

**GROWTH AND YIELD COMPARISONS OF PIX® PLUS
AND ADDITIONAL *BACILLUS cereus* TREATED COTTON**

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Abstract

Pix® Plus, a plant growth regulator applied to cotton (*Gossypium hirsutum* L.) is a combination of mepiquat chloride (MC) and *Bacillus cereus* (Bc). MC is commonly used to control excessive vegetation by reducing shoot growth. Although MC has been reported to increase lint yield, positive yield responses have not been consistent. A reduction in vegetative growth may allow photoassimilates to be reallocated to reproductive plant parts, increasing the potential to enhance yield. However, reduced shoot growth results in decreased plant height, which can also potentially reduce total sympodial node production and the total number of fruiting sites. The bacterium Bc purportedly enhances plant growth, thus the combination of MC and Bc allows for the control of excessive vegetative growth while potentially promoting reproductive growth. The impacts of additional Bc rates and application timings remain undetermined. Field experiments were conducted in 1999 and 2000 at the Texas Agricultural Experiment Station in Burleson County, Texas to assess the benefits of additional Bc applications to Pix® Plus treated cotton. Experimental design was a 6 by 6 latin square with five treatments and a control. All 5 treatments received 8 oz/A Pix® Plus at MHS and EB (area standard; AS), while three treatments received an additional 1 oz/A application of Bc at either PHS, EB, or EB + 3 weeks. The remaining treatment received 1 oz/A Bc at all three timings (Bcx3). Mid-season data supports typical MC results in which plant height, nodes, and the average length of the top five internodes (ALT-5) were reduced in all Pix® Plus treatments compared to the control. Fruit counts at EB were significantly higher in the PHS treatment than in all others. Plant height at harvest was reduced in all Pix® Plus treatments compared to the control, while nodes at harvest were unaffected resulting in a reduced height to node ratio. Box mapping revealed no differences among boll weights or boll distribution. In 1999, there were no differences in yield, although additional Bc applications in 2000 showed significant seedcotton increases over the control and AS. The EB and Bcx3 treatments had higher significantly higher lint yield than the AS, but did not out-yield the control in 2000. There were no differences in lint quality among treatments.