Evaluation of Effectiveness and Economic Returns Associated with Fungicide Applications for Control of Areolate Mildew

Stephanie Hollifield[1], Jared Whitaker[2], Bob Kemerait [3]
[1] ANR Extension Agent, UGA Extension, Brooks County, Georgia 31643
[2] Cotton Agronomist, Tifton, Georgia 31793
[3] Extension Plant Pathologist, UGA Tifton Campus, Tifton, Georgia 31793

UNIVERSITY OF GEORGIA 1785

Introduction

Areolate Mildew (Ramularia areola syn. Ramularia gossypii) is typically a late season cotton disease that appears in the lower canopy, on the underside of bottom leaves. Although this disease appears late in the growing season, it can be of particular concern if it progresses into the mid and upper canopy of the cotton crop. When environmental conditions are conducive for areolate mildew development, cotton producers question the potential yield loss from the disease and if fungicide application(s) are warranted and/or economically viable.

Fig.1. Areolate Mildew, Ramularia areola syn. Ramularia gossypii.

OBJECTIVE: Determine if fungicide applications demonstrated acceptable control of areolate mildew and if there was an economic return associated with fungicide applications through increased lint yield.

Fig.2. Areolate mildew symptoms exhibited on underside of cotton leaf.

Materials & Methods

- Experiment was conducted in irrigated commercial cotton field location in Brooks County, GA. The cultural practice utilized at site location was conservation tillage, planted May 8th.
- Treatments consisted of azoxystrobin (Abound) applications, Group 11 fungicide. Single application treatment at 6 oz. rate (98 DAP), two application treatment at rates of 6 oz. (98 DAP) and 8 oz. (113 DAP), and untreated check.
- Treatments were replicated three times in 30 row plots, running entire length of field, approximately 1,400 feet.
- Fungicide applications made with Apache 1025 tractor, applied in 12 gallons of water at 60 psi with 003 Greenleaf spray tips and tractor speed of 9mph.
- Plots were visually evaluated twice for efficacy of spray treatments, 10 plants/plot at 3rd and 7th node leaves and lower canopy. Presence of areolate mildew denoted by percent of leaf effected.
- Harvested for lint yield - harvested middle 6 rows of plots.

Fig.3. Brooks County cotton field site evaluated with two fungicide treatments.

Results

- **Visual Ratings: 7 Days** after initial treatment average percent of leaf effected: **Untreated-**3rd node leaf =3.6%, 7th node leaf =17.6%, Bottom Canopy =45.7%. **Treated**-3rd node leaf =0%, 7th node leaf =1.8%, Bottom Canopy =22.3%
  14 Days after initial treatment average percent of leaf effected: **Untreated**-3rd node leaf =17.7%, 7th node leaf =36.8%, Bottom Canopy =51.8%. **Treated-** 3rd node leaf = 2.6%, 7th node leaf =12.3%, Bottom Canopy =28.2%.

Fig.4. Untreated left-hand side compared to treated right-hand side.

- Considering cotton price of .80 cents/pound and Abound market cost = $140.00/gallon - **Economic Return on Fungicide Investment for Single Application Compared to Untreated: Yield increase of single fungicide application equal to 90 pounds**. Single application cost approximately $6.54 at 6 oz. rate, single fungicide application equals additional $72/acre and **return on investment = $65.46**
- **Economic Return on Fungicide Investment for Two Applications Compared to Untreated: Yield increase of two fungicide applications equal to 165 pounds.** Total application cost of two fungicide sprays equal to $15.26 at 6 oz. and 8 oz. rate, two application equals additional $132/acre and **return on investment = $116.74**

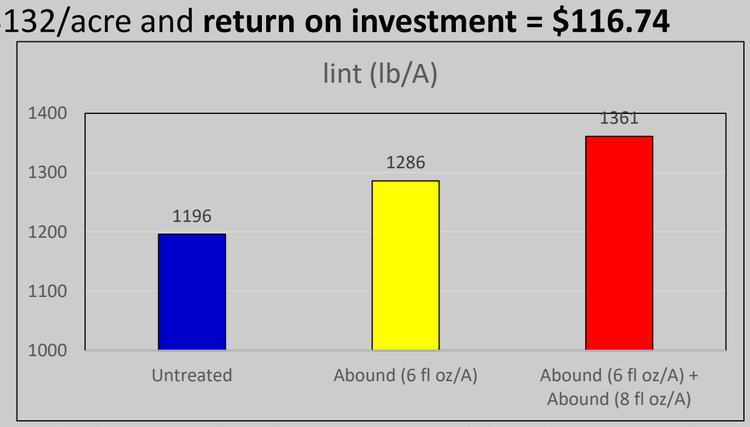

Fig.5.Lint yield per acre based on treatment applications.

- **Conclusion –** This trial was one of the first Georgia commercial field trials to demonstrate that fungicide applications made for control of areolate mildew increases yield and improves profitability.

Fig.6. Untreated check.

Fig.7. Single application treatment.

Fig.8. Two application treatment.

ACKNOWLEDGEMENTS

The authors would like to acknowledge Jones Farms for their support and assistance with field operations: Mr. Nick Jones - grower collaborator.

UGA Extension