

## Effect of Pix<sup>TM</sup> on Two Upland Cotton Varieties

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Results in Arizona in 1979 indicated that the varieties Deltapine 61 and Deltapine 70 were responding differently to the application of Pix, a plant regulator of the BASF Wyandotte Corporation. The objective of this study was to compare these two varieties in field studies with Pix.

Two separate experiments were conducted in 1980 at the Cotton Research Center, Phoenix. The tests were planted on 14 April, 1980 in moist soil and a uniform stand resulted for both varieties. In May the cotton was hand thinned to a plant population of approximately 29,000 plants per acre. The tests were set up with three treatments consisting of a check and two Pix treatments. Six replications were used in randomized complete block designs. Each plot was four rows wide and 30 feet long. The center two rows were harvested for yield.

The cotton began to flower in late June and the first Pix treatment of 1 pint per acre (20 g active ingredient/acre) was applied on 27 June, 1980. Both varieties were similar in plant height (21 inches). The variety Deltapine 70 had more flowers open (6.5/25 row feet) on 27 June, 1980 than Deltapine 61 (2.3/25 row feet).

The second application was made on 1 July, 1980. We intended to wait about 7 days between treatments, however, the field was going to be irrigated, resulting in only 4 days between treatments. If we had waited to make the second application after irrigation, flowering would have been profuse and the cotton would have been much taller and out of the range of the recommended application time for Pix. (The recommended time of Pix application in Arizona is when there are 5 to 6 white blooms/25 row feet and plants are 18 to 24 inches tall.) On 1 July the cotton was an average of 23 inches tall for both varieties. Deltapine 61 had an average of 8.3 blooms/25 feet of row and Deltapine 70, 16.9 blooms.

The typical dark green color was evident on the Pix treated plots of both varieties within 7 to 10 days after application. The untreated plots were also taller than the Pix treated plots and continued to be taller throughout the season.

In early September, open cotton in sub plots 1/1000 acre in size was hand harvested from the two center rows four times at one week intervals with two additional harvests on 8 October and 5 November just prior to machine harvest. This sequential harvest was done in all six replications to determine the pattern of yield as affected by Pix application.

There were significant yield differences between the Pix treatments and the untreated control in the cumulative yield during the first three weekly harvests of both Deltapine 61 and Deltapine 70 (Figure 1 and 2 respectively). By the fourth harvest for both varieties and throughout the remainder of the season the cumulative yields were not significantly different. An interesting observation in these tests is that in the sequential harvest of the Pix treated plots, all but about 100 pounds of the total lint yield was open and harvested by late September (Figure 1 and 2).

Machine harvest of the remainder of the yield rows was done on 6 November, 1980. The total yields between treatments within varieties were not significantly different. The two varieties were compared and there was a highly significant difference in yield between varieties. Deltapine 61 and Deltapine 70 had calculated lint yields of 1601 and 1514 pounds/acre respectively.

With the early season favorable response to Pix we might ask why there was no total yield response in these tests in 1980. The 1980 growing season was excellent in Arizona. Late season temperatures apparently allowed late season flowers to mature into open bolls that otherwise would not normally mature. Insect pressure also was not great. With these conditions, untreated cotton may be able to "catch up" in total yield compared to Pix treated cotton.

The plant regulator, Pix, is an important management tool for cotton producers. Our results indicate that Pix treated cotton has earlier production than untreated cotton. Pix appears to be especially useful in management systems which normally produce relatively tall cotton and in short season cotton systems.

Yield responses have been erratic with some significant increases with Pix applications and others with yields similar to untreated plots or even reduced production. Environmental factors appear to have a major role in determining the final yield responses.

