

# Vegetable Diseases

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## Fusarium Wilt of Watermelon

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**F**usarium wilt is one of the most serious watermelon diseases in Indiana. This publication describes the cycle and symptoms of Fusarium wilt and offers management recommendations.

### Disease Cycle and Symptoms

The fungus that causes Fusarium wilt in watermelon (*Fusarium oxysporum* fsp. *niveum*, FON) is very specific and cannot infect even closely related plants such as cucumber and muskmelon. FON forms resilient spores that can remain viable in the soil for many years. That means Fusarium wilt may appear in a field that may not have had a suitable host for many seasons.

It also means that the disease will not spread from plant to plant, only from spores in the soil. Any process that moves soil may be responsible for spreading this disease between or within fields. In addition, the organism that causes Fusarium wilt may be transmitted on seed; Fusarium wilt has been observed on watermelon transplants in greenhouses.

The first noticeable symptom is that one side of a plant wilts (Figure 1). This one-sided wilt is common in plants three to four weeks after they have been transplanted. Infected



**Figure 1.** Watermelon plants with a one-sided wilt are characteristic of plants infected with Fusarium wilt.

plants have white, healthy roots, but the vascular tissue is brown and discolored (Figure 2). In the field, infected plants often appear in clusters (Figure 3). Plants in areas of the field with high spore concentrations in the soil often develop symptoms before those plants in areas with relatively low spore populations, giving the appearance of disease spread.

### Disease Management and Timeline

Fusarium wilt is difficult to manage. Long rotations may lessen the survival rate of the fungus spores in the soil and decrease the severity of symptoms. Fumigation may help lessen the incidence and severity of Fusarium wilt. However, there are no fungicides currently labeled for treating Fusarium wilt.

Although no commercial watermelon varieties are completely resistant to Fusarium wilt, some varieties offer partial resistance, which will help lessen the impact of this disease.

The table below provides a timeline for Fusarium wilt management.

Timing	Management Measures
Winter/Off-Season	Long rotations of six years or more are necessary to keep inoculum from building up in the soil. Some cultivars offer partial resistance (See Purdue Extension publication ID-56, <i>Midwest Vegetable Production Guide for Commercial Growers</i> ).
Greenhouse	Fusarium wilt may be seedborne. Inspect seedlings for symptoms of Fusarium wilt. Use new transplant trays or sanitize trays well.
Vine Touch	Since symptoms are particularly likely at this stage, fields should be scouted for diseased plants.
Harvest	Do not save seed from fields where Fusarium wilt has been observed.

### Find Out More

For more information, including cultivars that offer partial resistance to Fusarium wilt in watermelon, see Purdue Extension publication ID-56, the *Midwest Vegetable Production Guide for Commercial Growers*, available at [www.btny.purdue.edu/pubs/ID/ID-56/](http://www.btny.purdue.edu/pubs/ID/ID-56/) or by visiting the Purdue Extension Education Store at [www.ces.purdue.edu/new](http://www.ces.purdue.edu/new).



**Figure 2.** Brown discolored vascular tissue is characteristic of watermelon with Fusarium wilt.



**Figure 3.** Clusters of wilted or dead plants are typical of the distribution of Fusarium wilt of watermelon.



**Figure 4.** Fusarium wilt of a watermelon transplant. The true leaves of this transplant have wilted and died as a result of infection by the Fusarium wilt fungus. Since this plant has not come into contact with the fungus in the soil, the Fusarium wilt fungus likely came from either the seed or from fungus that survived on the transplant tray over winter.

