MANAGEMENT OF TARGET SPOT WITH FUNGICIDES IN 2014 - DID IT MATTER?

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Abstract

Cotton grown in Georgia is affected by a number of foliar diseases which can cause variable losses to the grower. In some instances the diseases are of only cosmetic importance while in other cases severe outbreaks of disease can lead to significant pre-mature defoliation which results in significant yield losses. In this report data from three field trials conducted in 2014 are summarized. The objectives were to assess the efficacy of multiple fungicides for the management of target spot (*Corynespora cassiicola*) and to assess the susceptibility of different cotton varieties to target spot. Field trials (planting date 4 Jun) were established at the Attapulgus Research and Education Center and to assess the efficacy of fungicides to manage target spot. The assessment of different varieties for the management of target spot was conducted at the C.M. Striping Irrigation Research Park near Camilla, GA. Trials were conducted using a randomized complete block design (fungicide studies) or a split-plot constraint (variety study). Plots were two rows (6 ft) by 40 ft long and were separated by two untreated border rows on each side of the plot. Each trial was managed according to production guidelines from the University of Georgia Extension. Fungicides, with the exception of Velum Total, were applied either using a CO_2-charged backpack sprayer or a Lee Spider boom Sprayer (8002 flat fan tips). Fungicides were applied in a spray volume of 15-17.5 gal/A. Timing of fungicide applications were first (7 Aug) and third (28 Aug) week of bloom (Bayer CropScience study, Attapulgus), first (7 Aug) and third (28 Aug) weeks of bloom, or third only (DuPont Study, Attapulgus). Foliar-applied fungicides included pyraclostrobin (Headline, 6 lf oz/A)), azoxystrobin (Quadris, 6 fl oz/A), prothioconazole (Proline, 5.7 fl oz/A), penthiopyrad (Fontelis, 16 and 24 fl oz/A), trifloxystrobin + prothioconazole (Stratego YLD, 5 fl oz/A), flutriafol (Topguard, 14 fl oz/A), prothioconazole + fluopyram (Propulse, 13.7 fl oz/A), trifloxystrobin + tebuconazole (Absolute, 5 fl oz/A), and fluopyram + imidicloprod (Velum Total, 18 fl oz/A). Velum Total, labeled for management of nematodes and thrips in peanut and cotton, was applied in-furrow at time of planting. For the variety study, pyraclostrobin (Headline, 6 fl ox/A) was applied to treated plots at the third (19 Aug) week of bloom. Ratings (% defoliation) were taken for plots in the two fungicide studies on 15 September, 30 September and 17 October. Percent defoliation was rated once for the variety study on 16 September. Varieties planted in this study (28 May) included DPL 1252, DPL 1454, FM 170, ST 4946, PHY 499, PHY 427 and PHY 367. All trials were taken to yield and data were analyzed using ANOVA and Fisher's Protected LSD (P=0.05).

In the Bayer CropScience fungicide study, plots treated with Propulse, Stratego YLD, Quadris, and Headline had significantly less defoliation than did the untreated plot on 15 September.. Defoliation in the untreated plot at that times was determines to be 56%. On 30 September, defoliation in the untreated plot was assessed to be 73%. Percent defoliation in plots treated with Propulse, Quadris or Headline was significantly lower than in the untreated control. Percent defoliation in the untreated control was 76% on 17 October. Percent defoliation was significantly reduced in plots treated with Propulse (61%), Quadris (61%) and Headline (56%). Though all fungicide treatments numerically increased seed-cotton yield by at least 318 lb/A (Stratego YLD) and as much as 508 lb/A (Proline), these increases were not statistically significant.

In the DuPont study, defoliation in the untreated control was assessed to be 56% on 15 September. Percent defoliation was significantly reduced where Headline was applied either at the first and third week of bloom or only at the third

week of bloom. Percent defoliation was reduced where Fontelis, Proline and Topguard were applied at the first and third week of bloom. Percent defoliation in the untreated control on 30 September was 76%. Percent defoliation was still significantly lower in the plots treated as on 15 September. On 17 October, defoliation in the untreated control was assessed again at 76%. On this final rating date, defoliation was significantly reduced in plots treated with Headline on the first and third weeks of bloom (53%), the third week of bloom (56%) and Topguard applied on the first and third weeks of bloom (61%). However, yields were not significantly different from the untreated control.

On 16 September, % defoliation was lowest in FM 1740 (0.6 and 0.1, treated and untreated, respectively) and greatest in PHY 367 (22.1 and 48.1, respectively). Percent defoliation was greater in the untreated DPL 1454 and in untreated PHY 367 than in any other variety, except ST 4946. Percent defoliation numerically reduced % defoliation in all varieties except for FM 1740. However, such reductions were only statistically significant for DPL 1454 and PHY 367. Use of Headline (6 fl oz/A, third week of bloom) resulted in a numeric increase in yield for each variety. However, the increase was only statistically significant for DPL 1252 (1831 lb seed-cotton/A), FM 1740 (487 lb seed-cotton/A) and PHY 367 (937 lb seed-cotton/A).

In conclusion, use of some, but not all fungicide treatments significantly reduced the severity of target spot as assessed using a measure of % defoliation. Fungicides that were most effective included Headline, Quadris and Propulse. Applications of fungicides at the first and third weeks of bloom were generally more effective in reducing premature defoliation than was a single application. In a 2014, a particularly droughty year, a reduction in disease severity did not result in a significant increase in yield, though there were numeric increases in yield. Use of fungicides did significantly increase yields for three varieties in a trial; these included DPL 1252, FM 1740 and PHY 367. Yields were increased in other varieties; however, the differences were not significant.