



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.

## Strawberry

*Mycosphaerella* leaf spot is one of the most common diseases of strawberries. It is also known as White spot, Leaf spot, and Bird's-eye spot. The causal agent is a fungus named *Mycosphaerella fragariae*. Symptoms are small, deep purple round to indefinitely shaped spots on the upper surface of the leaves. A brown to reddish purple halo surrounds each spot. The centers of the spots change from brown to gray to white. Spots may coalesce and cause leaf death. The lesions may also develop on the fruit, stolons, petioles, and calyxes. The infection cycle is continuous as conidia are produced all season when warm wet weather persists. Control consists of using resistant cultivars when possible, and applying fungicides to susceptible cultivars. Captan, Elevate, and Switch are labeled for leaf spot on strawberry.

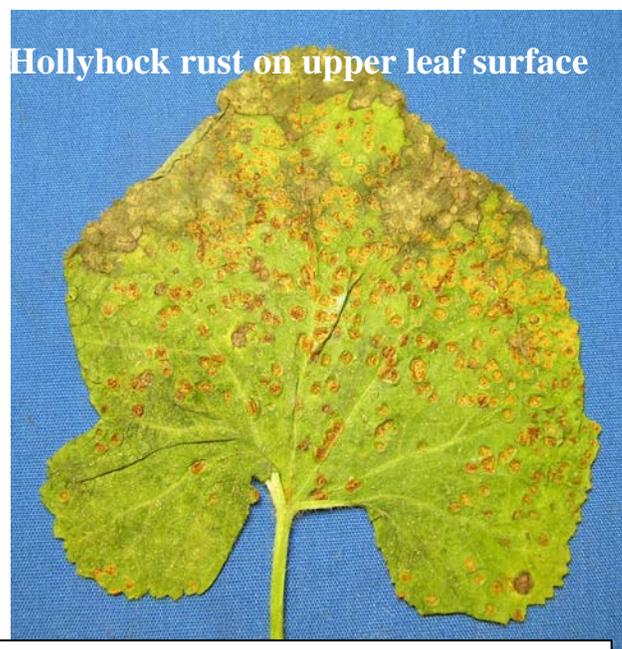


**Strawberry leaf spot**

Sherrie Smith University of Arkansas Cooperative Extension

## Hollyhock

A favorite staple of the cottage garden is the hollyhock. This old fashioned biennial comes in an array of pretty colors with both single and double flowering varieties available. Hollyhock rust caused by *Puccinia malvacearum* can cause serious damage. Both Hollyhock, (*Althea* spp), and *Malva* spp. are susceptible. The surface of the leaves develop numerous yellow to orange spots. However, symptoms are most striking on the underside of the leaves where large orange brown pustules appear. Pustules may also form on stems and green flower parts. The disease often becomes worse as the season progresses, with most of the leaves killed by fall. Sanitation is crucial to control of Hollyhock rust. All plants should be cut level with the ground in the fall. All leaves should be collected and burned or otherwise disposed of. Fungicides such as Daconil, sulfur, or myclobutanil should be used as first leaves are expanding. Note that sulfur may damage leaves if temperatures are above 85°F. It is also helpful to remove any wild *Malva* from the area.

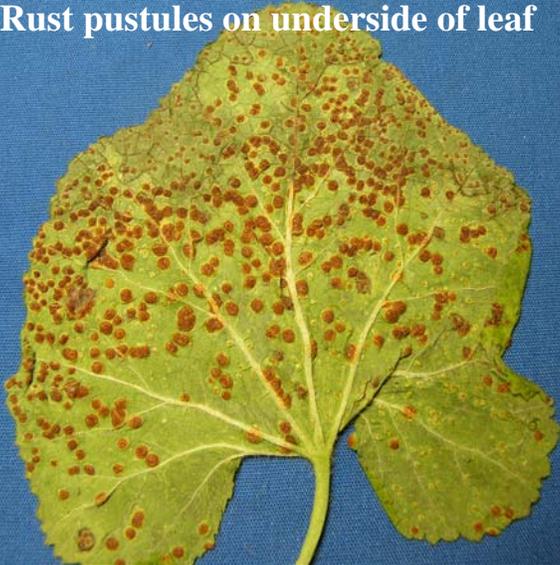


**Hollyhock rust on upper leaf surface**

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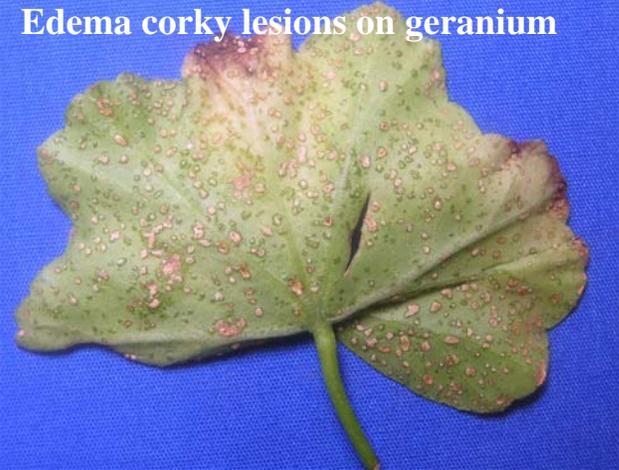
### Rust pustules on underside of leaf



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edema, good air circulation and proper watering practices are all that are necessary.

### Edema corky lesions on geranium



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## Geranium

Edema (Oedema) is a noninfectious physiological disorder affecting a number of plants including begonia, ivy geraniums, cactus, cleome, ivy, ipomoea, and thunbergia. Vegetable crops such as broccoli, cabbage, cauliflower and tomato can also suffer from this disorder. Plants with fleshy leaves such as jade, peperomia and schefflera are also prone to edema during favorable environmental conditions. Edema also occurs on woody plants such as camellia, hibiscus, and yew, when transpiration is impaired by water-logged soils. Symptoms are bumps, blisters or water-soaked swellings on the underside of leaves. These blisters are at first small, about 1 to 2 mm in diameter. They then turn tan or brown and become corky or warty. Leaves that are severely affected turn yellow and drop from the plant. Tan or brown lesions may also form on the upper surface of the leaves in some species as well as stems and petioles. Edema occurs when roots take up more water than can transpire through the leaves. Cells rupture, causing blisters. Plants lightly affected will recover when growing conditions become more favorable and the plant puts on new growth. To avoid

## Apple

Burrknot is a common, genetic physiological disorder of apples. Differentiated root tissue starts from root initials, and becomes a highly branched dwarf root system above the soil line. These growths take on the appearance of rough, raised gall-like areas, usually at nodes. These structures are sometimes mistaken for crown gall which they superficially resemble. Low light, high humidity, and high temperature can work together to stimulate development of the root initial. Severe burrknot problems can cause trees to become stunted, girdled, or weakened at the site of the knot. They are also a favorite site for borer attacks. Burrknot is common on many of the popular rootstocks such as M7, M9, M26, MM111, and Mark. They also occur on scion cultivars such as Springdale, Empire, and Gala. The best solution to the problem is to plant rootstocks that are not genetically disposed to burrknot formation. The knots can sometimes be removed by painting them with Gallex, or by surgical removal.



Apple Burrknot

Carl E. Armstrong



### **Wheat herbicide damage** by Bob Scott

Gramoxone drift has been detected in several fields in Lonoke county. As the pictures show the symptoms appear as necrotic circles, often with a purple or red ring around them. This drift can damage the flag leaf of wheat severe enough to cause yield loss. The wheat in these pictures should be fine in terms of yield.