2015 Swisher County Cotton Recovery Trial
Texas A&M AgriLife Extension – Swisher County
Trial funded by Verdesian Life Sciences (Protocol VLS 2015-NTCOT5)
Cooperator Rodriguez Farm
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Planting and early season maturity of the 2015 Texas High Plain's cotton crop was delayed due to heavy late spring precipitation and cool temperatures resulting in delayed cotton development for many producers. Foliar nutrient and plant growth activator treatments are often marketed to enhance early season vigor and cotton production. Four foliar products were evaluated in delayed cotton in Swisher County to determine if early season vigor and ultimately cotton yield would be enhanced with foliar products.

Objective
Evaluate early season plant growth activators and foliar nutrient packages enhance vigor and increase yield in delayed cotton.

Materials and Methods
Research was conducted on the Rodriguez farm in Swisher County, Texas (34.345667, -101.814152) under center picot irrigation on 40 inch rows. Seven foliar fertility treatments were evaluated in a randomized complete block design in an early-medium maturity cotton hybrid (Stoneville 4747 GLB2) that was planted on May 29, 2015.

Foliar treatments included Take-Off and Primacy Alpha marketed by Verdesian Life Sciences, Nutri-Pak marketed by AgXplore, and Liquid STEM. Take-Off is a foliar micronutrient labeled to accelerate nutrient uptake and increase yield potential; specifically enhanced N use efficiency. Primacy Alpha is a micronutrient package that is reported to increase flowering and boll set. Nutri-Pak is a proprietary blend of micronutrients, humic acid and microbes, and Liquid STEM is a foliar micronutrient product.

Foliar treatments and rates were:

1	Untreated Check
2	Take-Off (VLS 3215-02) 1 LB/A
3	Take-Off (VLS 3215-02) 2 LB/A
4	Take-Off (VLS 3215-02) 1 LB/A + Nutri Pak 1.5 PT/A
5	Primacy Alpha (VLS 3010) 1 QT/A
6	Nutri Pak 1.5 PT/A
7	Liquid STEM 1 QT/A

Treatments were applied on July 1, 2015. Following application of the foliar treatments, (6.5 inches of rain was received between July 6 and July 10, 2015. Field measurements included

height, node counts and vigor. Vigor ratings were made on a scale of 1-10 with 1 being very stunted and 10 being ideal cotton. Measurements were recorded July 20, July 27 and August 3, 2015. All plots were hand sampled for yield on October 16, 2015. Samples were ginned at the Texas A&M AgriLife research and Extension Center at Lubbock. Lint samples were submitted to the Texas Tech University – Fiber and Biopolymer Research Institute for fiber analysis.

Results

Evaluation of early season growth did not reveal any statistical differences in height and vigor between treatments (Table 1). Initial vigor rating following foliar treatments were made 19 days post application (Figs. 1-7). Late season precipitation and high winds in late October delayed harvest and resulted in strung-out cotton. There were no statistical differences in yield or quality between treatments (Table 2); however, there was a trend for all foliar treatments to out yield the untreated check. Variability within treatments was reflected in the large standard deviation (87.2 lbs/ac) and coefficient of variation (21%), which was attributed to herbicide drift damage from the adjacent field as well as severe weather events.

Table 1. In-season plant height, node counts and vigor following foliar fertility treatments on July 20, July 27 and August 3, 2015. *different letters reflect significant differences at the 0.05 level using Tukey's adjusted means comparison test

	7/20/2015			7/27/2015			8/3/2015		
Treatment	Avg. Plant Height (Inches)	# Nodes	Vigor Rating	Avg. Plant Height (Inches)	# Nodes	Vigor Rating	Avg. Plant Height (Inches)	# Nodes	Vigor Rating
1	15.9[a]	9.8[a]	7[a]	18.9[a]	10.8[a]	9[a]	20.3[a]	10.6[a]	8[a]
2	15.5[a]	9.6[a]	7[a]	18.6[a]	10.6[a]	9[a]	20.5[a]	10.5[a]	9[a]
3	15.7[a]	9.5[a]	7[a]	18.8[a]	10.6[a]	9[a]	20.3[a]	10.4[a]	9[a]
4	15.8[a]	9.6[a]	6[a]	17.5[a]	10.3[a]	8[a]	20.4[a]	10.3[a]	9[a]
5	15.6[a]	9.5[a]	7[a]	18.9[a]	10.4[a]	8[a]	21.2[a]	10.5[a]	9[a]
6	15.6[a]	9.7[a]	7[a]	18.4[a]	10.4[a]	8[a]	20.3[a]	10.4[a]	9[a]
7	15.8[a]	9.4[a]	7[a]	18.5[a]	10.2[a]	8[a]	20.5[a]	10.4[a]	9[a]

Table 2. Harvest results and fiber property results. *different letters reflect significant differences at the 0.05 level using Tukey's adjusted means comparison test

Treat	Deburred Cotton Yield	Ginned Lint Yield	Micronaire	Uniformity	Strength	Elongation
	Lb/ac	Lb/ac		%	g/tex	%
1	740.3[a]	309.9	3.1[a]	79.7[a]	24.7[a]	7.5[a]
2	781.8[a]	339.9	3.5[a]	79.2[a]	23.9[a]	7.0[a]
3	847.8[a]	366.3	3.4[a]	78.7[a]	24.8[a]	7.3[a]
4	846.5[a]	367.9	3.3[a]	78.5[a]	24.1[a]	7.2[a]
5	805.1[a]	379.7	3.3[a]	78.0[a]	24.9[a]	7.3[a]
6	815.8[a]	390.8	3.6[a]	78.0[a]	24.1[a]	7.2[a]
7	846.1[a]	402.1	3.2[a]	77.6[a]	25.5[a]	7.2[a]
Trial Average	**811.9**	**365.2**	**3.3**	**78.5**	**24.5**	**7.2**
StDev	**149.0**	**87.2**	**0.27**	**0.90**	**1.28**	**0.43**
CV	**17.4**	**21.2**	**7.9**	**1.1**	**5.2**	**5.9**

Figure 1. Treatment 1, Plot 204 (Untreated Check)

Figure 2. Treatment 2, Plot 207 (Take-Off (VLS 3215-02) 1 LB/A)

Figure 3. Treatment 3, Plot 206 (Take-Off (VLS 3215-02) 2 LB/A)

Figure 4. Treatment 4, Plot 203 (Take-Off (VLS 3215-02) 1 LB/A + Nutri Pak 1.5 PT/A))

Figure 5. Treatment 5, Plot 205 (Primacy Alpha (VLS 3010) 1 QT/A)

Figure 6. Treatment 6, Plot 201 (Nutri Pak 1.5 PT/A)

Figure 7. Treatment 7, Plot 202 (Liquid STEM 1 QT/A)