Texas Agricultural Extension Service
The Texas A&M University System

Reports from the Technology Transfer for Texas High Plains Producers Project

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Texas Agricultural Extension Service
Lubbock, Texas

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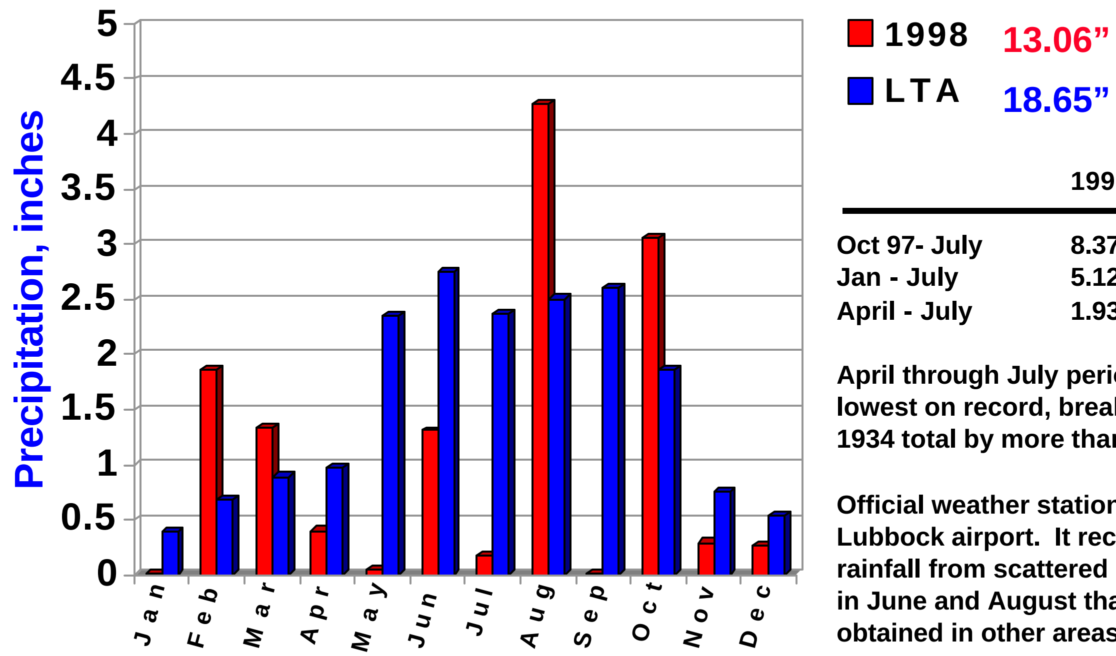
Precipitation Summary - Lubbock



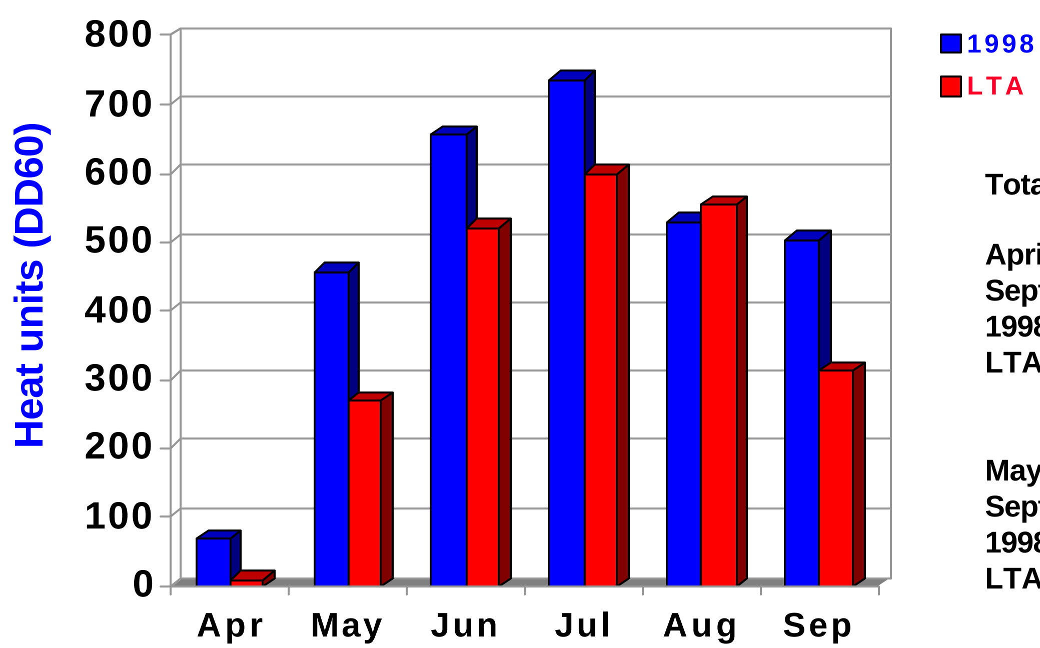
	1998	LTA
Oct 97- July	8.37	13.02
Jan - July	5.12	9.88
April - July	1.93	7.92

April through July period was lowest on record, breaking the 1934 total by more than 1 inch

Official weather station is the Lubbock airport. It received rainfall from scattered showers in June and August that was not obtained in other areas.

Boman - TAEX

Heat Unit Summary for Lubbock



Total DD60s

April through September:

1998	2950
LTA	2280

May through September:

1998	2880
LTA	2270

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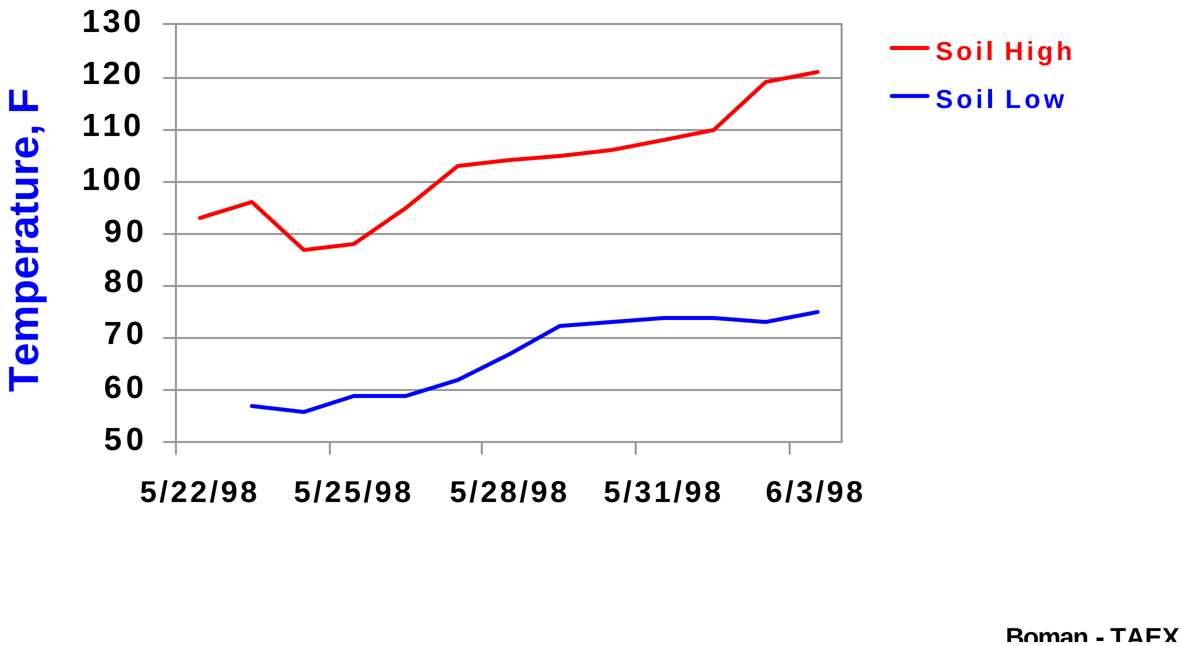
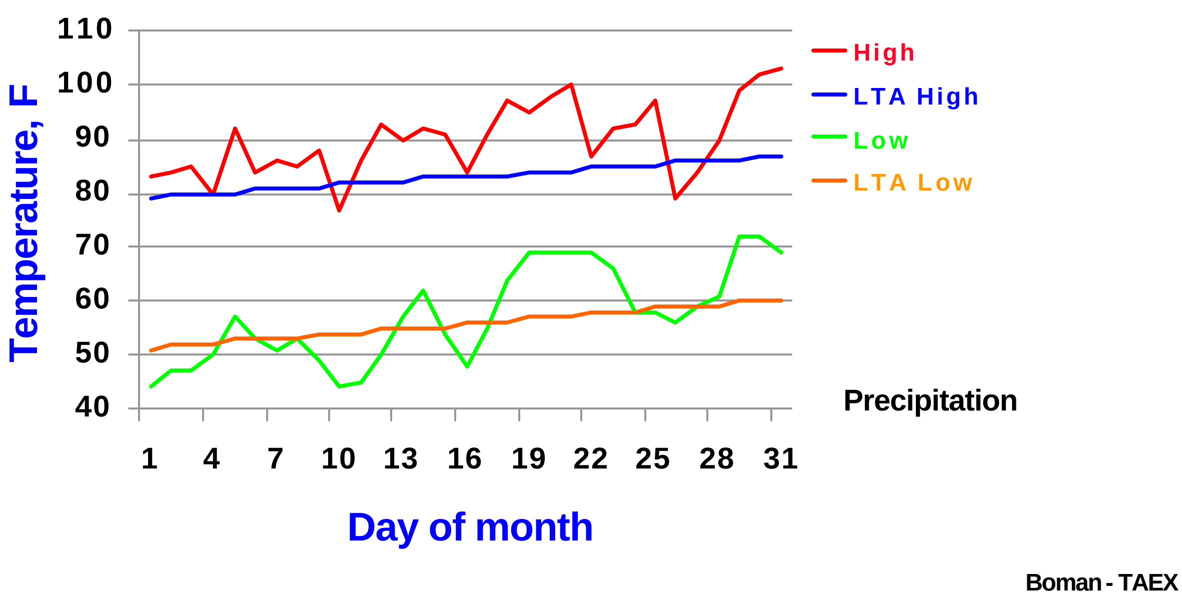
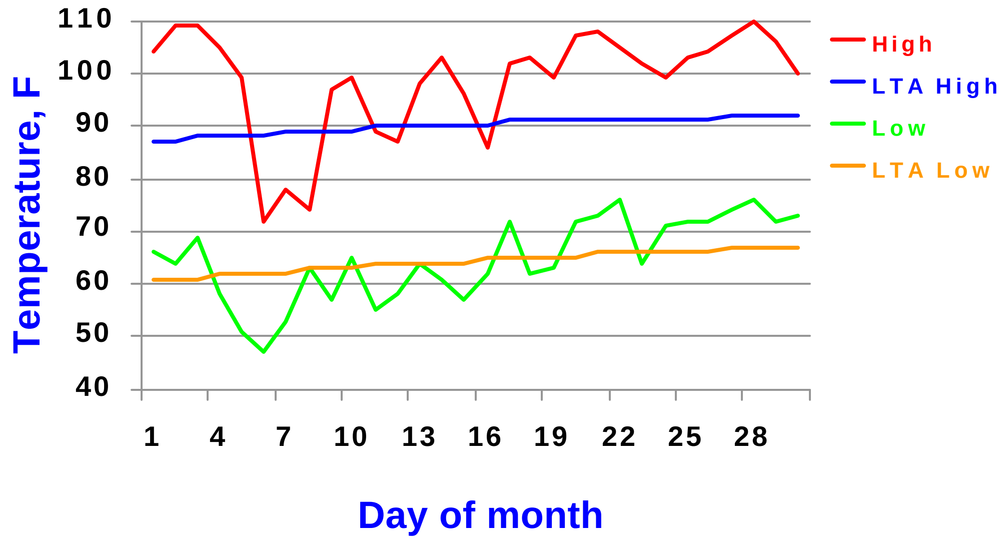
Soil Temperatures in Seed Zone
Crosby County



Lubbock Air Temperatures
May, 1998



Lubbock Air Temperatures
June, 1998



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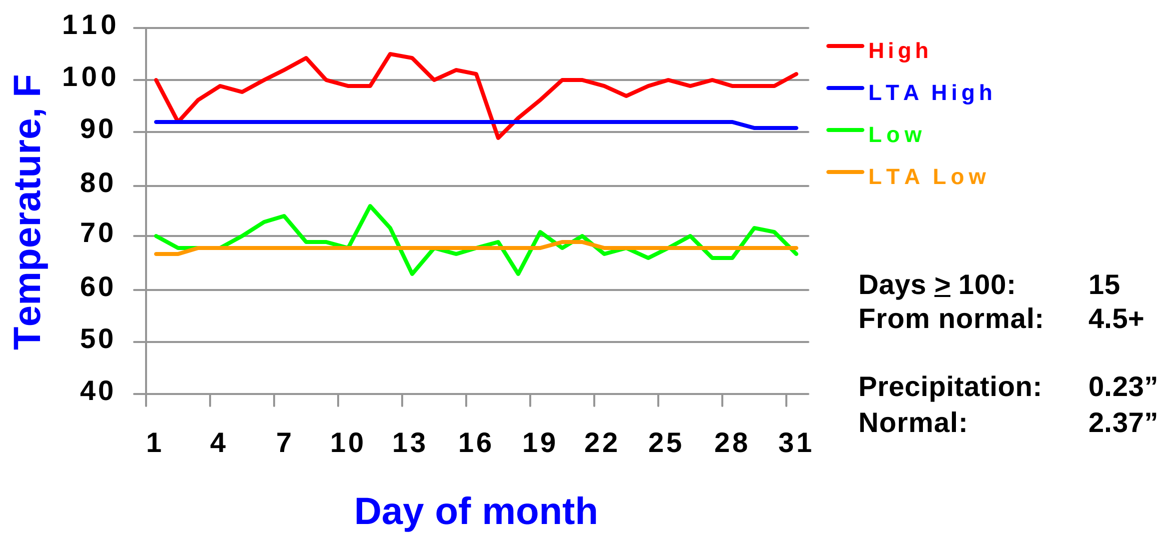
Lubbock Air Temperatures
July, 1998



