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USDA Sanitary Phytosanitary Project

COTTON DISEASES II



Cotton Seedling Diseases: Stem rot (*Rhizoctonia* stem rot) and Damping-off (several fungi)

Fungi: *Rhizoctonia solani*, *Pythium* spp., *Phoma exigua* (*Ascochyta*), and *Fusarium* spp.

Dari

Pathogen/Disease description: The fungi that cause damping off and stem rots live in the soil on dead plant debris and infect new seedlings during germination and emergence. All three fungi may cause death of seedlings before or after emergence. Seedlings may also survive but be damaged by *Rhizoctonia solani* when later infections of the main stem cause shallow cankers and some decay that weaken the plant and may eventually kill it.

Cultural control: Some damage from these pathogens may be avoided by planting later when soils are warmer.

Chemical control: Use fungicide treated seed.



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COTTON DISEASES III



Root knot nematode damage

Nematodes: *Meloidogyne incognita*

Dari

Pathogen/Disease description: Root knot nematodes have a very wide host range and remain in the soil for many years. As the female nematode burrows into the young roots she produces hormones that cause the plant to produce a gall around her.

Cultural control: Long rotations with non-host plants such as grains.

Chemical control: None

COTTON DISEASES VI



Boll rots

Fungus: *Phomopsis spp.*, *Diplodia spp.* and *Fusarium spp.*

Dari

Pathogen/Disease description: Boll rots attack cotton in regions with high humidity and rainfall. They may not be significant in Afghanistan. Many different fungi attack the cotton boll as it develops.

Cultural control: Use pathogen free seed for planting. Avoid excessive Nitrogen fertilizer. Space plants wider for more air movement and light penetration to canopy.

Chemical control: None



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COTTON DISEASES V



Verticillium wilt

Fungus: *Verticillium spp.*

Dari

Pathogen/Disease description: The *Verticillium* fungus lives in the soil and infects roots of cotton plants. As the fungus grows up through the water and food vessels of the plant it plugs them and causes wilting and death. Dark brown or red streaks in the vascular tissues in the pith of the stem are typical in advanced stages.

Cultural control: Use resistant varieties if available. Rotate to grain crops for several years.

Chemical control: None



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COTTON DISEASES V



Fusarium wilt

Fungus: *Fusarium oxysporum* f.sp. *vasinfectum*

Dari

Pathogen/Disease description: Fusarium wilt occurs wherever cotton is grown. The fungus remains in the soil for many years. Symptoms are very similar to Verticillium wilt but vascular discoloration is darker. The plant often dies from the top down.

Cultural control: Use resistant varieties if available. Use healthy seed. Avoid fields with a history of the disease and a history of root-knot nematode (which causes resistance to break down). Rotations are not useful because the fungus remains in the soil so long. Soil solarization may be helpful in some cases.

Chemical control: None



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COTTON DISEASES VI



Angular leaf spot (bacterial blight)

Fungus: *Xanthomonas campestris* pv. *malvacearum*

Dari

Pathogen/Disease description: This disease occurs sporadically but can cause significant losses in wet weather or when sprinkler irrigation is used. Symptoms include angular leaf spots begin as small, angular, wet looking areas which may grow together to blight the entire leaf. Lesions on stems may cause cankers. Boll may develop round lesions that appear at first water soaked but later become sunken dry and brown to black. The lint (cotton) inside will be discolored and have rotten seed

Cultural control: Use acid de-linted seed from healthy plants. Avoid working in the field when plants are wet. If practical shred stalks and plow into the ground at the end of harvest to promote decay of old material.

Chemical control: None