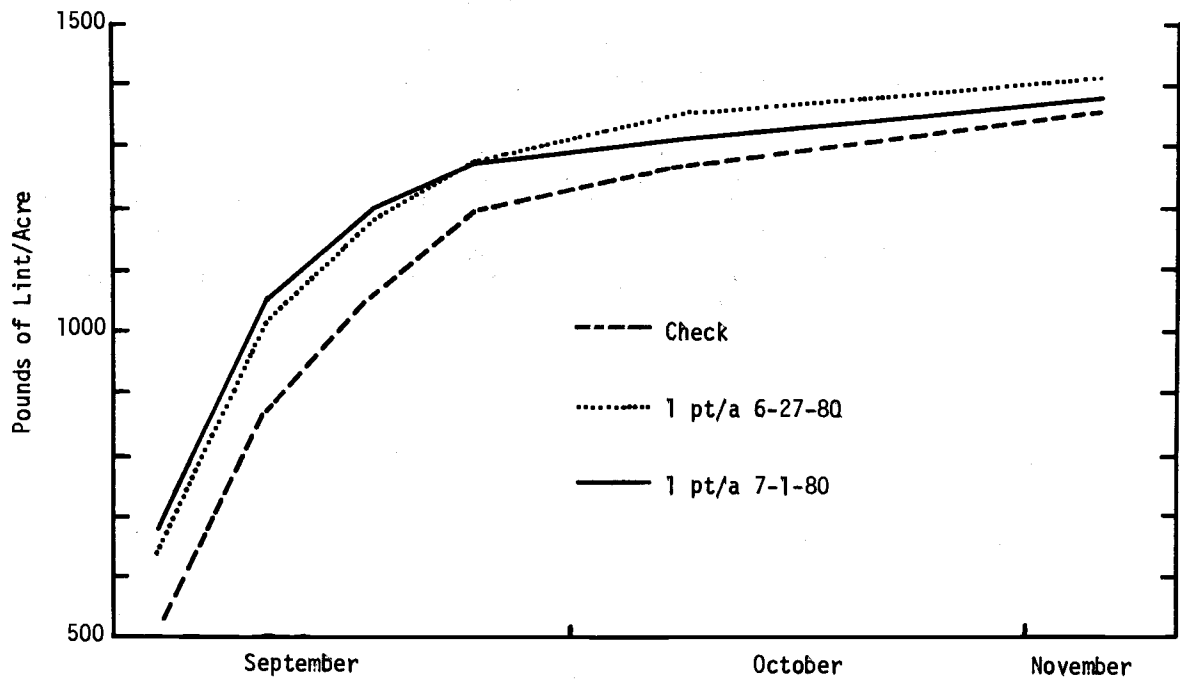


Figure 1. Cumulative yield of Deltapine 61 at the CRC, 1980.

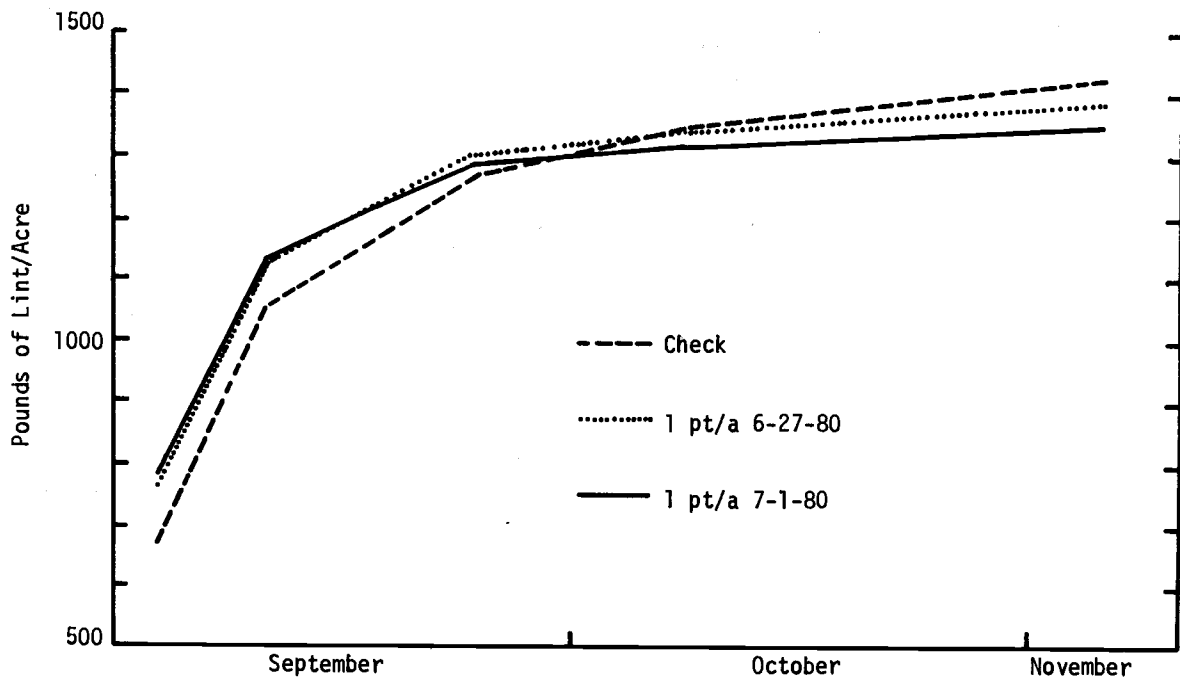


Figure 2. Cumulative yield of Deltapine 70 at the CRC, 1980.