In 149 August, 1918

UNIVERSITY OF FLORIDA

Agricultural Experiment Station

SOME DISEASES OF THE FIG

By J. MATZ

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SOME DISEASES OF THE FIG

By J. MATZ

Altho the fig tree has become common about homes in the South, where the fruit is consumed locally, few large or commercial fig plantations have been developed. The fig tree makes a rapid growth and produces a mass of dense foliage, in this way creating around itself a humid and shady condition which favors the growth of certain organisms that cause plant diseases. It is this feature, perhaps, that has served to preclude an extensive development of the industry. Several diseases reported to occur in other states have not been observed in Florida. Those described in this bulletin, with the exception of leaf blight, occur on the fig wherever grown in the South.

The purpose of this bulletin is to give a brief description of those diseases of the fig which commonly occur in Florida and other Gulf States in order that interest may be aroused to their control or eradication wherever possible.

ANTHRACNOSE

Glomerella cingulata (Stonem) S. & V. S.

Anthracnose is a disease of the fruit and foliage of the fig. It causes a soft rot and dropping of the fruit. When immature fruits are attacked they remain on the trees in a dried-up condition. On the fruit one may find at first, small sunken and discolored areas. Later, these areas increase in size and pink masses of spores become visible on the surface of the discolored parts. The entire fruit often is invaded and drops. On the leaves the affected areas are sunken, gray, and often show the pink masses of spores in the center. The leaf lesions have a dark brown margin. In some cases the affected leaves turn brown and dry at the edges (fig. 1), and may fall.

CONTROL

Fallen and diseased fruit should be gathered and destroyed. Dried and diseased fruit should not be allowed to remain on the tree, as these harbor the fungus which will give rise to new infestations.

LEAF BLIGHT

Rhizoctonia microsclerotia Matz

Leaf blight is caused by a fungus which attacks the fig tree

and causes the leaves to shrivel and die. In early stages of infection small areas in the leaves become yellowish and appear watersoaked, the upper surfaces of such areas usually being darker. Later, these diseased areas extend and become silvery white on the upper surface of the leaf, while the under surface remains light brown and usually covered with a thin web of fungus growth. Ordinarily, there is one large diseased area in a leaf; the remaining green part may turn brown, shrivel and die, especially when the disease is progressing from the petiole. (Fig. 2.) The more seriously diseased leaves are shed, but in some cases they are held to the twigs in a dry and crumpled condition by the fine threads of the fungus. (Fig. 3.) Diseased leaves in falling from the twigs often become attached by the fungus threads to healthy leaves, thereby spreading the disease to hitherto unaffected parts of the tree.

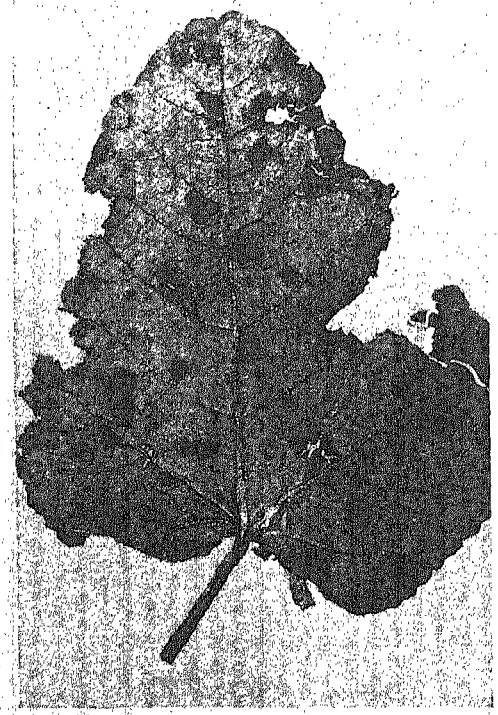

Fig. 1.—Anthracnose on lower surface of fig leaf

Upon a close examination of infected twigs one may find numerous small brownish bodies held loosely by fine fungus threads. These bodies, sclerotia, which are parts belonging to the blight fungus, are easily detached from the surface of a twig and are more resistant than the cottony growth of the same blight fungus on the dead leaves. In its form on the twigs the fungus is able to withstand the winter and to start new outbreaks of blight the following summer. The disease is usually most no-

ticeable on the tips of the branches. The fruit may sometimes become overgrown by the fungus and be covered with numerous small sclerotia as on the twigs.

