GROWTH AND YIELD RESPONSE OF BOLLGARD II® XTENDFLEX™ COTTON TO SEQUENTIAL GLYPHOSATE/DICAMBA APPLICATIONS M.R. Zwonitzer J.W. Keeling Texas A&M AgriLife Research Lubbock, TX J.D. Everitt Monsanto

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<u>Abstract</u>

Bollgard II[®] XtendFlexTM Cotton* is an innovative technology with tolerance to dicamba, glyphosate and glufosinate herbicides (pending regulatory approval). This technology-while still offering insect protection-has been designed to help maximize weed control by encompassing three unique modes of action allowing farmers the choice and flexibility to apply multiple combinations of herbicides before, during and after planting. In 2014 studies were conducted at three locations in the Texas High Plains to evaluate crop response and yield potential following single and sequential post emergence topical (POST) applications of MON76832, an enhanced dicamba/glyphosate premix. This was compared with a single application of Liberty[®] 280 SL plus MON119096 at different timings. The objective of these studies was to determine the possible impact application timing and potential crop response of glyphosate and dicamba premix products and glufosinate and dicamba tank mix products have on the yield potential of a candidate Bollgard II® XtendFlex[™] variety. Small plot field trials were conducted in Halfway (Hale County), Lorenzo (Crosby County), and Seminole (Gaines County), Texas to evaluate crop injury and growth rate following application of glyphosate, dicamba and glufosinate at 4, 8, 12 and 16 node (A, B, C and D timings, respectively) growth stages. Applications included four (A+B+C+D timings) sequential applications of MON76832 at 64 oz/A, a single 128 oz/A application of MON76832 to individual plots at each timing, sequential applications of 128 oz/A at both A+C and B+D timings, as well as a tank mix of Liberty + MON119096 applied at the B timing at rates of 32 oz/A + 22 oz/A or 32 oz/A + 44 oz/A, respectively. Crop response ratings were collected 3-, 7- and 14-days after application and recorded as percent injury and percent growth reduction. Yield (lbs/A) was also recorded for each plot at each location. All treatments were applied at 10 GPA using TTI 11015 nozzles at 30 psi. Experimental design at each location was RCBD with four replications. Across the three locations significant crop response was observed following the application at the C timing, for the 64 and 128 oz/A application rates. Crop response ratings for this timing were 20, 21.3 and 11.3% from Lorenzo, Seminole and Halfway, respectively. Following a sequential application of MON76832 at 128 oz/A, the greatest crop response were observed at Lorenzo (A+C timing, 16.3 and 23.8%, respectively) and Seminole (B+D timing, 11.3 and 22.6%, respectively). Crop response levels declined within two weeks following application. No significant yield differences were observed across locations with any treatment. Results from these experiments indicate that some crop response may be observed with MON76832 applied POST, but no effect on cotton growth or yield should occur.

