

Evaluation of Late-Season Pix™ Applications

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Abstract

The effects of late-season Pix™ on the growth characteristics and yield of Upland cotton was examined in this study. Three treatments were imposed late-season (3447 HUAP), 1, a check plot, receiving no Pix™; 2 receiving 0.75 pt/acre, and 3; receiving 1 pt/acre. The imposed treatments did not have a statistically significant effect on plant growth characteristics or earliness, nor were there any significant overall yield differences detected among treatments.

Introduction

Late season cotton management plays an important role in the ultimate yield of the crop. From insect management to that of fertility and water, all have an impact on final crop outcome. The ability to terminate a crop early to avoid the problems that can occur in late-season management is becoming increasingly important. Late season fruit retention is also very important. Late season boll shed, for any reason, can greatly impact the final yield. The active ingredient in PIX is mepiquat chloride, which is a gibberellic acid inhibitor and is primarily used to manage the vegetative/reproductive balance of a cotton plant. It has been suggested that late season applications of PIX may increase yield and earliness by helping the plant maintain and mature the fruit that has been set by redirecting carbohydrates from the vegetative tissue into the maturing bolls. In an effort to determine the effects of late season PIX applications on a crop a study was carried out at the Marana Agricultural Center (MAR). This study was designed to examine the effects of the late-season applications to not only the yield but to plant growth characteristics associated with earliness, such as indicated by nodes above top white bloom (NAWB), height to node ratios (HNR's), and fruit retention (FR).

Materials and Methods

The 1996 field experiment consisted of three treatments arranged in a randomized complete block design with four replications. Plots were 8, 40 inch rows wide and 600 feet long (full length of irrigation run). Upland cotton (*Gossypium hirsutum* L., var. Hy Performer HS 44) was planted on 17 April (Table 1). The crop received the final irrigation on 3 September. The crop was managed in an optimal fashion with respect to water and fertility inputs throughout the entire growing season. Full plant mapping measurements were taken on two week intervals throughout the entire season. On 12 September, 3477 heat units (86/55 °F thresholds) accumulated after planting (HUAP), the PIX treatments were imposed with a high-cycle spray rig as outlined in Table 2. The entire center four rows of each plot were harvested on 5 November. Seed cotton yields were obtained and converted to lint/acre using turn-out received from ginning 10 lb. subsamples out of each treatment. Analysis of variance was conducted on the lint yields means, which are presented in Table 3.

Results and Discussion

General growth characteristics as a function of heat units are presented in Figure 1. No differences were detected among the three treatments regarding HNRs or FR levels. As summarized in Table 3, the yield results did not reveal any significant differences among treatments.

The results obtained from this study definitely do not give conclusive results as to the effects of late season

applications of PIX. However, based on this and earlier studies, the practice of using late season PIX applications, which can be appealing on a conceptual level, it does not appear that there is much evidence to support expectations associated with improving lint yields with the first pick.

Table 1. Basic crop management outline, late season PIX experiment, Marana, AZ, 1996.

Planted: 17 April (743 HU/Jan 1)
Variety: HyPerformer HS 44
Harvested: 5 November

Table 2. PIX treatments applied on 12 September for late season PIX study, Marana, 1996.

Treatment	Rate (pts. PIX/acre)
1	0
2	0.75
3	1

Table 3. Lint yields for late season PIX study, Marana, 1996.

Treatment	Lint Yield (lbs lint/acre)
1	984 a*
2	982 a
3	969 a
LSD ($\alpha = 0.05$)	NS
OSL	0.9407
C.V.(%)	6.85

* Means followed by the same letter are not significantly different according to a Fisher's LSD means separation test.

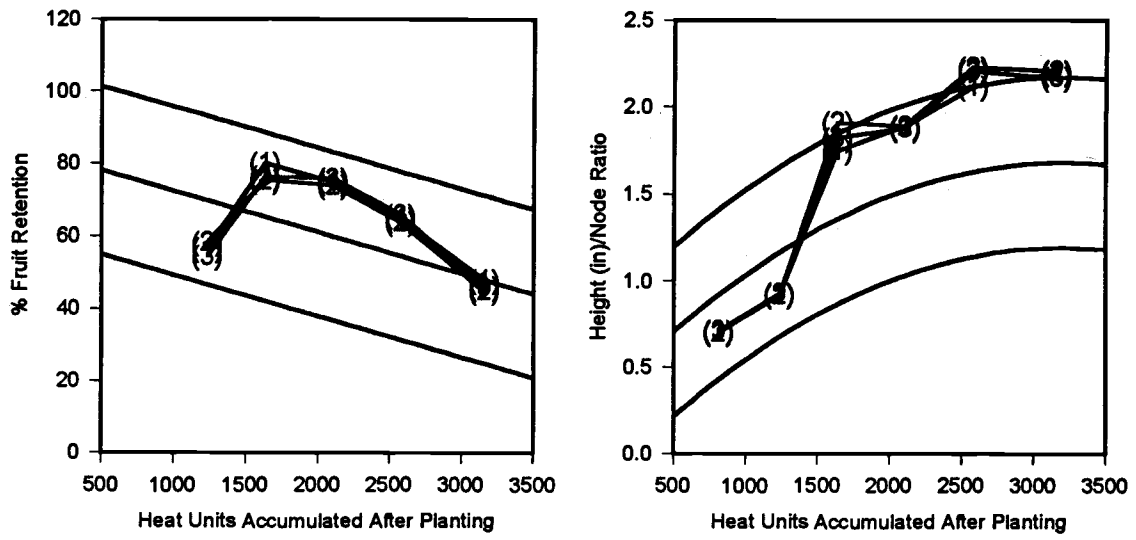


Figure 1. Plant vigor (HNR) and fruit retention estimates for all Pix treatments, Marana, AZ, 1996.