



## Florida Plant Disease Management Guide: Fig (*Ficus carica*)<sup>1</sup>

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### **AERIAL/WEB BLIGHT** **(*Thanatephorus*** ***cucumeris/Rhizoctonia solani* )**

**Symptoms and Signs:** Symptoms on leaves initially appear yellow, or sometimes brownish, and may be water soaked. Eventually, the upper leaf surface turns silvery white and the underside becomes covered with the brown webbing of the fungus. The leaf will eventually die but can be held onto the twig by fungal strands coming from the petiole. Fungal mycelia, or strands, can cover and kill the twigs and can cover the fruit, causing fruit mummification. Small brown-to-black reproductive structures, called sclerotia, can be observed on the fungal strands, covering plant tissue. The sclerotia are very resistant to unfavorable environmental conditions and allow for survival of the fungus for long periods on the plant, in plant debris, or in the soil.

**Cultural Controls:** Prune the plant to increase air circulation inside of the foliage. When watering, avoid getting leaves wet since this favors disease infection. Fallen, diseased leaves should be removed to reduce inoculum.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.

### **ANTHRACNOSE ( *Glomerella*** ***cingulata/Colletotrichum*** ***gloeosporoides* )**

**Symptoms and Signs:** Both foliage and fruit are affected. Symptoms on leaves appear as slightly sunken spots surrounded by a dark brown edge. Frequently, large areas on the leaf turn brown and dry out along the leaf margins, and the leaf eventually falls off. Symptoms on fruit also develop as small, discolored, sunken areas that enlarge and develop pink spore masses in the middle. The fruit can also develop a soft rot and drop off the tree or remain attached and become mummified, providing inoculum for new infections.

*Colletotrichum gloeosporioides* produces single-celled, hyaline (clear) conidia in acervuli (asexual fungal fruiting body) on the lesion surface. They have a slimy pink appearance and can be seen with the naked eye when sporulation is abundant.

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**Cultural Controls:** Remove fallen fruit and leaves to reduce surviving inoculum for the next season.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.

### **CERCOSPORA LEAF SPOT ( *Cercospora fici*, *Cercospora* spp.)**

**Symptoms and Signs:** Spots on leaves initially appear angular and are reddish brown. As the leaf spot enlarges, the center turns tan and is surrounded by a brown margin with a yellowish halo. Lesions often develop along leaf tips and margins. The disease develops most rapidly during the rainy season in midsummer. Severe disease pressure can cause leaf drop.

*Cercospora fici* produces hyaline, threadlike multicelled conidia from brown conidial bearing hyphae (conidiophores) directly on the lesion surface.

**Cultural Controls:** Prune the plant to increase air circulation inside of the foliage. When watering, avoid getting leaves wet since this favors disease infection. Fallen, diseased leaves should be removed to reduce inoculum.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.

### **FIG MOSAIC VIRUS (unknown virus)**

**Symptoms and Signs:** Mottling of the leaves is very common. In some varieties, leaves and fruits may be dwarfed, and some leaves may be malformed. On leaves, mosaic spots will appear yellow and may cover large areas of the leaf. Mosaic spots on the fruit may be subtler in appearance than the leaf symptoms. In some cultivars, premature defoliation and fruit drop can occur.

Several viruses have been associated with fig mosaic symptoms, but none have been unequivocally demonstrated to cause the disease. Recently, studies have identified a clostovirus called fig leaf mottle associated virus (FMaV), which is associated with

almost all diseased fig plants. The virus is likely vectored by the eriophyid mite, *Aceria fici*, as well as through vegetative cuttings.

**Cultural Controls:** Clean propagation stock should always be used.

**Chemical Controls:** There are no chemical recommendations available for controlling the virus. Various refined horticultural oils (i.e., crop oil, citrus spray oil, etc.) may be used to manage mites.

### **MUSHROOM ROOT ROT ( *Armillaria* *tabescens* )**

**Symptoms and Signs:** Symptoms of this disorder appear suddenly; the tree rapidly wilts, dries out, and one or all trunks may die. The sudden symptoms usually occur during high temperature periods (summer) when the tree has the greatest water demand. The fungus enters the roots and girdles the water-conducting tissues at the soil line. A quick diagnostic test is to use a knife to peel back slivers of bark at the soil line from symptomatic trees. The presence of a creamy white layer of fungus below the bark will confirm mushroom root rot. The mushroom stage of this pathogen does not reliably appear prior to tree death.

**Cultural Controls:** Maintain vigor on affected trees. All trunks may not die in the same year. Dead trees must be totally removed (roots and soil). Avoid replanting, as the fungus survives in root debris.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.

