Recommendations for optimizing the control of anthracnose on lentils with fungicides

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# LENTILS

**Anthracnose**

## FUNGICIDE EFFICACY:

### Approach:
- **picoxystrobin**

### Headline:
- **pyraclostrobin**

### Quadris:
- **azoxystrobin**

### Xemium:
- **fluxapyroxad**

### Priaxor:
- **pyraclostrobin + fluxapyroxad**

Fungicides applied with **8001VS or 8002VS flat-fan nozzles** at 35 or 40 psi in 15 to 20 gal./ac water.

**Application A:** shortly before canopy closure.

**Application B:** 10-14 days later.

### Anthracnose Severity Table:

<table>
<thead>
<tr>
<th></th>
<th>Carrington, ND 2012</th>
<th>Sykeston, ND 2012</th>
<th>Williston, ND 2012</th>
<th>Carrington, ND 2013</th>
<th>Williston, ND 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-treated check (water)</strong></td>
<td>%, July 11</td>
<td>%, July 28</td>
<td>%, Aug. 12</td>
<td>%, Aug. 14</td>
<td>0 to 5, Aug. 12</td>
</tr>
<tr>
<td>Headline 6 fl oz/ac (A,B)</td>
<td>0</td>
<td>a</td>
<td>1</td>
<td>a</td>
<td>0</td>
</tr>
<tr>
<td>Quadris 6.2 fl oz/ac (A,B)</td>
<td>3</td>
<td>ab</td>
<td>3</td>
<td>a</td>
<td>4</td>
</tr>
<tr>
<td>Aproach 12 oz/ac (A,B)</td>
<td>11</td>
<td>bc</td>
<td>19</td>
<td>b</td>
<td>12</td>
</tr>
<tr>
<td>Xemium 2.23 fl oz/ac (A,B)</td>
<td>45</td>
<td>c</td>
<td>79</td>
<td>b</td>
<td>No data</td>
</tr>
<tr>
<td>Xemium 3.34 fl oz/ac (A,B)</td>
<td>No data</td>
<td>79</td>
<td>b</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Priaxor 4 fl oz/ac (A,B)</td>
<td>1</td>
<td>ab</td>
<td>1</td>
<td>a</td>
<td>0</td>
</tr>
<tr>
<td>Priaxor 6 fl oz/ac (A,B)</td>
<td>0</td>
<td>a</td>
<td>0</td>
<td>a</td>
<td>0</td>
</tr>
</tbody>
</table>
### LENTILS

#### Anthracnose

#### FUNGICIDE EFFICACY:

<table>
<thead>
<tr>
<th></th>
<th>Carrington, ND 2012</th>
<th>Sykeston, ND 2012</th>
<th>Williston, ND 2012</th>
<th>Carrington, ND 2013</th>
<th>Williston, ND 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-treated check (water)</strong></td>
<td>744</td>
<td>c</td>
<td>1532</td>
<td>b</td>
<td>1566</td>
</tr>
<tr>
<td><strong>Headline 6 fl oz/ac (A,B)</strong></td>
<td>2130</td>
<td>a</td>
<td>2206</td>
<td>ab</td>
<td>1918</td>
</tr>
<tr>
<td><strong>Quadris 6.2 fl oz/ac (A,B)</strong></td>
<td>1282</td>
<td>bc</td>
<td>1824</td>
<td>b</td>
<td>1690</td>
</tr>
<tr>
<td><strong>Aproach 12 oz/ac (A,B)</strong></td>
<td>991</td>
<td>c</td>
<td>2091</td>
<td>ab</td>
<td>1786</td>
</tr>
<tr>
<td><strong>Xemium 2.23 fl oz/ac (A,B)</strong></td>
<td>671</td>
<td>c</td>
<td>1853</td>
<td>b</td>
<td>No data</td>
</tr>
<tr>
<td><strong>Xemium 3.34 fl oz/ac (A,B)</strong></td>
<td>No data</td>
<td></td>
<td>1667</td>
<td>b</td>
<td>No data</td>
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<tr>
<td><strong>Priaxor 4 fl oz/ac (A,B)</strong></td>
<td>1685</td>
<td>ab</td>
<td>2160</td>
<td>ab</td>
<td>1786</td>
</tr>
<tr>
<td><strong>Priaxor 6 fl oz/ac (A,B)</strong></td>
<td>1951</td>
<td>a</td>
<td>2660</td>
<td>a</td>
<td>1999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>P &gt; F:</strong></th>
<th>&lt; 0.0001</th>
<th><strong>CV:</strong></th>
<th>18.7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P &gt; F:</strong></td>
<td>&lt; 0.0001</td>
<td><strong>CV:</strong></td>
<td>12.2</td>
</tr>
<tr>
<td><strong>P &gt; F:</strong></td>
<td>0.6139</td>
<td><strong>CV:</strong></td>
<td>14.9</td>
</tr>
<tr>
<td><strong>P &gt; F:</strong></td>
<td>&lt; 0.0001</td>
<td><strong>CV:</strong></td>
<td>22.1</td>
</tr>
<tr>
<td><strong>P &gt; F:</strong></td>
<td>0.0006</td>
<td><strong>CV:</strong></td>
<td>15.2</td>
</tr>
</tbody>
</table>

