

Fusarium crown rot of tomatoes

Fusarium crown rot of tomatoes (Fig. 3) is becoming widespread in southern Florida on the sandy, acidic soils and it has been found occasionally on the high pH soils in Dade County. Symptoms of Fusarium crown rot are distinctly different from those of Fusarium wilt of tomato. The brilliant yellowing of the foliage typical of Fusarium wilt does not occur with crown rot. With crown rot, the leaflets often have a marginal necrosis (death). Infected plants often wilt during the day and recover during the night (Fig. 4). With crown rot, definite root and crown rots occur (Fig. 5). Additionally, unlike Fusarium wilt, the vascular discoloration is limited to the lower 12" of the stem (Fig. 6). An infected plant rarely dies but infected plants will be stunted. Even with severe vine symptoms, some yield is attainable. This fungus is a member of the *F. oxysporum* species. It grows best from 50°F (10°C) to 68°F (20°C) which is lower than the optimum for the fungus that causes Fusarium wilt. The optimum temperature for disease development is 70°F (21°C).

Control of crown rot is similar to that of Fusarium wilt (e.g., crop rotation, sanitation, increase soil pH, minimize use of ammoniacal nitrogen, and soil fumigation). Resistant varieties for control of crown rot are currently available only for greenhouse production. Crown rot is likely to occur with a higher frequency where direct seeding is used instead of healthy transplants and where the soil contains high levels of chloride salts. The utmost sanitation production scheme for transplants in greenhouses should be used so that individuals or equipment used within or around the transplant site do not become contaminated with disease-causing organisms from the field. Considerable information on sanitation within transplant systems is available in Plant Protection Pointer No. 25. Finally, transplants should be transported, pulled, and set without tissue damage as damaged tissues are likely to be sites for infection.

Fusarium wilt of watermelon

Fusarium wilt of watermelon is common in Florida where resistant varieties are not used but it occurs to some extent even when resistant varieties are used. Resistance to Fusarium wilt in watermelon varieties is not complete; that is, some plants within the "resistant variety" may be susceptible. However, a susceptible variety contains a higher percentage of susceptible plants than a resistant variety. Three races (0, 1 & 2) exist and

resistance to all three is necessary. Currently, resistance to race 2 has not yet been incorporated into a commercial variety.

Fusarium wilt of watermelon usually occurs without plant yellowing; usually the entire plant wilts quickly (Fig. 7), becomes brown and dies. Occasionally, wilting of vines on one side of the plant occurs, particularly on older plants. Slicing the tap root lengthwise into two equal halves will reveal two streaks of vascular tissue that are dark yellow-brown, orange brown or reddish brown (Fig. 8). In Florida, Fusarium wilt is likely to occur prior to fruit set. The optimum temperature for infection is near 80°F (27°C) with little infection occurring above 86°F (30°C). This wilt pathogen has been found to be associated with seed but the importance here would be the potential of introducing a new race into the field from other areas of the world.

The best control for Fusarium wilt of watermelons is the use of resistant varieties coupled with crop rotation. Where land is limiting for an adequate rotation scheme on your farm, two alternatives exist. First, you may lease land that has not had watermelons for many years. Secondly, the use of certain varieties (e.g., Crimson Sweet) on the same land year after year, although not advised, may result in less Fusarium wilt than if other varieties (e.g., Jubilee types) are planted. Rotation includes the absence of watermelon for five years or more. Also, some varieties of yellow summer, zucchini, and scallop squash are susceptible to this fungus and should be excluded from the rotation.

Additional controls include the use of certified, disease-free transplants and delayed thinning of direct seeded stands. Delayed thinning permits a better chance of culling susceptible plants rather than resistant plants within the population. The use of higher soil pH's and less ammoniacal nitrogen has not consistently reduced the amount of wilt in watermelons as it has in tomatoes.

Fusarium wilt of cantaloupe

Fusarium wilt of cantaloupe has not been formally identified in Florida. However, it is likely that it has occurred in the panhandle region of Florida. Symptoms are similar to other Fusarium wilts. This wilt pathogen has been found on seed. This disease is favored by cool temperatures between 65 to 77°F (18 to 25°C).