



2004 High Plains Chaperone Plant Growth Regulator Replicated Demonstrations

Cooperators:

- 1. Dawson County - AG-CARES Facility Lamesa Cotton Growers, Texas Agricultural Experiment Station, Texas Cooperative Extension, AG-CARES Facility**
- 2. Hale County - Texas Agricultural Experiment Station, Halfway Helms Farm**
- 3. Crosby County - Mark and David Appling - Dryland Site**
- 4. Matt Wilmeth Drip Irrigated Site**
- 5. Swisher County - Barry Street, Furrow Irrigated Site**

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Summary:

Chaperone cotton plant growth regulator (PGR) 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 at any of the five large-plot sites tested in 2004. Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or CCC Loan value at any site (data not presented). The overall 4-site average (all sites where 0, 5, 10, and 20 oz/acre rates were used) indicated that no responses were observed; and for the 5-site average (all sites where 0, 5, and 10 oz/acre rates were used) no responses were noted.

Objective:

The objective of these replicated demonstrations was to determine response of cotton yield to varying rates of Chaperone plant growth regulator (PGR).

Materials and Methods:

Varieties:	Dawson County AG-CARES site - FiberMax 989RR Hale County Halfway Helms Farm site - Stoneville 2448R Crosby County dryland site - FiberMax 958 Crosby County drip irrigated site - Stoneville 4892BR Swisher County furrow irrigated site - FiberMax 958
Experimental design:	Randomized complete block with 3 replications at all sites
Plot size:	Dawson County AG-CARES site - 4 40-inch rows x length of pivot pie (~350ft) Hale County Halfway Helms Farm site - 4 30-inch rows x length of pivot pie (~650 ft) Crosby County dryland site - 4 40-inch rows x 1700 ft Crosby County drip irrigated site - 4 40-inch rows x 1050 ft Swisher County furrow irrigated site - 16 30-inch rows x 3400 ft
Planting date:	Dawson County AG-CARES site - May 5 Hale County Halfway Helms Farm site - May 6 Crosby County dryland site - May 14 Crosby County drip irrigated site - May 28 Swisher County furrow irrigated site - May 8
Treatment date:	Dawson County AG-CARES site - July 14 Hale County Halfway Helms Farm site - July 14 Crosby County dryland site - July 15 Crosby County drip irrigated site - July 15 Swisher County furrow irrigated site - July 15
Treatment method:	A Lee Spider applicator adjusted to apply 15 gallons/acre (gpa) of total spray volume was used at all sites except Swisher County. The cooperators at the Swisher County site used a commercial spray applicator adjusted to deliver 15 gpa total volume.
Harvest:	Plots were harvested using commercial John Deere or International Harvester strippers. Harvested material was dumped into a weigh wagon equipped with integral digital scales to determine individual plot weights at the Dawson County, Crosby County, and Hale County sites. At the Swisher County site, the entire plot was harvested. Plot weights were adjusted to lb/acre.
Harvest date:	Dawson County AG-CARES site - November 10 Hale County Halfway Helms Farm site - December 1 Crosby County dryland site - October 19 Crosby County drip irrigated site - December 4 Swisher County furrow irrigated site - December 15
Gin turnout:	Grab samples were taken by plot and ginned at the Texas A&M Center at Lubbock to determine gin turnouts at the Dawson County, Crosby County, and Hale County sites. At the Swisher County site, modules from each plot were weighed and ginned at Street Community Gin at Claytonville.

Results and Discussion:

Various papers published in the Beltwide Cotton Conference Proceedings have indicated that cotton lint yield responses have been obtained by various 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 at any of the five large-plot sites tested in 2004 (Figures 1-5). Likewise, no statistically significant differences were observed for lint turnout, HVI fiber properties, or CCC Loan value at any site (data not presented). The overall 4-site average (all sites where 0, 5, 10, and 20 oz/acre rates were used) indicated that no responses were observed (Figure 6); and for the 5-site average (all sites where 0, 5, and 10 oz/acre rates were used) no responses were noted (Figure 7).

