MEFENOXAM: Reducing Risks to Groundwater from Nursery Uses

Practical Approaches for Users

Introduction. The pesticide mefenoxam (a form of metalaxyl) is showing up in Long Island’s groundwater. Mefenoxam fungicide is commonly used in nurseries. This fact sheet was prepared to help nursery growers use mefenoxam more conservatively while continuing to produce high-quality products and protect Long Island’s groundwater.

This factsheet has been developed as part of The Long Island Pesticide Pollution Prevention Strategy, which became effective July 2014. The strategy was developed by the NYS Department of Environmental Conservation (DEC) in collaboration with numerous stakeholders. The goal of the strategy is to protect groundwater and surface water from pesticide related contamination while continuing to meet the region’s pest management needs.

Protect Our Drinking Water
The Long Island aquifer is used by nearly three million people as a source of high-quality potable water. The aquifer is an underground water source that yields over 300 million gallons of water every day. The characteristics that allow the aquifer to reliably supply this much water also make it vulnerable to contamination from above ground. This is especially important for materials like mefenoxam that have widespread use and can move easily through soil to the underlying groundwater. For these reasons, the nursery industry needs to exercise careful environmental stewardship when using mefenoxam.

Modify Practices (Best Management Practices)
To reduce or eliminate the risk of mefenoxam moving to Long Island’s groundwater, nurseries should begin modifying their day-to-day practices as follows:

Application Rates - When using SubdueMAXX, use the moderate to high level of the rates labeled for the task. Where low or lower-than-labeled rate is used, the application will likely be ineffective and lead to additional fungicide use, with increasing likelihood of resistance development in the *Pythium, Phytophthora*, or downy mildew being targeted. Apply SubdueMAXX if needed, but less frequently and at a high to moderate labeled rate.

Application Timing - SubdueMAXX is effective as a preventive, not a curative treatment, therefore should be used before infection occurs. Use SubdueMAXX no more frequently than once every two months during the production of a crop prone to Pythium disease, rather than the 1-month reapplication interval allowed by the label. Other fungicides in a different FRAC* group can be used between mefenoxam applications.

Application Method - For an effective treatment, SubdueMAXX should be applied as a drench at labeled rates for root diseases; do not attempt to control root diseases with sprays or srenches. Apply directly to the pot surface so there is little or no solution landing on the ground. If SubdueMAXX is used for downy mildew management, it must be tank mixed with another effective fungicide.

*Fungicide Resistance Action Committee (www.frac.info)

KEY POINTS
Three key practice modifications can be applied to improve mefenoxam usage:

- Use moderate to high level label rates
- Increase length of application interval and rotate with other fungicides.
- Apply carefully to avoid wasting material outside the containers to be treated.

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Some Alternative Fungicides
The following are some of the other fungicides that can be used in alternation with mefenoxam on Long Island.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Fungicide</th>
<th>Active Ingredient</th>
<th>FRAC Group Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pythium Management</td>
<td>Truban, Terrazole, Banrot</td>
<td>etridiazole</td>
<td>FRAC 14, FRAC 14 + FRAC 1 (Banrot)</td>
</tr>
<tr>
<td></td>
<td>Segway</td>
<td>cyazofamid</td>
<td>FRAC 21</td>
</tr>
<tr>
<td></td>
<td>Biological Controls</td>
<td>Bacillus subtilis, Trichoderma harzianum, T. virens, Gliocladium catenulatum, Streptomyces lydicus, and S. griseoviridis</td>
<td></td>
</tr>
<tr>
<td>Phytophthora Management</td>
<td>Segway</td>
<td>cyazofamid</td>
<td>FRAC 21</td>
</tr>
<tr>
<td></td>
<td>Aliette, Alude, &amp; others</td>
<td>fosetyl-Al and phosphites</td>
<td>FRAC 33</td>
</tr>
<tr>
<td></td>
<td>Insignia, Pageant, Compass, &amp; others</td>
<td>strobilurins</td>
<td>FRAC 11</td>
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<tr>
<td></td>
<td>Stature</td>
<td>dimethomorph</td>
<td>FRAC 40</td>
</tr>
<tr>
<td></td>
<td>Adorn</td>
<td>fluopicolide</td>
<td>FRAC 43</td>
</tr>
<tr>
<td></td>
<td>Micora</td>
<td>mandipropamid</td>
<td>FRAC 40</td>
</tr>
<tr>
<td></td>
<td>Truban, Terrazole, &amp; Banrot</td>
<td>etridiazole</td>
<td>FRAC 14 &amp; FRAC 14 + FRAC 1 (Banrot)</td>
</tr>
<tr>
<td>Downy Mildew Management</td>
<td>Heritage, Compass, Insignia</td>
<td>strobilurins</td>
<td>FRAC 11</td>
</tr>
<tr>
<td></td>
<td>Stature</td>
<td>dimethomorph</td>
<td>FRAC 40</td>
</tr>
<tr>
<td></td>
<td>Micora</td>
<td>mandipropamid</td>
<td>FRAC 40</td>
</tr>
<tr>
<td></td>
<td>Protect DF &amp; others</td>
<td>mancozeb</td>
<td>FRAC M3</td>
</tr>
</tbody>
</table>

Integrated Pest Management Practices
The following IPM practices are effective for curbing the diseases that mefenoxam is used against.

**Pythium Management**
1) Use careful sanitation practices  
2) Propagate on raised benches; place containers on gravel or clean weed-suppression matting  
3) Inspect cuttings and liners on arrival  
4) Use a well-drained soilless mix or plant in well-drained field areas  
5) Utilize biological controls as a preventive treatment in the mix  
6) Avoid over-fertilization  
7) Avoid overwatering  
8) Scout crop regularly for indications of Pythium root rot  
9) Obtain a disease diagnosis  
10) Remove diseased plants as they appear  
11) Begin treating with fungicides in rotation if Pythium infection is detected.

**Phytophthora Management**
1) Use careful sanitation practices  
2) Propagate on raised benches; place containers on gravel or clean landscape fabric  
3) Inspect cuttings and liners on arrival  
4) Use a well-drained soilless mix or plant in well-drained field areas  
5) Avoid overwatering  
6) Scout crop for indications of Phytophthora infection  
7) Obtain a disease diagnosis  
8) Remove diseased plants as they appear  
9) Utilize fungicides preventively only for known sensitive crops such as lavender, pieris and rhododendron.  
10) Begin treating with fungicides in rotation if Phytophthora infection is detected.

**Downy Mildew Management**
1) Avoid excess relative humidity;  
2) Scout disease-prone crops for disease symptoms;  
3) Obtain a disease diagnosis;  
4) Remove diseased plants carefully (bag them as they are removed from the bench) to avoid spreading inoculum;  
5) Begin treating with fungicides in rotation if downy mildew infection is detected.

Trade names used in this publication are for convenience only. No endorsement of products is intended, nor is criticism of unnamed products implied.

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For more information or electronic copies of this factsheet go to www.ccesuffolk.org. For more information about the Long Island Pesticide Pollution Prevention Strategy go to http://www.dec.ny.gov/chemical/87125.html.  
1/20/2016