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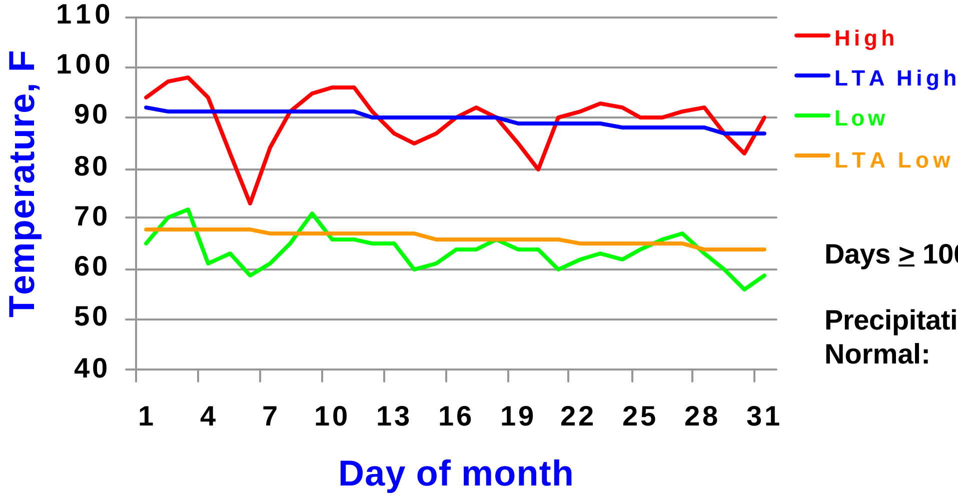
Lubbock Air Temperatures
August, 1998



Days ≥ 100: 0

Precipitation: 4.27”
Normal: 2.51”

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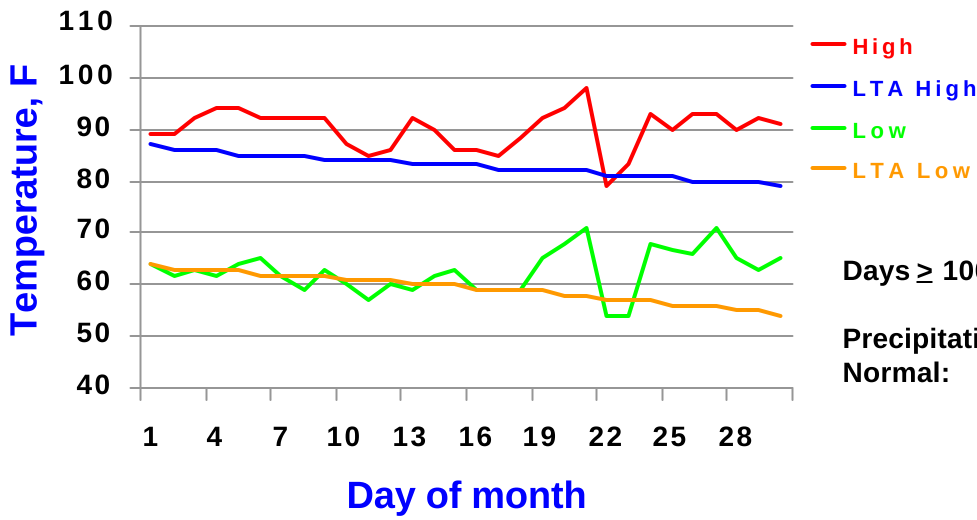
Lubbock Air Temperatures
September, 1998



Days ≥ 100: 0

Precipitation: 0.02”
Normal: 2.60”

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AgriPartners Final Dryland Plant Mapping Results 1996, 1997, and 1998

Measurement	'96	'97	'98
Plants/ft	3.7	3.6	2.6
Total nodes	14.4	14.6	13.6
Plant height	17.9	17.0	12.2
HNR	1.20	1.17	0.88
NAWF	3.7	3.7	2.9
Bolls/ft	20.3	20.1	9.6
Total fields	--	130	45

Boman - TAEX

AgriPartners Final Irrigated Plant Mapping Results 1996, 1997, and 1998

Measurement	'96	'97	'98
Plants/ft	3.8	4.1	4.0
Total nodes	16.4	15.8	15.7
Plant height	22.9	20.3	19.1
HNR	1.40	1.28	1.21
NAWF	3.7	4.0	3.3
Bolls/ft	30.4	24.2	24.4
Total fields	--	200.0	232.0

Boman - TAEX

TITLE: **Cotton Incorporated Root Health Project, AGCARES, Lamesa, TX, 1998.**

AUTHORS: Randy Boman, Mark Kelley and John Farris
Extension Agronomist-Cotton, Extension Assistant-Cotton and CEA-Agriculture

MATERIALS AND METHODS:

Variety:	Paymaster HS26
Seeding rate:	15 lb seed/acre
Plot size:	4-40 inch rows x 100 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper, randomized complete block design with 4 replications
Planting date:	May 5 (DRY planted), Sprinkler Irrigated on May 11
Hypocotyl & root ratings:	May 25
Stand count, skip index & height/node rating:	June 9
Irrigation & nitrogen management:	April prewater 1.5" 3/4" spray (1X) 3/4" LEPA (1X) Total irrigation after planting of 12.7" May 11 - (0.5" LEPA for emergence) N fertilization - 105 lb N/acre using 32-0-0 April 29 - (30 lb N/acre banded) June 27, July 12 & 28 - (25 lb N/fertigation event)
Root density digs:	June 10, June 26 and July 30
Harvested:	October 9
Treatments:	1. Black seed + DiSyston (5 lb/acre in-furrow) 2. Commercial seed treatment (CST) (Baytan @ 1oz/cwt+Apron+Thiram) + DiSyston 3. CST + Temik* (5 lb/acre in-furrow) 4. CST + Terraclor Super X (7 lb/acre in-furrow) + DiSyston 5. CST + Terraclor Super X + Temik

**Temik used was corn cob based*

RESULTS AND DISCUSSION:

Seed treatment and in-furrow fungicides are commonly used by producers to enhance emergence potential and to reduce the possibility of stand losses. Cotton Incorporated has supported a Beltwide cotton root health research project for the last three seasons. One location in the Texas High Plains was at the Lamesa AGCARES facility. This research focused on early season plant health and several important measurements were made. A skip index was generated using a weighted scale to compute the severity and incidences of skips of various sizes (the higher the index the more pronounced and critical the amount of skips). Hypocotyl (the portion of the seedling below the cotyledons and above the root) and root ratings were made shortly after emergence. Plants were visually rated on a scale of one (healthy, no lesions) to five (necrotic lesions resulting in seedling death). Early season disease pressure was not extremely critical at this site in 1998. Other seasonal measurements were also taken, including plant height, total nodes, and height to node ratio. Although stand and skip count differences attributable to treatment were significant (Table 1), no differences in final yield were observed. Seed treatments increased seedling survival, but due to adequate stand (plants per foot of row) in the black seed treatment, no yield increases could be attributed to seed or in-furrow treatments. Early season measurements of plant height, total nodes and height to node ratio were found to be significantly different among treatments (Table 1). No statistically significant differences were observed in gin turnout or in HVI fiber properties that determine price per pound of lint (Table 2). Final plant mapping data indicated that under the LEPA 0.75 ET replacement irrigation regime, no significant differences were noted in final plant height, or height to node ratio; however, significant differences were observed for the number of reproductive nodes per plant (Table 3). First position bolls contributed to about 65 percent of the final total lint yield. Second position fruit produced about 20 percent, while third and greater positions contributed 10 percent. Bolls produced on vegetative branches produced only about 5 percent of the final yield. This Cotton Incorporated supported project helped contribute to the Beltwide database in 1998. Plans are to continue this important work in 1999.

Table 1. **Early season stand count, skip index, hypocotyl rating, root rating, plant height, total nodes, height to node ratio, final lint, seed, and burrcotton yields of the Cotton Incorporated Root Health Experiment, AGCARES, 1998.**

Treatment	Stand count plants/ row-ft	Skip index index	Hypocotyl rating index	Root rating index	Plant height inches	Total nodes nodes / plant	Height to node ratio inches/ node	Lint yield lb/acre	Seed yield, lb/acre	Burrcotton yield lb/acre
Black seed + DiSyston	2.2	18.0	1.9	3.2	1.8	4.1	0.43	560	1059	2434
Commercial seed treatment [1] (CST) + DiSyston	2.6	8.0	1.7	2.9	1.8	4.1	0.44	565	1068	2425
CST+Temik[2]	2.4	14.2	1.6	2.9	1.6	3.9	0.42	534	1032	2350
CST+TSX+ DiSyston	2.5	10.5	1.5	3.0	1.8	4.1	0.44	561	1071	2474
CST+TSX+ Temik	2.3	17.0	1.6	3.1	1.5	4.1	0.38	567	1089	2506
CV, %	6.9	37.8	15.3	7.9	6.4	2.3	6.9	10.3	10.3	9.1
LSD 0.05	0.2	7.0	NS	NS	0.15	0.13	0.041	NS	NS	NS

[1]*Commercial seed treatment consisted of Baytan (1 oz/cwt), Apron, and Thiram.*
[2]*Temik was corn cob based.*

Table 2. Gin turnout and selected HVI fiber properties of the Cotton Incorporated Root Health Experiment, AGCARES, 1998.

Treatment	Gin turnout %	Mic units	UHM inches	Strength g/tex	Unif index %	Elongation %	rd units	+b units	Trash %	Short fiber content %
Black seed + DiSyston	23.0	5.35	1.005	29.1	82.1	12.4	79.1	8.55	0.300	8.47
Commercial seed treatment [1] (CST) + DiSyston	23.3	5.25	1.015	29.3	82.0	12.4	78.9	8.40	0.275	8.30
CST+Temik[2]	22.7	5.22	1.010	30.5	81.4	12.4	78.7	8.62	0.325	7.80
CST+TSX+ DiSyston	22.7	5.22	1.020	29.5	81.9	12.6	78.0	8.60	0.325	7.55
CST+TSX+ Temik	22.6	5.27	1.015	29.5	82.0	12.3	78.7	8.65	0.325	8.45
CV, %	2.9	1.6	2.1	3.0	1.2	2.8	1.5	1.6	32.3	10.0
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

[1]*Commercial seed treatment consisted of Baytan (1 oz/cwt), Apron, and Thiram.*
[2]*Temik was corn cob based.*

Table 3. Final plant mapping data for the Cotton Incorporated Root Health Experiment, AGCARES, 1998.

Treatment	Number of reproductive nodes total / plant	Final plant height inches	Final height to node ratio ratio	1st position bolls %	2nd position bolls %	3rd and greater position bolls %	Vegetative bolls %	Total bolls per plant average	Boll retention on first 5 fruiting branches %
Black seed + DiSyston	19.2	28.6	1.18	64.3	22.1	7.5	5.6	7.1	32.2
Commercial seed treatment [1] (CST) + DiSyston	20.2	30.4	1.19	64.8	23.4	10.9	2.3	8.5	37.0
CST+Temik [2]	20.2	30.3	1.21	61.1	21.4	16.0	2.7	8.2	36.7
CST+TSX+ DiSyston	19.0	29.4	1.21	60.2	19.3	13.8	6.5	7.8	35.2
CST+TSX+ Temik	20.1	30.4	1.21	68.2	20.5	6.9	4.2	7.1	36.9
CV, %	3.7	3.8	3.0	16.7	34.9	60.7	65.8	17.7	13.4
LSD 0.05	1.01	NS	NS	NS	NS	NS	NS	NS	NS

[1]*Commercial seed treatment consisted of Baytan (1 oz/cwt), Apron, and Thiram.*

[2]*Temik was corn cob based.*

TITLE: **Evaluation of K-tionic as a Nutrient Uptake Promoter in High-Frequency Surface Drip Irrigated Cotton, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

AUTHORS: Randy Boman, Kevin Bronson, Doug Nesmith and Mark Kelley
Extension Agronomist-Cotton, Texas Agricultural Extension Service, Lubbock; Soil Fertility Project Leader, Texas Agricultural Experiment Station, Lubbock; Senior Research Associate, Texas Agricultural Experiment Station, Halfway; and Extension Assistant-Cotton, Texas Agricultural Extension Service, Lubbock.

MATERIALS AND METHODS:

Variety: Paymaster 2326RR

Seeding rate: 16 lbs seed/acre

Plot size: 8-40 inch rows x 50 ft, 2 rows harvested for yield using a modified John Deere 482 plot stripper with integrated scales

Experimental design: randomized complete block with 4 replications

Planting date: May 11

Harvested: November 9

Irrigation: 0.75 ET replacement bi-weekly

Treatments: Fertilizer rates expressed as lb of N-P_2O_5 -K_2O per acre (e.g. 60-40-0 = 60 lb N/acre - 40 lb P_2O_5/acre - 0 lb K_2O/acre)

1. 0-0-0
2. 0-0-0 + K-tionic @ 1 gal product/acre
3. 60-0-0
4. 60-0-0 + K-tionic @ 1 gal product/acre
5. 60-40-0
6. 60-40-0 + K-tionic @ 0.5 gal product/acre
7. 60-40-0 + K-tionic @ 1 gal product/acre

Soil Test Results:

Nitrogen (NO_3-N)	6 ppm
Phosphorus (weak Bray)	17 ppm
Phosphorus ($NaHCO_3$-P)	41 ppm
Potassium (K)	342 ppm
Soil pH	8.1
Cation Exchange Capacity	14.4
% Sand	54
% Silt	18
% Clay	28
Classification	Olton sandy clay loam

RESULTS AND DISCUSSION:

K-tionic is a product of the Grupo Bioquímico Mexicano Co. (GBM). It is an aqueous solution containing 300 grams of active fulvic organic complex per liter. K-tionic is utilized in conjunction with balanced fertilizer programs to promote and optimize nutrient uptake by agricultural crops and may be soil or foliar applied. The purpose of this study was to evaluate the effect of various K-tionic and fertilizer combinations on emergence rate, petiole nitrate-nitrogen concentration, final plant map parameters, lint yield, and selected HVI fiber properties in a high-frequency surface drip irrigated cotton production system.

Emergence rate was determined by counting three 10 foot sections of row in each plot at 7, 14 and 21 days after planting (DAP). Twenty uppermost unfolded leaf petiole samples were taken from randomly selected plants from each plot for six consecutive weeks beginning at first square initiation. These samples were ground (200 mesh) and extracted using 0.1 molar KCl and a Technicon Auto-analyzer to determine nitrate -nitrogen concentration. Six randomly selected plants were mapped prior to harvest to determine final plant height, height to node ratio and open boll location and retention. Two 50-ft rows were machine harvested to determine lint yield. Samples were ginned at the Texas Agricultural Experiment Station ginning facilities and the lint was submitted to the Texas Tech University International Textile Center for HVI fiber analyses.

Results from this study indicated no statistically significant differences among treatments for emergence for any of the observation dates (Table 1). A numerical trend existed for the fertilizer rates with K-tionic treatments to have a slightly higher emergence over the same fertility rates without K-tionic at 7 DAP; however, this trend was not evident for the 14 or 21 DAP observations. Petiole nitrate-nitrogen concentration was not significantly affected by any of the treatments within observation dates (Table 2). Final plant map data analyses indicated no statistically significant differences for any of the parameters measured (Tables 3 and 4) and no differences were observed for lint yield or selected HVI fiber properties (Table 5).

