EVALUATION OF FUNGICIDES FOR CONTROL
OF BOTRYTIS IN SEED ONIONS, 1996

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Abstract

Fungicides benomyl (Benlate, Du Pont), thiophanate methyl (Topsin M, Elf Atochem), iprodione (Rovral, Rhone-Poulenc), vinclozolin (Ronilan, BASF), mancozeb (Manzate Du Pont) were applied for control of botrytis in seed onions grown commercially near Madras, Oregon. Scape blight was significantly reduced in plots treated with Benlate and Topsin M when compared to untreated plots. Control provided by Rovral, Ronilan, and Manzate was inadequate. As in previous years there was less soil-line rot in plots treated with Topsin M. There were no statistical differences between treatments when comparing percent seed set or weight per umbel.

Introduction

Botrytis, which attacks onions on the bulb near the soil surface and on the scape, can damage florets and seed in the umbel, and can infect seed. Onions with Spanish heritage appear to be more susceptible to botrytis. The objective of this project was to evaluate Benlate, Topsin M, Rovral, Ronilan, and Manzate for control of botrytis in seed onions grown commercially near Madras, Oregon.

Methods and Materials

Benlate at 1 lb/a, Topsin M at 1 lb/a, Rovral at 2 lb/a, Ronilan at 2 lb/a, and Manzate at 3 lb/a were applied to commercially grown seed onions with females that were half Spanish descent and males that were a storage type. Plots 10 ft x 25 ft were replicated four times in a randomized complete block design. Fungicides were applied on April 10 and May 2 with a CO₂ pressurized, hand-held, boom sprayer with TwinJet 8004 nozzles at 40 psi with 40 gal/a of water. The surfactant, Sylgard 309 at 1 pt/100 gal and the sticker, R-56, at 1 pt/100 gal were added to all treatments.

Evaluation of scape blight was conducted August 12 by counting the number of scapes per plot with symptomatic whitish, necrotic, shriveled tissue with sporulation. Thirty plants per plot were harvested and evaluated August 13 to 15 for the presence of soil-line rot on the bulb and determination was made as to whether the infection was active in the neck or bulb. Botrytis was considered present if lesions plus sporulation were observed on the bulb at the time of sampling, or after incubation at room temperature for three days. Samples were evaluated for percent seed set and weight per umbel.

Results and Discussion

There was significantly less scape blight in plots treated with Benlate and Topsin M compared to untreated plots. While less disease occurred in plots treated with Rovral, Ronilan, and Manzate compared to untreated plots, the difference was not significant and these products provided inadequate control of scape blight. There were no significant differences between treatments when evaluating soil-line rot. However, the trend suggests that Benlate and Topsin M reduced incidence of the disease. These data support results from the last two seasons indicating significant control of botrytis with Topsin M. Based on 1996 data, Benlate should provide at least as much control of botrytis as Topsin M. There were no significant differences between treatments in percent seed set and weight per umbel. Benlate and Topsin M do not contain the same active ingredient, but both break down to the same active compound.
Table 1. Effect of fungicide applications on botrytis in seed onions on the Agency Plains near Madras, Oregon following double spring fungicide applications on April 10 and May 2, 1996.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Rate</th>
<th>Scape blight</th>
<th>Soil-line rot</th>
<th>Weight per umbel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Present</td>
<td>Active</td>
</tr>
<tr>
<td>Benlate</td>
<td>1 lb</td>
<td>7.0 a</td>
<td>43</td>
<td>19</td>
</tr>
<tr>
<td>Topsin M</td>
<td>1 lb</td>
<td>7.8 a</td>
<td>58</td>
<td>25</td>
</tr>
<tr>
<td>Rovral</td>
<td>2 lb</td>
<td>18.3 ab</td>
<td>59</td>
<td>42</td>
</tr>
<tr>
<td>Ronilan</td>
<td>21b</td>
<td>15.5 ab</td>
<td>59</td>
<td>33</td>
</tr>
<tr>
<td>Manzate</td>
<td>3 lb</td>
<td>14.8 ab</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>Untreated</td>
<td>24.3 b</td>
<td>n.s.</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

1 Treatments applied April 10 and May 2, 1996.
2 Mean separation with Honestly Significant Difference at P 0.05.