POTATO: *Solanum tuberosum* L., 'Snowden'

POTATO PEST CONTROL, 2005

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Colorado potato beetle (CPB): *Leptinotarsa decemlineata* (Say)  
Potato leafhopper (PLH): *Empoasca fabae* (Harris)  
Green peach aphid: *Myzus persicae* (Sulzer)  
Potato aphid: * Macrosiphum euphorbiae* (Thomas)

'Snowden' potatoes were planted 25 May at the Fry Farm, OARDC, Wooster, OH. Plant spacing was 39 inches between rows and 9 to 10 inches between plants. Fertilizer was applied at planting (1750 lb/acre 10-20-20). The Admire 2F, Platinum 2SC, and Platinum Ridomil Gold treatments were applied at planting using a CO$_2$ compression sprayer at 20 psi with a 8003 flat fan nozzle delivering 20 gpa into the seed furrow. The field was treated for weed control on 7 Jun with 0.67 lb/acre of Sencor DF plus 1 pt/acre Dual Magnum. Fungicides were applied as follows: Quadris at 4.0 oz/acre was applied 21 Jun, 30 Jul, and 18 Aug; Bravo at 1.5 pts/acre was applied 29 Jun and 13 Jul; Bravo DF at 1.0 lb/acre was applied 21 Jul and 9 Aug. Gramoxone Max, 1.0 qt/acre, was applied on 27 Sep as a vine-killer. Treatments were arranged in a RCB design. Plots were two rows wide and 30 ft in length, with 10-ft alleys separating plots within blocks and 5-ft alleys separating blocks. Foliar treatments were applied 12 Jul and 16 Aug with a tractor mounted drop nozzle boom sprayer delivering 50 gpa at 50 psi with three D-4 hollow cone nozzles/row. Number of CPB egg masses, small (stadium 1-2) larvae, large (stadium 3-4) larvae, and adults were counted in five 1 m lengths of row per plot throughout the season. PLH nymphs and aphids were sampled by visually inspecting 25 compound leaves per plot on each sampling date. Hopperburn damage was rated 12 Aug and 1 Sep by examining 5 sets of 5 randomly selected leaves per plot, rating the damage on each leaf as follows: 1 = some leaf curl; 2 = curling with chlorosis; 3 = curling with chlorosis and brown leaf margins; and summing the ratings for each set of 5 leaves. Potatoes were harvested and graded 4 Oct. Data were subjected to ANOVA and means were separated using Tukey’s HSD ($P = 0.05$).

All insect pest species were observed during the trial, although population densities of aphids were relatively low. No significant differences among treatments were observed in aphid counts during the trial. All treatments significantly reduced CPB larvae and potato PLH nymphs on 20 Jul following the first foliar spray application when the greatest differences among treatments were observed. Numbers of large CPB larvae were not significantly different on 24 Aug after the second foliar spray applications, as numbers were declining in all plots. PLH nymphs were reduced on 24 Aug in all treatments except Admire. All treatments except Provado and Venom resulted in significantly lower hopperburn than the untreated check, and the thiamethoxam treatments, Platinum in particular, tended to result in the lowest hopperburn ratings among treatments. No statistically significant differences were observed in potato yield.
<table>
<thead>
<tr>
<th>Treatment formulation</th>
<th>Rate amt product/1000 linear ft</th>
<th>Mean no. of large CPB larvae/1 m row 20 Jul 24 Aug</th>
<th>Mean no. of PLH nymphs/5 leaves 20 Jul 24 Aug</th>
<th>Hopperburn rating(^a)</th>
<th>lbs/20 ft row Total &quot;A&quot; tubers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platinum 2SC(^b)</td>
<td>0.6 fl oz</td>
<td>0.00 2.60</td>
<td>0.00 0.10</td>
<td>1.36</td>
<td>39.06 37.19</td>
</tr>
<tr>
<td>Platinum Ridomil Gold(^b)</td>
<td>2.2 fl oz</td>
<td>0.15 2.25</td>
<td>0.05 0.20</td>
<td>1.65</td>
<td>40.19 37.44</td>
</tr>
<tr>
<td>Admire 2F(^b)</td>
<td>1.19 fl oz</td>
<td>0.10 1.35</td>
<td>0.00 0.45</td>
<td>1.94</td>
<td>37.19 34.88</td>
</tr>
<tr>
<td>Actara 25WG(^c)</td>
<td>3.0 oz/acre</td>
<td>0.00 0.05</td>
<td>0.05 0.00</td>
<td>1.88</td>
<td>41.25 39.31</td>
</tr>
<tr>
<td>Venom 20SG(^c)</td>
<td>10.5 oz/acre</td>
<td>0.00 0.00</td>
<td>0.05 0.00</td>
<td>2.20</td>
<td>37.38 35.56</td>
</tr>
<tr>
<td>V10170 50WDG(^c)</td>
<td>1.41 oz/acre</td>
<td>0.00 0.00</td>
<td>0.05 0.00</td>
<td>1.97</td>
<td>37.63 35.38</td>
</tr>
<tr>
<td>Provado 1.6F(^c)</td>
<td>3.75 fl oz/acre</td>
<td>0.00 0.25</td>
<td>0.05 0.05</td>
<td>2.15</td>
<td>35.31 33.31</td>
</tr>
<tr>
<td>Untreated check</td>
<td>--</td>
<td>9.50 2.50</td>
<td>0.95 0.65</td>
<td>2.66</td>
<td>27.13 25.31</td>
</tr>
</tbody>
</table>

\(^{a}\)Hopperburn rating: 1 = some leaf curl; 2 = curling with chlorosis; 3 = curling with brown leaf margins.
\(^{b}\)Seed-furrow application.
\(^{c}\)Foliar application.