## CAN 1-MCP BE USED IN WATER STRESS REMEDIATION? Vladimir A. da Costa J. Tom Cothren Texas A&M University College Station, TX

## <u>Abstract</u>

Water deficit stress has detrimental impact in cotton (*Gossypium hirsutum* L.) production. Overall dry matter is decreased, promoting stunted growth, fewer flowers and bolls, and reducing yield. An increase in the production of the plant-hormone ethylene is also documented to be caused by water deficit stress in many crops including cotton, and can cause adverse effects in plants. Thus, it is desirable to protect plants against harmful effects of water stress. I-methlycyclopropene (1-MCP) is a gaseous inhibitor of ethylene action that blocks ethylene receptors, and prevents negative ethylene effects in the plant tissues. The compound is believed to impact positively in a variety of physiological effects, such as reduction of respiration and ethylene synthesis. The objective of this study was to evaluate the consequences of 1-MCP treatment under two water regimes on physiological parameters of plants experiencing stress. A greenhouse study was conducted during two years as a randomized complete block design with five replications. Plants were exposed to two rates of 1-MCP (0 and 1,000 ppb) while placed inside sealed plastic tents during 14 hours overnight and then subjected to two water regimes (well watered and water stressed) in the greenhouse.