Section VII
Foliage & Seed Insects

INVESTIGATION OF SOIL-APPLIED PESTICIDES FOR CONTROL OF HONEYLOCUST POD GALL MIDGE, *DASINEURA GLEDITSCHIAE*

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The goal of this project was to continue to evaluate the use of soil-applied insecticides to reduce overwintering populations of the honeylocust pod gall midge, *Dasineura gleditchiae*, the key pest in honeylocust production. Applications of soil-applied insecticides were made and sampled at four commercial nursery sites.

Fipronil efficacy study - commercial nursery sites.

Aurora Site – Two scion and one production plot at different nursery locations were compared at this site. The production plot was whip/stock and treated with the fall application of fipronil (Regent® 80 WG) drench (0.025 lbs a.i./acre). One scion planting was treated with a spring fipronil (Regent® 80 WG) drench (0.025 lbs a.i./acre) on March 29, the other scion plot was left untreated. All plots received the same standard foliar applications thereafter. A quantitative assessment of eggs and podding was obtained by sampling three leaf buds/tree on 9 trees per treatment from March 30 through June 8.

First midge oviposition (egg deposition) occurred on April 7. There was a highly significant ($Pr > F = 0.0001$) date and date by treatment effect but no significant treatment effect ($Pr > F = 0.0950$) on eggs at this site There was a highly significant ($Pr > F = 0.0001$) treatment, date and treatment by date effect on the number of pods. The mean number of pods was lowest in the spring fipronil treated plots (5.4 pods/bud). There was no statistical difference between the mean number of pods in the fall fipronil treated plots (16.3 pods/bud) and the untreated control (13.1 pod/bud).

Boring Site – Scion and production rows of honeylocust at three different locations at this nursery were used to evaluate fall and spring drench applications of fipronil (Regent® 80 WG) drench (0.025 lbs a.i./acre) . The fall timed drench was applied to the scion plot on November 15, while one production site received a spring drench on March 21 and the other location was left untreated. All plots received the same standard foliar applications thereafter. Sampling was as previously described and occurred from March 30 through June 1.

First midge oviposition (egg deposition) occurred on April 13. There was a highly significant ($Pr > F = 0.0001$) effect of date, treatment and date by treatment on the number of eggs present and the percent podding at this site. The mean number of eggs (0.0 eggs/bud) and pods (0.0 pods/bud) was lowest in the

spring fipronil treated plots but there was no statistical difference between the mean number of eggs (0.1 eggs/bud) and pods (0.5 pods/bud) in the spring fipronil treated plots and the untreated control . There was a statistic difference between the fall fipronil treated plots (8.7 eggs/bud and 3.3 pods/bud)) and spring treated and untreated control plots.

Diazinon efficacy study - commercial nursery sites.

Canby site – Production rows were compared at this site. One production planting was treated with a diazinon drench (5lbs a.i./acre) on March 21, the other planting was not treated. All plots received the same standard foliar applications thereafter. Sampling was as previously described began quite late, from May 4 through May 28.

Due to the delayed sampling, no midge oviposition (egg deposition) was observed, only podding which occurred on May 4. There was no significant date or treatment effect on either numbers of eggs or pods per bud at this site during the sampling interval. The grower did state however, that they did see an effect during the season and were able to reduce the number of sprays applied to the diazinon treated plots by half compared to untreated plots.

Hubbard site - Four production plots were compared at this site. Two production plantings were treated with a diazinon drench (5lbs a.i./acre) on December 24, one of the previously treated plots was again treated with a drench (5lbs a.i./acre) on March 23 , another planting was only spring treated with a diazinon drench (5lbs a.i./acre) on March 23 ,the other planting was not treated. Sampling was as previously described and occurred from April 27 through May 26.

Both eggs and pods were observed this site at the beginning of the delayed sampling period. There was a highly significant ($Pr > F = 0.0001$) effect of date, treatment and date by treatment on the number of eggs present and the percent podding at this site. The mean number of eggs was highest in the spring diazinon treated plots (27.6 eggs/bud) but there was no statistical difference between the mean number of eggs in the spring diazinon treated plots and the untreated control (21.4 eggs/bud). Only the "double-drench plot was significantly different from the control plot with a mean of 1.6 eggs/bud. The mean number of pods was lowest in the spring diazinon treated plots (0.03 pods/bud) but there was no statistical difference between the mean number of pods in the spring diazinon treated plots and the untreated control (2.5 pods/bud).

Preliminary analysis of the data shows some variability in the success of this strategy. Again this year both the fipronil and diazinon treatments show some promise controlling overwinter midges as reflected statistically at the Aurora and Hubbard sites and anecdotally at the Canby site where the grower mentioned he was able to reduce the number of pod gall midge applications in the drenched plots. Some of the variability in the results may be due to a plot design which attempts to compare plots which are not similar in pest pressure (eg. scion versus production). This design flaw might be eliminated by concentrating the application and sampling of treatments within each plot. Demonstration plots using this strategy with other materials have had superior results. Further research in this area with additional new soil-active chemistries such as the thiamethoxam (Flagship) and a revised plot design may further illuminate the value of this strategy.