Fungicide Use on Cotton for the Control of Target Spot

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Target spot has already been found in cotton in Santa Rosa and Escambia Co. FL. While this disease was not found in cotton trials at the Gulf Coast Research and Extension Center and Brewton Ag. Research Unit this past week, target spot is likely to make its appearance in the next week or so. Target spot has the potential to reduce lint yields of intensively managed cotton by 300 to 400 lb/A.

Factors that appear to increase the risk of damaging target spot outbreaks include excessive nitrogen fertilization and timely irrigation coupled with frequent showers in July and August, while dry and hot weather during this same period slow disease development and reduce the likelihood of sizable yield losses.

Location impacts the risk of damaging target spot outbreaks and need for protective fungicides. Target spot damage is much more likely in cotton grown across the southern third of Alabama and adjacent counties in the Florida Panhandle. While significant defoliation is sometimes seen in Central AL cotton, yield losses have not been as high as those observed further south. Target spot defoliation in North AL irrigated cotton has been low and the yield impacts negligible.
Planting date may also play a role in target spot development in cotton. Late April to mid-May planted cotton seems to be at a higher risk for target spot-incited yield loss than later-planted cotton, which matures in the fall when the weather typically is cooler and drier.

Fungicides, which delay target spot-incited defoliation, can reduce disease-related yield loss. Best yield protection with fungicides has been seen in Coastal and South AL in intensively managed cotton. High risk fields in Central AL but probably not North AL may benefit from protective fungicide treatments. Given the relatively slim profit margin for cotton, fungicides are a costly input that should only be considered in high-yield (2.5+ bale/A) potential cotton in high risk settings. Sizable yield gains from fungicide inputs are unlikely in cotton with a yield potential below 2 bales/A.

Cotton variety also impacts the decision whether or not to use a fungicide. Lint yield gains up to 300 lb/A have been recorded in Coastal AL for Phytogen 499, while 100 to 150 lb/A yield gains are more the norm. Smaller yield gains have been seen on Deltapine 1252, while little if any return from fungicide inputs was seen on the target spot tolerant Deltapine 1050. The yield response of all other cotton varieties to fungicides inputs, regardless of target spot severity is largely unknown.

Headline 2.09SC @ 6 to 12 fl oz/A, Quadris 2.08SC @ 6 to 9 fl oz/A, and Twinline @ 7 to 8.5 fl oz/A are registered for target spot control on cotton. There is not a great deal of difference in target spot efficacy and yield response among these fungicides. Also, application rate does not greatly impacted the effectiveness of either Headline 2.09SC, Quadris 2.08SC, or Twinline against target spot, so the lowest rate of the above fungicides may be the way to go on all but the highest risk cotton.

For high-risk cotton in South AL, the recommended application timing is the first and third week of bloom. Scheduling the first application on the basis of scouting reports when symptoms first appear in early August is an option in lower risk Central and North AL cotton. For April- and May-planted cotton, begin to scout for target spot in the second to third week of July. If target spot is likely to cause sizable yield losses in high risk cotton, symptoms need to appear by the first week of August 1. When target spot makes its appearance in mid- to late August, the likelihood of sizable yield losses is low.

In lower risk settings, producers also have the option of making the first application at first bloom and then monitoring the situation to determine whether the second fungicide application in needed.

For best results, broadcast fungicides over-the-top in 10 to 15 gallons of water/A with ground equipment. Fungicides applied by air in 5 or fewer gallons of water/A are less likely to achieve the necessary coverage through the canopy to effectively slow disease development.