Chaperone Plant Growth Regulator Replicated Demonstration, AG-CARES, Lamesa, TX - 2005

Cooperators: Lamesa Cotton Growers/Texas Agricultural Experiment Station/Texas Cooperative Extension

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Dawson County

Summary: Chaperone has been formerly marketed as Atonik and ARYSTA and contains the following active ingredients: sodium p-nitrophenolate, 0.30%; sodium o-nitrophenolate, 0.20%; sodium 5-nitroguaiacolate, 0.01%. It is believed that these phenolic compounds may play a central role in secondary metabolism, defense mechanisms, mechanical support, and allelopathy. No statistically significant increases in lint yields were observed due to Chaperone PGR application. The use of reverse osmosis (ROH2O) water did not provide any benefit when compared to the center pivot (PH2O) water source. Additionally, there was no yield benefit to application of NZn foliar fertilizer either by itself, or in combination with Chaperone with either water source. Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or CCC Loan value at this site.

Objective: The objective of this project was to evaluate the effects of Chaperone plant growth regulator on cotton yield and quality.

Materials and Methods:

Variety:	Stoneville 5599BR
Experimental design:	Randomized complete block with 4 replications
Plot size:	4 40-inch rows x 200ft
Planting date:	9-May
Treatment date:	21-July (early bloom)

Treatment method: A Lee Spider sprayer adjusted to apply 15 gallons/acre (gpa) of total spray volume was used to apply treatments.

Treatments: A single rate of Chaperone PGR (5 oz/acre) was used in various combinations of two different carrier water types. One source was from the Ag-CARES center pivot irrigation water and the other was reverse osmosis water obtained from the Texas A&M University Research and Extension Center greenhouse complex. Additional treatments included the use of NZn foliar fertilizer applied at 0.5 gallon/acre. An untreated control was also included.

Harvest: Plots were harvested on 24-October using a commercial John Deere 7445 with field cleaner. Harvested material was transferred into a weigh wagon with integral electronic scales to determine individual plot weights. Plot yields were adjusted to lb/acre.

Harvest aids: Harvest aids included Prep (6-lb ethephon/gal) at 1.5 pt/acre with Def at 1.0 pt/acre applied at 70 percent open bolls on 27-September, with a follow-up application of Gramoxone Max at 16 oz/acre on 10-October. Both harvest aid treatments were aerially applied.

Gin turnout: Grab samples were taken by plot and ginned at the Texas A&M University Research and Extension Center at Lubbock to determine gin turnouts.

Results and Discussion:

Various papers published in the Beltwide Cotton Conference Proceedings have indicated that cotton lint yield responses have been obtained by researchers when investigating Chaperone PGR. Increased yields ranging from 9-16% (up to 274 lb/acre in certain trials) have been reported by Fernandez, Townsend, Oosterhuis, and Bynum. Chaperone has been formerly marketed as Atonik and ARYSTA and contains the following active ingredients: sodium p-nitrophenolate, 0.30%; sodium o-nitrophenolate, 0.20%; sodium 5-nitroguaiacolate, 0.01%. It is believed that these phenolic compounds may play a central role in secondary metabolism, defense mechanisms, mechanical support, and allelopathy. No statistically significant increases in lint yields were observed due to Chaperone PGR application (Figure 1). The use of reverse osmosis (ROH2O) water did not provide any benefit when compared to the center pivot (PH2O) water source. Additionally, there was no yield benefit to application of NZn foliar fertilizer either by itself, or in combination with Chaperone with either water source. Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or CCC Loan value at this site (data not presented).

Acknowledgments: Appreciation is expressed to Danny Carmichael, Research Associate - AG-CARES, Lamesa; and John Everitt, Research Associate - Texas Agricultural Experiment Station (TAES), Lubbock, for their assistance with this project and to Dr. John Gannaway - TAES, Lubbock, for his cooperation.

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Figure 1. Lint yield results from the 2005 Dawson County (AG-CARES) LEPA irrigated Chaperone replicated demonstration.