Table 1. Effect of various combinations of K-tionic and fertilizers on emergence at 7, 14 and 21 days after planting (dap), Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Emergence 7 dap plants/10 row-ft	Emergence 14 dap plants/10 row-ft	Emergence 21 dap plants/10 row-ft
1. 0-0-0	16.8	30.0	33.6
2. 0-0-0 + K-tionic 1 gal/A	17.3	29.4	29.7
3. 60-0-0	14.0	30.5	32.7
4. 60-0-0 + K-tionic 1 gal/A	18.2	28.3	31.6
5. 60-40-0	16.5	31.1	31.4
6. 60-40-0 + K-tionic 0.5 gal/A	17.1	30.3	31.4
7. 60-40-0 + K-tionic 1 gal/A	17.9	30.5	32.2
CV, %	15.7	7.3	6.6
LSD (0.05)	NS	NS	NS

NS - nonsignificant

Table 2. Effect of various combinations of K-tionic and fertilizers on petiole nitrate-nitrogen concentration, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Petiole N concentration July 10 ppm NO_3-N	Petiole N concentration July 17 ppm NO_3-N	Petiole N concentration July 27 ppm NO_3-N	Petiole N concentration August 3 ppm NO_3-N	Petiole N concentration August 10 ppm NO_3-N	Petiole N concentration August 17 ppm NO_3-N
1. 0-0-0	18663	15597	13735	10996	5504	3942
2. 0-0-0 + K-tionic 1 gal/A	19961	15438	14640	9410	5976	3492
3. 60-0-0	18740	16191	14789	11896	6693	5065
4. 60-0-0 + K-tionic 1 gal/A	18688	16394	15306	9054	6680	4057
5. 60-40-0	20585	16257	14457	11498	7201	5039
6. 60-40-0 + K-tionic 0.5 gal/A	18867	15718	15215	9718	6317	3441
7. 60-40-0 + K-tionic 1 gal/A	19931	16760	12794	10566	6715	4004
CV, %	8.2	7.5	10.9	14.3	18.9	30.2
LSD (0.05)	NS	NS	NS	NS	NS	NS

NS - nonsignificant

Table 3. Effect of various combinations of K-tionic and fertilizers on final plant height, total nodes, height to node ratio, vegetative branches and fruiting branches, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Plant height inches	Total nodes avg per plant	Height/node ratio inches/node	Vegetative branches avg per plant	Fruiting branches avg per plant
1. 0-0-0	18.5	14.6	1.3	0.6	9.4
2. 0-0-0 + K-tionic 1gal/A	18.0	15.8	1.2	0.4	10.6
3. 60-0-0	18.5	14.6	1.3	0.4	9.5
4. 60-0-0 + K-tionic 1 gal/A	18.0	16.9	1.2	0.5	11.9
5. 60-40-0	19.0	14.0	1.4	0.3	9.3
6. 60-40-0 + K-tionic 0.5 gal/A	19.2	16.2	1.2	0.4	11.3
7. 60-40-0 + K-tionic 1 gal/A	18.7	15.8	1.2	0.6	10.7
CV, %	4.9	9.1	10.4	49.6	13.4
LSD (0.05)	NS	NS	NS	NS	NS

NS - nonsignificant

Table 4. Effect of various combinations of K-tionic and fertilizers on open boll plant map parameters, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Total open bolls avg per plant	Portion of total open bolls from 1st position percent	Portion of total open bolls from 2nd position percent	Portion of total open bolls from 3rd and greater position percent	Portion of total open bolls from vegetative branches percent	Open boll retention on 1st five fruiting branches percent
1. 0-0-0	6.2	60.5	25.5	11.0	3.1	45.7
2. 0-0-0 + K-tionic 1 gal/A	7.1	54.3	34.7	9.7	1.3	43.4
3. 60-0-0	7.0	69.4	23.8	6.4	0.5	51.1
4. 60-0-0 + K-tionic 1 gal/A	6.8	58.1	35.9	4.8	1.4	42.1
5. 60-40-0	5.5	78.4	19.9	1.1	0.7	47.2
6. 60-40-0 + K-tionic 0.5 gal/A	6.7	62.3	32.8	2.7	2.3	45.0
7. 60-40-0 + K-tionic 1 gal/A	7.3	69.1	22.0	6.5	2.5	47.8
CV, %	18.8	22.6	39.0	100.9	130.7	17.6
LSD (0.05)	NS	NS	NS	NS	NS	NS

NS - nonsignificant

Table 5. Effect of various combinations of K-tionic and fertilizers on lint yield and selected HVI lint quality measurements, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Lint yield lb/acre	Micronaire units	Length inches	Strength grams/tex	Uniformity percent
1. 0-0-0	856	4.8	1.04	26.9	82.6
2. 0-0-0 + K-tionic 1 gal/A	872	4.9	1.05	28.3	83.6
3. 60-0-0	859	4.8	1.03	27.9	83.4
4. 60-0-0 + K-tionic 1 gal/A	841	5.0	1.04	28.0	82.8
5. 60-40-0	865	4.9	1.06	27.3	82.7
6. 60-40-0 + K-tionic 0.5 gal/A	862	4.9	1.04	27.6	81.5
7. 60-40-0 + K-tionic 1 gal/A	874	4.9	1.03	27.0	82.5
CV, %	5.2	4.3	2.3	3.7	1.3
LSD (0.05)	NS	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Ultra-Narrow Row Cotton Study, AGCARES, Lamesa, TX, 1998.**

AUTHORS: Randy Boman, Mark Kelley, Wayne Keeling, and John Farris;
Extension Agronomist-Cotton, Extension Assistant-Cotton,
Systems Agronomist - Texas Agricultural Experiment Station, and CEA-Agriculture

MATERIALS AND METHODS:

Variety: Paymaster 2326RR

Seeding rate:
15 lb seed/acre - Conventional 40" spacing
(John Deere Max Emerge II)
18 lb seed/acre - 2 rows/40" seed bed
(IH planter X 2 passes)
30 lb seed/acre - ultra narrow row (UNR) - 10" spacing
(Great Plains drill)

Plants per acre:
48,000 (conventional)
65,000 (2 rows/40" bed)
125,000 (UNR spacing)

Plot size: 26.7' x variable length, 2 center rows x 13.1' hand harvested for yield, strip plot design with 3 replications.

Planting date: May 8 (DRY planted), Sprinkler Irrigated on May 11

Stand count: June 16

Irrigation & nitrogen management:
April prewater 1.5"
3/4" spray (1X)
3/4" LEPA (1X)
Total irrigation after planting of 12.7"
May 11 - (0.5" LEPA for emergence)
N fertilization - 105 lb N/acre using 32-0-0
April 29 - (30 lb N/acre banded)
June 27, July 12 & 28 - (25 lb N/fertigation event)

Harvested: October 15

Treatments:

1. Conventional 40" spacing / LEPA
2. Conventional 40" spacing / Spray
3. 2 rows/40" seed bed / LEPA
4. 2 rows/40" seed bed / Spray
5. UNR / LEPA
6. UNR / LEPA

RESULTS AND DISCUSSION:

In the past few years, ultra narrow row (UNR) planting method for cotton production has become more popular. The advent of herbicide tolerant cotton varieties is the one of the main reasons. The purpose of this study was to compare different spacings, conventional (40" rows); 2 rows per 40" bed; and ultra narrow row (UNR - 10" row spacing) under LEPA and spray irrigation systems. Parameters measured included yield, selected HVI lint quality analyses, final plant mapping, and boll size. Although lint turnout differences were not significant, differences in lint yield and seed yield were statistically significant (Table 1). Highest lint yields were obtained in the 2 rows per 40-inch bed under LEPA irrigation (Treatment 3). This was significantly greater than all other treatments with the exception of the conventional 40" spacing under LEPA irrigation (Treatment 1). Treatment 1 was significantly greater than the 2 rows per 40" bed under spray irrigation (treatment 4), and the UNR spacing under spray irrigation (treatment 6). Treatments 2 and 5, conventional spacing under spray irrigation and UNR spacing under LEPA irrigation respectively, were significantly inferior only to treatment 3. Seed production evaluations were similar to lint yields with the exception that treatment 2 was neither significantly greater than or less than any other treatments. When lint and seed yields per acre were evaluated across irrigation regimes, there were no statistically significant differences between the LEPA (794 lbs lint/acre and 1350 seed lbs/acre averages) and spray irrigation (573 lint lbs/acre and 963 lbs seed/acre averages). However, when row spacings were evaluated, significant differences were noted for both lint yield and seed yield. Although both the conventional row spacing (750 lint lbs/acre average) and the 2 rows per 40" bed (730 lint lbs/acre average) were significantly greater than the UNR spacing (572 lint lbs/acre average) there were no significant differences between the two. The same differences held true for seed production. The conventional spacing yielded 1309 pounds of seed per acre, followed by the 2 rows per 40" bed spacing with 1218 pounds of seed per acre and finally, 943 pounds of seed per acre were recorded for the UNR spacing. The fact that the UNR spacing with 125 thousand plants per acre was numerically and/or statistically out-yielded by the other two spacings in both lint and seed production can be explained by the fewer number of bolls per plant as well as lower boll weights as indicated in tables 2 and 3. Of the fiber qualities measured, micronaire, strength, uniformity and elongation were significantly affected by treatments (Table 1). Length, trash content, Rd, and +b measurements were not different (Table 1). Final plant mapping data revealed differences in plant height, height to node ratio, average total bolls per plant, percent of total open bolls produced on vegetative branches (Table 2), and percent boll retention on the bottom five fruiting branches (Table 3). Other mapping parameters which were found to be nonsignificant included total mainstem nodes, average number of fruiting and vegetative branches per plant, and percent of total open bolls produced on 1st, 2nd, and 3rd and greater fruiting branch positions (Table 2). Distance from the ground to first fruiting site was nonsignificant; whereas, differences in burrcotton and seedcotton grams per boll for 1st position fruiting sites were significant (Table 3). This project will be continued in the 1999 cropping year.

Table 1. Lint yield, seed yield, lint turnout and HVI fiber properties for Ultra Narrow Row Cotton Study, AGCARES, 1998.

Treatment	Lint yield, lb/acre	Seed yield lb/acre	Lint Turnout %	Micronaire units	Length inches	Strength g/tex	Unif index %	Trash %	Elong %	Rd units	+b units
Conventional / LEPA	837	1461	26.3	5.2	1.04	27.8	82.6	2.3	6.6	80.0	8.7
Conventional / Spray	664	1156	25.2	5.2	1.04	27.9	82.2	1.7	6.6	80.2	8.5
2 Rows/40" Bed / LEPA	919	1522	27.2	5.2	1.03	27.4	82.3	2.0	6.7	80.4	8.3
2 Rows/40" Bed / Spray	541	914	25.5	5.2	1.00	27.5	81.6	2.0	6.6	79.4	8.6
Ultra Narrow Row / LEPA	629	1068	26.3	4.9	1.03	28.2	80.8	1.7	6.4	80.5	8.6
Ultra Narrow Row / Spray	515	818	26.7	5.3	0.99	26.6	79.9	1.7	6.1	80.4	8.6
CV, %	19.6	19.0	5.3	2.3	2.7	2.2	0.9	33.0	3.3	0.8	2.0
LSD 0.05	244	400	NS	0.2	NS	1.1	1.3	NS	0.4	NS	NS

Table 2. Final plant mapping data for the Ultra Narrow Row Cotton Study, AGCARES, 1998.

Treatment	Final plant height inches	Total mainstem nodes avg/plant	Final height to node ratio inches /node	Fruiting branches avg/plant	Vegetative branches avg/plant	Total bolls avg/plant	1st position bolls %	2nd position bolls %	3rd + position bolls %	Veg bolls %
Conventional / LEPA	22.0	16.5	1.36	12.4	1.5	7.4	62.5	30.2	7.6	0.0
Conventional / Spray	21.2	18.5	1.15	14.5	0.1	5.0	61.5	30.5	6.6	1.1
2 Rows/40" Bed / LEPA	20.0	17.4	1.15	13.1	0.0	5.1	56.1	29.8	13.8	0.0
2 Rows/40" Bed / Spray	17.3	17.3	1.01	12.8	0.1	4.1	54.1	28.6	16.3	1.7
Ultra Narrow Row / LEPA	17.3	16.4	1.06	12.2	0.2	3.1	68.0	24.6	7.1	0.0
Ultra Narrow Row / Spray	14.6	15.2	0.97	11.0	0.2	2.2	61.7	28.4	2.3	7.7
CV, %	12.2	8.7	11.5	10.3	272.5	25.3	24.1	45.3	79.4	184.9
LSD 0.05	4.2	NS	0.23	NS	NS	2.1	NS	NS	NS	5.8

Table 3. Percent boll retention for 1st 5 fruiting branches, distance from ground to first fruiting site, position 1burrcotton and seedcotton grams/boll for the Ultra Narrow Row Cotton Study, AGCARES, 1998.

Treatment	Boll retention 1st 5 fruiting branches, %	Distance from ground to first fruiting site inches	Position 1 burrcotton, g/boll	Position 1 seedcotton, g/boll
Conventional / LEPA	45.2	4.8	6.27	4.75
Conventional / Spray	35.3	4.6	6.00	4.62
2 Rows/40" Bed / LEPA	35.1	4.9	5.95	4.61
2 Rows/40" Bed / Spray	28.2	5.9	6.05	4.61
Ultra Narrow Row / LEPA	27.3	4.8	5.23	3.92
Ultra Narrow Row / Spray	22.3	5.2	5.05	3.89
CV, %	20.5	10.7	6.1	7.6
LSD 0.05	12.0	NS	0.64	0.61

TITLE: **Effect of Seeding Rates of Paymaster 2326RR and 2200RR on Lint Yield and Agronomic Properties of Furrow Irrigated Cotton, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

AUTHORS: Mark Kelley and Randy Boman
Extension Assistant-Cotton and Extension Agronomist-Cotton

MATERIALS AND METHODS:

Variety: Paymaster 2326RR and 2200RR

Planting method: John Deere Max Emerge II vacuum planter

Seeding rate: 10, 15, 20 and 25 lb seed/acre

Plot size: 4-40 inch rows x 50 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper with integrated scales, randomized complete block design with 4 replications and factorial arrangement of treatments (two-factor factorial)

Planting date: May 15

Harvested: November 19

Furrow irrigated: 4 times
Prewater (April 7)
In-season (May 20, June 28 and July 13)

Treatments:

1. Paymaster 2326RR @ 10 lbs/acre
2. Paymaster 2200RR @ 10 lbs/acre
3. Paymaster 2326RR @ 15 lbs/acre
4. Paymaster 2200RR @ 15 lbs/acre
5. Paymaster 2326RR @ 20 lbs/acre
6. Paymaster 2200RR @ 20 lbs/acre
7. Paymaster 2326RR @ 25 lbs/acre
8. Paymaster 2200RR @ 25 lbs/acre

RESULTS:

Final plant stand, expressed as plants per row-ft, was significantly affected by the various seeding rates used in this study (Table 1). At lower seeding rates, 2326RR and 2200RR were relatively equal in final stand (plants per row-ft). However, as rates increased, 2326RR began to have higher numbers of plants per row-ft than 2200RR. Stand density for 2326RR increased from 2.7 plants/row-ft at the 10 lb/acre rate to 6.1 plants/row-ft at the 25 lb/acre rate. The increase for 2200RR was not as pronounced with final stands of 2.6 to 5.0 plants/row-ft at the 10 and 25 lb/acre rates respectively. Since plants per row-ft is a function of plants per acre, the same scenario was evident for final plant populations on a per acre basis (Table 1).

