



Nematode Management Strategies for 2008

—Charles Overstreet, Ph.D.

Problems in cotton are encountered every year with nematodes and this year is not likely to be an exception. The goal is to try to avoid as many of these problems as you can. A few wise decisions now can mean fewer disasters later.

Crop rotation has been one of the best methods of reducing reniform nematode. Generally, one year in corn is helpful in reducing population levels but two years are better. The longer the rotation in corn, the less likely this nematode will have in being a problem this year. Unfortunately, the southern root-knot nematode does very well on corn and populations can still be high enough to

"It only takes one year back in cotton to have a strong resurgence of the nematode population."

cause serious problems on a crop of cotton following corn. Milo or peanuts would be the only two crops that both the reniform and southern root-knot nematode doesn't appear to survive very well on in our state. Sweet potatoes are very susceptible to both pest nematodes and will not be of any benefit. Before you plant cotton this year in a field, carefully consider the cropping rotation pattern that you have had in the past several years. This could greatly determine whether nematodes are likely to be a problem this year or just simply build up high levels that could impact cotton in the future. Even if you have knocked down

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Does Chilling Injury Result in a Replant?

- Sandy Stewart, Ph.D.

With its notoriously weak seedling and tropical origins, cotton can be very sensitive to chilling injury when planted into cool soils. As a seed imbibes, or takes up, its first drink of water it is critical that the soil temperature be at least 60° F or above. Higher is better and 65° F should be considered a minimum for planting. The seed's sensitivity to chilling injury is greatest in the first 24 hours after it begins to im-

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Upcoming Dates:

- Northeast Research Station Field Day, St. Joseph—June 24
- Louisiana Wheat and Oat Field Day, Winnsboro—April 17
- Dean Lee Field Day, Alexandria—Aug. 21

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populations of nematodes, it only takes one year back in cotton to have a strong resurgence of the nematode population.

I rate nematode problems as being low, moderate, or high. Although nematode types and numbers are extremely important, soils play an important part in exactly how much damage is likely to occur in any field. Soils that are very sandy and especially sandy deep within the soil profile have been found to be the most susceptible to nematode damage. Soils that are sandy only in the upper foot and

have heavier soils beneath don't appear to



Root knot nematode problems early in the season

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bibe water. After the first 24 hours, the sensitivity begins to decline steadily.

Most often we think of chilling injury to a germinating seedling as resulting in seedling death which would lead to a stand failure and a replant decision. While this is a distinct possibility, seedling death is not always the result of chilling injury. Damage to the radical and resulting young tap root can also occur without being lethal to the seedling. This sort of "sub-lethal" chilling injury results in plants that grow slowly, are more sus-

ceptible to seedling disease, thrips, and nematode injury. Moreover, cotton plants without a fully developed tap root are less drought tolerant throughout the growing season.

One challenge with cotton is getting a stand that will grow and develop quickly. Planting in cool soils with a risk of chilling injury can result in an acceptable stand, but one that will grow slowly and be more susceptible to seedling disease, nematodes, thrips, and a multitude of stresses later in the season.



Seedlings on left showing chilling injury to roots when germinated at 60 degrees F, compared with normal seedlings on right. *(photo courtesy of Dr. Tom Barber, Univ. of Arkansas.)*



Close up view of chilling injury to roots germinated at 60 degrees F. *(photo courtesy of Dr. Tom Barber, Univ. of Arkansas.)*

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show nearly as much damage from nematodes. Soils that are slightly higher in soil texture and have some clay seem to be the least impacted by nematodes. Many of the fields in Louisiana near rivers are alluvial and have highly variable soil types within the same field. Within some of these fields the same population level of a nematode may cause serious damage in some parts of the field and little or no damage in other areas.

The low rating for nematodes would occur when population levels of either reniform or root-knot are fairly low and soils light enough to be favorable to damage or higher levels of nematodes and soils with enough clay that they are not injured by the nematodes. In fields which would primarily receive a low rating for nematodes, only a minimum amount of effort needs to be placed for nematode management. The use of either of the seed treatment nematicides including Avicta Com-



The combination of both root knot and reniform nematode in the same field.

plete Cotton and AERIS Seed Applied System or the use of a low rate of Temik 15G (3.5 pounds/acre) would be all that you would need. Depending on crop rotation, soil type, or history of problems in a field, about a third of our fields seem to fall into this category.



Root knot nematode on cotton after rotating with corn.

The moderate rating implies that the likelihood of nematode injury is much greater. This would be fairly high populations of nematodes in the light soils or very high levels in soils that have a slightly higher texture. The seed treatment nematicides may be reasonable effective. You may need to supplement them with either sidedress applications of Temik or Vydate at pinhead square. If you use Temik 15G, increase the rate to 5 pounds/acre. Try to avoid as much stress as possible to the crop and be careful with irrigation during the growing season. Be sure that you have adequate nutrients especially in the really light, deep sands and don't forget about micronutrients such as sulfur and zinc in this soils. About a third of our cotton fields seem to fall into this category.

The high rating means that the nematodes types and populations are very likely to cause serious damage. Most of the high rating would be in the light, deep soils found throughout the state. Soils that are slightly heavier or sands overlaying clays apparently can have fairly high populations of nematodes and cotton doesn't seem to be as seriously damaged. If you have been rotating crops like corn to reduce reniform nematode, the second year back into cotton might put you into the high category. The seed treatment nematicides will not work very well

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and shouldn't be used by themselves. The best nematicides for this category are the fumigants including Telone II at 3 gallons/acre or K-Pam or Vapam at 6-8 gallons/acre. The fumigants must be injected beneath the row. Both K-Pam and Vapam require a three-week waiting-period after application or damage can occur to the crop. There is currently a seven day waiting period after Telone application. Because of the high cost of fumigation, site-specific application is currently being used by some of our producers to put the fumigant only where needed. The higher rate of Temik (5 pounds/acre) followed by a sidedress application of Temik may be beneficial. Unfortunately, about a third of our fields seem to fall into this group. Hopefully, many of these

fields which would have the high rating will be rotated into something other than cotton.



The benefits of using a fumigant (Telone) in a field that is subject to serious damage by root-knot.

Louisiana Wheat and Oat Field Day Set For April 17

The LSU AgCenter Wheat Field Day will be held at the Macon Ridge Research Station in Winnsboro on Thursday, April 17.

Registration begins at 8:30 am and the program

begins at 9:00 am. Topics will include: wheat variety trials; weed control; fertilization; fungicides and disease control; and seed treatments and insect problems

McCarty to Retire From Mississippi State

Dr. Will McCarty announced last week that he will retire from Mississippi State University on April 30, 2008. Will is well-known throughout the cotton world, having spent many years as the Mississippi Extension Cotton Specialist. Most recently, he has served as the Associate Director of the MSU Extension Service.

While he has been associated with MSU for more than 35 years as a student and employee, it is his tenure as Cotton Specialist that has made an impact on the US cotton industry. To quote him, "The cotton culture is a large part of what and

who I am. The podium from which I worked with cotton allowed me to grow and develop while securing local, regional, national and international recognition. For those opportunities I will remain forever grateful."

McCarty will likely not be a stranger to the cotton industry, but he will be missed as an asset to MSU and the Land-Grant System. He has been a mentor of mine and many other cotton specialists. I, and many others, wish him well and look forward to seeing him whenever possible.

-Sandy Stewart



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