A new foliar disease, Corynespora leaf spot, has been detected in Arkansas Cotton

Travis Faske
Extension Plant Pathologist

Corynespora leaf spot has been detected in several commercial cotton fields on a few varieties (FM 1944, ST 5458, and PHY 499) in Craighead, Mississippi, Poinsett, and Woodruff counties. This disease has been reported in Alabama, Georgia, Louisiana, Mississippi, and other southeastern cotton producing states, but until now it has not been a concern for Arkansas cotton producers. The disease likely went unnoticed in 2012 due to dry conditions, but frequent rain events in the state this year provided ideal conditions for disease development. Thus, it is likely Corynespora leaf spot is present in other cotton producing counties and on other cotton varieties. Yield losses have been reported in other states when the disease occurs early in the season (at bloom) causing a significant amount of defoliation. Thus, it is unlikely to cause any significant yield loss when the disease develops on cotton that is close to cut-out.

Corynespora leaf spot or target spot is caused the fungus Corynespora cassiicola, which causes leaf spots on cucumber, sweet potato, soybean, tomato and cotton. On cotton, it begins a small brick-red spot which then leads to the formation of large (1/4 to 1in. in diam.) circular to irregular shaped spots with the typical target pattern (Fig. 1). Infection commonly occurs in the lower canopy and causes premature defoliation when disease severity is high with several lesions (20+ spots/leaf) per leaf (Fig. 2 & 3). Several other pathogens like Cercospora spp. Stemphyllium spp. or Alternaria spp. cause leaf spots on cotton in the state (Fig. 4). These commonly produce smaller lesions with reddish to purplish margin (Fig. 4). When scouting for Corynespora leaf spot inspect lower leaves in dense canopy for larger than normal leaf spots with a target-pattern. It is unknown how widespread this disease is occurring and positive identifications can be reported to tfaske@uaex.edu. Questionable samples should be sent the Plant Health Clinic in Fayetteville, AR.
Figure 1. Mature and developing leaf spot by *Corynespora cassiicola* on a cotton leaf.

Figure 2. Various levels of disease severity within the cotton plant canopy. The leaf with highest number of lesions was closest to soil line (close to defoliation) and leaf with fewest lesions was approximately two feet above soil line in the mid-canopy.
A few fields in Craighead County had 10% defoliation in the lower canopy in areas of the field with the highest disease severity. This is unlikely to cause any yield loss given that disease development began late in the season and cotton is close to cut-out. A higher percentage (50%) of defoliation was noticed by consultants in other fields, which may contribute to a loss in yield. Significant yield losses (100 to 200 lb/ac lint) have been reported in Alabama and Georgia where Corynespora leaf spot occurs early (at bloom)
and causes significant defoliation. Some cotton varieties like PHY 499 are more susceptible to Corynespora leaf spot than DP 1050, but more studies are needed to compare susceptibility among other cotton varieties grown in the state. Two applications of fungicides like Headline (pyraclastrobin), Quadris (azoxystrobin), and Twinline (pyraclastrobin + metconazole) have been somewhat effective at suppressing Corynespora leaf spot development, but do not consistently result in a significant effect on yield. The most effective fungicide timing has been at the 1st and 3rd week of bloom when leaf spot was observed at bloom in the field. Fungicides applied at 5th and 7th wk of bloom or on-demand (when leaf spot was first observed then 2 wk. later) were similar in effectiveness to the early fungicide application. A single fungicide application late in the season (5th or 6th wk of bloom) among a few trials in Georgia provided similar disease suppression and yield gain compared to two fungicide applications. Thus, a single application of a fungicide late in the season may limit some defoliation in mid and upper canopy, but unlikely to consistently increase yield on all varieties. Further studies are needed in the state to determine the effect of fungicide timing on leaf spot suppression, yield, and economics of applying one or two fungicides on cotton. Finally, field with rows oriented with the prevailing wind seemed to promote evaporation in the lower canopy thus minimizing leaf spot development.

Please feel free to contact Travis Faske (tfaske@uaex.edu) with any questions regarding the development and management of these diseases.