

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES



Southern Blight of Industrial Hemp

Sclerotium rolfsii (teleomorph: *Athelia rolfsii*)

Southern blight of industrial hemp is caused by a soil-borne fungus called *Sclerotium rolfsii* (teleomorph: *Athelia rolfsii*). The pathogen has a wide host range and is known to cause disease on various economically important vegetable and ornamental plants. Initial symptoms appear as yellowing and wilting of leaves (Figures 1 and 2). As the disease progresses, white fungal growth (mycelium) and small, tan-colored sclerotia that look similar to mustard seeds appear at the base of infected plants. Sclerotia turn reddish to dark brown as they age (Figure 3). The mycelium and sclerotia extend both on the soil surface around the plant (Figure 3) and into the root zone (Figure 4). The whole plant eventually turns brown and dies (Figure 5).

The pathogen has the ability to infect industrial hemp plants at any stage of their growth. The fungus survives as mycelia or sclerotia on the plant and as sclerotia in the soil. In the soil it can persist for a number of years. The disease is favored by hot and humid weather, which is common in Louisiana. The pathogen may spread by a number of means, including planting of diseased transplants, movement of infested soil, equipment, tools and plant debris. Running irrigation water may also aid in dispersal of sclerotia.



Figure 1. Industrial hemp plant infected with southern blight exhibiting yellow leaves.



Figure 2. A wilted industrial hemp plant infected with southern blight.



Figure 3. White fungal growth (mycelium pointed by yellow arrow) and small, tan-colored sclerotia that look similar to mustard seeds (pointed by red arrow) present at the base of an infected hemp plant. Mature dark brown sclerotia (pointed by blue arrow) present on the top soil and white fungal mycelium extended on top soil away from infected plant (pointed by black arrow).

Management of southern blight warrants an integrated disease management approach. Growers must plant disease-free healthy transplants and avoid any physical injury to roots and lower stem while handling and transplanting the seedlings. Fields with previous history of southern blight must be avoided. Scout hemp fields on a regular basis for symptom development. Rogue out symptomatic plants immediately. Inspect healthy looking plants on either sides of the diseased plants as well. These plants may appear healthy but could be colonized by the pathogen at the base (Figure 6). Do not leave infected plants in the row middles after removal or carry them across the field with exposed root balls. Dig out infected plant with a shovel and remove entire plant with root ball and soil around it and place it in a trash bag to contain the infested soil and sclerotia. Then remove it from the field. Movement of infested soils should be minimized to prevent pathogen spread. Cleaning farm equipment to remove dirt is recommended.

Personnel working in fields infested with southern blight are encouraged to clean their boots. Growers should work with disease-free fields first followed by fields infested with southern blight. Keep weeds under check as some species may serve as alternate hosts of the pathogen. Destroy crop debris as soon as possible after harvesting. Deep plowing to bury sclerotia is recommended to reduce pathogen inoculum. Currently, no fungicides are available for industrial hemp growers to manage southern blight.



Figure 5. A dead industrial hemp plant infected with southern blight.

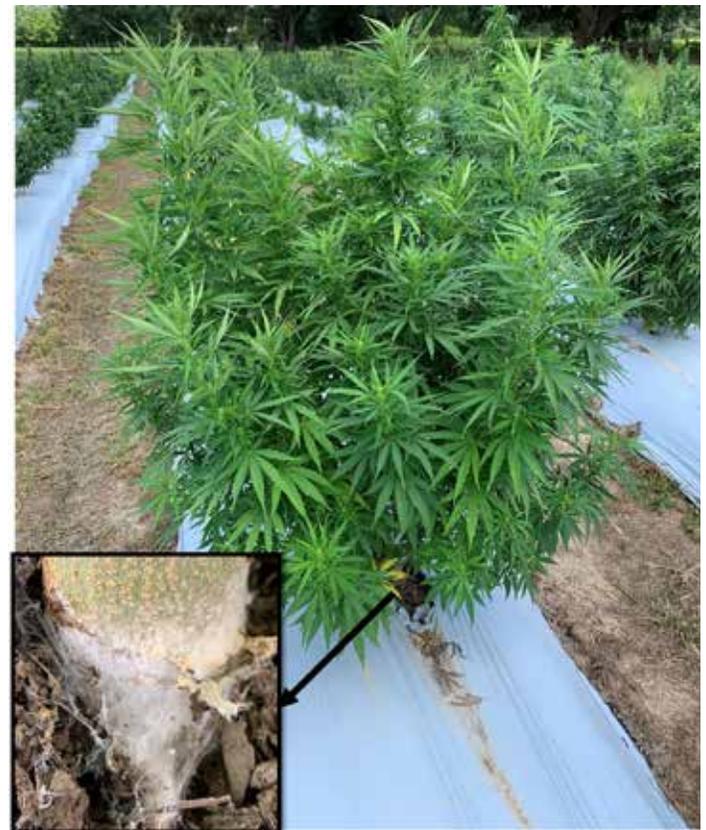


Figure 6. A healthy looking industrial hemp plant colonized by the white fungal growth at its base (inset).



Figure 4. White fungal mycelia (pointed by black arrow) and sclerotia (red arrow) extended into the root zone.

Author and photo credit

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