

Shelly Pate, Rachel Guyer, Tyson Raper, and Heather M. Kelly, University of Tennessee
West Tennessee Research and Education Center, Jackson, Tennessee

ABSTRACT

Extension has always worked hand in hand with growers to provide production information, advice, and experience in an effort to obtain crop security. Target spot in cotton (causal agent *Corynespora cassiicola*) has remained a prevalent disease in the western region of Tennessee since its first observation in August 2013 (Butler et al., 2016). The Field Crops Plant Pathology program has since been working closely with growers to track the reported cases of this disease. Extension has also continued to work with growers to determine proper management and preventative practices when dealing with target spot.

With advances in technology, such as iPIPE, the gap of communication between extension services and growers is becoming smaller. It is the goal of the Field Crops Plant Pathology program to encourage growers to use iPIPE as a platform to share their pest and pathogen observations with not only Extension specialists, but other growers and consultants as well. Specifically, we seek to expand the amount of information regarding the progression of target spot in cotton in West Tennessee in order to enhance our methods of IPM regarding this disease.

METHODS

- Analyze- Be able to properly identify the symptoms and signs of target spot.
- Scout- Get out in the field to track coverage of disease, make evaluations, and record observations.
- Confirm and Report- Provide confirmation of disease through isolation of the pathogen in a laboratory setting and report disease occurrence.

DISTRIBUTION OF INFORMATION TO THE PUBLIC

- TN Cotton Card- Provides general information about iPIPE (Figure 1).
- UT Crops Mobile Field Guide- Provides users with descriptions and images to identify common leaf spots in cotton and management options.
- UT County Extension Agents- Direct link of information to and from county growers
- Disease Diagnostics Lab- Technicians accurately identify target spot in sentinel plot and other grower samples.
- Twitter - @cottondisease allowed for real time disease observation and reporting

Fig. 1 TN Cotton card created to provide general info about iPIPE

IDENTIFICATION USING IPIPE RESOURCES

- Target spot symptoms include foliar lesions composed of irregular concentric rings of alternating light and dark brown bands progressing from the lower canopy upward (Figure 2). Defoliation can occur with heavy infection later in the season and affect yield (Figure 6). Growers should look for lesions in the lower canopy with concentric rings for initial identification, and should be concerned with the premature defoliation associated with target spot.



Fig. 2 Target spot symptoms on cotton leaf and bract of cotton boll

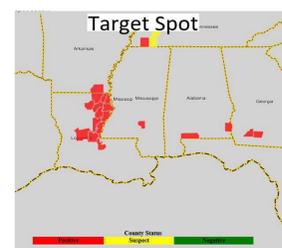


Fig. 3. Target spot distribution map from iPIPE July 28, 2017

- Using the UT Crops Mobile Field Guide and iPIPE database, users can view images of symptoms of target spot, view where target spot has been reported (on maps), and upload their own reports from their personal devices. These resources help users become comfortable with visually identifying this disease in the field.

RESULTS

- There were 3 counties in West Tennessee that participated in our cotton sentinel plot program: Carroll, Haywood, and Lake County. Overall, we received 19 cotton samples through the season. However, only 8 samples were confirmed to have target spot. Of these 8 samples, 5 were from Carroll County, and 3 from Haywood County (Figure 1).

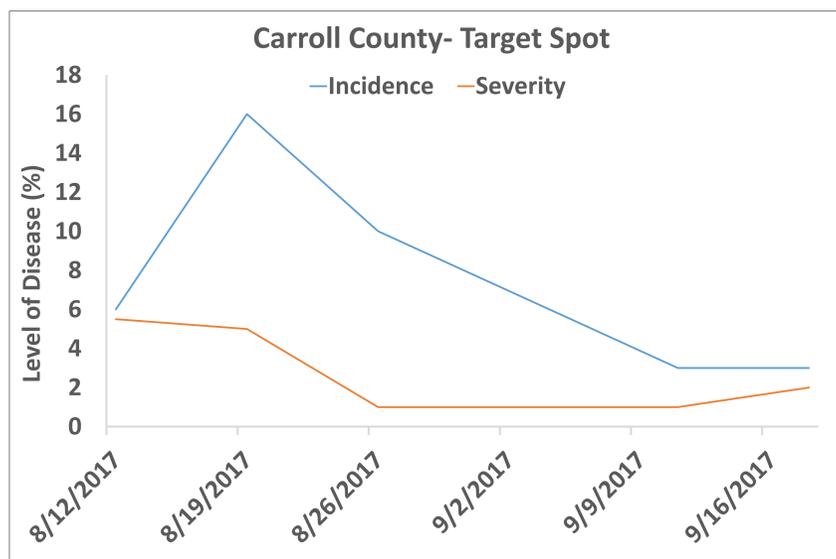


Fig. 4 Graph of target spot incidence and severity in 2017 from leaf samples from Carroll County cotton sentinel plot

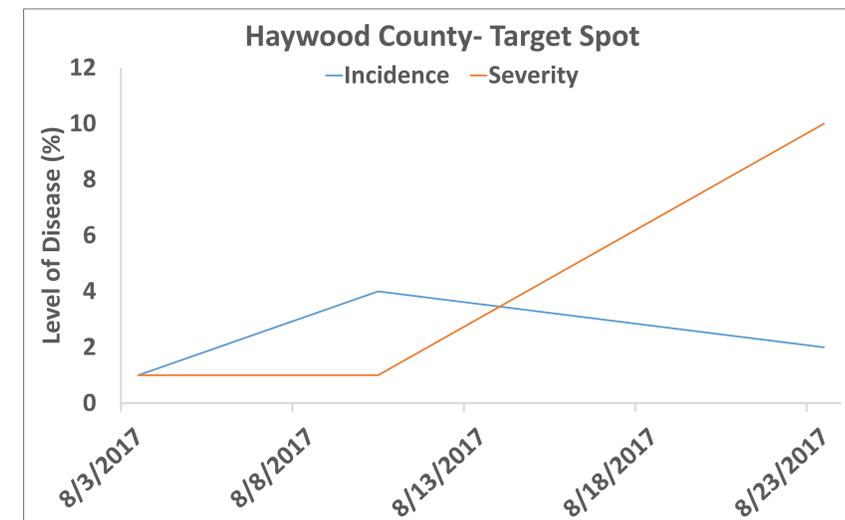


Fig. 5 Graph of target spot incidence and severity in 2017 from leaf samples from Haywood County cotton sentinel plot

- An unforeseen epidemic of bacterial blight occurred in Tennessee in 2017, where bacterial blight symptoms looked very similar to target spot. This event complicated identification of target spot and to avoid false reports to iPIPE only observations confirmed by state Extension specialists were uploaded to iPIPE. This event did allow many one-on-one, in-field training opportunities for growers and crop consultants and promotion of future use of UT Crops Field Guide and iPIPE.

OVERALL IMPACT ON IPM

- Promoted UT Crops Field Guide and iPIPE resources at 10 meetings, through social media (blog and twitter) and field visits connecting with over 600 people.
- Improved disease identification and management through the utilization of images and high-resolution mapping (Figure 3).
- Tracking the progression of the pathogen helped informed growers to make more accurate fungicide decisions.
- With a better understanding of the pathogen, good stewardship is more easily achieved.



Fig. 6 Target spot symptoms and defoliation on cotton

Reference: Butler, S., Young-Kelly, H., Raper, T. and Cochran, A. (2016). First Report of Target Spot Caused by *Corynespora cassiicola* on Cotton in Tennessee. Plant Disease 100:2 page 535.