

**EFFECTS OF LATE SEASON PIX
APPLICATIONS ON ACALA COTTON
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Abstract

Pix (mepiquat chloride) has been evaluated on cotton by researchers since the late 1970's. It has been applied to accomplish numerous different benefits, under many varied conditions, and has had positive benefits when applied to most cotton crops in the San Joaquin Valley. Greatest increases with Pix are to late planted cotton, rank growing cotton, cotton which has lost early fruit set, and narrow row cotton. It is used at various rates and timings according to needs, and is applied in low rate multiple doses, and in tank mixes with other chemicals. Generally, the use of Pix results in increased lint yields due to increased boll set and retention. Crop earliness has also been documented in many cases.

Late season applications of Pix were made to determine less subtle, but very important benefits such as even maturation of the crop, easier defoliation, and cleaner, higher quality lint.

Objectives

Objectives of these tests were to evaluate the effects of late season Pix on:

- *Maturing and opening high position bolls.*
- *Crop conditioning so that only one application of defoliant is necessary.*
- *More even and complete maturation of the crop so that second picking is not required.*
- *Reduction of tall, late, plants emerging above the general crop canopy (buggy whips).*

Methods And Materials

Similar field tests were conducted in 1994, 1995, and 1996 in the San Joaquin Valley of California. Applications of none, one-half pint, three-quarters pint, and one pint, were made at cutout (4-5 nodes above the top white bloom). All tests consisted of eight 30 inch rows, by the length of the field, replicated four times. Pix applications were made by a tractor sprayer fitted with a broadcast spray boom. Each treatment was "mapped" following applications and again just prior to harvest. Percent boll retention, height to node

ratio, number of fruiting branches, bolls per plant, and plant height, were determined and analyzed statistically.

Relative boll opening observations were made when the untreated control was 30% open to determine earliness. Subjective ratings of percent defoliation, desiccation, and regrowth were made after a defoliant was applied to detect plant conditioning benefits.

Results

Plant mapping revealed some consistent differences in plant characteristics during the three year study of Late Season Pix applications. There were significant increases among the means of percent boll retention and total bolls in the 1.0 pint treatment. Although not significantly different, there were more bolls in the 95% zone and more vegetative bolls. Lint yields were also significantly greater when a full pint of pix was used late in the season.

Conclusions

Late season Pix is applied at, or just prior to, cutout and has little effect on yields since most harvestable bolls are already set. However, other plant characteristics can be greatly affected.

- High position bolls which were set later in the season can be matured and opened.
- Late season Pix helps condition the crop so that only one application of defoliant is necessary.
- It can assist in an even and more complete maturation.
- Improving quality and reducing the need for second picking.

Late Pix applications reduce tall plants emerging above the plant canopy, thereby reducing trash in the seed cotton.

Effect of Late Season Pix on Selected Plant Characteristics in 1994.						
	Control	0.5pt	0.75pt	1.0pt	LSD (.05)	CV%
Boll retention %	70.9	67.1	63.8	92.5	14.0	12.5
Height to Node Ratio	1.72	1.58	1.60	1.85	0.17	6.6
Plant Height	35.9	32.4	31.9	30.9	2.3	4.5
Fruiting Branches	15.2	15.2	14.4	10.5	1.1	5.1
Total Bolls	45.0	48.0	48.0	61.0	9.0	11.0
Nodes in 95% Zone	9.17	9.52	9.82	10.30	NS	9.3
Vegetative Bolls	1.5	3.0	2.7	7.2	NS	7.9

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Effect of Late Season Pix on Lint Yield

Treatment	pounds/Acre
Control	1754
0.5 pint	1786
0.75 pint	1731
1.0 pint	2291
LSD (.05)	16.5
C.V. %	5.7

Effect of Late Season Pix on Selected Plant Characteristics in 1995.

	Control	0.5pt	0.75pt	1.0pt	LSD (.05)	CV%
Boll Retention %	94.2	84.8	84.8	81.1	6.6	4.8
Height to Node Ratio	2.02	2.05	1.90	1.95	NS	4.0
Plant Height	35.9	36.7	35.0	35.8	2.0	3.5
Fruiting Branches	10.3	10.8	11.3	10.9	NS	6.8
Total Bolls	19.4	17.3	17.9	18.8	NS	15.8
Nodes in 95% Zone	9.2	9.5	9.8	9.9	NS	9.0
Vegetative Bolls	1.0	2.6	2.8	5.2	NS	6.2

Effect of Late Season Pix on Lint Yield

Treatment	pounds/Acre
Control	2028
0.5 pint	1720
0.75 pint	1701
1.0 pint	1881
LSD (.05)	N/S
C.V. %	8.9

Effect of Late Season Pix on Selected Plant Characteristics in 1996

	Control	0.5pt	0.75pt	1.0pt	LSD (.05)	CV%
Boll Retention %	55.7	50.8	58.4	51.2	NS	15.1
Height to Node Ratio	1.83	1.89	1.87	1.93	NS	3.7
Plant Height	36.4	36.6	36.2	37.4	NS	4.7
Fruiting Branches	13.0	12.5	12.6	12.3	NS	9.2
Total Bolls	46.7	38.2	45.7	41.5	NS	21.3
Nodes in 95% Zone	10.7	11.5	10.5	10.6	NS	14.5
Vegetative Bolls	1.3	3.1	2.9	4.1	NS	1.1

Effect of Late Season Pix on Lint Yield

Treatment	pounds/Acre
Control	1528
0.5 pint	1553
0.75 pint	1340
1.0 pint	1420
LSD (.05)	NS
C.V. %	10.3