Pumpkin Disease Spray Program Design

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Don’t wait for diseases to occur!
Disease control most effective when approached proactively.
A few diseases can be treated reactively with acceptable results.

The target diseases
Those that form the basis of the spray program

- Downy mildew
- Powdery mildew
- Plectosporium blight (Microdochium blight)

Why these?
1. They are the most common.
2. Effective control products are available.

Powdery mildew

Downy mildew

Pectosporium blight
Other diseases

*Suppression by chemicals is possible, but limited*

<table>
<thead>
<tr>
<th>Disease</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foliar bacterial diseases</td>
<td>copper</td>
</tr>
<tr>
<td>Bacterial wilt</td>
<td>insecticides</td>
</tr>
<tr>
<td>Virus diseases</td>
<td>insecticides</td>
</tr>
<tr>
<td>Cucurbit yellow vine disease</td>
<td>insecticides</td>
</tr>
<tr>
<td>Phytophthora blight</td>
<td>certain fungicides</td>
</tr>
</tbody>
</table>

The strategy

- Begin spraying when vines begin to run
- Spray every 7 to 14 days
- Use chlorothalonil every time (don’t worry about resistance developing)
  - Exception – If Plectosporium blight occurs, substitute Flint or Cabrio for chlorothalonil every other spray. Don’t need to tank mix.
- Scout closely and add specialized products as needed

What specialized products to add?

Choice of products based on two factors:

1. What diseases you see
2. What diseases you expect to see
   a. Based on history of the field
   b. Based on alerts given
      1. By your neighbors and advisors
      2. By downy mildew forecast center

How to scout

Recognize early symptoms and signs

They trigger your application of specialized products

Early signs of powdery mildew

On stems or individual colonies on leaves. More likely in interior of canopy.

Add powdery mildewcides to program as soon as you see the 1st colonies.

Early symptoms of Plectosporium blight

Tan, spindle-shaped lesions

Downward cupping and tan midrib
**Early symptoms of downy mildew**

Faint yellow to lime-green spots

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**Specialized fungicides**

**For powdery mildew**

<table>
<thead>
<tr>
<th>Labeled products</th>
<th>FRAC Code</th>
<th>Effectiveness against powdery mildew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quintec</td>
<td>13</td>
<td>excellent</td>
</tr>
<tr>
<td>Sulfur</td>
<td>M</td>
<td>good</td>
</tr>
<tr>
<td>Procure</td>
<td>3</td>
<td>moderate</td>
</tr>
<tr>
<td>Rally (Nova)</td>
<td>3</td>
<td>moderate</td>
</tr>
<tr>
<td>Pristine</td>
<td>7+11</td>
<td>moderate</td>
</tr>
<tr>
<td>Switch</td>
<td>9+12</td>
<td>fair</td>
</tr>
<tr>
<td>tebuconazole</td>
<td>3</td>
<td>fair</td>
</tr>
<tr>
<td>Quadris, Cabrio, Flint</td>
<td>11</td>
<td>None</td>
</tr>
</tbody>
</table>

Choose two and rotate them.

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**Specialized fungicides**

**For Plectosporium blight**

- Cabrio
- Flint

Both are strobilurins (Group 11), so choose one and only use it every other spray, with chlorothalonil in alternate sprays.

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**Specialized fungicides**

**For downy mildew**

<table>
<thead>
<tr>
<th>Product</th>
<th>FRAC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gavel</td>
<td>22+M</td>
</tr>
<tr>
<td>Presidio</td>
<td>43</td>
</tr>
<tr>
<td>Ranman</td>
<td>21</td>
</tr>
<tr>
<td>Reason</td>
<td>11</td>
</tr>
<tr>
<td>Tanos</td>
<td>11</td>
</tr>
</tbody>
</table>

Choose two, from different FRAC codes, and alternate them.

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**How to apply**

Foilar disease-control products

- boom
- air blast
- backpack
- mist blower (small plantings)

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**Which works best – over-the-top boom or air blast?**
**Pumpkin powdery mildew control**

2009 trial, HRREC

Percent defoliation at harvest:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Boom</th>
<th>Mist blower</th>
</tr>
</thead>
<tbody>
<tr>
<td>unsprayed check</td>
<td>66 ab</td>
<td>64 b</td>
</tr>
<tr>
<td>bicarbonate</td>
<td>72 a</td>
<td>65 ab</td>
</tr>
<tr>
<td>fish oil</td>
<td>60 b</td>
<td>60 b</td>
</tr>
<tr>
<td>copper</td>
<td>48 c</td>
<td>17 d</td>
</tr>
<tr>
<td>sulfur</td>
<td>42 c</td>
<td>10 d</td>
</tr>
</tbody>
</table>

The products that were effective worked much better when applied by the mist blower.

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Your source of information

*Caution: Be careful where you get your information! Every product used must be registered with EPA!*

- The Southeastern US Vegetable Crop Handbook

- Commercial Vegetable Crop Disease Control Guide