Barren plants per acre and barren plants expressed as percent of final plant stand were significantly different among rates (main effect means), but no differences were noted between varieties (Table 1). Barren plants tended to be greater for 2326RR than for 2200RR. Barren plants with 10 and 15 lb/acre seeding rates were not significantly different from one another, but were significantly lower than both the 20 and 25 lb rates. The number of barren plants per acre more than doubled from the 20 lb/acre rate to the 25 lb rate. The fraction of the total plant population that was barren, expressed as percent barren plants, was significantly different among seeding rates only. The percentage increased at an increasing rate as seeding rates increased. From 10 to 15 lbs, there was a 0.4 percent increase. A 0.6 percent increase existed between the 15 and 20 lb rates. The percentage increase from the 20 to 25 lb rates was exactly double (1.6 to 3.2 percent). The 25 lb/acre seeding rate was significantly greater than all other seeding rates in percent barren plants. The 20 lb/acre rate was significantly greater than the 10 lb rate, but not the 15 lb rate. No differences between the 10 and 15 lb/acre seeding rates were noted.

Lint and seed turnout, and lint and seed yield were not significantly different for any of the factors involved (Table 1). However, there was a significant difference in seed turnout between varieties. The 2200RR had a 3.1 percent higher seed turnout than 2326RR.

HVI fiber property analyses revealed significant differences between the varieties for micronaire, length, uniformity, strength, and reflectance or Rd (Table 2). Micronaire for 2326RR was higher (0.5 units) than 2200RR. Length for 2200RR was greater than 2326RR, at 1.07 and 1.05 inches respectively. 2326 RR had a significantly higher uniformity percentage than 2200RR. When Rd values were analyzed, 2200RR had a higher value than 2326RR. No significant differences between varieties were evident for elongation, leaf percent, or +b (yellowness) values. Furthermore, there were no significant differences among seeding rates for any of the HVI fiber property measurements at the 5% level. However, strength was significant at the 8% level showing a tendency for the lower seeding rates to be somewhat greater in strength than the higher seeding rates.

Final plant map data revealed no significant variety by rate interactions for any of the parameters measured (Table 3). However, differences were noted between varieties for total mainstem nodes, height to node ratio, total bolls per plant, and percent of total bolls from position 1, position 2, and positions 3 and greater. Significant differences were observed among rates as well for total mainstem nodes, height to node ratio and total bolls per plant.

Paymaster 2326RR had fewer mainstem nodes and a higher height to node ratio than 2200RR. Total bolls per plant was higher for 2200RR, but 2326RR had a higher percentage of its bolls on position 1. Percent of total bolls on 2nd position and 3rd and greater positions was higher for 2200RR.

Total mainstem nodes decreased with increasing seeding rates. Since no significant differences existed for final plant height, height to node ratios increased with increasing seeding rates. When compared among rates, total open bolls per plant was higher for the lower seeding rates. At the 10 lb/acre rate, open bolls per plant was 7.1 and 6.0 for the 15 lb rate. The higher rates of 20 and 25 lbs/acre had open boll counts per plant of 5.4 and 5.3 respectively.

CONCLUSIONS:

Final stand counts were determined by variety as well as seeding rate, while barren plants per acre and percent barren plants were more dependant upon seeding rate. The higher seeding rates had more plants per acre; however, more of those plants were barren and thus produced no bolls. The productive plants had fewer mainstem nodes per plant. Furthermore, the higher plant populations resulted in fewer total open bolls per plant and had a lower percentage of those bolls produced on the 1st position. Although the lower seeding rates had fewer plants per acre, they had fewer barren plants as well. These plants had larger numbers of total mainstem nodes and produced more total open bolls per plant than with the higher seeding rates. Fiber property differences were determined mostly by variety and were not affected by seeding rate. The only exception was that strength was significant at the 8% level among rates. These data demonstrate the cotton plant's ability to compensate for lower stand density by putting on more bolls per plant and having a higher percentage of those plants being productive. Although these data strongly suggest that lower plant populations can be targeted without affecting lint yield and quality, it is important to recognize that this study was conducted in a year of very warm soil temperatures during stand establishment. High evapotranspiration rates contributed to high stress levels and lower yields than might be anticipated in a more normal environment. This work will be continued in 1999, hopefully with more normal conditions.

Table 1. Effect of seeding rate on plant population, barren plant counts, lint turnout, lint yield, seed turnout and seed yield for Paymaster Roundup-Ready 2326RR and 2200RR, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Final plant stand, plants/row-ft	Final population, plants/acre	Barren plants, plants/acre	Barren plants, percent	Lint turnout, percent	Lint yield, lbs/acre	Seed turnout, percent	Seed yield, lbs/acre
2326RR @ 10 lb/a	2.7	34761	261	0.7	27.6	780	47.8	1351
2200RR @ 10 lb/a	2.6	33977	131	0.4	27.8	750	51.2	1383
2326RR @ 15 lb/a	4.1	53056	327	0.6	28.2	788	48.2	1347
2200RR @ 15 lb/a	3.7	48744	653	1.3	28.0	716	51.4	1312
2326RR @ 20 lb/a	5.0	65863	1176	1.8	27.9	767	48.1	1323
2200RR @ 20 lb/a	4.3	56846	784	1.4	28.0	758	50.4	1367
2326RR @ 25 lb/a	6.1	79845	2614	3.3	27.5	784	47.9	1366
2200RR @ 25 lb/a	5.0	65732	2026	3.1	28.1	792	51.4	1449
CV, %	3.8	3.8	45.2	47.9	2.7	10.3	2.0	10.4
OSL	0.0001	0.0001	0.0001	0.0001	0.853	0.887	0.0001	0.917
LSD (0.05)	0.24	3078	663	1.1	NS	NS	1.4	NS
Main effect means								
Variety								
2326	4.5	58381	1094	1.6	27.8	780	48.0	1347
2200	3.9	51325	898	1.6	28.0	754	51.1	1378
OSL	0.0001	0.0001	0.232	0.852	0.482	0.368	0.0001	0.541
LSD (0.05)	0.12	1539	NS	NS	NS	NS	0.7	NS
Seeding Rate								
10	2.6	34369	196	0.6	27.7	765	49.5	1367
15	3.9	50900	490	1.0	28.1	752	49.8	1329
20	4.7	61354	980	1.6	27.9	763	49.3	1345
25	5.6	72789	2320	3.2	27.8	788	49.6	1407
OSL	0.0001	0.0001	0.0001	0.0001	0.731	0.832	0.760	0.714
LSD (0.05)	0.17	2176	468	0.8	NS	NS	NS	NS
Variety X Rate OSL	0.0001	0.0001	0.233	0.430	0.710	0.770	0.627	0.863

NS - nonsignificant, OSL - observed significance level, or probability of a greater ‘F’ value

Table 2. Effect of seeding rate on HVI fiber properties for Paymaster Roundup-Ready 2326RR and 2200RR, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Micronaire, units	Length, inches	Uniformity, percent	Strength, grams/tex	Elongation, percent	Leaf, percent	Rd, units	+b, units
2326RR @ 10 lb/a	4.6	1.07	82.6	28.1	6.7	1.0	73.6	8.8
2200RR @ 10 lb/a	4.1	1.06	81.0	27.9	6.5	1.5	74.9	8.7
2326RR @ 15 lb/a	4.6	1.05	82.6	28.7	6.7	1.0	73.7	8.8
2200RR @ 15 lb/a	4.1	1.06	80.9	27.1	6.7	1.0	75.3	8.8
2326RR @ 20 lb/a	4.5	1.06	81.7	27.5	6.7	1.3	74.0	8.8
2200RR @ 20 lb/a	4.2	1.08	81.3	27.0	6.3	1.0	75.9	8.9
2326RR @ 25 lb/a	4.6	1.04	82.0	27.6	6.6	1.0	74.3	8.8
2200RR @ 25 lb/a	4.0	1.07	81.0	26.9	6.7	1.3	75.4	8.8
CV, %	4.8	1.1	0.8	2.7	5.6	40.0	0.8	1.4
OSL	0.0004	0.011	.004	.031	0.820	0.667	0.0001	0.682
LSD (0.05)	0.3	0.02	0.5	1.8	NS	NS	0.9	NS
Main effect means								
Variety								
2326	4.6	1.05	82.2	28.0	6.7	1.1	73.9	8.8
2200	4.1	1.07	81.0	27.2	6.5	1.2	75.4	8.8
OSL	0.0001	0.006	0.0001	0.01	0.308	0.441	0.0001	0.664
LSD (0.05)	0.2	0.01	0.5	0.6	NS	NS	0.45	NS
Seeding Rate								
10	4.3	1.06	81.8	28.0	6.6	1.3	74.2	8.7
15	4.4	1.05	81.7	27.9	6.7	1.0	74.5	8.8
20	4.4	1.07	81.5	27.2	6.5	1.1	74.9	8.8
25	4.3	1.06	81.5	27.3	6.6	1.1	74.8	8.8
OSL	0.946	0.197	0.694	0.08	0.829	0.746	0.1296	0.524
LSD (0.05)	NS	NS	NS	0.8	NS	NS	NS	NS
Variety X Rate OSL	0.655	0.034	0.195	0.292	0.673	0.400	0.638	0.524

NS - nonsignificant, OSL - observed significance level, or probability of a greater 'F' value

Table 3. Effect of seeding rate on various final plant map parameters for Paymaster Roundup-Ready 2326RR & 2200RR, Texas Agricultural Exp. Station, Lubbock, TX - 1998.

Treatment	Plant height inches	Total nodes avg/plant	Height to node ratio ratio	Total boll avg/plant	Percent of total bolls on 1st position %	Percent of total bolls on 2nd position %	Percent of total bolls on 3rd and greater position %	Percent of total bolls on vegetative branches %	Open boll retention on 1st 5 fruiting branches %
2326RR @ 10 lb/a	18.5	16.5	1.12	7.2	79.4	18.1	1.1	0.6	47.4
2200RR @ 10 lb/a	18.8	18.5	1.02	7.0	73.3	24.0	3.1	0.0	47.9
2326RR @ 15 lb/a	18.3	15.7	1.17	5.8	85.1	15.1	0.0	0.0	45.5
2200RR @ 15 lb/a	18.0	17.3	1.04	6.3	66.6	31.5	2.1	0.0	42.8
2326RR @ 20 lb/a	17.3	14.9	1.17	5.0	89.1	10.1	0.8	0.0	40.0
2200RR @ 20 lb/a	18.0	16.8	1.07	5.9	78.0	19.2	2.3	0.8	42.4
2326RR @ 25 lb/a	17.7	14.5	1.23	4.7	86.5	10.4	1.8	1.0	40.3
2200RR @ 25 lb/a	18.3	17.2	1.07	6.0	83.1	14.4	2.6	0.0	43.5
CV, %	5.6	4.5	4.0	11.8	12.8	56.6	131.2	333.7	15.1
OSL	0.588	0.0001	0.0001	0.0006	0.086	0.101	0.577	0.647	0.576
LSD (0.05)	NS	1.1	0.06	1.0	0.8	0.7	NS	NS	NS
Main effect means									
Variety									
2326	18.0	15.4	1.17	5.7	85.0	13.4	0.9	0.4	43.3
2200	18.3	17.5	1.05	6.3	75.2	22.3	2.5	0.2	44.1
OSL	0.394	0.0001	0.0001	0.02	0.01	0.02	0.057	0.532	0.729
LSD (0.05)	NS	0.5	0.3	0.5	7.6	7.4	1.7	NS	NS
Seeding Rate									
10	18.6	17.5	1.07	7.1	76.3	21.1	2.1	0.3	47.7
15	18.2	16.5	1.11	6.0	75.8	23.3	1.0	0.0	44.1
20	17.7	15.8	1.12	5.4	83.5	14.7	1.6	0.4	41.2
25	18.0	15.8	1.15	5.3	84.8	12.4	2.2	0.5	41.9
OSL	0.316	0.0004	0.02	0.0002	0.202	0.133	0.721	0.772	0.226
LSD (0.05)	NS	0.8	0.5	0.7	NS	NS	NS	NS	NS
Variety X Rate OSL	0.765	0.487	0.468	0.177	0.488	0.637	0.943	0.335	0.811

NS - nonsignificant, OSL - observed significance level, or probability of a greater 'F' value

TITLE: **Evaluation of Seeding Rates of Paymaster 2200RR on Plant Population and Lint Yield**

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PROBLEM:

Transgenic cotton varieties were first introduced in 1995. Since then, producers have been investigating various ways to reduce production costs to offset increased seed costs and technology fees. One way this may be accomplished is to lower planting rates thereby reducing the cost per acre for seed. In the past, high seeding rates have been used in some areas to help offset possible stand losses due to seedling disease, environmental factors and insects. Field observations and previous plant population studies have shown that the cotton plant is capable of producing good yields by compensating for reduced stands if sound management practices are followed.

OBJECTIVE:

The purpose of this study was to evaluate the effects of various planting rates on plant stand, number of barren plants per acre, gin turnout, lint yields and fiber properties of furrow irrigated cotton.

METHOD:

Seeding rates of 10, 15, 20 and 25 pounds per acre of Paymaster 2200RR were utilized on the Barry Street farm near Kress, Texas in Swisher county. This study was planted on May 19th to 40-inch rows in a strip plot design with 3 replications. Plots were 8 rows wide by 2640 feet long (1.62 acres) and were furrow irrigated 3 times (1- prewater 30 days before planting and 2 in-season irrigations: July 1st and August 20th) in every other row. Each treatment received 2.5 lbs per acre of Temik applied in-furrow at planting. Final plant map, stand and barren plants per acre determinations were made just prior to harvest. Plots were harvested by the producer and taken to commercial gin in separate trailers. Lint was commercially ginned and classed, and CCC loan values were established to calculate net return for each treatment.

