

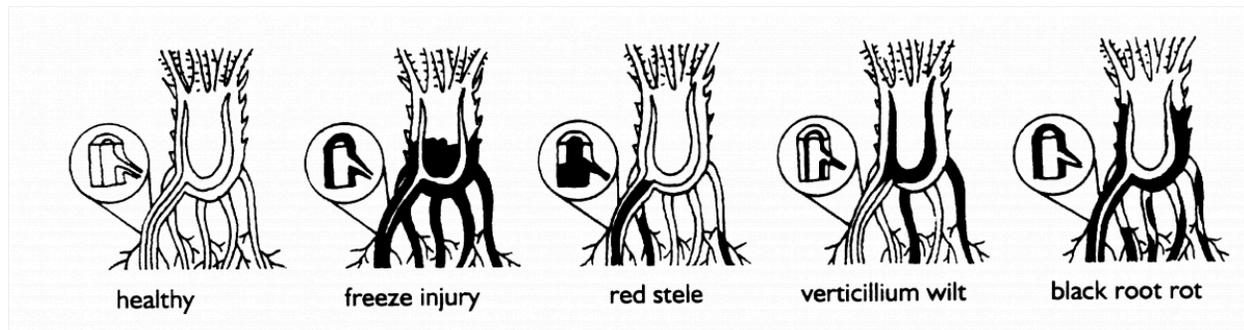
IPM Fact Sheet Series**UMass Extension Fruit Team**

Fact Sheet #SD-005

**Verticillium Wilt** (*Verticillium dahlia* and *Verticillium albo-atrum*)

**ID/Disease Cycle:** Symptoms of Verticillium Wilt include marginal and interveinal browning and eventual collapse of outer leaves, while inner leaves are stunted and may wilt but tend to remain green until the plant dies. Plants that are fruiting are affected more severely, and the first symptoms are noticeable as temperatures increase in late spring. The fungi that cause the disease have wide host ranges among annual and perennial crops and weeds, especially plants in the tomato family. Symptoms may be unevenly distributed in the field.

The fungus overwinters in soil or plant debris as dormant resting structures (microsclerotia). These structures can remain viable in the soil for many years. Under favorable environmental conditions, they germinate and can penetrate root hairs either directly or through breaks or wounds in the rootlets. Once inside the root, the fungus invades the vascular system causing wilt and collapse of the plants. As these infected tissues die and return to the soil, new microsclerotia are formed and the disease cycle is completed. *Verticillium* can be spread from field to field by water, wind, or movement of infested soil. The pathogen may be introduced to a field on infected planting stock, and it can persist in crop and weed debris.



**Damage:** This disease will cause the wilt and collapse of strawberry plants.

**Management:**

**Monitoring:** Consult scouting records from previous years and know field history of prior crops to determine if build-up of this disease is indicated. Scout fields after bloom to identify areas of weak vigor. Dig up plants in weak areas and examine the roots for possible cause.



**Figure 1)** Verticillium Wilt above ground symptoms; outer leaves reddened and wilt first. [Photo: [Ontario IPM](#)]

**Control strategies:**

*Cultural/Biological:*

- Rotate strawberry fields to alternative non-host crops for at least 5 years before replanting to strawberries to disrupt disease buildup. Avoid solanaceous crops (such as tomato or potato), as well as squash and raspberries.
- Biofumigant crucifer crops (e.g., various mustard species), may be useful in reducing carry over inoculum.
- Plant only disease free transplants obtained from a reputable nursery.
- Plant resistant varieties. See the [New England Small Fruit Management Guide](#) for a chart of resistant varieties or speak with your nursery provider.
- Plant in well drained soil.
- As with other soil-borne diseases, increasing soil organic matter and stimulating the microbial activity of the soil can help suppress pathogenic microorganisms through competition and other mechanisms.
- Avoid overfertilization, as excessive nitrogen increases the susceptibility of plants to the disease.
- Control weeds, especially those that might be hosts to this disease (e.g., [pigweed](#) and [lambsquarters](#))
- Remove infected plants and the plants on either side to stop wilt spread. Do not replant where infection occurred.

*Chemical:*

- No chemical control is recommended; however, pre-plant soil fumigation may be useful in certain circumstances.

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