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Arkansas Plant Health Clinic Newsletter

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Mustard

Bacterial leaf spot, caused by *Pseudomonas syringae* pv. *maculicola*, is a serious disease of Brassica crops. During cool, wet conditions, bacterial leaf spot can cause significant losses on collards, mustard greens, and turnips. Symptoms are first seen on outer leaves as water-soaked spots. The spots are tiny at first, brown to purple in color. As they enlarge a yellow halo often forms around the lesion. The spots grow together to form larger light brown papery areas that tear, giving a ragged appearance. Probably the most important management tool is crop rotation. Rotate greens with crops that are not in the mustard family. Broccoli, Brussel sprouts, cabbage, cauliflower, collard, kale, kohlrabi, leaf mustard, radish, turnip, and water cress are all in the mustard family. Take soil samples in the fall to determine fertilizer needs. Use seed of high quality that have been grown under disease-free conditions if possible as this disease can be seedborne. Avoid overhead irrigation and working in the field during wet conditions. It is important to destroy all wild mustard and related weeds and volunteer plants from a previous crop.

Brassica Bacterial Leaf Spot- *Pseudomonas syringae* pv. *maculicola*



Photo by Sherrie Smith, University of Arkansas
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Canna

Cannas are a reliable perennial that will grow in almost any average garden soil with adequate moisture and fertilizer. A complete fertilizer such 5-10-5 applied early in the spring and monthly throughout the growing season gives excellent results. They do best in full sun with slightly acidic soils. Although generally trouble free, canna can fall victim to Canna rust, caused by *Puccinia thaliae*. Symptoms begin as small chlorotic spots on the leaves. Orange pustules appear on the underside of laves and can also occur on the flowers. The upper leaf spots coalesce and turn dark brown to black, dry out and fall off the plant. All infected leaves should be removed from the plant and destroyed. Overhead irrigation should be avoided if possible. Fungicides containing azoxystrobin, propiconazole, or triadimefon are



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effective at protecting new foliage. Homeowners may use Fertilome Liquid Systemic Fungicide, or Monterey Fungi-Fighter, or Green Light Fung-Away Fungicide.

Canna Rust-*Puccinia thaliae*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Tomato

One of the most destructive diseases of tomato foliage is Septoria leaf spot caused by *Septoria lycopersici*. Symptoms usually appear on the lower leaves after the first fruit sets. Lesions are circular, about 2.6mm in diameter. They have dark brown margins with tan to gray centers. A narrow yellow halo may often be observed around the lesion. The centers of older lesions become dotted with small black fruiting bodies of the fungus (pycnidia). Lesions may coalesce to form larger blighted areas. Badly affected leaves turn yellow, then brown and fall off the plant. There are no resistant cultivars available. Control measures include crop rotation with a

non-host, control of weeds in tomato crops, removal of all crop debris, and avoidance of night watering and overhead irrigation. Protective fungicides at regular intervals during the growing season will be necessary for most growers. Quadris, Cabrio, Flint, Bravo, Mancozeb, and Gavel are labeled for Septoria leaf spot control. Homeowners may use Mancozeb or Ortho garden Disease Control or Fertilome Liquid Fungicide or Bonide Fung-onil Multipurpose Fungicide or Garden Tech Daconil Fungicide.

Tomato Septoria Leaf Spot-*Septoria lycopersici*



Photo by Rick Wimberley, University of Arkansas Cooperative Extension



Tomato Septoria Leaf Spot- *Septoria lycopersici*



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Indian Hawthorn

Fire Blight

All members of the rose family are susceptible to Fire Blight, caused by *Erwinia amylovora*. Pears, apples, cotoneaster, quince, Indian hawthorn, hawthorn, roses, raspberry, and pyracantha are all susceptible to this bacterial disease. The disease kills blossoms, leaves, twigs, limbs, and occasionally, the entire plant. Infection from previous seasons cause stem and branch cankers that become active in the spring. Cankers are, at first, water-soaked and ultimately dark brown or black. Bark covering the cankered area is sunken, unusually rough and separates from injured tissue. The cankers begin to ooze bacterial slime that is attractive to insects. Trees are vulnerable during bloom, as insects carry the bacteria from bloom to bloom and from tree to tree. Entire blossom clusters wilt and die a few weeks after infection. The spurs supporting the blossoms also die. Infection usually spreads down the twig, sometimes into a main branch. Young, infected shoots form a typical shepherd's crook as they wilt. The dead tissue turns brown in apples and black in pears. Dead leaves remain on the plant. Susceptible trees should be sprayed at green tip, at 5% bloom and at 50% bloom with Agri-strep, Agri-mycin or a copper fungicide such as Kocide. All dead tissue should be pruned out 10 – 12 inches below the damage. Cutting tools should be dipped between cuts in a 10% bleach solution, (nine cups water to one cup bleach) or in 70% alcohol. Be sure to destroy infected clippings.



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Indian Hawthorn Fire Blight- *Erwinia amylovora*



Photo by Sherrie Smith, University of Arkansas
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Entomosporium Leaf Spot

Indian hawthorn is also susceptible to a fungal leaf spot caused by *Entomosporium mespili*. Numerous small, red-purple spots develop on leaves and fruit. As the season progresses, the entire leaf surface may become discolored with large patches of purplish-brown blotches. Heavy infections cause the leaves to turn yellow and drop prematurely. Highly susceptible varieties may completely defoliate. Ornamental fungicides containing chlorothalonil applied in the spring at new growth and after rainfall help control *Entomosporium* leaf spot. All fallen leaves should be raked up and destroyed. There are resistant cultivars available.

Indian Hawthorn Leaf Spot- *Entomosporium mespili*



Photo by Sherrie Smith, University of Arkansas
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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.