In-Season Applications of Temik 15G for Tarnished Plant Bug Management

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Methods: Nine trials were conducted across MO, LA, AR, MS, and TN to evaluate the impact of in-season application of Temik on tarnished plant bug (TPB) infestations and yield. Selected sites were fields with a corn-cotton interface with cotton rows running parallel to the corn. Corn and cotton fields were not separated by more than 40 feet of uncultivated land (turn-row, ditch, etc.). The trials included 2 treatments (Temik 15G and a non-treated control) that were applied in addition to all normal production practices. Temik was applied to the first 32 rows from the edge of the field next to corn at 10 lb form./acre as a side-band when plants in the adjacent corn field were at the green silk stage or the cotton had reached the match-head square stage. Plots were at least 100 ft. long, with a minimum of three replications. All of the plots within a trial were ordered along the corn–cotton interface using a randomized complete block design. With the exception of the Temik applications, the fields were managed according to the growers' standard production practices, including insecticide applications over the entire field. Sampling for tarnished plant bugs and square retention measurements was initiated at the time of Temik application and collected weekly for 4-6 weeks. Four areas were sampled within each 32 row plot at regular distances from the corn (rows 4- 5, 12-13, 20-21, and 28-29 rows away from the corn). Sampled areas were marked so that the same areas could be re-sampled each week. In addition, at least two samples per plot were collected; one was within 4 rows of the plot (35-36 rows from the edge of the corn field) and the other was at least 150 ft (ca. row 80) out from the edge of the plots to evaluate the width of the elevated TPB density edge. Each sample consisted of 2 sets of 25 sweeps, 2 drops of the drop cloth (10 row ft), and 50 fruiting sites for square retention. Yield was estimated by harvesting at-least two rows from each set of 8 rows of each plot (4 yield measurements per plot). Also, yield was estimated within the first six rows adjacent to each plot and at 150 ft from the edge of each plot. Data were combined across locations and subjected to ANOVA procedures using the SAS mixed procedure, with means separated according to Fisher's Protected LSD.

Comments: There were no significant interaction between insecticide application and distance (rows) from the adjacent corn field observed for tarnished plant bug densities using sweep net sampling observed for the pre-treatment sample or at weeks 1, 3, 4, or 5 after application. During week 2 after treatment, the non-treated plots had significantly more plant bugs at rows 20-21 and 28-29 compared to the same rows in the Temik treated plots. Across all rows, the non-treated plots had significantly more plant bugs compared to the Temik treated plots at the pre-treatment sampling date and at weeks 2 and 3 after treatment. Across insecticide treatments significant differences in tarnished plant bug densities were observed among distances from the adjacent corn fields at all sampling dates. Except for the pre-treatment sample, the highest plant bug densities were observed at rows 4-5 or 12-13. The lowest densities were generally observed at the sample points the furthest from the corn (row 80 or 150 ft beyond edge of the plots).

No significant interaction between insecticide application and distance (rows) from the adjacent corn field observed for tarnished plant bug densities using drop cloth sampling at any sample date. Across all rows, the non-treated plots had significantly more plant bugs compared to the Temik treated plots at weeks 2, 3, and 5 after treatment. Across insecticide treatments significant differences in tarnished plant bug densities were observed among distances from the adjacent corn fields at week 4 after treatment. Significantly lower plant bug densities were observed at sample points the furthest from the corn (row 80 or 150 ft beyond edge of the plots) compared to rows, 4-5, 12-13, 20-21, or 28-29.

No significant interaction between insecticide application and distance (rows) from the adjacent corn field was observed for square retention observed for the pre- treatment sample or at weeks 1, 2, 4, or 5 after application. A significant interaction was observed at week 3, but the lowest square retention observed was > 89%. Across all rows, significant differences were observed between insecticide treatments during weeks 1, 2, and 3 after treatment, however the lowest square retention observed on any sample date was 91.6%. Across insecticide treatments significant differences in square retention were observed among distances from the adjacent corn fields for the pre- treatment sample and at weeks 1, 2, and 3 after application, however the lowest square retention observed at any sample date was 90.6%.

No significant interaction between insecticide application and distance (rows) from the adjacent corn field was observed for lint yield (Figure 1). Across all rows, the Temik treated plots produced significantly more lint yield compared to the non-treated plots. Across insecticide treatments sample points the furthest from the corn (row 80 or 150 ft beyond edge of the plots) produced significantly more yield compared to rows, 4- 5, 12-13, 20-21, 28-29, or 6 rows beyond the edge of the plots. Δ

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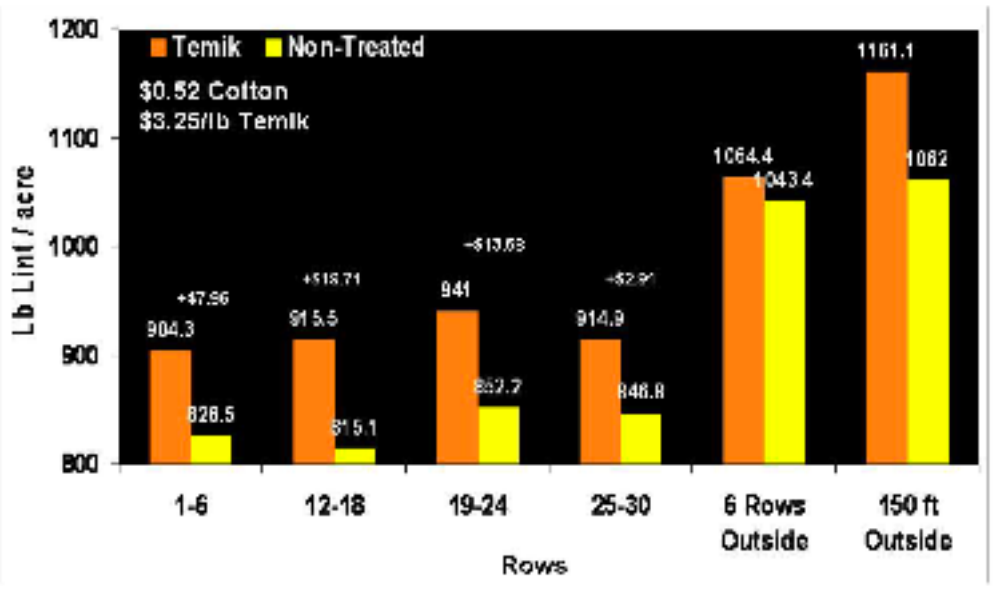

Figure 1. Influence of insecticide application and distance (number of rows) from adjacent corn field on lint yield. 6 Rows Outside = 6 rows beyond the edge of the 32 row plot and adjacent to either a Temik or non-treated plot. 150 ft Outside = 150 ft beyond the edge of the 32 row plot and adjacent to either a Temik or non-treated plot.