Management of White Rot of Onions and Garlic

Mike Davis, UC Davis
Allison Ferry, UC Davis
Rob Wilson, Modoc Co.
Joe Nunez, Kern Co.
Tom Turini, Fresno Co.
Shannon Mueller, Fresno Co.
Richard Smith, Monterey Co.
DADS (single application) and Methyl Bromide

Sample Date (Kern County)

Sclerotia/500 g Soil


DADS 1 gal/A

MeBr

none
DADS (diallyl disulfide)
Apply when soil temperatures are 50-70 F
In the San Joaquin Valley, apply fall or spring
90% reduction of sclerotia
  • Helps prevent field to field and farm to farm spread
  • May be necessary in heavily infested fields to optimize efficacy of fungicides
2008 Trial
None
Switch 1 oz/1000 feet of row
Endura 6.8 oz per treated acre
Folicur 20.5 fl oz per acre in a 4 in band
Fungicides

- Folicur (tebuconazole) applied to the seed furrow at 20.5 fl oz in a 4 inch band.

- Maxim (fludioxonil) applied to the seed at 0.16 fl oz product per cwt or seed furrow at 1.7 pts/acre

![Garlic Yields/ Fresno 2009](image)

The chart shows the garlic yields in lbs/10 ft for different treatments:

- None
- Maxim
- Folicur
DADS and Fungicides on White Rot Control, 2011

Marketable yield (t/A)

DADS

Fontelis: a
Cannonball: a
Folicur: ab
Luna Privilege: ab
Aproach: abc
Non-treated: bcd

No DADS

Fontelis: cd
Cannonball: d
Folicur: d
Luna Privilege: cd
Aproach: d
Non-treated: d
Sclerotia Germination Stimulants

![Graph showing the number of sclerotia per kg of soil over time for different treatments: DADS, Garlic juice, and Untreated. The x-axis represents time points: Pre-Application, May 22, 2012; Two Months Post-Application, July 18, 2012; Four Months Post-Application, September 25, 2012; Twelve Months Post Application, April 17, 2013. The y-axis represents the number of sclerotia per kg of soil. The data shows a decrease in the number of sclerotia over time for all treatments.]
### Effect of sclerotial Stimulants on White Rot and Onion Yield, 2013

<table>
<thead>
<tr>
<th>Germination stimulant</th>
<th>Fungicide</th>
<th>Bulbs with symptoms (%)</th>
<th>Marketable yield (t/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>none</td>
<td>78 e</td>
<td>3.6 a</td>
</tr>
<tr>
<td>None</td>
<td>tebuconazole</td>
<td>32 b</td>
<td>16.4 bc</td>
</tr>
<tr>
<td>None</td>
<td>fludioxonil</td>
<td>50 cd</td>
<td>10.7 ab</td>
</tr>
<tr>
<td>DADS (1 gal/A)</td>
<td>none</td>
<td>53 d</td>
<td>9.3 ab</td>
</tr>
<tr>
<td>DADS</td>
<td>tebuconazole</td>
<td>12 a</td>
<td>24.2 c</td>
</tr>
<tr>
<td>DADS</td>
<td>fludioxonil</td>
<td>34 bc</td>
<td>15.4 bc</td>
</tr>
<tr>
<td>Garlic juice (1 gal/A)</td>
<td>none</td>
<td>66 de</td>
<td>5.7 a</td>
</tr>
<tr>
<td>Garlic juice</td>
<td>tebuconazole</td>
<td>21 ab</td>
<td>20.3 c</td>
</tr>
<tr>
<td>Garlic juice</td>
<td>fludioxonil</td>
<td>53 d</td>
<td>9.4 ab</td>
</tr>
</tbody>
</table>

Tukey-Kramer multiple comparison test, $P \leq 0.05$. 
Combining Sclerotia Germination Stimulants and Fungicides IREC 2012/2013

Marketable Onion Yield (Tons/Acre)

DADS
Garlic juice
No stimulant
Tulelake, 2014

(tebuconazole = tebuconazole + fontellis and shelf-stable garlic juice 0.5 or 1 gal = garlic juice raw 0.5 or 1 gal)

Marketable Yield (tons/acre)

<table>
<thead>
<tr>
<th></th>
<th>No fungicide</th>
<th>Tebuconazole</th>
</tr>
</thead>
<tbody>
<tr>
<td>DADS</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Garlic juice</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>None</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>DADS</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Garlic juice</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>no stimulant</td>
<td>20</td>
<td>23</td>
</tr>
</tbody>
</table>