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.

Photos: ipmimages.org and Purdue Univ.
Root knot nematode damage
Nematodes: *Meloidogyne incognita*

**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
**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

Photos: ipmimages.org and Purdue Univ.
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
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
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