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Peanut Diseases

CYLINDROCLADIUM BLACK ROT

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Cylindrocladium black rot (CBR) is caused by the soilborne fungus, *Cylindrocladium crotalariae*. Since the first report of this disease in Georgia in 1965, it has spread at an alarming rate northward into all the peanut-producing counties of Virginia and North Carolina. Peanut, soybean and other leguminous field crops are susceptible to infection by the fungus, whereas corn, cotton, tobacco and small grains are not affected.

SYMPTOMS - In most years, the first symptoms of CBR in peanut fields are observed in mid to late July. Initially, infected plants appear stunted and exhibit yellow foliage that wilts on hot days. As the season progresses, these plants will eventually collapse and die. Pulling a symptomatic plant will expose the blackened and severely rotted tap root, lateral roots and pods (Fig. 1).

A useful diagnostic sign of CBR is the occurrence of small, reddish-orange, spherical bodies (perithecia) of the fungus in dense clusters on stems, pegs and pods just above and/or below the soil surface (Fig. 2). These structures are generally easy to find on diseased tissues following wet weather or in moist areas of fields. If these structures cannot be found on diseased plants in the field, tissue samples must be assayed in a laboratory in order to positively identify the disease as CBR.



Figure 1. Blackened and severely rotted tap root, lateral roots and pods of CBR-affected plant.



Figure 2. Small, reddish-orange, fruiting bodies (perithecia) of the fungus on limbs of diseased plant.

DISEASE CYCLE - The causal fungus of CBR produces its survival structures in the decayed, blackened roots, pegs and pods of diseased plants. These structures, called microsclerotia, are eventually released into soil where dissemination may occur by tillage and combine harvesting operations as well as soil erosion. Microsclerotia in debris blown from operating peanut combines may be carried long distances by prevailing winds. These structures are capable

of surviving for several years in soil, even in the absence of susceptible host crops.

The reddish-orange fruiting bodies, called perithecia, are produced by the fungus during the sexual phase of its life cycle on diseased tissues near the soil surface. These structures forcibly discharge spores that can contribute to spread of the disease within a field, but not to long-distance spread under normal circumstances.

Once a field becomes infested, the incidence of disease in subsequent years depends on the number and distribution of microsclerotia in soil. High soil moisture favors root infection and disease development in peanut. Since most peanut field soils are well-drained and sandy in texture, high rainfall early in the growing season is necessary for heavy root infection and severe rot. If subsequent dry periods cause moisture stress, disease symptoms above ground may develop rapidly because of the limited number of functional roots on infected plants.

CONTROL - To date, no chemical treatments have provided effective and/or economical control of CBR. All Virginia-type cultivars of peanut that meet market specifications are susceptible to CBR. Sources of CBR-resistance in peanuts have been identified and are currently being used in accelerated breeding programs to develop commercially-acceptable resistant cultivars.

Until effective strategies for disease control are developed, growers are urged to avoid planting peanuts or soybeans in fields where CBR has occurred. Corn, cotton, tobacco, or small grains are possible alternative choices for planting to infested fields since the fungus will not increase in soils planted to these crops.

On farms where the disease has occurred, sanitation practices should be employed that prevent transport of infested soil to non-infested fields.

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