### **NECTRIELLA STEM GALL ( *Nectriella pironii*/*Kutilakesa* *pironii* )**

**Symptoms and Signs:** Symptoms appear as abnormal growth or swelling of woody tissue (galls) that can be various sizes on the leaves, twigs, and trunk. This fungus has a wide host range on woody plants but appears to be primarily a wound invader on edible fig. Galls develop at leaf axils, pruning scars, or sites of mechanical damage to trunks or limbs. Stem cankers may occur on some cultivars.

Two different stages of the pathogen may be observed colonizing diseased plant tissue. Both *Nectriella* (sexual state) and *Kutilakesa* (asexual state) can be isolated from symptomatic (corky and callused) tissue. *Kutilakesa pironii* produces orange spore masses (sporodochia) that can be seen on the surface and crevices of galls with the aid of a hand lens.

**Cultural Controls:** Avoid excessive wounding of plants. Do not use galled stock for propagation. Prune out galled tissue at least 4–6 in. below obvious symptoms. Remove and discard all pruned plant material.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.

### **PINK LIMB BLIGHT ( *Erythricium salmonicolor* = *Corticium salmonicolor* )**

**Symptoms and Signs:** This fungus attacks the limbs, twigs, and trunk of the fig plant and produces a pale pink mycelium (vegetative part of the fungus) that often completely encircles the plant tissue. The foliage on the affected branch or limb will wilt and die. Eventually, the affected limb or twig may die.

**Cultural Controls:** Prune infected tissue at first appearance. Prune at least 4–6 in. below mycelium-covered twigs. Remove and destroy all pruned material.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.

### **RUST ( *Cerotelium fici* = *Physopella fici* )**

**Symptoms and Signs:** Symptoms initially appear as small, yellow to yellow green spots on leaves. The spots enlarge and develop a brownish tinge with a reddish border (Figure 1). Small blisters or pustules are then formed on the undersides of the leaves (Figure 2). Heavy infections will cause leaf yellowing and often cause defoliation of the plant in

early summer to midsummer. Young leaves are most susceptible to defoliation.



**Figure 1.** Reddish brown spots on the upper leaf surface of a fig leaf infected with rust. (Photo: Aaron J. Palmateer, UF/IFAS)

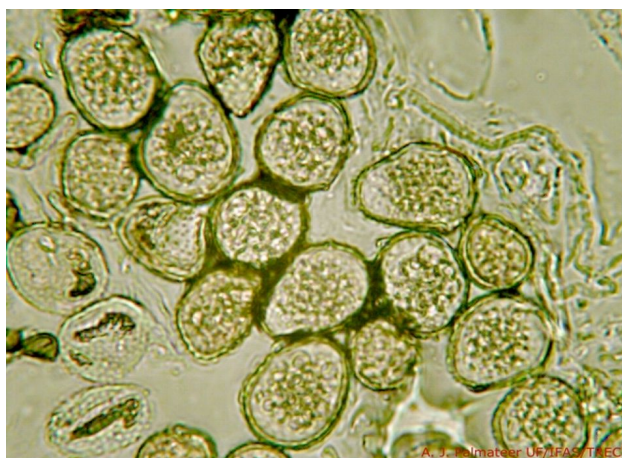


**Figure 2.** Small, blisterlike pustules on the underside of a fig leaf infected with rust. (Photo: Aaron J. Palmateer, UF/IFAS)

*Cerotelium fici* uredospores are produced in the pustules on the undersides of leaves. The spores are brown, single celled, and have spiky ornamentations on the cell surface (Figure 3). Spores survive between growing seasons on fallen, diseased leaves.

**Cultural Controls:** Collect and destroy all fallen, infected leaves before the next growing season to reduce surviving inoculum. The plant may be pruned to increase air circulation inside foliage. When watering, avoid getting leaves wet since this favors disease infection.

**Chemical Controls:** There are no EPA-approved fungicides for use on edible figs in Florida.



**Figure 3.** Brown, single-celled uredospores of *Cerotelium fici*. (Photo: Aaron J. Palmateer, UF/IFAS)

### **SOOTY MOLD (*Capnodium* spp., other genera)**

**Signs/Symptoms:** Sooty mold is the common name for several species of fungi that grow on the honeydew secretions of insects deposited on leaves and other plant parts. Scales, aphids, psyllids, and other insects that secrete honeydew can be responsible for sooty mold. Fungal mycelium is melanized (darkened), giving the appearance of soot covering the plant part. These fungi are ectoparasitic (growing on the surface) and will not infect plants. However, sunlight penetration is reduced and can result in stunted growth or yield reduction.

**Cultural Controls:** Cultural practices that will manage insect populations responsible for honeydew secretions in plant parts should be implemented. Such practices may include careful pruning of affected plant parts, control of ants that protect the insects responsible for honeydew, and high pressure washing of tissue with water and, if possible, with soap.

**Chemical Controls:** Use insecticides for control of ants and secretors of honeydew.