PRELIMINARY INVESTIGATIONS IN USE OF DORMEX™ (Hydrogen Cyanamide) IN WALNUTS

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Objective: Evaluate effects of plant growth regulator Dormex™ (50% hydrogen cyanamide, Dormex Company USA LLC) on bloom phenology, yield, and nut size in walnut.

Year: 2009

Test Location: NE Corner of Jack Tone and Farmington Roads, Linden, CA 37° 56’ 35” N, 121° 8’ 26” W

Test Crop: Mature English walnut (Juglans regia) cultivars ‘Tulare’ and ‘Chandler’ on seedling Paradox rootstock

Pest Common & Scientific Name: NA

Plot Design: Randomized complete block design with five replications, 4-tree tree plots

Treatments: 1. 4% Dormex 0.25% RNA Activator 85 (v/v)
2. Untreated

Additives: See above

Application Dates: 26 February 2009

Application equipment: Orchard air-blast sprayer

Spray Volume: 100 gallons/acre

Data taken: Staminate bloom: Date first and last anther opening on 10 catkins per tree
One center tree in each 4-tree plot
Pistillate bloom: Date flower first receptive on 15 pistillate flowers per tree
One center tree in each 4-tree plot
Kg/tree yield of 4-tree plot at commercial harvest: Tulare, 8 October; Chandler 23 October
Commercial nut size grading, 2000 gram samples per plot
Results: Dormex treatment slightly delayed (ca. 2 days) the start of pollen shedding but, once staminate flower opening started, it was accelerated (and was completed about 7 days earlier) in both varieties (Figure 1). Pistillate bloom timing was unaffected by Dormex treatment in Tulare but was advanced in Chandler. These phonological changes reduced staminate-pistillate bloom overlap in both varieties.

In both varieties, Dormex treatment appeared to slightly reduce in-shell yield, but the difference was not statistically significant (Figure 2).

There was no difference in nut size distribution (Diamond Foods, % Large, Med, Baby) between treated and untreated trees in either variety.

Figure 1. Staminate and pistillate flower bloom phenology for Dormex-treated and untreated Tulare (upper) and Chandler (lower) trees.
Figure 2. Average yield of Dormex-treated and untreated Tulare and Chandler walnut trees.

Yield, dehydrated in-shell, 8% wet basis moisture content

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<tr>
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<th>Yield (kg/tree)</th>
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<tr>
<td>Chan</td>
<td>Dormex</td>
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<tr>
<td>Chandler Untrd</td>
<td>45</td>
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<tr>
<td>Tulare</td>
<td>Dormex</td>
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<tr>
<td>Tulare Untreated</td>
<td>30</td>
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Difference in mean yield insignificant by ANOVA (P= 0.11 for Chandler, 0.12 for Tulare)
Vertical bars show std. dev. X 2