EFFECTS OF 1-MCP ON LATE SEASON COTTON FRUIT SET

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Abstract

Ethylene action inhibitor, 1-methylcyclopropene (1-MCP), is applied in many horticultural crops to counter ethylene effects on fruit abscission. Under stress, cotton (*Gossypium hirsutum* L.) plants synthesize higher levels of ethylene resulting in potential loss of fruit. The objective of this study was to evaluate the consequences of 1-MCP treatment on cotton yield components such as fruit retention/abscission of plants experiencing stress. A field study was conducted in 2007 at the Texas Agricultural Experiment Station in Burleson County, Texas, as a randomized complete block design with four replications. Treatments were three rates of 1-MCP (0, 0.36, and 0.72 oz a.i. acre^{-1}) in combination with a surfactant at rates of 0 and 0.375% v v^{-1} applied 93 days after planting. On the following day, ethephon (ethylene synthetic hormone) was applied at 0 and 4 oz acre^{-1}, as a source of stress. Lint yield for the control treatments ranged from 1,251 to 1,333 lb acre^{-1}, while 1-MCP treatments yielded from 1,014 to 1,126 lb acre^{-1}. However, plants treated with 1-MCP were taller and had more full size, yet immature fruit. Results suggest that 1-MCP treated plants may have potential to compensate for the effects of the late season stress by having a greater fruit set on the upper nodal positions of the plant.