



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.

## 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: 'Granny Smith', 'Yellow Newtown', 'Jonathan', 'Golden Delicious', 'Gravenstein', 'Red Delicious', 'Baldwin', 'Boskoop', 'Bromley's Seedling', 'Cleopatra', 'Cox's Orange Pippin', 'Grimes Golden, Merton', 'Rhode Island Greening', 'Worcester', 'Stayman', 'Sturmer', 'White Winter Pearmaine', 'Prima Starking', 'Starkrimson, Marigold', 'Northern Spy', 'York Imperial', 'Egremont Russet', 'Hamling's Seedling', 'Meridian', 'Merton Worcester', 'Newton Wonder' and 'Warner's King'. Less susceptible are: 'Jonagold', 'Gala', 'Rome Beauty', 'Macintosh', 'Spartan', 'Haralson', 'Lobo', 'Winesap', 'Red Gravenstein', 'Stonetosh', and Fuji. Foliar spray applications of calcium chloride may help to reduce bitter pit incidence. Mix 2 pounds of calcium chloride per 100 gals. water (1.5 tablespoons per 1 gal. water). Apply four to five applications at 10 to 14 day intervals, the last about two weeks before harvest. Do not apply at temperatures above 70 degrees F as russetting of the fruit may occur.

### Apple Bitter Pit-calcium deficiency



Regina Hodge University of Arkansas Cooperative Extension

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## Barberry Verticillium Wilt- Verticillium spp.



Sherrie Smith University of Arkansas Cooperative Extension

## Barberry

Verticillium wilt, caused by *Verticillium albo-atrum* and *V. dahlia*, is a soil-borne fungal disease of many ornamental plants, including many trees and shrubs, as well as many vegetable crops. Barberries are among those shrubs that are very susceptible to Verticillium wilt. Symptoms are leaf scorch, branch by branch decline and dieback, or 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, 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 per soil test. Where there is a history of Verticillium wilt, susceptible species should be avoided. Some plants resistant to Verticillium wilt are crabapple, apple, mountain ash, beech, birch, boxwood, dogwood, sweet gum, hawthorn, holly, Katsura tree, honey locust, oak, pear, juniper, Pawpaw, Yew, London plane tree and sycamore, rhododendron, willow, and zelkova.



### **Barberry Verticillium Wilt- Verticillium spp.**



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### **Squash Fasciation-stem**



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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, Salix, Rubus, 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-bloom**



Sherrie Smith University of Arkansas Cooperative Extension



### **Request for help from Dr. Robbins:**

Root knot nematode populations are needed for our Arkansas species study. I am a nematologist in the department of Plant Pathology in Fayetteville. My student and I are trying to amass populations of as many species of Root knot nematode (*Meloidogyne* sp.) as possible for species identification using molecular techniques. At present no root knot species in Arkansas have been identified using molecular technology. We are interested in receiving populations from home gardens, shrubs, flowers, trees and grasses. For samples we need about a pint of soil and feeder roots in a sealed plastic bag that is plainly identified by plant host, location (City County, physical address, collector and date of collection). Please send samples to us at the follow address:

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