RESULTS:

Significant differences in plant populations and barren plants were obtained from the various seeding rates used; however, no differences in lint turnout, lint yield, seed turnout, seed yield, and HVI fiber properties were noted (Tables 1 and 2). When cost/return analyses were determined, no statistically significant differences were noted for final net value per acre (Table 3), although the 15 lb/acre seeding rate did result in the highest numerical net value per acre. Final plant map data indicated that no significant differences among seeding rates were detected (Tables 1 and 4), although important numerical trends were noted. Thinner stands tended to have larger plants, more vegetative branches per plant, and more total open bolls per plant. The percentage of total bolls arising from the first position on fruiting branches tended to be lower for thinner stands. Lower plant populations tended to produce more bolls on second position than higher populations.

CONCLUSIONS:

Although these data strongly suggest that lower plant populations can be targeted without affecting lint yield, quality, and net return, it is important to recognize that this study was conducted in a year of very warm soil temperatures during stand establishment. These data demonstrate the cotton plant's ability to compensate for lower stand density by putting on more bolls per plant and having a higher percentage of those plants being productive. High evapotranspiration rates contributed to high stress levels and lower yields than might be anticipated in a more normal environment. This work will be continued in 1999, hopefully with more normal conditions.

Table 1. Evaluation of effects of seeding rate on plant stand per row foot, plant population per acre, barren plants per acre, percent barren plants, and final plant map parameters for Paymaster 2200RR Plant Population Study, Barry Street Farm, Swisher County, TX., 1998.

Seeding Rate lbs/acre	Plant stand plnts/row ft.	Plant population plnts/acre	Barren plnts/acre	Barren %	Plant height inches	Total nodes avg per plant	Height/node ratio	Vegetative branches avg per plant	Fruiting branches avg per plant
10	2.2	28379	523	1.9	21.6	16.2	1.34	2.2	10.8
15	3.0	38899	959	2.4	21.1	15.5	1.35	0.6	10.2
20	3.7	48090	4269	8.8	18.9	14.8	1.28	0.4	9.6
25	4.4	57456	4705	8.3	19.5	15.3	1.27	0.6	9.4
CV, %	7.0	6.9	45.1	45.9	9.0	7.8	3.0	121.5	10.6
LSD(0.05)	0.47	5961	2353	4.9	NS	NS	NS	NS	NS

NS - nonsignificant

Table 2. **Evaluation of effects of seeding rate on lint turnout, seed turnout, seed cotton lbs/acre, lint yield, seed yield, and selected HVI lint quality analyses for Paymaster 2200RR Plant Population Study, Barry Street Farm, Swisher County, TX., 1998.**

Seeding Rate lbs/acre	Lint turnout percent	Seed turnout percent	Seed cotton yield lbs/acre	Lint yield lbs/acre	Seed yield lbs/acre	Micronaire Units	Length 32nds inches	Strength grams/tex	Uniformity percent
10	22.2	33.5	3032	672	1011	34.7	33	29.1	80
15	22.7	34.2	3024	684	1031	36.0	34	27.6	80
20	22.6	33.1	2941	661	970	34.7	34	27.8	79
25	22.1	33.4	3069	677	1023	35.3	34	28.3	79
CV, %	3.0	3.5	3.0	2.3	2.4	5.4	2.7	4.0	1.1
LSD (0.05)	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - nonsignificant

Table 3. Evaluation of effects of seeding rate on ginning costs, lint loan value, lint value, seed value, total value, acres planted per bag, total cost per acre for seed and technology, and net return for Paymaster 2200RR Plant Population Study, Barry Street Farm, Swisher County, TX., 1998.

Seeding Rate lbs/acre	Ginning cost[1] $/acre	Loan value[2] $/acre	Lint value[3] $/acre	Seed value[4] $/acre	Total value[5] $/acre	Acres planted per 50 lb bag	Seed cost[6] $/acre	Net value[7] $/acre
10	68.22	0.5021	337.68	70.75	408.43	5.0	$10.86	397.57
15	68.03	0.5268	360.49	72.20	432.69	3.3	$16.29	416.40
20	66.18	0.5082	335.64	67.86	403.51	2.5	$21.72	381.79
25	69.05	0.5161	349.55	71.62	421.17	2.0	$27.15	394.02
CV, %	3.0	3.6	4.9	2.4	4.1	NA	NA	4.3
LSD (0.05)	NS	NS	NS	NS	NS	NA	NA	NS

NS - nonsignificant

[1] *Based on $2.25 per cwt commercial ginning cost.*

[2] *Based on CCC lint loan value from commercial gin bales and classing results.*

[3] *Lint yield times CCC loan rate derived from USDA - AMS classed lint.*

[4] *Seed valued at $140.00 per ton.*

[5] *Total value = lint value + seed value - ginning cost*

[6] *Seed cost is based on a total bag cost of $54.30 ($34.00 seed + $20.30 for technology fee).*

[7] *Net value = Total value less seed cost*

Table 4. Evaluation of effects of seeding rate on final open boll counts, location and retention for Paymaster 2200RR Plant Population Study, Barry Street Farm, Swisher County, TX., 1998.

Seeding Rate lbs/acre	Total open bolls avg per plant	Portion of total open bolls from 1st position percent	Portion of total open bolls from 2nd position percent	Portion of total open bolls from 3rd and greater position percent	Portion of total open bolls from vegetative branches percent	Open boll retention on 1st five fruiting branches percent
10	9.3	47.7	40.1	7.5	4.3	38.2
15	7.0	57.8	35.3	4.6	2.2	31.1
20	6.6	51.4	40.2	4.1	4.6	36.1
25	6.5	64.6	26.9	4.0	4.1	38.2
CV, %	17.5	21.1	22.9	89.7	169.4	24.9
LSD (0.05)	NS	NS	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Miller/Plant Biotech Plant Growth Regulator and Foliar Fertilization Programs, AGCARES, Lamesa, TX, 1998.**

AUTHORS: Randy Boman and Mark Kelley
Extension Agronomist-Cotton and Extension Assistant-Cotton

MATERIALS AND METHODS:

Variety: Paymaster HS26

Seeding rate: 15 lb seed/acre

Plot size: 4-40 inch rows x 50 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper with integrated scales, randomized complete block design with 4 replications

Planting date: May 11

Harvested: October 9

Irrigation: LEPA pivot irrigated

Strata sampling: 25 first position bolls/strata were picked (seed cotton only) from each plot and average boll size was calculated.

Strata 1 = Upper third of plant
Strata 2 = Middle third of plant
Strata 3 = Lower third of plant

Treatments:

1. Untreated check
2. Miller/Plant Biotech PGR/foliar fertilizer program (MPB)
   Cytoplex 2 oz/acre + Sol-u-gro 2 lb/acre (12-48-8) at 1-2 True Leaf (TL) stage
   followed by (fb) Cytoplex 4 oz/acre + Sol-u-gro 4 lb/acre + Nu-Film 4 oz/acre at Match Head Square(MHS)
   fb Cytokin 8 oz/acre + Nutri-Leaf (20-20-20) 5 lb/acre + Nu-Film 4 oz/acre at First Bloom (FB)
   fb Cytokin 6 oz/acre + Cotton Finisher 5 lb (10-5-40) + Nu-Film 4 oz/acre at Mid-Bloom (MB)
3. Foliar Fertilizer portion of MPB program (MPB foliar)
   Sol-u-gro 2 lb/acre at 1-2 TL stage
   fb Sol-u-gro 4 lb/acre + Nu-Film 4 oz/acre at MHS
   fb Nutri-Leaf 5 lb/acre + Nu-Film 4 oz/acre at FB
   fb Cotton Finisher 5 lb + Nu-Film 4 oz/acre at MB

4. PGR portion of MPB program (MPB PGR)
   Cytoplex 2 oz/acre at 1-2 TL stage
   fb Cytoplex 4 oz/acre at MHS
   fb Cytokin 8 oz/acre at FB
   fb Cytokin 6 oz/acre at MB
5. Area Standard
   Mepiquat chloride 4 oz/acre at MHS
   fb Mepiquat chloride 4 oz/acre at FB

Application Dates:		
	1-2 TL stage	June 2
	MHS stage	June 26
	FB stage	July 9
	MB stage	July 30

RESULTS AND DISCUSSION:

Plant growth regulators (PGRs) have been used for many years in cotton production to modify growth and fruiting patterns. Foliar fertilization is also used to increase lint yields under some conditions. Inconsistencies of performance of PGRs and foliar fertilization programs require testing in multiple locations and environments. This in turn increases knowledge and enables researchers and Extension workers to obtain better information on such materials. The Miller Plant Biotech program is a combined PGR and foliar fertilization program that encompasses multiple applications of various materials during the growing season. The objective of this work was to determine the effects of such a program on final plant map parameters, lint turnout, lint yield, fiber properties, and boll size on cotton produced under LEPA pivot irrigated conditions. None of the treatments resulted in statistically significant effects on final plant map parameters (Tables 1 and 2). The PGR portion of the Miller/Plant Biotech (MPB) system was significantly greater than all other treatments with the exception of the MPB Foliar treatment for lint turnout (Table 3). The complete MPB program and the area standard had significantly lower lint turnouts than any of the other treatments. Although there were significant differences in lint turnout, there were no statistically significant differences observed for lint yield for any of the treatments evaluated. None of the treatments had any significant effects on lint quality or strata boll size (Tables 3 and 4).

Table 1. Response of September 17th open boll percent, plant height, total mainstem nodes, height to node ratio, number of reproductive branches, and number of vegetative branches to Miller/Plant Biotech plant growth regulator and foliar fertilization programs, AGCARES, Lamesa, TX, 1998.

Treatment	Open bolls on Sept 17th percent	Plant height inches	Total mainstem nodes avg/plant	Height/node ratio avg/plant	Reproductive branches avg/plant	Vegetative branches avg/plant
1. Untreated check	77	27.8	21.8	1.28	17.0	0.5
2. Miller PGR/foliar feed program	81	27.0	22.4	1.21	17.7	0.5
3. MPB foliar fertilizer portion	80	26.9	21.3	1.26	17.2	0.4
4. MPB PGR portion	82	28.1	21.5	1.31	16.9	0.6
5. Area Standard	81	25.6	21.3	1.20	17.1	0.4
CV, %	6.0	5.8	4.5	5.2	5.5	51.2
LSD 0.05	NS	NS	NS	NS	NS	NS

NS - nonsignificant

Table 2. **Response of total open bolls, percent of total bolls from 1st position, 2nd position, 3rd position and greater and vegetative sites, percent open boll retention of 1st 5 fruiting branches to Miller/Plant Biotech plant growth regulator and foliar fertilization programs, AGCARES, Lamesa, TX, 1998.**

Treatment	Total open bolls	Open bolls from 1st position	Open bolls from 2nd position	Open bolls from 3rd and greater positions	Open bolls from vegetative branches	Open boll retention on 1st 5 reproductive branches
	avg/plant	percent	percent	percent	percent	percent
1. Untreated check	5.4	71.2	20.6	6.4	2.4	30.6
2. Miller PGR/foliar feed program	5.6	69.6	19.9	7.2	3.5	34.1
3. MPB foliar fertilizer portion	6.5	64.6	18.8	13.7	2.9	36.9
4. MPB PGR portion	5.5	67.4	19.1	10.3	3.5	30.0
5. Area Standard	6.3	74.2	17.3	8.5	0	36.6
CV, %	19.0	17.7	45.3	71.6	101.4	15.8
LSD 0.05	NS	NS	NS	NS	NS	NS

NS - nonsignificant

Table 3. Response of lint turnout, lint yield and selected HVI lint quality measurements to Miller/Plant Biotech plant growth regulator and foliar fertilization programs, AGCARES, Lamesa, TX, 1998.

Treatment	Lint turnout percent	Lint yield lbs/acre	Micronaire units	Length inches	Strength grams/tex	Uniformity percent
1. Untreated check	23.4	555	5.3	1.04	28.4	82.3
2. Miller PGR/foliar feed program	22.3	499	5.3	1.05	28.8	81.9
3. MPB foliar fertilizer portion	24.1	544	5.4	1.05	28.8	82.1
4. MPB PGR portion	24.2	507	5.4	1.03	28.6	81.8
5. Area Standard	22.4	505	5.4	1.06	28.9	82.1
CV, %	2.1	15.7	1.1	1.8	2.1	0.8
LSD 0.05	0.7	NS	NS	NS	NS	NS

NS - nonsignificant

Table 4. Response of seed cotton grams per boll and lint grams per boll for strata 1(upper), 2 (middle) and 3 (lower) to Miller/Plant Biotech plant growth regulator and foliar fertilization programs, AGCARES, Lamesa, TX, 1998.

Treatment	Strata 1 boll size grams seed cotton/boll	Strata 2 boll size grams seed cotton/boll	Strata 3 boll size grams seed cotton/boll	Strata 1 lint grams/boll	Strata 2 lint grams/boll	Strata 3 lint grams/boll
1. Untreated check	3.9	5.1	4.6	1.5	2.0	1.7
2. Miller PGR/foliar feed program	3.8	5.0	4.9	1.4	1.8	1.9
3. MPB foliar fertilizer portion	3.8	5.0	4.9	1.4	2.0	1.8
4. MPB PGR portion	3.9	5.1	4.7	1.4	2.0	1.8
5. Area Standard	4.0	5.1	5.1	1.4	2.0	1.9
CV, %	6.6	5.1	4.4	6.4	7.7	4.9
LSD 0.05	NS	NS	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Miller/Plant Biotech Plant Growth Regulator and Foliar Fertilization Programs**

AUTHORS: Randy Boman, *Extension Agronomist - Cotton, TAEX*
Mark Kelley, *Extension Assistant - Cotton, TAEX*
Johnna Patterson, *Extension EA - IPM - Lamb/Castro, TAEX*
Rebel Royall, *CEA - AG, Castro County, TAEX*
Bob Phipps, *Producer - Cooperator*

PROBLEM:

Plant growth regulators (PGRs) have been used for many years in cotton production to modify growth and fruiting patterns. Foliar fertilization is also used to increase lint yields under some conditions. Inconsistencies of performance of PGRs and foliar fertilization programs require testing in multiple locations and environments. This in turn increases knowledge and enables researchers and Extension workers to obtain better information on such materials. The Miller/Plant Biotech program is a combined PGR and foliar fertilization program that encompasses multiple applications of various materials during the growing season.

