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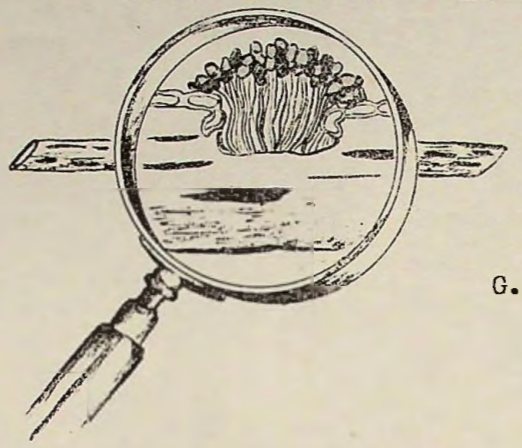
Plant Disease News

Texas A&M College

PLANT DISEASE NEWS



Agricultural Extension Service
Texas A. & M. College System

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With this issue the News ends a lapse of five months, the last previous number having appeared in August, 1952. Two items which usually come to attention in the early spring will be discussed: oak leaf blister and damping-off of small seedlings in flats and hot beds. Some pertinent figures are quoted from the newly-released cotton disease loss estimates for 1952. Some notes on watermelon diseases.

OAK LEAF BLISTER

Householders in the southeastern quarter of the state frequently call attention to a peculiar disease of the very young foliage of oak trees used as shade plants. It is most common on the type known as "water oak". All oak species are more or less susceptible, as far as we know, but no other types of plants are affected. Insects are not involved appreciably in spreading the causal agent, which is the fungus, Taphrina coerulescens. This organism grows into the tissues of the leaves as they expand from the dormant buds in the early spring. The fungus does not immediately kill the leaf tissues; instead it stimulates parts of the leaves to excessive growth. This uneven growth results in leaves which are puckered, wrinkled, or otherwise distorted or unsightly. A few days after emerging the leaves normally deepen in color, but infected areas remain pale, yellowish green. A month later the blistered areas become covered with a whitish dust, which is composed of masses of microscopic spores produced by the fungus and released to the outside to be scattered in the air. Large numbers of the spores come to rest on the branches of the same tree or nearby trees. The spores lodge in crevices in the bark and buds of twigs, but cause no further infection during that growing season. Only the first crop of leaves commonly becomes infected. Presumably the fungus requires cool temperatures for its infectious activity, and leaves forming later are safe because of warmer weather. Spores remain dormant on twigs and buds through the winter, resuming activity and starting a new round of infection just as the new leaves emerge.

The actual damage caused by oak leaf blister under our conditions is debatable. The very similar disease, peach leaf curl, can produce so much defoliation that trees are weakened and may winter kill. By comparison we might suggest that oak leaf blister would be really damaging only when it brings on serious leaf fall. After the spores are shed the infected portions of the leaves turn brown and die, the dead portions appearing abraded as though they had been worked on by a rasping insect. Many infected leaves fall at that time. Whether or not the disease is truly damaging, it is common for people to notice it and become concerned.

Experimental data on control of oak leaf blister are lacking. Again comparing with the closely similar peach leaf curl, it is suggested that a single drenching spray, applied to the dormant tree during the month preceding the expected leafing

out time, would probably give excellent control. Any one of several standard fungicides that are known to be generally safe for shade trees could be suggested, among them tribasic copper sulfate, Copper Compound A, Copper Hydro, Dithane Z-78, Parzate. One must remember that the thing that causes infection is fungal spores lodged in crevices of dormant bud scales and twigs, and that infection occurs as the expanding leaves drag past these scales. If the spores are to be killed it has got to be done before the tree leafs out. Afterwards the fungus is inside the leaves and cannot be controlled.

DAMPING-OFF OF SMALL SEEDLINGS

Persons growing small seedlings of garden and flower plants in flats and hot beds are often distressed to see the plants come up to a thick stand and then topple over in waves and die. This is typical post-emergence damping-off, caused by any of several common soil fungi. For many years it has been recommended that the surface of the soil be drenched with an organic mercury compound suspended in water to stop the damping-off in such cases. Dr. A. L. Harrison, plant pathologist in charge of the Plant Disease Laboratory at Yoakum, has recently compared the merits of several common fungicides for this purpose, and reports that the most effective material for tomato seedlings was DuPont's Copper Compound A, a commonly known commercial fixed copper compound. To prepare the suspension stir the powder into water at the rate of 2 to 3 tablespoons per gallon and sprinkle or spray enough on the seed bed to wet the soil about one-fourth inch deep. Although Dr. Harrison's tests were on tomato plants, it is probable that the procedure would be effective for other small seedlings that commonly damp off badly. It is emphasized that the beginnings of damping-off infection are invisible to the unaided eye; therefore some seedlings may damp off even after the drench is applied, due to prior infection. For best results the drench can be applied before damping-off has a chance to start.

