

SKIP-ROW COTTON RESPONSE TO MEPIQUAT CHLORIDE WITH *BACILLUS CEREUS*

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Abstract

Producers are interested in skip-row cotton to save seeding costs and technology fees. Skipped rows leave more solar radiation and soil moisture for planted rows, so plants tend to grow larger in skip-row than in solid plantings. Increased yield per plant may partially offset the effect of fewer plants per acre in skip-row fields. Little information is available on optimal mepiquat chloride (MC) application in skip-row systems. Commercial formulations of MC include a mixture with *Bacillus cereus* (Pix[®] Plus from BASF Corp.), but the 2002 label for Pix Plus did not mention specific rates for skip-row cotton. Our objectives were to determine effects of Pix Plus on skip-row compared to solid planted cotton, as expressed by plant size, lint yield, and fiber quality; and to determine if different rates and timing of Pix Plus application altered these effects. 'Stoneville 4892 BR' was planted on 14 May 2002 at Agricenter International in Memphis TN, in a Falaya silt loam bedded on 38-inch centers. Main-plot treatments were solid and 2x1 skip-row planting configurations. Sub-plot treatments were rates and timing of Pix Plus, arranged in RCB split-plot with 4 replications. Pix Plus combinations included 4 oz/ac at matchhead square (23 June), 16 or 24 oz/ac at early bloom (15 July), and 24 oz/ac at late bloom (30 July), plus an untreated check. Plots were spindle picked on 9 October, and seedcotton samples were ginned in a process that included a stick machine, 20-saw stand, incline cleaners, and two lint cleaners. Lint samples were analyzed by HVI methods at Texas Tech Textile Lab, and data were statistically analyzed by SAS GLM procedures. No significant height differences due to row configuration were detected, and plant height responses to Pix Plus were similar to those expected from mepiquat chloride. Significant growth control was obtained with at least 16 oz at 1st bloom, relative to untreated or 4 oz at MHS. Height response to Pix Plus did not differ between skip row and solid plantings. On a field-acre basis, solid planted cotton yielded significantly more than skip row. Yields in skip rows showed compensation effects, as skip rows were planted on 67% of field area, but produced 77% of lint yield of solid planting on field-acre basis. Yield response to Pix Plus did not reach statistical significance, and Pix Plus did not alter the yield response to row configuration. The main effects of row configuration and Pix Plus on HVI fiber quality were not significant, but there was a significant interaction effect for reflectance (Rd). Reflectance was significantly lower in skip-row than in solid cotton with three of eight Pix Plus treatments, but these responses appeared to have no pattern other than random. Additional testing of different mepiquat-based PGR formulations in contrasting environments is needed to optimize plant growth regulation in skip-row cotton.

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