



## Arkansas Plant Health Clinic Newsletter

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### Apple

Bitter Pit of apple is caused by poor distribution of calcium within the tree during fruit development resulting in low levels of calcium in the fruit. This condition is usually the result of unequal watering, and very rarely the result of a calcium deficiency in the soil. Bitter Pit is generally worse in seasons with wide fluctuations in rainfall and temperatures, coupled with a shortage of water to trees at critical times during fruit development. Symptoms often begin when the fruits are about half developed but can develop anytime including post-harvest. Small sunken pits appear on the surface of the fruit. The flesh beneath the pits is dry and discolored brown, and the fruit takes on an unpleasant bitter flavor. Bitter Pit is more common on young trees, particularly those fed heavily with nitrogenous fertilizers. However, it can also develop on older trees, especially cultivars with large fruit. Some susceptible cultivars are 'Baldwin', 'Boskoop', 'Bramley's Seedling', 'Cleopatra', 'Cox's Orange Pippin', 'Egremont Russet', 'Golden Delicious', 'Granny Smith', 'Gravenstein', 'Grimes Golden', 'Hamling's Seedling', 'Jonathan', 'Marigold', 'Meridian', 'Merton', 'Merton Worcester', 'Newton Wonder', 'Northern Spy', 'Prima

Starking', 'Red Delicious', 'Rhode Island Greening', 'Starkrimson', 'Stayman', 'Sturmer', 'Warner's King', 'White Winter Pearmaine', 'Worcester', 'Yellow Newtown', and 'York Imperial'. Less susceptible cultivars are 'Fuji', 'Gala', 'Haralson', 'Jonagold', 'Lobo', 'Macintosh', 'Red Gravenstein', 'Rome Beauty', 'Spartan', 'Stonetosh', and 'Winesap'. Foliar spray applications of calcium chloride may help to reduce Bitter Pit incidence. Mix 2 pounds of calcium chloride per 100 gallons of water (1.5 tablespoons per 1 gal. water). Apply four to five applications at 10-to-14-day intervals, the last application about two weeks before harvest. Do not apply at temperatures above 70 °F as russetting of the fruit may occur.

### Apple Bitter Pit-Abiotic



Photo by Regina Hodge, University of Arkansas  
Cooperative Extension



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## Barberry

Verticillium Wilt, caused by *Verticillium albo-atrum* and *V. dahliae*, is a soil-borne fungal disease of many vegetable crops as well as many ornamental plants, including many trees

and shrubs. Barberries are among those shrubs that are very susceptible to Verticillium Wilt. Symptoms are leaf scorch, branch by branch decline and dieback, and overall thinning of the crown, followed by death of the tree. Verticillium enters the plant through wounds in the roots, or by direct penetration of the root tissue. The fungus colonizes the water transport system of the plant, plugging the cells and preventing the movement of water. Discolored streaking in the vascular tissue is diagnostic. Depending on the species, streaking ranges from olive to tan to brown or black. In barberry, the discoloration is a chocolate brown streaking. There is no cure for Verticillium Wilt. Some trees die the first season, while others survive for years in an enfeebled state. Verticillium Wilt progresses faster in drought stressed trees. Trees should receive a deep watering once a week during dry conditions and fertilized based on soil test pH and nutrient information. Where there is a history of Verticillium Wilt, susceptible species should be avoided. Some plants resistant to Verticillium Wilt are apple, beech, birch, boxwood, crabapple, dogwood, hawthorn, holly, honey locust, juniper, katsura tree, London plane tree, mountain ash, oak, pawpaw, pear, rhododendron, sweetgum, sycamore, yew, willow, and zelkova.



## Barberry Verticillium Wilt- *Verticillium* spp.



Photo by Sherrie Smith, University of Arkansas  
Cooperative Extension

## Barberry Verticillium Wilt- *Verticillium* spp.



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## Squash

Fasciation is abnormal growth in plants in which the growing tip is concentrated around a single point, producing nearly cylindrical tissue, instead of normal elongated tissue. This produces flattened, ribbon-like, crested, or elaborately contorted tissue. The abnormal tissue may occur in roots, stems, fruit, or flowers. Fasciation has been identified in over 100 plant species, including members of the genera *Acer*, *Aloe*, *Cannabis*, *Celosia*, *Delphinium*, *Digitalis*, *Euphorbia*, *Forsythia*, *Glycine max*, *Primula*, *Prunus*, *Rubus*, *Salix*, and many genera of the *Cactaceae* and *Cucurbitaceae*. Although this condition is poorly understood, some factors thought to contribute to Fasciation are hormonal imbalances; mutation; bacterial, fungal, and viral infections; mite or insect attack; and





chemical exposure. Fasciation is not contagious.

## **Squash Fasciation-Abiotic**



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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## **Squash Fasciation-Abiotic**



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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