OBJECTIVE:

The objective of this work was to determine the effects of such a program on plant height, gin turnout (lint and seed), yield (lint and seed) and cotton quality produced under furrow irrigated conditions.

METHOD:

The trial was conducted on the Bob Phipps farm in Castro County near Earth, Texas. Paymaster 2200RR was planted on May 12, 1998 in 40-inch rows at a rate of 20 lbs of seed per acre. Plots were 4 rows wide by 50 feet in length. Treatments were arranged in a randomized complete block design with 4 replications and were furrow irrigated. Applications were made at 1-2 true leaf stage (1-2TL, June 12), match head square (MHS, June 30), first bloom (July 10), mid-bloom (July 29), and late bloom (August 21). Test plots received minor hail damage on July 12th at this location. A total of 5 treatments were evaluated in this study, they included: 1) untreated check, 2) Miller/Plant Biotech (MPB) complete PGR/foliar fertilizer program, 3) MPB foliar fertilizer program only, 4) MPB PGR program only, and area 5) standard (Pix®). The MPB complete program or treatment 2 consisted of; Cytoplex 2 oz/acre + Sol-u-gro 2 lb/acre (12-48-8) at 1-2 TL stage, followed by (fb) Cytoplex 4 oz/acre + Sol-u-gro 4 lb/acre + Nu-Film 4 oz/acre at MHS, fb Cytokin 8 oz/acre + Nutri-Leaf (20-20-20) 5 lb/acre + Nu-Film 4 oz/acre at FB, fb Cytokin 6 oz/acre + Cotton Finisher 5 lb (10-5-40) + Nu-Film 4 oz/acre at MB. Treatment 3, or the MPB foliar program contained; Sol-u-gro 2 lb/acre at 1-2 TL stage, fb Sol-u-gro 4 lb/acre + Nu-Film 4 oz/acre at MHS, fb Nutri-Leaf 5 lb/acre + Nu-Film 4 oz/acre at FB, fb Cotton Finisher 5 lb + Nu-Film 4 oz/acre at MB. The PGR portion of the MPB program, treatment 4, consisted of; Cytoplex 2 oz/acre at 1-2 TL stage, fb Cytoplex 4 oz/acre at MHS, fb Cytokin 8 oz/acre at FB, fb Cytokin 6 oz/acre at MB. Treatment 5 consisted of four sequential applications of Pix® 4 oz/acre at MHS, FB, MB, and LB, for a total of 16 oz/acre. A final measurement of plant height was taken at harvest on November 21st. For yield and quality analyses, thirteen row-ft from the center two rows of each plot were hand harvested. Grab samples were ginned at the Lubbock Research and Extension Center. Weights of burrcotton, seed and lint were recorded. From these measurements, lint and seed turnout percentages were determined. Lint samples were submitted to the International Textile Center for HVI analysis.

RESULTS:

Plant growth regulators (PGRs) have been used for many years in cotton production to modify growth and fruiting patterns. Foliar fertilization is also used to increase lint yields under some conditions. Inconsistencies of performance of PGRs and foliar fertilization programs require testing in multiple locations and environments. This in turn increases knowledge and enables researchers and Extension workers to obtain better information on such materials. The Miller Plant Biotech program is a combined PGR and foliar fertilization program that encompasses multiple applications of various materials during the growing season. The objective of this work was to determine the effects of such a program on lint yields and cotton quality produced under furrow irrigated conditions. The plots received minor hail damage on July 12. None of the PGR or foliar treatments resulted in statistically significant effects on lint yield (Table 1). However, the area standard of sequential application of mepiquat chloride alone had a significantly lower lint turnout than did the untreated check and the MPB foliar treatment. HVI lint quality analyses revealed no significant differences for any of the treatments evaluated.

Table 1. Response agronomic characteristics of cotton to Miller/Plant Biotech plant growth regulator and foliar fertilization programs, Phipps Farm, Earth, TX, 1998.

Treatment	Plant height	Lint turnout	Lint yield	Micronaire	Length	Strength	Uniformity
	inches	percent	lbs/acre	units	inches	grams/tex	percent
1. Untreated check	34.0	27.8	1076	3.7	1.02	28.0	80.0
2. Miller PGR/foliar feed program	33.4	26.9	1076	3.9	1.06	27.4	80.1
3. MPB foliar fertilizer portion	33.2	28.4	1119	3.9	1.04	27.3	80.8
4. MPB PGR portion	33.5	27.1	1025	3.8	1.04	27.2	79.9
5. Area Standard	30.8	26.1	1069	3.6	1.06	28.2	80.1
CV, %	6.0	3.7	7.1	9.6	2.4	2.1	1.6
LSD 0.05	NS	1.5	NS	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Various Plant Growth Regulators and Foliar Fertilizers on Hail Damaged Cotton, E-Z Farms, Floydada, TX, 1998.**

AUTHORS: Ron Graves, Randy Boman and Mark Kelley; *Extension Agent-IPM, Crosby/Floyd Counties, Extension Agronomist-Cotton and Extension Assistant-Cotton*

MATERIALS AND METHODS:

Plot size:	8-40 inch rows x 2,640 ft
Experimental design:	randomized strips with 3 replications
Date of Hail Damage:	July 12
Application Date:	July 20
Harvest:	hand harvested 13' of row from 3 locations within each plot
Harvest Date:	November 17
Irrigation:	furrow irrigated

Treatments:

1. Ryzup 4 oz/acre + LI 700 1 qt/100 gal
2. PGR IV 4 oz/acre
3. Cytoplex 4 oz/acre + Foliar Feed (18-18-18) 3 lbs/acre + Nufilm 4 oz/acre
4. Foliar Feed (18-18-18) 3 lbs/acre + Nufilm 4 oz/acre
5. Untreated check

RESULTS AND DISCUSSION:

Texas High Plains cotton producers are no strangers to hail damage to their crops. The threat of thunderstorms capable of producing large hail is ever present during the growing season. The question these producers face after the crop has been damaged is what, if anything, can be done to salvage the crop. Plant Growth Regulators (PGR) and foliar applied fertilizers may provide some assistance with this problem. The objective of this study is to evaluate the effects of PGR's and foliar applied fertilizers on gin turnout, lint yield and lint quality of hail damaged cotton. Yield samples were taken from three locations and averaged. The results indicated no significant difference in gin turnout, lint yield or selected fiber properties for any of the treatments (Table 1).

Table 1. **Response of gin turnout, lint yield and selected fiber properties to PGR and foliar fertilizer applications on hail damaged cotton. E-Z Farms, Floydada, TX, 1998.**

Treatment	Gin turnout % 	Lint yield lb/acre	Micronaire units	Length inches	Strength g/tex
1. Ryzup 4 oz/acre + LI 700 1 qt/100 gal	24	923	3.9	1.12	27.6
2. PGR IV 4 oz/acre	23	900	3.9	1.14	27.7
3. Cytoplex 4 oz/acre + Foliar Feed (18-18-18) 3 lbs/a + Nufilm 4 oz/acre	24	891	3.8	1.13	27.8
4. Foliar Feed (18-18-18) 3 lbs/acre + Nufilm 4 oz/acre	24	918	3.9	1.14	27.7
5. Untreated check	23	812	3.7	1.11	27.1
CV, %	2.0	10.2	2.6	1.0	2.1
LSD 0.05	NS	NS	NS	NS	NS

NS - nonsignificant.

TITLE: **Evaluation of Experimental Formulations of Mepiquat Chloride with *Bacillus Cereus* Additives**

AUTHORS: Randy Boman, *Extension Agronomist - Cotton, TAEX*
Mark Kelley, *Extension Assistant - Cotton, TAEX*
Johnna Patterson, *EA - IPM Agent - Lamb/Castro, TAEX*
Dirk Aaron, *CEA - AG, Lamb County, TAEX*
Robert Struve, *Producer - Cooperator*

PROBLEM:

Plant growth regulators (PGRs) have been used for many years in cotton production to modify growth and fruiting patterns. Inconsistencies of performance of PGR programs require testing in multiple locations and environments. This in turn increases knowledge and enables researchers and Extension workers to obtain better information on such materials. During the last few years, workers have been evaluating new formulations of mepiquat chloride (MC) with *Bacillus cereus* (BC) bacterial additives which have been observed to enhance uptake of MC. The BC additive is also reported to increase potential of positive yield responses in many locations across the cotton belt. The MFX 4294 material was recently labeled as MepPlus® (4.2% MC + 2 g/gallon BC).

OBJECTIVE:

The objectives of this work were to evaluate the effects of various MFX materials on plant growth and nodal development (height/node ratio), lint yield, gin turnout and lint quality.

METHOD:

The trial was conducted on the Robert Struve farm in Lamb County near Olton, Texas. Deltapine 2156 was planted on May 6, 1998 in 40" rows at a rate of 15 lbs of seed per acre. Plots were 4 rows wide by 50 feet in length. Five foot wide alleys were cut between each replication to aid in applications. Plots were arranged in a randomized complete block design with 4 replications, and were furrow irrigated. Sequential applications of treatments were made at match-head square (July 2), first bloom (July 10), mid-bloom (July 20), and late bloom (July 29). A total of 6 treatments were evaluated in this study, including: 1) untreated check, 2) mepiquat chloride (Micro Flo brand Mepichlor®), experimental formulations of mepiquat chloride - 3) MFX 3198, 4) MFX 3294, 5) MFX 4294 (now labeled as MepPlus®) and 6) MFX 4294 pill. All formulations of mepiquat chloride were applied at a rate of 4 oz of product per acre in four sequential applications. Prior to application, 5 consecutive plants were marked within each of the two center rows for each plot. From these plants, plant height and node count measurements were taken on July 2nd and 24th to determine height to node ratios. Also on July 24th, the number of nodes above the uppermost first position white flower was counted. A final measurement of height, node count and height/node ratio was taken on October 7 just prior to harvesting. For lint yield and quality analyses, twenty row-feet from the center two rows of each plot were harvested on October 7th. Grab samples were ginned at the Lubbock Research and Extension Center. Weights of burrcotton, seed and lint were recorded. From these measurements, lint and seed turnout percentages were determined. Lint samples were submitted to the International Textile Center for HVI analysis.

RESULTS:

No significant differences among treatments were observed for plant height for the July 2nd measurement (Table 1). Also, none of the node count observations revealed any significant differences. However, significant treatment differences were detected for plant heights taken on July 24 and the final observation on October 7th,. For the July 24th observation, the untreated check was significantly greater in plant height than all treatments, with the exception of the MFX3198 formulation. The MFX3198 treatment was significantly greater than all other experimental formulations, but was not greater than the standard mepiquat chloride treatment. On October 7th, the untreated check was significantly greater in plant height than all other treatments. Among the treatments, MFX3198 was superior only to the MFX4294 pill formulation. When height to node ratios (HNR) were calculated, the first two observation dates revealed no significant differences. However, for the final HNR observation, the untreated check was found to be significantly greater than all other treatments (Table 1). Gin turnout, lint yield, and selected HVI fiber properties were not significantly affected by any of the mepiquat chloride materials (Table 2). Results from this study indicate that although lint yields were not statistically significant, numerical trends did exist for all formulations of mepiquat chloride to enhanced yield by 2 to 7% when compared to the untreated check. Mepiquat chloride treatments decreased plant height at this site by 7 to 14 percent when compared to the untreated control. Importance of plant height varies as to an individual producers' management goals. Crop management decisions should be based on results from several site years.

Table 1. Response of plant height, node count, height to node ratio and nodes above white flower to Micro Flo MFX plant growth regulators, Struve Farm, Olton, TX, 1998.

Treatment description	Average plant height inches			Node count average/plant			Height to node ratio inches/node			Nodes above white flower average/plant
	7-2-98	7-24-98	10-7-98	7-2-98	7-24-98	10-7-98	7-2-98	7-24-98	10-7-98	7-24-98
1. Untreated check	13.1	25.0	27.7	10.1	14.9	17.0	1.3	1.6	1.6	5.4
2. Mepichlor	13.2	23.3	24.7	10.4	14.7	16.8	1.3	1.6	1.5	5.0
3. MFX3198	13.7	24.4	25.8	10.5	15.2	17.2	1.3	1.6	1.5	5.3
4. MFX3294	13.0	23.2	24.9	10.2	14.8	17.0	1.3	1.6	1.5	5.0
5. MFX4294	12.8	23.2	24.4	10.0	14.7	16.8	1.3	1.6	1.5	5.0
6. MFX4294 pill	12.9	22.7	24.0	9.9	14.3	16.2	1.3	1.6	1.5	5.0
CV, %	4.6	3.2	4.7	4.0	4.0	5.4	5.1	3.6	3.4	7.0
LSD 0.05	NS	1.1	1.8	NS	NS	NS	NS	NS	0.1	NS

NS - nonsignificant

Table 2. Response of gin turnout, lint yield, and selected HVI fiber properties to Micro Flo MFX plant growth regulators, Struve Farm, Olton, TX, 1998.

Treatment description	Gin turnout %	Lint yield lb/acre	Micronaire units	Length inches	Strength g/tex	Uniformity percent
1. Untreated	26	1435	3.6	1.06	29.0	82.4
2. Mepichlor	26	1471	3.6	1.06	29.2	82.2
3. MFX3198	25	1460	3.6	1.05	28.9	81.9
4. MFX3294	26	1531	3.4	1.07	29.8	81.9
5. MFX4294	26	1484	3.5	1.07	29.4	81.9
6. MFX4294 pill	26	1516	3.7	1.07	30.2	82.4
CV, %	3	4	7.0	1.36	3.6	0.8
LSD 0.05	NS	NS	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Experimental Formulations of Mepiquat Chloride with *Bacillus Cereus* Additive**

AUTHORS: Randy Boman, *Extension Agronomist - Cotton, TAEX*
Mark Kelley, *Extension Assistant - Cotton, TAEX*
Johnna Patterson, *Extension EA - IPM - Lamb/Castro, TAEX*
Rebel Royall, *CEA - AG, Castro County, TAEX*
Bob Phipps, *Producer - Cooperator*

PROBLEM:

Plant growth regulators (PGRs) have been used for many years in cotton production to modify growth and fruiting patterns. Inconsistencies of performance of PGR programs require testing in multiple locations and environments. This in turn increases knowledge and enables researchers and Extension workers to obtain better information on such materials. During the last few years, workers have been evaluating new formulations of mepiquat chloride (MC) with *Bacillus cereus* (BC) bacterial additives which have been observed to enhance uptake of MC. The BC additive is also reported to increase potential of positive yield responses in many locations across the Cotton Belt. The MFX4294 material was recently labeled as MepPlus® (4.2% MC + 2 g/gallon BC).