**Aproach:** picoxystrobin  
**Headline:** pyraclostrobin  
**Quadris:** azoxystrobin  
**Xemium:** fluxapyroxad  
**Priaxor:** pyraclostrobin + fluxapyroxad

Fungicides applied with **8001VS or 8002VS flat-fan nozzles** at 35 or 40 psi in 15 to 20 gal./ac water.  
**Application A:** shortly before canopy closure.  
**Application B:** 10-14 days later.
CHEMICAL CONTROL OF ANTHRACNOSE:

QoI (FRAC 11; strobilurin) fungicides differ in efficacy.
- Headline (pyraclostrobin) is more effective than Quadris (azoxystrobin) or Aproach (picoxystrobin).
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Anthracnose

CHEMICAL CONTROL OF ANTHRACNOSE:

QoI fungicides differ in efficacy.
- **Headline** (pyraclostrobin) is more effective than **Quadris** (azoxystrobin) or **Aproach** (picoxystrobin).

**Headline is better than Priaxor:**

Fluxapyroxad has no efficacy against anthracnose on lentils.

The low application rate of Headline (6 fl oz/ac) contains more pyraclostrobin than the low application rate of Priaxor (4 fl oz/ac):

- Low rate of Headline = 6 fl oz/ac = 44.4 g/ac pyraclostrobin
- Low rate of Priaxor = 4 fl oz/ac = 39.4 g/ac pyraclostrobin + 19.8 g/ac fluxapyroxad

The high application rate of Headline (9 fl oz/ac) contains more pyraclostrobin than the high application rate of Priaxor (6 fl oz/ac):

- High rate of Headline = 9 fl oz/ac = 66.6 g/ac pyraclostrobin
- High rate of Priaxor = 6 fl oz/ac = 59.1 g/ac pyraclostrobin + 29.6 g/ac fluxapyroxad

The fluxapyroxad component of Priaxor may provide value for controlling Ascochyta blight or Botrytis gray mold, but little or no efficacy data are available for fluxapyroxad against these diseases on lentils.
CHEMICAL CONTROL OF ANTHRACNOSE:

QoI fungicides differ in efficacy.
- **Headline** (pyraclostrobin) is more effective than **Quadris** (azoxystrobin) or **Aproach** (picoxystrobin).

Headline is better than Priaxor:
Fluxapyroxad has no efficacy against anthracnose.
- Low rate of Headline = 6 fl oz/ac = 44.4 g/ac pyraclostrobin
- High rate of Headline = 9 fl oz/ac = 66.6 g/ac pyraclostrobin
- Low rate of Priaxor = 4 fl oz/ac = 39.4 g/ac pyraclostrobin + 19.8 g/ac fluxapyroxad
- High rate of Priaxor = 6 fl oz/ac = 59.1 g/ac pyraclostrobin + 29.6 g/ac fluxapyroxad

Fungicide resistance management:
Not many tools are available at this time.
- **Omega** (fluazinam) provides satisfactory control, but registration will be in 3 years.
- DMI (FRAC 3; **Proline, Quash**) and SDHI (FRAC 7; **Endura, Vertisan**) fungicides have no efficacy against anthracnose on lentils
- **Bravo Weather Stik, Echo 720, etc.** (chlorothalonil) is the only alternative to QoI fungicides