CONTROL

In the summer or fall, locate the defoliated twigs and remove

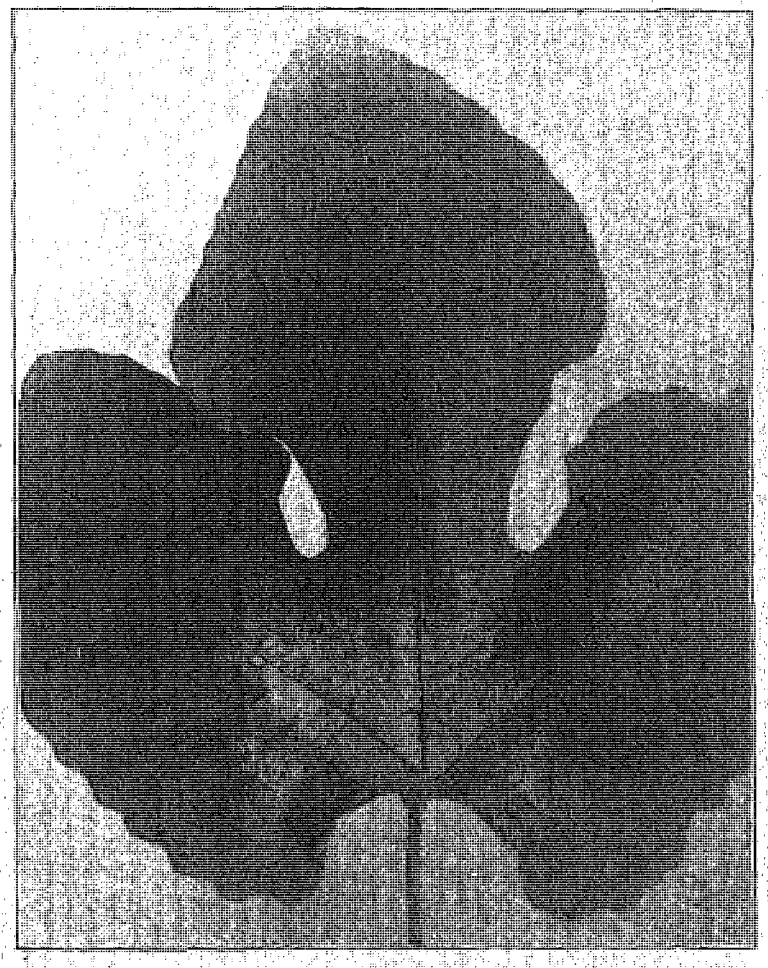

Fig. 2.—Fig leaf affected with *Rhizoctonia* sp.

them, cutting back as far as any signs of the fungus growth can be observed. Also, rake up all fallen leaves and destroy them.

FIG RUST

Physopella fici (Cast.) Arth.

Rust is the most common disease of the fig. The disease oc-

Fig. 3.—Fig twig showing advanced stage of leaf blight

curs on the leaves, and mostly during the latter part of the summer. When infestation becomes severe the leaves turn yellowish to brown and fall. The disease is recognized by the numerous

small, raised, reddish-brown spots which are covered with a golden yellow powder, the rust spores, on the under surface of the leaves. On the upper surface of the leaves the small spots are dark brown and more or less smooth. (Figs. 4 and 5.) Since the disease usually appears on the leaves at the stage when the figs have reached nearly full growth it is doubtful whether it materially interferes with the production of fruit. However, it is only reasonable to suppose that in cases where a large proportion of the foliage is discolored the tree as a whole must suffer, tho the tree does not show materially the injurious effects.

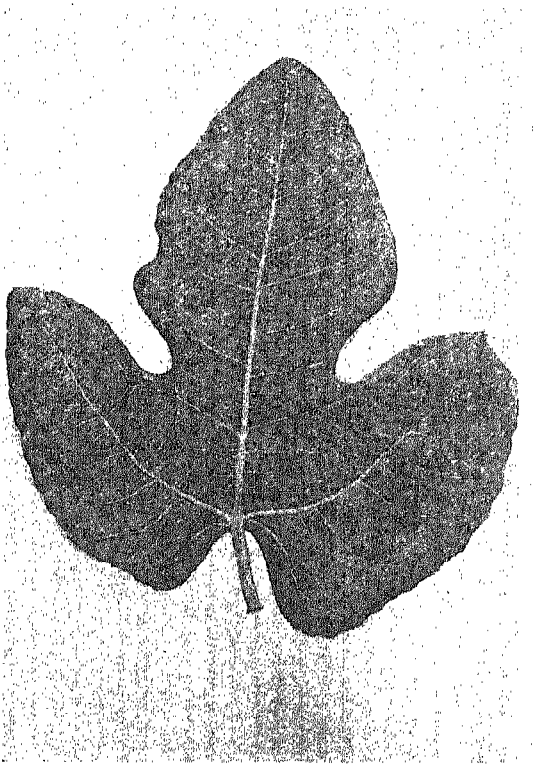

Fig. 4.—Fig rust on lower surface of fig leaf

CONTROL

Rake up and destroy all fallen leaves, and, if convenient, spray the foliage with bordeaux mixture early in the summer before the disease appears. Another spraying should be made when the first rust spots appear.

ROOT-KNOT

Root-knot often becomes one of the commonest troubles of a great many plants grown on sandy soils. It forms small galls on the roots of the fig. The galls contain minute worms which live on the roots of the plant. When the galls become numerous they interfere with the normal functioning of the roots and the plant takes on an unhealthy and stunted appearance.

CONTROL

It has been found that the worm which causes root-knot must have access to living roots and also that it needs air for its existence. Loose sandy soils as a rule are favorable to the development of root-knot, while in heavy and clay soils it seldom becomes troublesome. On a small scale, it may be possible to correct soil conditions to the extent that the soil will retain a maximum amount of moisture and be rendered more or less compact by the liberal addition of organic matter. Stunted and sickly trees affected with root-knot should be dug up and the ground allowed to remain fallow for at least one year in order to free the soil from root-knot infestation. In that time no weeds susceptible to the disease should be permitted to occupy the land.