OBJECTIVE:

The objectives of this work were to evaluate the effects of various MFX materials on final plant height, lint yield, and gin turnout.

METHOD:

The trial was conducted on the Bob Phipps farm in Castro County near Earth, Texas. Paymaster 2200RR was planted on May 12, 1998 in 40 inch rows at a rate of 20 lbs of seed per acre. Plots were 4 rows wide by 50 feet in length. Plots were arranged in a randomized complete block design with 4 replications, and were furrow irrigated. Applications were made at match-head square (June 30), first bloom (July 10), mid-bloom (July 29), and late bloom (August 21). Test plots received minor hail damage on July 12th at this location. A total of 6 treatments were evaluated in this study, including: 1) untreated check, 2) mepiquat chloride (Micro Flo brand Mepichlor®), experimental formulations of mepiquat chloride - 3) MFX 3198, 4) MFX 3294, 5) MFX 4294 (now labeled as MepPlus®) and 6) MFX 4294 pill. All formulations of mepiquat chloride were applied at a rate of 4 oz of product per acre in four sequential applications. A final measurement of plant height was taken on November 21st at harvest. For lint yield and quality analyses, thirteen row-feet from the center two rows of each plot were hand harvested on November 21st. These samples were ginned at the Lubbock Research and Extension Center. Weights of burrcotton, seed and lint were recorded. From these measurements, lint and seed turnout percentages were determined. Lint samples were submitted to the International Textile Center for HVI analysis.

RESULTS:

Significant differences among treatments were observed for final plant height (Table 1). The untreated check was significantly greater in plant height than all treatments, with the exception of the MFX4294 (MepPlus®) formulation. Furthermore, the MFX4294 treatment was significantly larger than the standard mepiquat chloride treatment only. There were no significant differences observed among any of the experimental formulations in terms of plant height. Neither gin turnout nor lint yield results were significantly affected by any of the mepiquat chloride materials in 1998. Results from this work indicate that lint yields were not significantly affected. However, all formulations of mepiquat chloride numerically reduced lint yields by 3 to 11% when compared to the untreated check. Mepiquat chloride treatments decreased plant height at this site by 5 to 12 percent when compared to the untreated control. Importance of plant height varies as to individual producers' needs. It should be stated, that crop management decisions should not be based on one site year's data alone, but rather that several site years worth of results should be evaluated.

Table 1. **Response of plant height, gin turnout, and lint yield to Micro Flo MFX plant growth regulators, Phipps Farm, Earth, TX, 1998.**

Treatment description	Plant height inches	gin turnout percent	lint yield lbs/acre
1. Untreated check	34.0	27.8	1076
2. Mepichlor®	29.8	26.9	983
3. MFX3198	31.6	27.5	1009
4. MFX3294	31.2	26.5	978
5. MFX4294	32.3	27.3	1042
6. MFX4294 pill	30.1	26.6	963
CV, %	4.7	1.9	11
LSD 0.05	2.2	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Griffin Early Harvest Plant Growth Regulator, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

AUTHORS: Randy Boman and Mark Kelley
Extension Agronomist-Cotton and Extension Assistant-Cotton

MATERIALS AND METHODS:

Variety: Paymaster 2326RR

Seeding rate: 15 lb seed/acre

Plot size: 40 inch rows x 50 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper

Experimental design: randomized complete block design with 4 replications

Planting date: May 15

Harvested: November 21

Furrow irrigated: 3 times

Treatment timing: at plant (in-furrow, hopper box, seed treatment)
foliar at Match Head Square (MHS), applied July 8
foliar at Early Bloom (EB), applied July 21

Treatments:

1. Untreated check
2. Early Harvest (EH) 2 fl oz/hundred weight (cwt), seed treatment
3. EH (talc) 5 oz/cwt, hopper box treatment
4. EH (talc) 5 oz/cwt, hopper box treatment
   Followed by (fb) EH 3.0 fl oz/acre broadcast foliar (bf)
   + Mepex 2.0 fl oz/acre bf @ MHS
5. EH (talc) 5 oz/cwt, hopper box treatment
   fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB
6. EH (talc) 5 oz/cwt, hopper box treatment
   fb EH 3.0 fl oz/acre bf + Mepex 2.0 fl oz/acre bf @ MHS
   fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB
7. EH (talc) 5 oz/cwt, hopper box treatment
   fb EH 3.0 fl oz/acre bf @ MHS
   fb EH 3.0 fl oz/acre bf @ EB
8. EH 3.0 fl oz/acre bf @ MHS
9. Additional untreated check
10. EH 3.0 fl oz/acre bf @ MHS
    fb EH 3.0 fl oz/acre bf @ EB

11. Mepex 2.0 fl oz/acre bf @ MHS
12. Mepex 4.0 fl oz/acre bf @ EB
13. Mepex 2.0 fl oz/acre bf @ MHS
    fb Mepex 4.0 fl oz/acre bf @ EB
1. Additional untreated check

RESULTS AND DISCUSSION:

Plant growth regulators (PGRs) have been used for many years in cotton production to modify growth and fruiting patterns. Inconsistencies of performance of PGRs require testing in multiple locations and environments. This in turn increases knowledge and enables researchers and Extension workers to obtain better information on such materials. The Griffin Early Harvest PGR is mixture of low concentrations of cytokinins, gibberellic acid, and indole butyric acid. The objective of this work was to determine the effects of various rates of Griffin Early Harvest PGR alone and in combinations with Mepex on final plant map, lint yields and cotton quality using several methods of application (including seed treatment, in-furrow, planter box, foliar, and mixtures of methods and rates). Several response variables were evaluated in this experiment. No statistically significant differences were noted for any of the plant map parameters (Tables 1 and 2), or lint yield, gin turnout and HVI fiber properties (Table 3).

Table 1. Response of plant height, total mainstem nodes, height to node ratio, number of reproductive and vegetative branches to Griffin Early Harvest plant growth regulator, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Plant height inches	Total mainstem nodes avg/plant	Height/node ratio avg/plant	Reproductive branches avg/plant	Vegetative branches avg/plant
1. Untreated check	18.8	15.1	1.2	10.3	0.1
2. EH 2 fl oz/cwt, seed treatment	17.8	15.6	1.1	10.7	0.1
3. EH (talc) 5 oz/cwt, hopper box treatment	18.1	15.6	1.2	10.2	0.1
4. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre broadcast foliar (bf) + Mepex 2.0 fl oz/acre bf @ MHS	17.2	14.8	1.2	9.5	0.1
5. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB	17.7	15.7	1.1	10.5	0.1
6. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf + Mepex 2.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB	17.8	15.0	1.2	9.6	0.1
7. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf @ EB	17.7	14.8	1.2	10.0	0.0
8. EH 3.0 fl oz/acre bf @ MHS	17.6	15.3	1.2	10.7	0.2
9. Additional untreated check	17.9	15.3	1.2	10.7	0.1
10. EH 3.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf @ EB	18.1	15.6	1.2	11.0	0.2
11. Mepex 2.0 fl oz/acre bf @ MHS	17.5	15.0	1.2	10.3	0.1
12. Mepex 4.0 fl oz/acre bf @ EB	18.4	15.0	1.2	10.6	0.1
13. Mepex 2.0 fl oz/acre bf @ MHS fb Mepex 4.0 fl oz/acre bf @ EB	18.1	16.1	1.1	11.1	0.1
14. Additional untreated check	18.1	15.4	1.2	10.6	0.1
CV, %	4.3	7.6	7.5	8.7	127.5
LSD 0.05	NS	NS	NS	NS	NS

NS = nonsignificant

Table 2. **Response of total open bolls, percent of total bolls from 1st position, 2nd position, 3rd position and greater and vegetative sites, percent open boll retention of 1st 5 fruiting branches to Griffin Early Harvest plant growth regulator, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

Treatment	Total open bolls avg/plant	Open bolls from 1st position percent	Open bolls from 2nd position percent	Open bolls from 3rd and greater positions percent	Open bolls from vegetative branches percent	Open boll retention on 1st 5 reproductive branches percent
1. Untreated check	6.8	59.7	32.4	7.8	0.0	46.2
2. EH 2 fl oz/cwt, seed treatment	6.0	78.4	17.4	2.8	0.9	43.6
3. EH (talc) 5 oz/cwt, hopper box treatment	5.7	75.4	21.3	3.6	0.0	40.6
4. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre broadcast foliar (bf) + Mepex 2.0 fl oz/acre bf @ MHS	5.6	61.9	28.4	10.0	0.0	39.6
5. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB	5.5	64.1	28.1	7.9	0.0	40.2
6. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf + Mepex 2.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB	5.6	71.6	20.0	8.3	0.0	41.4
7. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf @ EB	6.3	71.7	26.6	1.8	0.0	47.7
8. EH 3.0 fl oz/acre bf @ MHS	6.6	76.4	19.1	4.0	0.6	43.9
9. Additional untreated check	5.5	80.7	18.2	1.2	0.0	40.6
10. EH 3.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf @ EB	6.7	63.5	32.0	4.1	0.0	40.6
11. Mepex 2.0 fl oz/acre bf @ MHS	5.8	70.2	27.1	1.9	1.4	45.5
12. Mepex 4.0 fl oz/acre bf @ EB	6.6	63.2	32.4	4.3	0.0	41.5
13. Mepex 2.0 fl oz/acre bf @ MHS fb Mepex 4.0 fl oz/acre bf @ EB	7.0	66.9	23.7	9.5	0.0	44.4
14. Additional untreated check	5.6	66.3	27.9	5.0	0.9	40.2
CV, %	14.5	24.1	47.0	116.6	390.0	12.5
LSD 0.05	NS	NS	NS	NS	NS	NS

NS = nonsignificant

Table 3. Response of lint turnout, lint yield and selected HVI lint quality measurements to Griffin Early Harvest plant growth regulator, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Lint turnout percent	Lint yield lbs/acre	Micronaire units	Length inches	Strength grams/tex
1. Untreated check	27.1	757	4.8	1.05	27.2
2. EH 2 fl oz/cwt, seed treatment	27.3	754	4.9	1.04	27.5
3. EH (talc) 5 oz/cwt, hopper box treatment	26.6	766	4.8	1.05	27.2
4. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre broadcast foliar (bf) + Mepex 2.0 fl oz/acre bf @ MHS	27.4	734	4.8	1.03	27.0
5. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB	27.1	753	4.7	1.06	27.8
6. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf + Mepex 2.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf + Mepex 4.0 fl oz/acre bf @ EB	26.9	808	4.7	1.06	27.7
7. EH (talc) 5 oz/cwt, hopper box treatment fb EH 3.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf @ EB	26.5	716	4.8	1.04	26.7
8. EH 3.0 fl oz/acre bf @ MHS	27.3	765	4.9	1.05	27.3
9. Additional untreated check	28.4	766	4.6	1.04	27.8
10. EH 3.0 fl oz/acre bf @ MHS fb EH 3.0 fl oz/acre bf @ EB	26.9	719	4.8	1.04	27.7
11. Mepex 2.0 fl oz/acre bf @ MHS	27.0	748	4.7	1.05	27.4
12. Mepex 4.0 fl oz/acre bf @ EB	27.0	754	4.7	1.06	27.7
13. Mepex 2.0 fl oz/acre bf @ MHS fb Mepex 4.0 fl oz/acre bf @ EB	26.3	716	4.6	1.04	28.3
14. Additional untreated check	26.9	803	4.8	1.05	27.3
CV, %	3.5	9.2	3.7	2.2	2.8
LSD 0.05	NS	NS	NS	NS	NS

NS = nonsignificant

TITLE: **Cotton Incorporated Root Health Project Including Stockosorb Agro Polymer, AGCARES, Lamesa, TX, 1998.**

AUTHORS: Randy Boman and Mark Kelley
Extension Agronomist-Cotton and Extension Assistant - Cotton

MATERIALS AND METHODS:

Variety: Paymaster HS26

Seeding rate: 15 lb seed/acre with John Deere Max Emerge II vacuum planter

Plot size: 4-40 inch rows x 100 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper

Experimental design: randomized complete block with 4 replications

Planting date: May 5

Stand counts: June 9

Irrigation and nitrogen management:
April pre-water 1.5"
- 0.75" spray (1X)
- 0.75" LEPA (1X)

Total irrigation after planting 12.7"
- May 11 (0.5" LEPA for emergence)

N fertilization - 105 lb N/acre using 32-0-0
- April 29 - 30 lb N/acre banded
- June 27, July 12 and 28 - 25 lb N/acre fertigation event

Harvested: October 9

Treatments:

1. Black seed (untreated) + DiSyston (5 lb/acre in-furrow)
2. Commercial seed treatment (CST) (Baytan @ 0.5 oz/cwt+Apron+Thiram) + DiSyston
3. CST + Temik (5 lb/acre in-furrow)
4. CST + Terraclor Super X (7 lb/acre in-furrow) + DiSyston
5. CST + Terraclor Super X + Temik
6. Black seed
7. CST
8. CST + Agro polymer (5 lb/acre in-furrow)
9. CST + Temik + Agro polymer
10. CST + Terraclor Super X + Temik + Agro polymer

RESULTS AND DISCUSSION:

Seed treatment and in-furrow fungicides are commonly used by producers to enhance emergence potential and to reduce the possibility of stand losses. Cotton Incorporated has supported a Beltwide cotton root health research project for the last three seasons. One location in the Texas High Plains was at the Lamesa AGCARES facility. This research focused on early season plant health, stand establishment, yield and fiber quality yield . Due to abnormally warm early season temperatures, stand differences attributable to treatment were not significant (Table 1). Also, no differences in final yield were observed. No statistically significant differences were observed in gin turnout or in HVI fiber properties that determine price per pound of lint (Table 2).

Table 1. Response of stand count 14 days after planting, lint yield, seed yield, gin turnout percentage, and seed turnout percentage to various commercial seed and in-furrow treatments AGCARES, Lamesa, TX, 1998.

Treatment	Stand count 14 DAP plants/row-ft	Lint yield lb/acre	Seed yield lb/acre	Gin turnout percent	Seed turnout percent
1. Black seed + Disyston	2.2	560	1060	23	43.5
2. Commercial seed treatment (CST)	2.6	565	1069	23	44.1
3. CST + Temik	2.4	534	1033	23	43.9
4. CST + Terraclor Super X	2.5	562	1072	23	43.3
5. CST + Terraclor Super X + Temik	2.4	567	1089	23	43.5
6. Black seed	2.2	529	1007	23	43.2
7. CST	2.3	556	1059	23	44.2
8. CST + Agro polymer	2.4	550	1049	23	44.1
CV, %	7.6	9.2	9.0	5.2	3.6
LSD 0.05	NS	NS	NS	NS	NS

NS - nonsignificant.

