

The study was planted with DPL 555 on May 18, 2004 at a seeding rate of 3.5 seeds per foot of row on 36 inch rows. Plot size was 36 X 75 feet. TRIMAX was applied (1.5 fl oz/acre) with a high clearance sprayer equipped with TX-8 hollow cone nozzles and CO₂ as a propellant at 68 psi and 10 gpa. TRIMAX was applied on June 30 (node 9 stage), July 9 and July 13, 2004. Our irrigation treatments were (1) full irrigation, (2) dry land and (3) semi-irrigation. During the second week of flowering a standard growth analysis was conducted. For this analysis, plants from 3 feet of row were removed from each plot. Plant height, number of main stem nodes, fruit number, leaf area and dry weights were recorded. At harvest, plants from 10 feet of row were removed from each plot and harvested by fruiting position. The center two rows in each plot were reserved for machine harvest, which occurred on October 22, 2004. All data were analyzed using PROC MIXED.

Table 1 illustrates the effects of TRIMAX on lint yield and fiber quality in 2004. It is my understanding TRIMAX is believed to alleviate water deficit or high temperature stresses. This was the primary reason we elected to include an irrigation treatment in the protocol. From Table 1 you will see that the application of TRIMAX numerically increased machine harvested yields in the dry land and semi irrigated plots. From Figure 1 you will see at application of TRIMAX statistically increased hand harvested yields in the semi irrigated plots.

Table 2 illustrates the effects of TRIMAX on plant height, number of main stem nodes, stem, leaf and fruit dry weights, fruit number and leaf area index at two weeks after flowering. These data are inconclusive. It should be noted the irrigation effects in square number, fruit index and leaf area index were due to differences in crop maturity caused by the different irrigation treatments.

Table 3 illustrates the effects of TRIMAX on leaf non-structural carbohydrates at two weeks after flowering.

We have studied the effects of TRIMAX on cotton lint yield and growth for three consecutive years. This was the first year we observed differences due to irrigation treatment (i.e. we actually had a little water stress this year). Generally, I have observed numerical trends in my data with few statistical differences. Given the fact that we only observed water stress one year and most of my differences were numerical, I must conclude the results from my TRIMAX studies have been inconclusive.

Table 1. Effects of TRIMAX applications on lint yield and fiber quality at the University of Georgia Gibbs Farm in 2004.

| Irrigation | TRIMAX | Lint Yield lbs/acre | Length inches | Uniformity % | Strength g/tex | Micronaire |
|-------------------|-------------|------------------------|------------------|-----------------|-------------------|------------|
| Dry | None | 1392.46 | 1.127 | 82.60 | 31.73 | 4.45 |
| Dry | One App. | 1394.92 | 1.113 | 82.33 | 31.95 | 4.60 |
| Dry | Three Apps. | 1415.57 | 1.115 | 82.72 | 31.57 | 4.48 |
| Full | None | 1653.01 | 1.118 | 82.17 | 30.00 | 3.90 |
| Full | One App. | 1644.18 | 1.122 | 82.42 | 30.50 | 3.83 |
| Full | Three Apps. | 1565.92 | 1.117 | 82.50 | 30.37 | 3.80 |
| Semi | None | 1621.99 | 1.120 | 82.37 | 31.63 | 4.22 |
| Semi | One App. | 1628.42 | 1.128 | 82.45 | 31.45 | 4.08 |
| Semi | Three Apps. | 1661.42 | 1.140 | 82.53 | 30.82 | 4.02 |
| P>F | | | | | | |
| Irrigation | | 0.0181 | 0.2530 | 0.7484 | 0.0618 | 0.0012 |
| Trimax | | 0.9703 | 0.9250 | 0.6457 | 0.6140 | 0.6316 |
| Irrigation*Trimax | | 0.6400 | 0.4571 | 0.9265 | 0.8086 | 0.7827 |

Table 2. Effects of TRIMAX applications on plant growth at two weeks after flowering at the University of Georgia Gibbs Farm in 2004.

| Irrigation | TRIMAX | Plant Hgt. inches | M.S. Nodes per plant | Boll Num. per 3 feet | Square Num. per 3 feet | Fruit Wt. g per 3 feet. | Fruit Index g/g | LAI |
|-------------------|-------------|-------------------------|----------------------------|-------------------------------|------------------------------|-------------------------------|--------------------|--------|
| Dry | None | 41.68 | 17.73 | 9.09 | 10.93 | 100.39 | 0.1479 | 4.7027 |
| Dry | One App. | 39.93 | 17.71 | 8.67 | 12.36 | 97.50 | 0.1509 | 4.6702 |
| Dry | Three Apps. | 43.45 | 17.65 | 9.05 | 7.62 | 102.23 | 0.1477 | 4.5758 |
| Full | None | 49.26 | 21.45 | 9.48 | 16.97 | 93.43 | 0.1182 | 5.7124 |
| Full | One App. | 39.57 | 18.55 | 9.29 | 19.95 | 62.82 | 0.1006 | 4.5082 |
| Full | Three Apps. | 42.40 | 19.06 | 9.17 | 24.11 | 78.16 | 0.0903 | 6.3686 |
| Semi | None | 36.90 | 17.30 | 10.40 | 14.75 | 117.33 | 0.1793 | 4.3887 |
| Semi | One App. | 37.20 | 16.98 | 10.23 | 10.69 | 91.36 | 0.1550 | 3.8224 |
| Semi | Three Apps. | 35.94 | 16.70 | 8.95 | 9.43 | 93.60 | 0.1587 | 4.0066 |
| P>F | | | | | | | | |
| Irrigation | | <.0001 | 0.0175 | 0.5156 | 0.0095 | 0.2318 | 0.0554 | 0.0394 |
| Trimax | | 0.0013 | 0.0807 | 0.7476 | 0.9711 | 0.0340 | 0.2196 | 0.3588 |
| Irrigation*Trimax | | 0.0008 | 0.1558 | 0.9081 | 0.3750 | 0.3073 | 0.6319 | 0.5247 |

Fruit Index = g fruit per g total above ground biomass.

LAI = Leaf Area Index or square meters of leaf area per square meter of ground area.

Note: The irrigation effects in square number, fruit index and LAI were due to differences in crop maturity caused by the differences in irrigation.

Table 3. Effects of TRIMAX applications on leaf non-structural carbohydrates at two weeks after flowering at the University of Georgia Gibbs Farm in 2004.

| TRT | Fructose | Glucose | Sucrose | Inositol |
|-----------|--------------|---------|---------|----------|
| | µg/mL/g d.w. | | | |
| TRIMAX-1 | 7170.8 | 10180.0 | 2269.1 | 1593.9 |
| TRIMAX-3 | 7231.8 | 10535.0 | 2275.3 | 1654.3 |
| Untreated | 6839.6 | 9434.2 | 1903.7 | 1622.2 |
| P>F | 0.3156 | 0.0881 | 0.6181 | 0.7297 |

