 b | 20.0 b | 13.6 bc | 488 b |
| Cruiser 5FS | SEED | --- | 4709.1 b | 19.1 b | 13.6 bc | 474 b |
| Nipsit Inside | SEED | --- | 4581.6 b | 18.6 b | 13.6 c | 461 b |
| Check | | | 3931.2 c | 16.6 c | 13.1 d | 372 c |
| LSD (0.05) | | | 495.51 | 1.76 | 0.43 | 67.4 |

Conclusions

Under this moderate level of root maggot pressure, all seed treatment entries clearly would generate sufficient amounts of revenue to pay for added input costs for this technology and provide additional profit. However, seed treatments are not as efficacious for SBRM control and provide significantly lower yield, quality, and revenue than the conventional at-plant granular insecticide Counter 15G. Growers will need to decide whether the savings in purchase and upkeep of granular insecticide equipment, combined with the convenience of seed treatment technology is worth the reduction in gross revenue that is likely to occur if one of these seed treatments is used for SBRM management in moderately to heavily infested portions of the Red River Valley production area.

Performance rating of insecticides for control of various sugarbeet insect pests in NDSU trials in the Red River Valley, 2006-2008

| Insecticide | Performance Rating* | | |
|---|---|---|---|
| | Root Maggot | Springtails | Wireworms |
| Counter 15G | Excellent | Excellent | Good |

| Performance rating of insecticides for control of various sugarbeet insect pests in NDSU trials in the Red River Valley, 2006-2008 | | | |
|---|---|---|---|
| Insecticide | Performance Rating* | | |
| | Root Maggot | Springtails | Wireworms |
| Cruiser 5FS | Fair | Good | Good |
| NipsIt Inside | Fair | Good | Good |
| Poncho Beta | Fair | Good | Good |
| Mustang Max | Poor | Fair | Good |

***Performance ratings are based on three years of control trials on sugarbeet root maggot and springtail control, but only two small trials on wireworm.**

**A special thanks to Dr. Mark Boetel, NDSU Sugarbeet Entomologist** for his special effort to provide research data for this Ag Notes in a timely manner.

**A more complete report is available on the Crystal Website under "What's New."** Contact Dr. Boetel, Al Cattanach, or your Ag staff with questions.