

## Effect of Converted Organics™ LC on the Yield of Acala Cotton

Cotton field crops (lint and seeds) in California represent the 11<sup>th</sup> largest agricultural commodity according to the California Department of Food and Agriculture statistics (2003). At over \$760 million sales annually it is a major crop for the State, ranking behind Hay (#10) and before Broccoli (#12). Growers are constantly looking for ways to improve harvest uniformity, in addition to reducing fertilizer and pesticide usage plus protecting the largest investment of all – their soil.



### BACKGROUND

Large scale testing was conducted on Acala cotton in the San Joaquin Valley of Central California over a two year period. The primary objective was to evaluate the benefits of a microbially-based organic fertilizer product (*Converted Organics™ LC*) against the growers' standard program and quantify the effects on cotton production.

The field trial was divided into two regions, a 13.7 acre untreated control area and a 13.0 acre treated area. Both regions utilized the growers' standard program consisting of a sidedress application of UN32. The treated region had the same UN32 application, but 10 gpa of *Converted Organics™ LC* was mixed with the UN32 prior to sidedress (see Table 1).

**Table 1: Acala Cotton Trial Conditions**

Irrigation Schedule	Flood
Planting Date	04/03/03
Application Date	06/03/03
Application Schedule	10 gpa with UN32
Growers Standard Program	UN32
Application Method	Side dressed
Treatment Location	West to East, Rows 300 to 410 treated (20.0 ac). 160 acre field
Harvest Date	10/15/04 through 10/16/04

### DATA COLLECTION and ANALYSIS

Two days before harvest two rows from the treated plot and two rows on each side of the treated plot in the control area were sampled for comparison. Approximately every 150 feet of the 2,100 foot long rows, a 50 inch bed length was measured and a total number of cotton plants counted. Also, the total number of open bolls was counted for each sampling site. Thus, a total of 26 sampling sites of 50 inch bed length were evaluated in each of the three areas. Average number of open bolls per plant was calculated (see Table 2).

In addition, during harvest the grower kept the *Converted Organics™ LC* treated block separate from the control block. He provided the pay-out records from the ginning plant for two modules of each block. It took 13.0 acres of the treated block to make up two modules, and it took 13.7 acres of the control block to make up two modules of cotton (see Table 3).

**Table 2: Pre-harvest open bolls comparison<sup>1</sup>**

Testing Site	# Plants	Bolls Open/Plant	Total Open Bolls
West of Treated	407	4.2	1708
East of Treated	369	5.12	1888
Converted Organics™ LC	342	6.04	2065

<sup>1</sup> Each value represents 26 sampling sites of 50 inch bed length

**Table 3: Lint and seed yields for Acala Cotton<sup>2</sup> (from ginning records)**

Seed	Treated	Control	Gain (Loss)
Yield (lb/acre)	1107.70	1007.30	100.4
Turnout (%)	43.70	42.30	1.40
Revenue (\$/acre) <sup>3</sup>	\$77.54	\$70.51	\$7.03/acre
<b>Lint</b>			
Yield (lb/acre)	913.50	835.80	77.70
Turnout (%)	36.10	35.10	1.00
Revenue (\$/acre) <sup>4</sup>	\$548.10	\$501.48	\$46.62/acre

<sup>2</sup> Data was collected from 13.0 acres of *Converted Organics™ LC* treated cotton and 13.7 acres of control. It includes 2 modules from each section.

<sup>3</sup> Price of cotton seed used in this calculation was \$140.00/ton.

<sup>4</sup> Price of cotton lint used in this calculation was \$0.70/lb.

### CONCLUSIONS

Comparing open bolls that appear on the cotton plants just before harvest is a reliable way of approximating the effect of *Converted Organics™ LC* treatment on the yield of cotton (table 2).

*Converted Organics™ LC*, when applied at the rate of 10 gpa with UN32, **increased cotton yields and percent turnout for both lint and cotton seed**. Lint yield increased by 77.7 lb/acre (8.5% by weight) and seed yield increased by 100.4 lb/acre (9.1% by weight). Turnout for lint increased by 1% and turnout for seed increased by 1.4% (see Table 3). Therefore, if the price of seed was \$140/ton, the price of lint \$0.60/lb and the *Converted Organics™ LC* was purchased for \$2.00/gallon, the **net return to the grower would be \$33.65/acre** when 10 gpa of *Converted Organics™ LC* are applied with UN32.