EUONYMUS (GOLDEN): *Euonymous japonicus*, 'Aureomarginatus'

TWOSPOTTED SPIDER MITE CONTROL, 2000

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Twospotted spider mite (TSSM): *Tetranychus urticae* (Koch)  
Predatory mite (PM): *Neoseiulus cucumeris* (Oudemans)

Floramite's efficacy against *Tetranychus urticae* and compatibility with a beneficial mite were tested in the laboratory and field. The beneficial mite tested was *Neoseiulus cucumeris*, which is a predator of larval thrips. The field efficacy trial for Floramite was conducted in Sep and Oct 2000 at a commercial nursery in San Antonio, TX. Five beds (each 27 x 3 m) of Golden Euonymous were divided across their width into thirds to create a total of 15 9x 3 m plots. Each plot contained approximately 1,300 one-gal pots. The beds were covered by a shade cloth and were otherwise open to the environment. On 15 Sep, treatments were applied to runoff with a grower-built spray unit configured to spray a mist at 2930 kPa. Each treatment received a total of 43.9 L of material. Spider mite densities were assessed in the 15 research plots immediately before treatment applications by arbitrarily selecting 10 plants per plot and performing 1-min mite counts per plant with the aid of a 10x magnifying lens. This sampling regime was repeated weekly for 3 wk following treatment applications (21, 28 Sep, and 4 Oct). Mite pest densities were analyzed with treatment and sample date as factors in a two-way ANOVA. Fisher's LSD test was used to separate means when differences were detected by the ANOVA.

The laboratory testing of Floramite's impact on the Predatory mite (PM) was conducted at Texas A&M University in Nov 2000. In this study, *N. cucumeris* were sprayed with one of the three study treatments. After spraying, 50 mites from each treatment were isolated and observed over time for mortality. No food or water was provided. Observations were made using a dissecting microscope at 6, 24, 48, 72, 96, and 120 hr post treatment. Dead mites were removed, and the numbers of dead mites removed were recorded for each time interval. Observations continued until all mites were dead. This procedure was replicated three times (N = 3). A Two-Way Repeated Measures ANOVA with treatment and observation time as factors was used to analyze the mortality data. Treatment and observation time were the analysis factors. Fisher's LSD was
used to separate means should significant differences be detected.

In the field tests, Floramite treatments significantly reduced mite populations within a week of their application (Table 1). Mite populations were lowest in the Floramite-high rate plots, while the water treatment plots supported the largest density of mites. However, by week 2 post-application, mite densities in both Floramite treatments were increasing, and by week 3 post-treatment, *T. urticae* densities in the low rate of Floramite treatment and water check treatments were indistinguishable, while the Floramite-high rate was still significantly lower but increasing. At this point, the trial was terminated.

In the laboratory tests, *Neoseiulus cucumeris* mortality was unaffected by the Floramite treatments as compared with the water spray control (Table 2). The ANOVA found no significant differences among treatments. When provided with no food source, mites died within 120 hr of treatment. Neither rate of Floramite shortened this time period. Hence, Floramite appears to be a selective miticide for use in floriculture IPM programs and ornamental horticulture.

### Table 1.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Rate (amt/vol)</th>
<th>14 Sep</th>
<th>21 Sep</th>
<th>28 Sep</th>
<th>4 Oct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floramite</td>
<td>0.30 g/L</td>
<td>29.3a</td>
<td>4.0a</td>
<td>11.1a</td>
<td>22.4a</td>
</tr>
<tr>
<td>Floramite</td>
<td>0.15 g/L</td>
<td>26.9b</td>
<td>11.9b</td>
<td>26.6b</td>
<td>46.8b</td>
</tr>
<tr>
<td>Water check</td>
<td>---</td>
<td>24.3a</td>
<td>44.2c</td>
<td>38.0c</td>
<td>46.3b</td>
</tr>
</tbody>
</table>

Means in a given column followed by the same letter are not significantly different (*P = 0.01, LSD*).

### Table 2.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Rate (g/liter)</th>
<th>6</th>
<th>24</th>
<th>48</th>
<th>72</th>
<th>96</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floramite</td>
<td>0.30 g/L</td>
<td>0.0</td>
<td>16.0</td>
<td>9.0</td>
<td>12.0</td>
<td>7.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Floramite</td>
<td>0.15 g/L</td>
<td>1.7</td>
<td>12.0</td>
<td>9.7</td>
<td>10.0</td>
<td>11.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Water check</td>
<td>---</td>
<td>1.0</td>
<td>14.7</td>
<td>9.0</td>
<td>13.0</td>
<td>8.7</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Difference between the means were not significant by ANOVA.