Disease Control

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Seed and Seedling Diseases

Rapid emergence and strong early-season growth are recognized as being most important to success in cotton production. Seedling diseases occur more frequently under cool, wet conditions immediately after planting. Soil temperatures at the 4-inch depth should average above 65° F and the forecast should favor continuation of these conditions over the next 3 days. Daily soil temperatures and cotton degree-days are available on the World Wide Web at http://www.ipm.vt.edu/infonet/. Other factors, such as planting too deep, heavy soil crusting, sting and reniform nematodes, and misuse of herbicides may increase the problem. Seedling diseases do not usually kill an entire seedling population, but rather cause uneven, slow growing stands with skips in the row.

The first line of defense against seedling disease is to plant high quality seed that is coated with seed protectant fungicides and insecticides. Try to obtain seed with cool germination levels of 80% or higher. Avoid seed with cool germination levels below 60%. All commercial seed is routinely sold with protectant fungicide coatings, which include Captan, Thiram, or Baytan plus PCNB, and metalaxyl. Field tests have demonstrated these coatings are highly effective, and there is usually no need for additional seed treatment of "hopper-box" fungicide.

If additional protection is desired, an in-furrow fungicide treatment, or hopper box treatment can be used. Benefits would most likely be seen in fields with a history of seedling disease problems when planting early or when cold, wet weather is expected shortly after planting.

In-furrow and hopper-box fungicides for cotton

Disease	Fungicide Common Name	Fungicide Trade Name	Formulated Rate	Remarks
Seedling disease; Damping-off; Seed rot	PCNB + etridiazole	Terraclor Super X 12.5G	8-12 lb/A	Apply to seed furrow at planting. Read and follow all label restrictions.
		Terraclor Super X 18.8G (Note: also available in liquid formulation)	6-9 lb/A	
	metalaxyl + PCNB	Ridomil PC	7.0-10.0 lb/A	Same as above.
	azoxystrobin	Quadris	5.8-8.7 fl oz/A	Same as above.
	carboxin + PCNB + metalaxyl	Prevail	8.0-16.0 oz/cwt	Apply to seed in hopper at planting.

Nematodes

Nematodes cause significant damage to cotton in some fields in Southeastern Virginia. The sting nematode is recognized as highly destructive to cotton because of the crop's high sensitivity to the nematode. Root knot nematodes are generally not a problem when peanut and cotton are rotated in the same field. However, southern root knot and reniform nematode have become an increasing problem where cotton is grown continuously for 5 or more years. Stubby root nematodes are parasitic on cotton and may represent the most common cause of crop damage in Virginia.

Diagnostic assays for nematodes in soil planted to cotton are provided free of charge by the Plant Disease Clinic at Virginia Tech. Nematode population thresholds for damage to cotton are available on the Web at http://ipm-www.ento.vt.edu/states/va/html. The Virginia Predictive Nematode Assay Program offers growers an opportunity to locate problem fields prior to planting. The best time to collect soil samples for assay is in the fall. Assay forms, sample bags, and instructions should be obtained from a local agricultural Extension office before collecting samples. A service charge of $11.00 for vermiform or $19.00 for cyst nematodes is levied on each sample. Counts of vermiform species are all that is needed if cotton is the only crop to be grown. However, if soybean or possibly tobacco might be considered as possible alternative crops, then counts of cyst nematodes would be more important or even critical. Nematode control is best accomplished by preventing the buildup of harmful numbers of nematodes in soil through crop rotation and good weed control. If nematodes pose a threat to cotton production, chemical control can be used to minimize the risk of crop damage.

Nematicides for use in cotton

Disease	Nematicide Common Name	Nematicide Trade Name	Formulated Rate	Remarks*
Sting, Reniform, Lesion, lance, Root knot, Stubby root	aldicarb	Temik 15G	3.5-7.0 lb/A	Apply in seed furrow.
			7.0-10.0 lb/A	Apply in a 4- to 6-inch band over row and incorporate.
	1,3-D	Telone II	3.0 gal	Apply 8-12 inches deep in row and bed soil. Wait 7-14 days before planting.

* Read product label carefully. Note application hazards, re-entry statements, restrictions on feeding livestock, rotation restrictions and protective clothing required before treatment. Read and observe all requirements as defined on labels.

Boll Rot

Foliar applications of fungicides are not recommended for use on cotton. Boll rots are often a result of excessive insect damage coupled with excessive moisture. Management of boll rot is best achieved indirectly through control in insect damage to bolls and use of growth regulator to prevent rank vegetative growth.