COTTON DISEASE LOSS ESTIMATES - 1952

Fifty-one trained observers throughout the cotton belt cooperated during 1952 to collect the most detailed and comprehensive cotton disease loss data that have ever been assembled on a nation-wide basis. Diseases listed were anthracnose, bacterial blight, Fusarium wilt, Verticillium wilt, root knot, Phymatotrichum root rot (our common cotton root rot), seedling diseases (mostly sore shin and related troubles), Ascochyta blight, boll rots, and deficiency disease (potash, magnesium, etc.). Data for 13 states were brought together. California, which was second in production in 1952, did not contribute. Dr. Philip Leyendecker, plant pathologist at State College, New Mexico, analyzed the data from cooperators and brought the overall estimates together in a summary just released.

Some of the interesting figures from the summary are that while the nation produced 15 million bales it lost nearly 2 million to diseases. The loss would figure at roughly 300 million dollars. Texas produced 3,750,000 bales, while losing 426,370 to diseases. The state loss translates into about 54 million dollars. Nearly all of our loss in this state was from three disease categories: bacterial blight, causing an estimated yield reduction of 4.6 per cent; Phymatotrichum root rot, 2.5 per cent, and seedling diseases, 2.5 per cent. The total estimated loss from all cotton diseases in Texas in 1952 was 10.21 per cent. The three classes which caused most of our loss are known to be increased in severity by damp weather.

Most parts of the state were at the other extreme in 1952. While we believe that the 1952 estimates are both conservative and realistic, they are probably lower than average losses over any considerable span of years.

NOTES ON WATERMELON DISEASES

With the upstate acreage in watermelons still to be planted some questions are arising about management of the crop to reduce losses from diseases. Our common foliage diseases are anthracnose, Alternaria leaf spot and downy mildew, all fungal. Anthracnose occurs also on stems and fruits. These have been almost non-existent in many sections the past two seasons, due to dry weather. If the 1953 season is ordinarily or excessively damp, the troubles may occur.

Anthracnose can be seed-borne by way of spores of the fungus lodged or stuck on the outside of the seed coat. This is almost inevitable with seed saved from melons having anthracnose lesions. Seed-borne anthracnose can be prevented by the use of seed certified to be free of the disease; otherwise by soaking seed 5 minutes in mercuric chloride (corrosive sublimate) before planting. The strength of solution desired is one-tenth per cent (0.1%), which can be prepared by dissolving one of the common blue tablets in a pint of water. Use non-metallic container and observe customary precautions with this deadly poisonous chemical. An alternative measure is to coat the seed with a suitable dust fungicide, such as Arasan or Spergon, which gives also some protection against damping-off fungi.

Once the plants are up they should be examined closely every 2 to 4 days for evidence of dead spots or blights on stems and leaves. All three diseases cause such dead spots. Since they are difficult to distinguish at that stage without a microscope, the grower would do well to regard them from the practical standpoint as alike and equally threatening. Therefore, when dead spots show up on older leaves near the center of the vines, the fungicide program should be started right away. Use a dust containing enough of a fixed copper fungicide so the metallic copper equivalent is 5 to 7 per cent. An alternative material that is showing up as rather effective is a dust containing Zineb (Parzate or Dithane Z-78).

The method of application is about as important as the material in these cases. Probably the best way is for a man afoot to put on the material with a hand crank duster, having care to blow the material under the leaves as well as above. When acreages are large and labor too scarce for this, tractor dusters can be used with outlets set so the dust will billow among and under the leaves. Airplane dusting is generally thought less effective for this particular purpose. The interval between applications will probably run from 10 days to 3 weeks, but it depends on weather conditions and rate of growth. Foliage, stems and young fruits should be kept covered with a fine film of the dust at all times. During extremely hot, dry weather less frequent applications are needed.

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