



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.

Okra

Okra grows best on sandy, well drained loamy soils with a pH of 6.5 -7.0. It has minor disease problems when adequate growing conditions are provided. However, okra is susceptible to wilt diseases caused by *Verticillium* or *Fusarium* species. Symptoms are yellowing and wilting of leaves and eventual collapse of the plant. When the stems are cut open, brown streaking and flecking can be seen in the vascular bundle. It is impossible to tell which pathogen is responsible for the wilting with certainty, without culturing tissue in the lab. *Verticillium* is more common during cooler weather, and the streaking is sometimes darker brown to black in color. There is no real resistance to these diseases in okra. The only control measures are to clean up all plant debris every season, and to practice crop rotation.

Okra *Verticillium* wilt-*Verticillium* spp.



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Hydrangea

Hydrangeas are among our most reliable shrubs for shade and partly shaded areas. Although tolerant of a range of soils and pH, hydrangea grow best in evenly moist, well-drained soil with afternoon shade. Under such conditions, they have few disease problems. However, they are prone to *Cercospora* leaf spot, caused by *Cercospora hydrangea*, during wet seasons, or when they are grown under overhead irrigation. Symptoms on big leaf varieties are small, circular purple to brown spots appearing first on lower leaves and spreading upward through the plant. The centers of the spots become tan to light gray with age, surrounded by a purple halo. Leaves with numerous lesions turn yellow and fall from the plant. Lesions on oak leaf hydrangea are more angular than circular. Good sanitation is important in controlling *Cercospora* leaf spot. All fallen leaves should be raked up and removed from the planting. Hydrangea should be watered at ground level and the use of sprinklers avoided. Fungicides containing chlorothalonil, or myclobutanil, or thiophanate-methyl, or mancozeb, or azoxystrobin, give good results.

Hydrangea *Cercospora* leaf spot-*Cercospora hydrangea*.



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Clematis

Clematis are one of our showiest and reliable blooming perennial vines. They grow best in full sun with well-drained, evenly moist soil with a pH of 6.6-7.0. Usually the only disease problem we see on clematis is Clematis wilt caused by *Phoma clematidina*, formerly *Ascochyta clematidina*. This is a fungal pathogen that causes both leaf spots and stem lesions. When a stem is girdled by the fungus, the flow of nutrients is shut off, and wilting occurs. When the affected stem is sliced open, it appears black inside. Clematis wilt seldom kills the plant. Affected plants almost always immediately begin to produce new growth from the crown. All wilted stems should be cut back to healthy tissue. An ornamental fungicide such as Bayer Advanced Garden-Disease Control for Roses, Flower, Shrubs, or a product containing chlorothalonil or propiconazole, such as Fertilome Liquid Systemic Fungicide, or Fertilome Liquid Fungicide or Monterey Fungi-Fighter may lessen the chance of reoccurrence. Avoid injuring stems when using tools such as weed eaters and mowers.

Clematis Wilt-*Phoma clematidina*



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Clematis Wilt-*Phoma clematidina*



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Zoysia

The most devastating and common disease of Zoysia turf is Large Patch, caused by *Rhizoctonia solani*. Symptoms begin as water soaked black to reddish brown lesions on stolons and basal leaf sheaths. As tissue is killed by the fungus, irregular circular patches develop that may be several feet or more in diameter. Patches can enlarge to more than 25 feet in diameter. Sometimes a smoke colored or orange halo may be observed early in the morning at the margins of the patch. In severe cases entire lawns may be blighted. Affected shoots may be pulled easily from their points of attachment. Roots are discolored but not rotted. In Zoysia, the patches occur a little later in the spring than in bermudagrass, two to eight weeks after green up, or in the autumn. Sometimes symptoms slowly disappear during the growing season as surviving tillers start filling in the killed spots. Night irrigation and excessive amounts of nitrogen increase both severity and incidence of patch diseases. Complete fertilizers with time release nitrogen should be used instead of quick release nitrogen. No more than two pounds of nitrogen



total should be applied per growing season. A soil test is useful to see where fertility levels are. Good drainage is essential for a healthy lawn. The turf should be de-thatched if thatch accumulates to more than 0.5" thick. De-thatching should be done while grass is actively growing. Fungicides may be applied once in the spring between March 15 and April 15, and again in the fall between September 20 and October 10. Heritage, Prostar, Eagle, Instrata, and Bayleton are labeled for Large Patch. For large patch, soil test for pH and nutrients. Avoid night watering. Homeowners may use products labeled for control of *Rhizoctonia* diseases. Products containing azoxystrobin, or flutolanil, or mycobutanil, or triticonazole, or triadimefon have proven effective when applied per label.

Zoysia Large patch-*Rhizoctonia solani*



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