Acknowledgments: Appreciation is expressed to Lamesa Cotton Growers, Texas Agricultural Experiment Station, Mark and David Appling, Matt Wilmeth, and Barry Street for the use of land, equipment and labor for this project.

Disclaimer Clause: Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M University System is implied. Readers should realize that results from one experiment do not represent conclusive evidence that the same response would occur where conditions vary.

Figure 1. Lint yield results from the 2004 Dawson County replicated LEPA irrigated Chaperone demonstration.

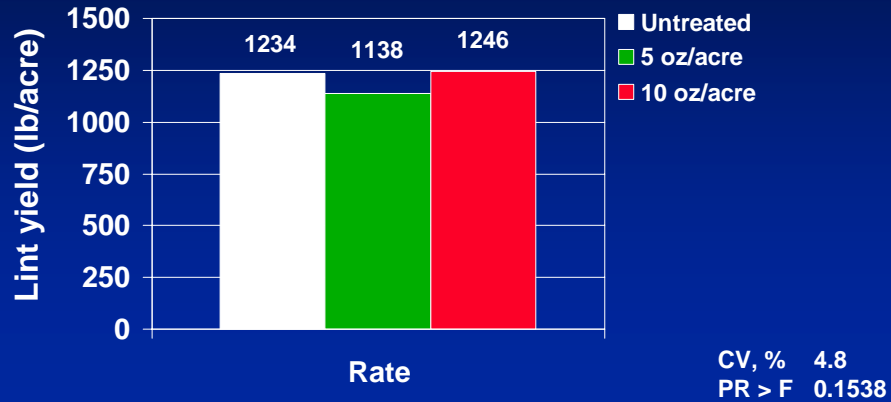


Figure 2. Lint yield results from the 2004 Hale County replicated LEPA irrigated Chaperone demonstration.

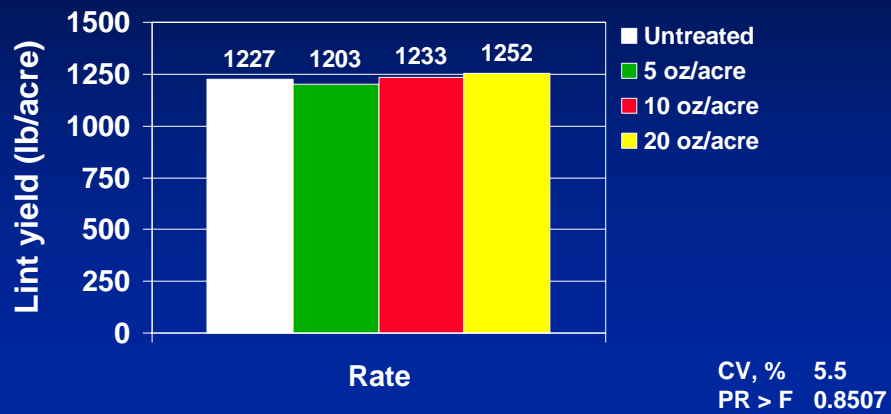


Figure 3. Lint yield results from the 2004 Crosby County replicated dryland Chaperone demonstration.

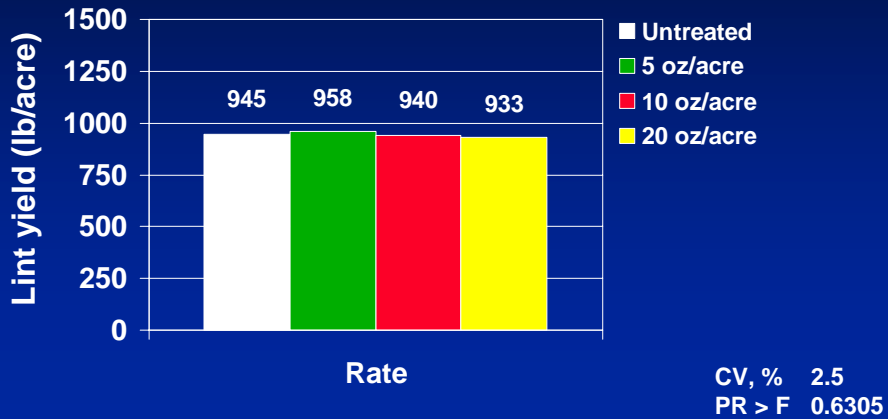


Figure 4. Lint yield results from the 2004 Crosby County replicated drip irrigated Chaperone demonstration.