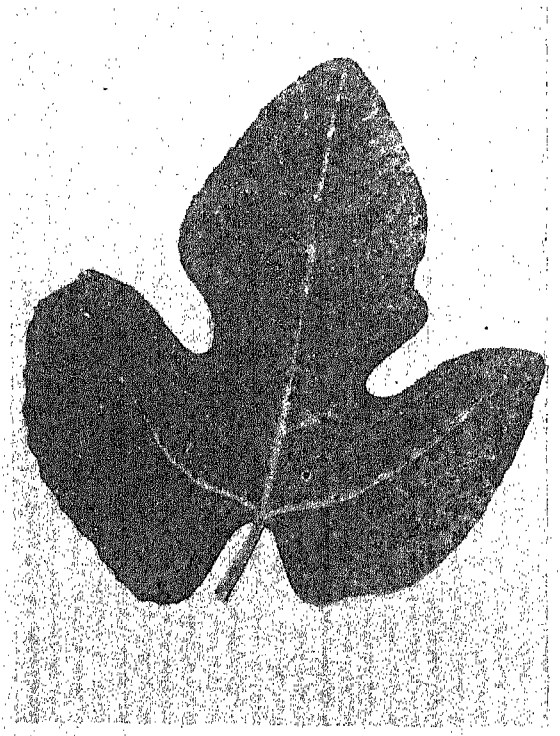

Fig. 5.—Fig rust on upper surface of fig leaf

SCLEROTIUM BLIGHT

Sclerotium rolfsii Sac.

Sclerotium blight is caused by a fungus. The disease occurs on fig trees during some seasons, attacking mainly the trunk of the tree. A yellowish-white mat of fungus growth is formed around the base of the trunk near the ground. Some round, hard, yellowish to brown bodies, sclerotia, the size of a mustard seed are found scattered on the fungus growth. This fungus is

known to attack a large number of plants in seasonal conditions. The fungus lives in the soil on vegetable remains and often attacks the roots and stems of healthy plants.

CONTROL

Since the causal fungus inhabits the soil it is necessary to spray the ground immediately around the infected tree with a 4-4-50 bordeaux mixture. This spray should also be applied to the affected trunk of the tree. The soil must be more or less saturated with the mixture, as a surface sprinkling would not penetrate sufficiently to reach all of the fungus which may live underneath the decaying leaves or other vegetable matter in the soil.

LIMB BLIGHT

Corticum salmonicolor Karst.

Limb blight of the fig is a fungus disease which causes wilting and dying of the leaves. The fungus forms a pale pink-colored mantle of growth often completely encircling the affected parts of branches and small twigs. The leaves of the attacked twigs wilt and die, apparently because the fungus interferes with the supply of elements essential to the growth and life of the foliage. The fungus often gets a starting point at a dead tip of a branch, then gradually extends toward the healthy part of the branch, causing a sudden wilting of the leaves.

CONTROL

Keep the trees free from dead wood to prevent the fungus getting a start in the tree. All affected branches should be cut out and destroyed.

DIEBACK

Fig trees are often injured by early or late frosts that kill back the younger twigs. This injury does not seem to have a directly deleterious effect on the tree. However, by allowing the dead wood to remain in the tree it becomes a source of food and shelter for a number of insects and fungi. These organisms may not be able to cause initial injury to healthy trees, but when given a start on the dead or weakened wood they tend gradually to devitalize the tree and sometimes introduce other injurious organisms which may cause further decay in the tree.

CONTROL

The trees should be kept free from dead wood. It may be well to cut out the dead wood in the fall and again the following spring.

DROPPING OF FRUIT

Sometimes the fruit of the fig tree fails to mature and drops. This may not be due to a disease but rather to a natural condition — the type of plant and the kind or kinds of flowers it produces. The fig fruit is a fleshy receptacle bearing on the inner surface its flowers which under certain conditions mature into seed. There are four kinds of flowers among the different varieties of figs — staminate or male flowers, pistillate or female flowers, gall flowers, and mule flowers. The staminate flowers rarely occur in the commonly cultivated fig but are found mostly in the Capri fig. The pistillate flowers are found in the common fig along with the mule flowers. Gall flowers are imperfect pistillate flowers that are used by the fig wasp (Blastophaga) on which to deposit its eggs and are found only in Capri and Cordelia figs. Mule flowers need no pollination and these mature into our common edible figs. They are imperfect pistillate flowers which produce no mature seed.

The common, or Mission, figs produce two crops of mostly mule flowers a year. These will mature under normal conditions. The San Pedro produces a first crop of mule flowers and a second crop of pistillate flowers. The first crop matures but the second crop drops before maturity. The Adriatic figs drop the first crop but mature the second. Seedlings of Smyrna figs will not produce mature figs in Florida because the flowers, in order to mature into edible figs, must be fertilized with pollen by the help of the Blastophaga. This insect is not established in this part of the country.

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*Resigned, May, 1918

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