

Effect of Ethephon (PREP™) on Short Staple Cotton in Marana, 1987

Gary Thacker and Jeff Silvertooth

ABSTRACT

Ethephon was applied to Deltapine 55 cotton with 35% of the bolls open. Ethephon significantly increased the percent first pick yield of the cotton. There was no significant difference in the total yield.

INTRODUCTION

Ethephon (PREP™) has been recognized for its potential as a termination and harvest-aid chemical. Field tests in Graham county have shown that ethephon can advance the maturity of short staple cotton without significantly affecting the yield (1,2). It has also been shown that ethephon will cause shedding of immature fruiting forms, eliminating a food source for late-season insects (3). However, little data is available on the effect of ethephon on cotton in Marana.

MATERIALS AND METHODS

The cooperator in this test was Alan Jones of Marana. Plots were set up in a field of Deltapine 55 cotton, with four replications in a randomized complete block design. Plots were 8, 38-inch rows by 1,240-foot long.

Ethephon was applied on October 16 at 1 qt/acre in 20 GPA water with a ground rig. At the time of application, 35% of the mature bolls were open and 65% were hard and green. The high percentage of hard green bolls that late in the fall was due to a hailstorm in late August. The hail insurance adjuster estimated that 17% of the bolls had been knocked off the cotton. The plants had compensated somewhat with a late set of bolls.

On October 23rd (seven days after the ethephon was applied), sodium chlorate was applied to the entire field at 1 qt/acre in 20 gallons of water with a ground rig.

Yield data were taken by machine picking the center four rows of each plot on October 27th and again on December 8th.

RESULTS AND DISCUSSION

The first pick yields of the treated and untreated cotton were not significantly different (Table 1.). The ethephon-treated cotton did have a significantly lower second pick yield, but the total yield was not significantly different from the untreated check. The percent first pick of the ethephon treatment was significantly higher, indicating that there was a definite plant response.

It is important to note that the first picking in this test was only 11 days after the application of the ethephon and 4 days after defoliation. One of the possible benefits of applying ethephon is to eliminate the expense of a second harvest. Though the timing of the first harvest of this test was appropriate for the rest of the farm, a slightly delayed harvest might have allowed for a once-over picking of the ethephon treated cotton.

Table 1. Lint yields per acre and percent first pick from the ethephon test on the Alan Jones farm in Marana in 1987.

Treatment	Lint Yield, Pounds per Acre			Percent First Pick
	First Pick	Second Pick	Total	
Ethephon	897a*	297a*	1194a*	75a*
Check	833a	416b	1249a	67b
Coefficient of Variation	5.8%	11.8%	6.7%	3.1%

* Means followed by the same letter within a column do not differ significantly at the .05 level.

CROP HISTORY

Previous crop: Cotton.

Soil Type: Glendale silty clay loam.

Planting Date: May 7.

Fertilizer: 17 GPA of 10-34-0 listed into the beds preplant, plus three sidedressings of 17 GPA of UAN23 with the cultivations.

Irrigation: Preplant plus five more, total water use was 4 acre feet.

Insecticide: Four applications via ground rig for pink bollworm.

Herbicide: Layby with 1.5 lb/acre Bladex on August 1 followed by water-run prometryn at 1.3 lb ai/acre.

REFERENCES

1. Clark, L.J. 1985. Yield and Economical Outcome of Different Rates of Ethephon (PREPtm) to Long and Short Staple Cotton. Cotton, A College of Agriculture Report. Series P-63, February 1985. University of Arizona, College of Agriculture, Tucson, AZ. pp. 60-2.
2. Clark, Lee J.; Gary Cramer, and Ted Haas. 1986. Effects of PIX and PREP on Short Staple Cotton, Bonita, Graham County. Cotton, A College of Agriculture Report. Series P-63, March 1986. University of Arizona, College of Agriculture, Tucson, AZ. pp. 89-92.
3. Farr, C.R. 1986. PREP use for Cultural Control. Cotton, A College of Agriculture Report. Series P-63, March 1986. University of Arizona, College of Agriculture, Tucson, AZ. pp. 93-4.