



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.

## Amaranth

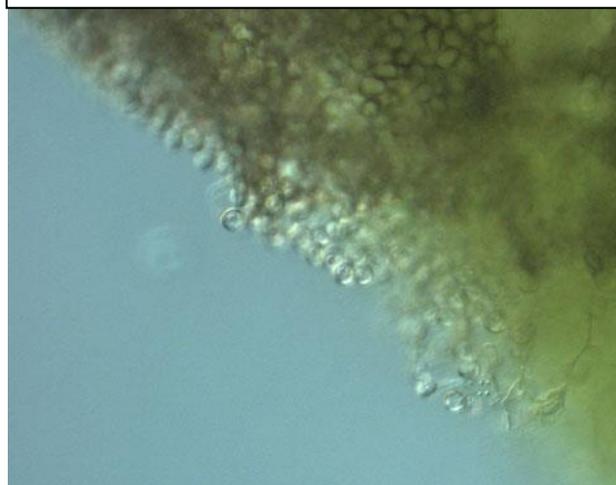
There are many species of amaranth. Some are grown as ornamentals, and some are grown as food crops in many parts of the world. There are also many weedy species that are a nuisance in gardens and fields. Amaranth species are susceptible to a disease commonly known as White rust, caused by *Albugo bliti*. Symptoms are chlorotic lesions and sometimes leaf galls on the upper leaf surfaces, with corresponding white blisters on the underside of the leaves. Plants can be stunted with distorted leaves and flowers. Infection and disease development occurs during cool, moist conditions. The optimal temperature for infection is between 55 and 77°F. Leaves must remain wet for a minimum of 2 to 3 hours for the spores to germinate. Any amaranth with these symptoms should be immediately removed and destroyed to prevent infections passing to valuable garden plants. Clean up all crop debris at the end of the season and practice good weed control to eliminate weedy hosts. Fungicides containing mefenoxam or fosetyl-aluminum can help limit infections, but are impractical for the average homeowner.

### Amaranth White rust s-*Albugo bliti*



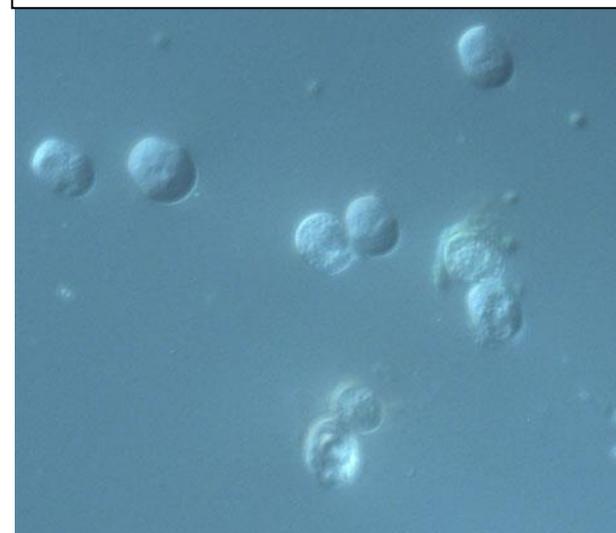
Raven Bough, Plant Health Clinic lab tech

### Amaranth White rust spores-*Albugo bliti*



Sherrie Smith University of Arkansas Cooperative Extension

### Amaranth White rust spores-*Albugo bliti*



Sherrie Smith University of Arkansas Cooperative Extension



Sherrie Smith

## Maple

The fungus, *Phyllosticta minima*, produces a leaf spot on maple, but does not cause the defoliation that Maple anthracnose causes. Symptoms are raised tan to dark brown leaf spots. Young lesions may have a lighter center. The dark pimple like structures of the fungus may be seen using a hand lens. Older lesions may dry and fall out leaving a shot hole in the leaves. The disease over-winters on fallen leaves. In the spring spores are produced that are carried by wind and rain splash up to the new foliage. It is important to rake up and destroy all fallen leaves. Don't leave them on the ground over the winter. Although chemical control is usually not needed, small trees may be protected with applications of a fungicide containing chlorothalonil.

### Maple *Phyllosticta* leaf spot- *Phyllosticta minima*



Sherrie Smith University of Arkansas Cooperative Extension

### Maple *Phyllosticta* leaf spot- *Phyllosticta minima*



Sherrie Smith University of Arkansas Cooperative Extension

### Maple *Phyllosticta* leaf spot- *Phyllosticta minima*



Sherrie Smith University of Arkansas Cooperative Extension



Sherrie Smith

## Maple

Phytophthora belongs to a group of organisms commonly known as water molds. They are found in soils that remain saturated for long periods of time, and can cause diseases such as root and collar decay, stem and trunk cankers, foliage lesions, and fruit rot. Roots are infected through infested soils. Infections of above ground parts of the plant are thought to occur from the pathogen being moved upward by rain and irrigation splash, or possibly insect vectors. Although several species of *Phytophthora* have been associated with bleeding cankers, including *Phytophthora cactorum*, *Phytophthora ramorum*, and *Phytophthora inflata*, *Phytophthora cactorum* is the most common causal agent for bleeding cankers in trees. American and European Beech; sweet birch; flowering and Pacific dogwoods; sweet gum; horse-chestnut; linden; red maple; silver maple; sugar maple; Norway maple; sycamore; live oak; pin oak; red oak, tulip tree; weeping willow; avocado; apple; citrus, are some of the susceptible hosts among over 80 genera. The pathogen commonly enters through wounds or succulent new growth. Trees that are stressed are more susceptible. Symptoms of *Phytophthora* bleeding canker are decreased size and numbers of leaves, yellowing, branch dieback, and a darkened, bleeding canker on the trunk, usually on the lower trunk. The trunk cankers are generally elongate, with the sapwood and phloem stained reddish-brown underneath the cankers. Prevention is the best defense as treatment is difficult once disease occurs. Trees should be planted where they will receive adequate water, but have good drainage. When in doubt about when irrigation is necessary, moisture meters (tensiometers) are a valuable tool. It is best not to allow sprinklers to spray water on the trunk, but to use irrigation hoses or drip lines. If the root flare is not visible, removal of soil, mulch, and ground covers is recommended. Fertilize per soil test for that particular species and do not overuse nitrogen fertilizers. Badly affected trees are unlikely to recover and should be removed. Aliette, Subdue MAXX, Adorn, Stature, Banrot, and Allude are labeled for treatment of *Phytophthora* in ornamentals. Check individual labels for rates and for use on specific hosts.

## Maple *Phytophthora* Bleeding canker-*Phytophthora* spp.



Photo, courtesy of Jessica Rice

## 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:

**Dr. Robert Robbins  
Cralley-Warren Research Center  
2601 N. Young Ave  
Fayetteville, AR 72701  
Phone 479-575-2555  
Fax 479-575-3348  
Email: rrobbin@uark.edu**