Cotton seedling diseases, caused by several different soil fungi, can significantly reduce yield potential.

Left unchecked, thrips and other early-season insects, can slash several hundred pounds from cotton yield potential.

A premium seed treatment, followed by foliar fungicides and insecticides can significantly reduce damage from diseases and insects.

Seedling Disease
Cool, wet conditions, planting too deep, poor seedbed conditions, compacted soil, nematode or insect infestations increase the probability that diseases will affect cotton seedlings. Damage from thrips can delay seedling development and enhance damping-off diseases caused by various fungi.

Seedling Disease Symptoms
Several species of fungi, including *Rhizoctonia solani*, *Pythium spp*, *Phoma exigua* (Ascochyta), and *Fusarium spp* can cause cotton seedling diseases. The fungi can attack the seed before or at germination, or they may attack seedlings before or after emergence. Disease symptoms include seed decay, decay of the seedling before emergence, delayed emergence, partial or complete girdling of the emerged seedling stems, and seedling root rot. Damaged seedlings are pale, stunted, slower growing, and sometimes die within a few days after emergence. The taproot is often destroyed, leaving only shallow-growing lateral roots to support the plant. Reddish brown, sunken lesions at or below ground level “sore-shin” enlarge, girdle the stem, and cause it to shrivel. These diseases usually result in uneven, slow-growing stands with skips in the rows.

*Pythium spp.* are classified as water molds, producing spores that move in the soil water. These fungi are more commonly problems in soil that has remained saturated for several days. Cotton seedlings infected with *Pythium* usually have a water-soaked, almost translucent lesion at the soil line and the outer root layer can be peeled back, creating a ‘wire root’ appearance.

*Rhizoctonia solani* typically causes sore-shin. Plants injured by sand blasting are particularly susceptible to this pathogen. This fungal disease is often found in wet or dry soils in warmer soil temperatures. Reddish-brown lesions girdling the stem at the soil line indicates the presence of *Rhizoctonia*. If the seedling survives, the stem will be weakened at the site of the lesion and plant growth may be stunted.

*Phoma exigua* may lead to post-emergence damping off. Cotyledons may die prematurely. Plants can be infected with *P. exigua* until they are nearly 6 inches tall.

Seedling Disease Management
Seedling disease management begins with planting high-quality seed, in favorable conditions for seedling germination and development as well as applying fungicide treatments. Fungicide seed treatments, as well as in-furrow fungicides may protect seedlings from diseases.

A premium seed treatment, such as Acceleron® Fungicide/Insecticide/Nematicide Seed Treatment Products for cotton can improve seedling emergence by reducing potential damage from diseases, insects and nematodes.

For 2013, Acceleron® Fungicide and Insecticide Seed Treatment Products for cotton and soybeans will also contain the fungicide Fluxapyroxad, a class of chemistry known as the carboxamides, with a mode of action called succinate dehydrogenase inhibitors. This fungicide helps provide improved protection from *Rhizoctonia* and *Fusarium* when combined with pyraclostrobin.

Growers should consider adding an in-furrow fungicide in fields with a history of seedling disease problems, when planting early, or when cool, wet weather is expected shortly after planting.

Figure 1. If conditions stay dry and warm, *Rhizoctonia* could be the disease to scout for in cotton.
Managing Early-Season Diseases and Insects in Cotton

Early-Season Insects
Thrips, aphids, tarnished plant bugs and fleahoppers are among the insect pests that can slow early-season growth, delay fruit set and lead to significant yield loss.

Common tobacco thrips and western flower thrips will start infesting cotton as soon as seedlings emerge. They begin feeding on the lower surface of cotyledons and then in the terminal bud of developing seedlings. Insecticide seed treatments can control thrips for up to three weeks after planting. Early emerging cotton may benefit from one or more applications of a systemic foliar insecticide when 2-3 thrips per plant are counted and immatures are present. The presence of immatures indicates that the at-plant systemic insecticide is no longer active. Thrips seem to be more prevalent in early-planted cotton and in conventionally tilled fields. Growers should treat with foliar systemic insecticides when threshold levels are reached. Delaying an insecticide application to piggy-back the insecticide with a herbicide could result in less effective thrips control and result in significant loss of yield potential. Scouting and insecticide applications, as needed, should continue until cotton develops the fourth true leaf.

North Carolina State University entomologist Dominic Reisig notes that Orthene® will take out tobacco thrips. If the Orthene does not seem to be effective, then western flower thrips are probably the species that are being found in the field. Growers should then spray with Radiant® to control the western flower thrips. He reminds growers that pyrethroids are ineffective against thrips.

Aphids, including the cotton aphid, cowpea aphid and green peach aphid feed on cotton plants from emergence to open boll. Usually found on the undersides of leaves, on stems, in terminals and sometimes on fruit, aphid infestations can cause leaves to curl and older leaves to turn yellow and shed. Most economically damaging infestations develop during the blooming period. Growers should scout fields twice per week because aphid numbers can increase rapidly in a short time. Control is justified when infestations exceed 50 aphids per leaf.

Cotton fleahopper adults are pale green and only 1/8-inch long. Nymphs look like adults without wings and are light green. These insects move into cotton from host weeds when cotton begins to square. Pinhead size and smaller squares are most susceptible to damage since adults and nymphs suck sap from the tender plants. Examine the main stem and terminal buds of 25 plants at each of at least four locations per field when the first small squares appear (four to six leaf stage). In the Blackland area of Texas, 10 to 15 fleahoppers per 100 terminals can cause economical damage during the first 3 weeks of planting. In other areas of Texas, 15 to 25 fleahoppers per 100 terminals justify treatment.

Tarnished plant bugs are one of several Lygus species that feed on cotton terminals, squares, and small bolls. Adults are 1/4-inch long with wings. Nymph wings are not developed, but the insects can move rapidly and are difficult to find in cotton foliage. Small nymphs may be confused with aphids, cotton fleahoppers, and leaf hopper nymphs. These bugs are attracted to succulent growth. Feeding damage may result in shedding of squares and small bolls, stunted growth, and boll deformation. Damaged blooms have black anthers and puckered areas in petals. Square retention that drops below 80% with the presence of nymph or adult plant bugs warrants further evaluation with sweep net counts. Local extension offices can provide current thresholds.

Sources:

For additional agronomic information, please contact your Asgrow®, DEKALB® and Deltapine® Brands Seed Representative

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