Fusarium wilt of strawberry is a disease of major concern, caused by the fungus *Fusarium oxysporum* f. sp. *fragariae* (*F.o*. *fragariae*). Symptoms include stunting, wilting, crown discoloration, and collapse of the plant.

**Below:** vascular discoloration caused by *F.o*. *fragariae*

This disease is typically managed by:
- Fumigation
- *F.o*. *fragariae* resistant cultivars
- Anaerobic soil disinfestation (ASD)
- Crop rotation

None of these strategies are a one-size-fits-all approach to controlling this disease. Best results are achieved by combining multiple, complementary practices.

Our research shows that 1-year rotations with weak hosts can lead to net reductions in the amount of soilborne *F.o*. *fragariae*. However, rotations with reservoir hosts, such as raspberry, may increase the amount of *F.o*. *fragariae* in soil.

**Future Research:**

**Soil amendments and *F.o*. *fragariae***:
Common ASD ingredients (such as rice bran/hulls and mustard seed meal) can lead to increases in the amount of *F.o*. *fragariae* if anaerobic conditions are not achieved. Future research will assess whether other common soil amendments, such as compost, also affect populations of this pathogen.

**Crop termination**:
Our research shows that *F.o*. *fragariae* builds to high populations on the tissues of strawberry plants. Ongoing research is assessing whether applying fumigants just prior to tillage can kill *F.o*. *fragariae* inside strawberry tissues, and thereby reduce the amount of the pathogen that is returned to the soil.

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**End of season management:**
- Crop rotation with weak hosts
- Remove symptomatic plants
- Crop termination?

**Weak hosts:**
1-year rotations with weak hosts lead to a **net reduction** in the *F. o. fragariae* population. 3-year rotations may lead to substantial reductions in disease severity.

**Crop debris removal:**
Removing infested plants will reduce the amount of *F. o. fragariae* returned to the soil during tillage.

**The *F. o. fragariae* life cycle:**

1. **Susceptible strawberries** are planted in *F. o. fragariae* infested soil.
2. *F. o. fragariae* grows to high populations on plant tissues.
3. The soilborne *F. o. fragariae* population is now larger.

**Notes on life cycle:** Evidence suggests that dormant spores of *F. o. fragariae* do not persist in soil with an active microbiota for long periods of time. Instead, growth on plant debris and some amendments maintains pathogen populations between seasons.

**Pre-planting management:**
- Resistant cultivars
- ASD
- Fumigation
- etc.

**Reservoir hosts:**
*F. o. fragariae* resistant strawberry cultivars and raspberries do not show symptoms of Fusarium wilt when planted in infested fields. However, they can still be colonized by *F. o. fragariae*, and the pathogen may maintain or increase populations by growing on their tissues. Resistant strawberry cultivars may also yield less in *F. o. fragariae* infested fields. It is recommended that additional disease management strategies are used when planting reservoir hosts to avoid these risks.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Host type</th>
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<tbody>
<tr>
<td>Spinach</td>
<td>Weak</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Weak</td>
</tr>
<tr>
<td>Cilantro</td>
<td>Weak</td>
</tr>
<tr>
<td>Lettuce</td>
<td>Weak</td>
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<tr>
<td>Wheat</td>
<td>Weak</td>
</tr>
<tr>
<td>Raspberry</td>
<td>Reservoir</td>
</tr>
<tr>
<td><em>F. o. fragariae</em>-resistant strawberry cultivars</td>
<td>Reservoir</td>
</tr>
<tr>
<td><em>F. o. fragariae</em>-susceptible strawberry cultivars</td>
<td>Symptomatic</td>
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