

Chemical Control/New Products

Efficacy of Ecozin (Azadirachtin) + Oil Against Obliquebanded Leafroller

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Six combinations of leafroller/leafminer products with or without Ecozin (3% EC) + 0.5% JMS Stylet-oil were applied by airblast sprayer on 2-year-old Red Delicious apples for control of obliquebanded leafroller (*Choristoneura rosaceana*) (OBLR). Treatments and application dates are shown below.

Overwintering leafroller numbers were low but by the summer generation larval numbers averaged over 12 larvae per tree in the four untreated check replicates. As shown in Table 2, over the course of the season the Dipel + Ecozin + oil combination performed the best overall against OBLR, with Success + Ecozin + oil close behind. Dipel by itself, Comply/Ecozin + oil and Ecozin + oil were intermediate in performance, and Neemix + oil the poorest performer against OBLR.

| Treatment   | Rate/acre                          | Dates(s) applied                                      |
|---|------------------------------------|---|
| Dipel 2X  | 2 lb/acre                          | 26 Apr, 20 May,<br>24 Jun, 12 Jul,<br>17 Aug, 31 Aug  |
| Agri-Mek + JMS Stylet-oil   | 10 fl oz/acre-0.5%                 | 26 Apr  |
| Comply 40WP   | 4 oz/acre                          | 26 Apr 1998<br>10 May 1998                            |
| Ecozin 3% EC +<br>JMS Stylet-oil  | 10 fl oz/acre<br>0.5% oil          | 24 Jun, 12 Jul,<br>17 Aug, 31 Aug                     |
| Dipel 2X +<br>Ecozin 3% EC +<br>JMS Stylet-oil                          | 2 lb/acre<br>10 fl oz/acre<br>0.5% | 26 Apr, 20 May,<br>24 Jun, 12 Jul,<br>17 Aug, 31 Aug  |
| Ecozin 3% EC +<br>JMS Stylet-oil  | 10 fl oz/acre<br>0.5%              | 26 Apr, 20 May,<br>24 Jun, 12 Jul,<br>17 Aug, 31 Aug  |
| Neemix 4.5 +<br>JMS Stylet-oil  | 6.67 fl oz/acre<br>0.5%            | 26 Apr, 20 May,<br>24 Jun, 12 Jul,<br>17 Aug, 31 Aug  |
| Success + JMS Stylet-oil<br>Success<br>Ecozin 3% EC +<br>JMS Stylet-oil | 6 fl oz/0.5%                       | 26 Apr<br>20 May<br>24 Jun, 12 Jul,<br>17 Aug, 31 Aug |
| Untreated check   | ---                                | ---   |

**Table 2.** Obliquebanded leafroller levels under various treatment regimes, Milton-Freewater, OR, 1998.

| Treatments                                     | Number of leafrollers/6 trees per replicate |                    |                    |                           |                    |                    |                    |                    |
|--|---|--------------------|--------------------|---------------------------|--------------------|--------------------|--------------------|--------------------|
|  | # Larvae<br>26 Apr                          | # Larvae<br>11 May | # Larvae<br>24 May | # Egg<br>masses<br>23 Jun | # Larvae<br>12 Jul | # Larvae<br>26 Jul | # Larvae<br>30 Aug | # Larvae<br>15 Sep |
| Dipel 2X (6x) +<br>Agri-Mek + oil (1x)         | 2.0 a                                       | 2.5 a              | 1.5 a              | 0.2 ab                    | 1.5 ab             | 28.8 ab            | 5.5 b              | 3.8 ab             |
| Comply 40WP (2x)<br>+ Ecozin + oil (4x)        | 2.5 a                                       | 6.0 a              | 4.5 a              | 0.2 ab                    | 2.0 ab             | 17.0 a             | 10.2 bc            | 12.0 abc           |
| Dipel 2X + Ecozin<br>+ oil (6x)                | 1.8 a                                       | 0.8 a              | 0.0 a              | 0.0 a                     | 0.5 a              | 4.0 a              | 1.8 a              | 2.8 a              |
| Ecozin + oil (6x)                              | 2.8 a                                       | 3.0 a              | 5.5 a              | 0.2 ab                    | 5.0 ab             | 20.2 a             | 19.2 cd            | 17.2 bc            |
| Neemix + oil (6x)                              | 2.2 a                                       | 3.0 a              | 3.5 a              | 1.8 c                     | 11.2 bc            | 76.0 b             | 24.0 cd            | 21.2 c             |
| Success (2x) + oil (1x)<br>+ Ecozin + oil (4x) | 2.0 a                                       | 0.2 a              | 0.0 a              | 0.2 ab                    | 0.2 a              | 2.2 a              | 5.8 b              | 6.8 ab             |
| Untreated                                      | 2.0 a                                       | 2.0 a              | 2.5 a              | 1.2 bc                    | 16.8 c             | 73.7 b             | 34.5 d             | 40.8 d             |

Means in the same column followed by the same letter not significantly different ( $p=0.05$ , Fisher's Protected LSD).

**Table 3.** Pesticides used in trial.

| Trade name          | Common name                   |
|---------------------|-------------------------------|
| Agri-Mek (Novartis) | Abamectin                     |
| Comply (Novartis)   | Fenoxycarb                    |
| Dipel 2X (Abbott)   | <i>Bacillus thuringiensis</i> |
| Ecozin (AMVAC)      | Azadirachtin                  |
| Neemix (W.R. Grace) | Azadirachtin                  |
| Success (Dow)       | Spinosad                      |