Cover Crops in Production Horticulture

Horticultural Crops

- Labor/input intensive
- Most relatively perishable
- Quality associated with value
- High dollar value per land area

Potential Benefits of Cover Crops
Biofumigants in Cover Crops

- Residue from plants that produce glucosinolates
  - Secondary plant metabolite
  - Produced by 15 plant families
  - Mainly in Brassicaceae (mustard) family
  - Glucosinolates not toxic but breakdown products are (isothyocynate).

Isothiocyanate Benefits

- Activity
  - Disease
  - Insect
  - Nematode
  - Weed

Maximizing Biofumigation

- Species selection
  - Oilseed radish
  - Oriental mustard
  - Yellow mustard
  - Brown mustard
  - Arugula
Maximizing Biofumigation

• Species selection
• Seeding rate (lbs./acre)
  • Broadcast/incorporated or drilled

<table>
<thead>
<tr>
<th>Cover Crop</th>
<th>Range</th>
<th>Rate Used</th>
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</thead>
<tbody>
<tr>
<td>Oilseed radish</td>
<td>10 to 25</td>
<td>15</td>
</tr>
<tr>
<td>Oriental mustard</td>
<td>4 to 6</td>
<td>6</td>
</tr>
<tr>
<td>Yellow mustard</td>
<td>10 to 14</td>
<td>8</td>
</tr>
<tr>
<td>Brown mustard</td>
<td>10 to 14</td>
<td>8</td>
</tr>
</tbody>
</table>

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Maximizing Biofumigation

• Species selection
• Seeding rate
• Seeding time
  • Tolerates cool weather

Maximizing Biofumigation

• Species selection
• Seeding rate
• Seeding time
  • Initial fertilizer if soil is poor
Maximizing Biofumigation

- Species selection
- Seeding rate
- Seeding time
- Initial soil fertility
- Cover crop maturity and incorporation
  - Grow to flowering stage
  - Crush when incorporating into soil

Eggplant Example

Summary

- Biofumigant cover crops have demonstrated ability to improve vegetable production systems
Questions??