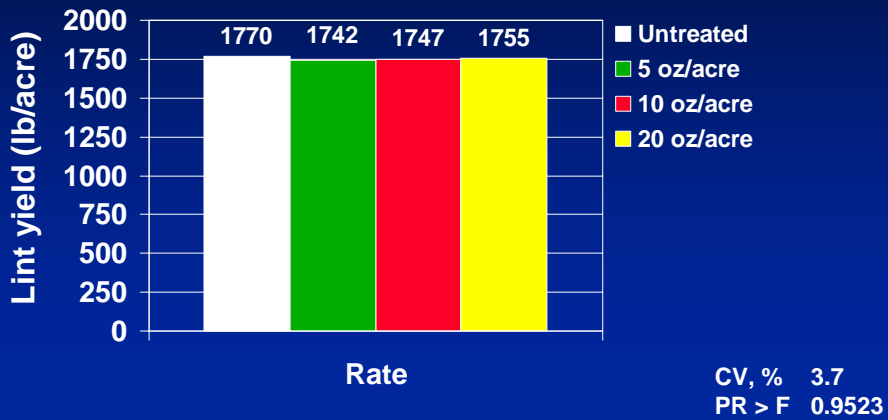
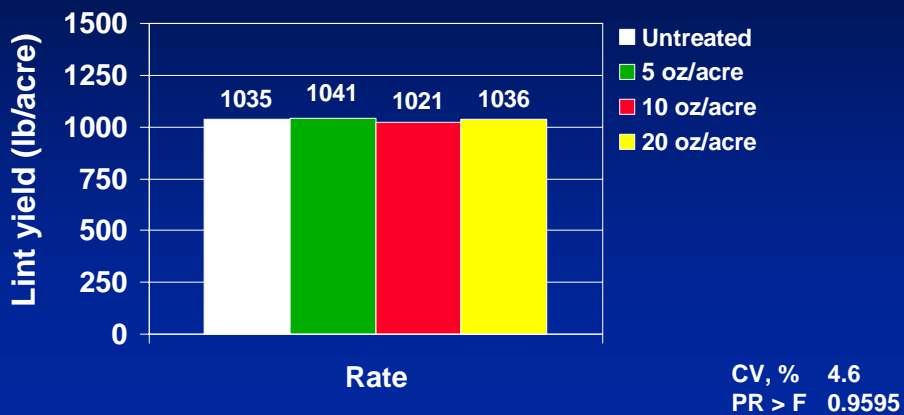


Figure 5. Lint yield results from the 2004 Swisher County replicated furrow irrigated Chaperone demonstration.



Plot size: 3.2 acres x 3 reps = 9.6 acres total/rate

Figure 6. 4-site lint yield results from the 2004 replicated Chaperone demonstrations (0, 5, 10, and 20 oz/acre rates).

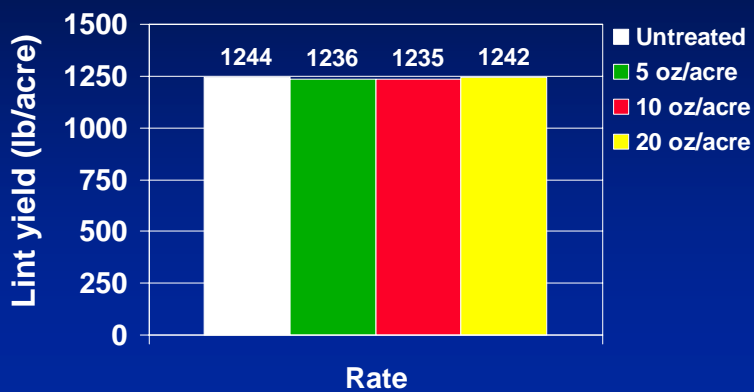


Figure 7. 5-site lint yield results from the 2004 replicated Chaperone demonstrations (0, 50, and 10 oz/acre rates).

