

Stem Rot of Agronomic Crops and Vegetables (Southern Blight, White Mold)

Tom Kucharek, Professor and Extension plant Pathologist, 1979, Revised Nov.2000

Florida Cooperative Extension Service/ Institute of Food and Agricultural Sciences/ University of Florida/ Christine Waddill, Dean

Cause and Symptoms

Stem rot caused by the fungus *Sclerotium rolfsii* (*Athelia rolfsii*) occurs primarily in broad-leaf (non grass) crops. In Florida, peanuts commonly are infected by this fungus causing severe crop damage, other crops that incur this disease either sporadically or fairly commonly include tomato, pepper, tobacco, watermelon, potato, eggplant, beans, okra and soybean. In addition, seedling fruit crop trees such as apples and citrus are infected occasionally.

This disease becomes severe when conditions are wet and warm (80 - 95° F.). Peanuts and soybeans usually show symptoms after the crop canopy covers the soil and after periods of frequent rains or irrigation. Early symptoms often include an obvious discoloration of leaves on a few branches (Figures 1 and 2). During wet periods, a white fungus growth can be seen on the lower stem near the soil surface and on organic debris on the soil. (Figure 3). Later mustard seed-sized sclerotia are associated with the fungus growth (Figure 4). At first, the sclerotia are white; later, they turn orange, reddish or brown. If dry conditions occur, the white fungus growth will not be seen but the sclerotia may be present if they have had time to form. As the disease progresses, entire plants are killed often in spots within the field or in a linear fashion following the row.

Control

Crop rotation with grass crops, including pastures where possible, is a highly effective control measure if the susceptible crop is not planted in the same field more than once every four years. Limited land availability often deters effective control for this disease. Use a bottom plow to bury organic debris and the sclerotia mentioned above. Sclerotia are the survival structures for this fungus but they do not survive as well when buried at least 6 inches deep. Also, organic debris remaining on the soil surface offers a food base for this fungus.

Other control measures that should be considered are wider spacing between plants and roguing infected plants. When roguing plants, place them immediately in a wagon or sack and include the surrounding organic debris. Then burn this diseased material. An alternative to roguing would be the use of a propane torch or similar device in the field. Aim the flame at the soil surface and lower 10 inches of stem. The use of roguing or torching may be more suitable for small plantings or when first signs of the disease appear.

Chemical control is used in certain situations. Substantial control can be achieved for peanuts with several mid-season fungicide spray programs. On vegetable crops, the use of multipurpose soil fumigants such as Vapam or methyl bromide/chloropicrin will control

the stem rot fungus as well as other disease causing fungi when these chemicals are used prior to planting. Solarization of soil suppresses *S. rolfsii*.



Figure 1. Wilting of leaves and branches in peanuts.



Figure 2. Wilting of leaves in soybeans



Figure 3. White mycelial growth at base of soybean stems.



Figure 4. Mycelial growth and sclerotia on base of stem of okra plant.