Table 2. Response of HVI fiber properties to various commercial seed and in-furrow treatments AGCARES, Lamesa, TX, 1998.

Treatment	Micronaire units	Length inches	Uniformity index percent	Strength grams/tex	Elongation percent	HVI leaf grade units	Rd units	+b units
1. Black seed + Disyston	5.4	1.03	81.4	28.3	6.6	2.3	77.8	8.7
2. Commercial seed treatment (CST)	5.4	1.03	82.2	27.9	6.9	2.5	78.2	8.7
3. CST + Temik	5.4	1.06	81.9	28.6	6.8	2.5	77.9	8.5
4. CST + Terraclor Super X	5.4	1.05	82.3	28.3	6.8	2.3	78.3	8.5
5. CST + Terraclor Super X + Temik	5.4	1.04	82.4	28.4	6.8	2.8	77.9	8.7
6. Black seed	5.3	1.04	82.4	28.4	6.6	2.5	77.7	8.7
7. CST	5.3	1.04	81.4	28.5	6.7	2.3	78.2	8.7
8. CST + Agro polymer	5.4	1.03	82.1	28.5	6.5	1.8	77.8	8.5
CV, %	2.2	1.6	0.7	2.0	4.1	27.0	0.9	2.2
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS

NS - nonsignificant.

TITLE: **Evaluation of Rates of Stockhausen Agro Polymer in Combination with Griffin Early Harvest Talc Planter Box Applications in Dryland Cotton Production, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

AUTHORS: Randy Boman and Mark Kelley
Extension Agronomist-Cotton and Extension Assistant-Cotton

MATERIALS AND METHODS:

Variety: Paymaster 2326RR

Seeding rate: 15 lb seed/acre

Plot size: 4-40 inch rows x 50 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper with integrated scales

Experimental design: randomized complete block with 4 replications

Planting date: May 15

Harvested: November 19
Dryland

Treatments:

1. Untreated check
2. Early Harvest Talc 5 oz/cwt planter box treatment at planting
3. 2.5 lb/acre Agro polymer in-furrow
4. 5 lb/acre Agro polymer in-furrow
5. 2.5 lb/acre Agro polymer in-furrow + Early Harvest Talc 5 oz/cwt planter box treatment at planting
6. 5 lb/acre Agro polymer in-furrow + Early Harvest Talc 5 oz/cwt planter box treatment at planting

RESULTS AND DISCUSSION:

Interest in synthetic polymers has recently increased. Many types of polymers are currently manufactured by various companies, including linear polymers which have been reported to reduce soil erosion (both wind and water) potential when applied to the soil surface. Cross-linked polymers have been used to increase the moisture holding capacity of soil media for greenhouse crops. Stockhausen markets a cross-linked polymer (Stockosorb Agro) which has potential for reducing soil crusting and may thus affect seedling emergence. The objective of this work was to determine the effects of two rates of Stockosorb Agro with and without added treatments of Griffin Early Harvest Talc as a planter box treatment for seedling vigor on lint yields and final stand on dryland cotton. None of the Stockosorb treatment combinations resulted in statistically significant effects on final stand, lint turnout, lint yield, seed turnout, seed yield or selected fiber quality measurements (Tables 1and 2).

Table 1. **Response of final stand, lint turnout, lint yield, seed turnout, and seed yield to Stockhausen Stockosorb Agro cross-linked polymer at different rates and combinations with Griffin Early Harvest Talc planter box treatments in dryland cotton, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

Treatment	Final stand	Lint turnout	Lint yield	Seed turnout	Seed yield
	plants/acre	percent	lb/acre	percent	lb/acre
1. Untreated check	18,722	29.2	467	46.8	750
2. Early Harvest Talc 5 oz/cwt planter box treatment at planting	18,220	28.7	426	48.3	710
3. 2.5 lb/acre Agro polymer in-furrow	20,356	28.3	399	47.8	668
4. 5 lb/acre Agro polymer in-furrow	20,859	28.5	424	48.1	715
5. 2.5 lb/acre Agro polymer in-furrow + Early Harvest Talc 5 oz/cwt planter box treatment at planting	23,748	28.3	407	48.4	694
6. 5 lb/acre Agro polymer in-furrow + Early Harvest Talc 5 oz/cwt planter box treatment at planting	20,482	28	393	47.3	664
CV, %	23	5.1	24.7	3.5	21.6
LSD 0.05	NS	NS	NS	NS	NS

NS - nonsignificant

Table 2. **Response of selected fiber quality measurements to Stockhausen Stockosorb Agro cross-linked polymer at different rates and combinations with Griffin Early Harvest Talc planter box treatments in dryland cotton, Texas Agricultural Experiment Station, Lubbock, TX, 1998.**

Treatment	Micronaire units	Length inches	Uniformity percent	Strength grams/tex
1. Untreated check	5.0	1.03	82.4	28.0
2. Early Harvest Talc 5 oz/cwt planter box treatment at planting	5.0	1.04	81.9	27.8
3. 2.5 lb/acre Agro polymer in-furrow	5.0	1.03	82.1	27.5
4. 5 lb/acre Agro polymer in-furrow	5.0	1.02	82.1	28.2
5. 2.5 lb/acre Agro polymer in-furrow + Early Harvest Talc 5 oz/cwt planter box treatment at planting	5.0	1.03	82.1	27.6
6. 5 lb/acre Agro polymer in-furrow + Early Harvest Talc 5 oz/cwt planter box treatment at planting	4.9	1.03	82.1	27.8
CV, %	2.6	1.9	0.9	3.2
LSD 0.05	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Methods of Placement and Rates of Stockhausen Agro Polymer in Furrow Irrigated Cotton Production, Texas Agriculture Experiment Station, Lubbock, TX, 1998.**

AUTHORS: Randy Boman and Mark Kelley
Extension Agronomist-Cotton and Extension Assistant-Cotton

MATERIALS AND METHODS:

Variety: Paymaster 2326RR

Seeding rate: 15 lb seed/acre

Plot size: 4-40 inch rows x 50 ft, 2 center rows harvested for yield using a modified John Deere 482 plot stripper with integrated scales

Experimental design: randomized complete block with 4 replications

Planting date: May 15

Harvested: November 19

Furrow Irrigated: 3 times

Treatments:

1. Untreated check
2. 2.5 lb/acre Agro polymer in-furrow
3. 2.5 lb/acre Agro polymer diffused in front of press wheel
4. 5 lb/acre Agro polymer in-furrow
5. 5 lb/acre Agro polymer diffused in front of press wheel
6. 7.5 lb/acre Agro polymer in-furrow
7. 7.5 lb/acre Agro polymer diffused in front of press wheel
8. Untreated check

RESULTS AND DISCUSSION:

Interest in synthetic polymers has recently increased. Many types of polymers are currently manufactured by various companies, including linear polymers which have been reported to reduce soil erosion (both wind and water) potential when applied to the soil surface. Cross-linked polymers have been used to increase the moisture holding capacity of soil media for greenhouse crops. Stockhausen markets a cross-linked polymer (Stockosorb Agro) which has potential for reducing soil crusting and may thus affect seedling emergence. The objective of this work was to determine the effects of two methods of application of a cross-linked polymer at varying rates on lint yields and final stand on irrigated cotton. None of the Stockosorb treatments resulted in statistically significant effects on final stand count, lint turnout, lint yield, seed turnout, seed yield or selected fiber qualities (Tables 1 and 2).

Table 1. Response of final stand, lint turnout, lint yield, seed turnout and seed yield to methods of placement and rates of Stockhausen Stockosorb Agro cross-linked polymer in irrigated cotton, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Final stand plants/acre	Lint turnout percent	Lint yield lb/acre	Seed turnout percent	Seed yield lb/acre
1. Untreated check	53,026	28.1	849	48.8	1,473
2. 2.5 lb/acre, in-furrow	43,366	27.2	869	48.5	1,507
3. 2.5 lb/acre, diffused	54,659	26.9	852	48.5	1,537
4. 5 lb/acre, in-furrow	51,644	28.5	891	48.8	1,527
5. 5 lb/acre, diffused	52,398	27.6	810	48.7	1,434
6. 7.5 lb/acre, in-furrow	50,262	28.1	856	48.8	1,485
7. 7.5 lb/acre, diffused	48,754	27.8	818	48.8	1,439
8. Untreated check	49,005	27.8	800	48.4	1,393
CV, %	15.67	4.4	5.3	2.2	5.8
LSD 0.05	NS	NS	NS	NS	NS

NS - nonsignificant

Table 2. Response of selected lint quality measurements to methods of placement and rates of Stockhausen Stockosorb Agro cross-linked polymer in irrigated cotton, Texas Agricultural Experiment Station, Lubbock, TX, 1998.

Treatment	Micronaire units	Length inches	Uniformity percent	Strength grams/tex
1. Untreated check	4.6	1.05	82.4	27.9
2. 2.5 lb/acre, in-furrow	4.6	1.06	82.1	27.3
3. 2.5 lb/acre, diffused	4.6	1.06	82.2	27.2
4. 5 lb/acre, in-furrow	4.6	1.06	82.4	28.3
5. 5 lb/acre, diffused	4.5	1.06	82.4	28.0
6. 7.5 lb/acre, in-furrow	4.5	1.05	82.1	27.9
7. 7.5 lb/acre, diffused	4.7	1.05	82.6	27.5
8. Untreated check	4.5	1.07	81.0	27.7
CV, %	2.8	1.7	1.0	2.6
LSD 0.05	NS	NS	NS	NS

NS - nonsignificant

TITLE: **Evaluation of Methods of Placement and Rates of Stockhausen Agro Polymer in Drip Irrigated Cotton Production, Texas Tech Research Farm, New Deal, TX, 1998.**

AUTHORS: Randy Boman, Norm Hopper and Mark Kelley; *Extension Agronomist-Cotton, Professor - Texas Tech University, and Extension Assistant-Cotton*

MATERIALS AND METHODS:

Variety: Paymaster 2326RR

Seeding rate: 15 lb seed/acre

Plot size: 4-40 inch rows x 28 ft, hand harvested 13.1' of row for yield

Experimental design: randomized complete block with 4 replications

Planting date: May 19

Harvested: November 20

Irrigation: Furrow Irrigated

Treatments:

1. Untreated check
2. 2.5 lb/acre Agro polymer in-furrow
3. 5 lb/acre Agro polymer in-furrow
4. 7.5 lb/acre Agro polymer in-furrow
5. 2.5 lb/acre Agro polymer diffused behind press wheel
6. 5 lb/acre Agro polymer diffused behind press wheel
7. 7.5 lb/acre Agro polymer diffused behind press wheel

RESULTS AND DISCUSSION:

Interest in synthetic polymers has recently increased. Many types of polymers are currently manufactured by various companies, including linear polymers which have been reported to reduce soil erosion (both wind and water) potential when applied to the soil surface. Cross-linked polymers have been used to increase the moisture holding capacity of soil media for greenhouse crops. Stockhausen markets a cross-linked polymer (Stockosorb Agro) which has potential for reducing soil crusting and may thus affect seedling emergence. The objective of this work was to determine the effects of two methods of application of a cross-linked polymer at varying rates on lint yields and final stand on irrigated cotton. None of the Stockosorb treatments resulted in statistically significant effects on lint yield or stand count (Table 1).

Table 1. Response of lint yield and final stand to methods of placement and rates of Stockhausen Stockosorb Agro cross-linked polymer, Texas Tech New Deal Research Farm, New Deal, TX 1998.

Treatment	Lint yield lb/acre	Final stand plants/acre
1. Untreated check	595	49,495
2. 2.5 lb/acre Agro polymer in-furrow	596	50,148
3. 2.5 lb/acre Agro polymer diffused	595	53,252
4. 5 lb/acre Agro polymer in-furrow	609	54,559
5. 5 lb/acre Agro polymer diffused	604	50,638
6. 7.5 lb/acre Agro polymer in-furrow	535	54,232
7. 7.5 lb/acre Agro polymer diffused	577	53,906
CV, %	8.52	6.4
LSD 0.05	NS	NS

NS - nonsignificant.

TITLE: **Effect of Rates of Stockhausen Agro Polymer on Cotton Stand Establishment**

AUTHORS: Randy Boman, *Extension Agronomist - Cotton, TAEX*
Mark Kelley, *Extension Assistant - Cotton, TAEX*
Tommy Doederlein, *EA - IPM, TAEX*
Bryan Reynolds, *CEA - AG, Lynn County, TAEX*
Keith Wied, *Producer - Cooperator, Wilson, TX.*

PROBLEM:

Interest in synthetic polymers has recently increased. Many types of polymers are currently manufactured by various companies, including linear polymers which have been reported to reduce soil erosion (both wind and water) potential when applied to the soil surface. Cross-linked polymers have been used to increase the moisture holding capacity of soil media for greenhouse crops. Stockhausen markets a cross-linked polymer (Stockosorb Agro) which has potential for reducing soil crusting and may thus affect seedling emergence.

OBJECTIVE:

The objective of this work was to determine the effects of different rates of Stockosorb Agro applied in-furrow on final stand of irrigated cotton.

METHOD:

Plots were planted on May 15th with 25 pounds of seed per acre of Paymaster HS-26. Plots were eight 40-inch rows wide by 300 feet long. Plots were arranged in a randomized strip design with 4 replications, and were center-pivot irrigated. Four treatments were evaluated for results with a total of 16 plots. Treatments for this study included: 1) untreated check, 2) Stockosorb Agro® at 2.5 lbs/acre in-furrow, 3) Stockosorb Agro® at 5.0 lbs/acre in-furrow, and 4) Stockosorb Agro® at 7.5 lbs/acre in-furrow. In-furrow treatments were applied through planter mounted chemical boxes. Final stand determinations were made on June 16 by counting the number of emerged plants in 50 feet of the two center rows in each plot. These numbers were then converted to represent total plants per acre.

RESULTS:

The results of this study revealed no statistically significant differences in final plant population for any of the treatments analyzed (Table 1). The 1998 growing season was extremely dry; therefore, no soil crusting occurred. Producers should keep in mind that results from several site years should be evaluated before modifying any production practices for their individual cropping system.

Table 1. Response of final stand to Stockhausen Stockosorb Agro cross-linked polymer at different in-furrow rates, Wied Farm, Wilson, TX, 1998.

Treatment	Final stand plants/acre
1. Untreated check	36,721
2. 2.5 lb/acre Agro polymer in-furrow	38,289
3. 5 lb/acre Agro polymer in-furrow	33,323
4. 7.5 lb/acre Agro polymer in-furrow	39,465
CV, %	11.3
LSD 0.05	NS

NS - nonsignificant.