CHARACTERIZATION OF THE FRUITING GROWTH CURVE: A REGIONAL REPORT Ozzie Abaye¹, Jessica Bryant¹, Derrick Oosterhuis², Craig Bednarz³ and Merritt Holman⁴ ¹Virginia Tech, Blacksburg, VA, ²University of Arkansas, Fayteville, AR, ³University of Georgia, Tifton, GA ⁴Louisiana State University, St. Joseph, LA

<u>Abstract</u>

The effect of production inputs such as nitrogen and mepiquat chloride on the crop target development curve is not clear. The objectives of this experiment which started in 1997 were to characterize the standard fruiting growth curve and determine the stability of the curve under different environments (locations) and also management inputs, and to determine the effect of production management inputs on the nature of the fruiting curve. Experiments were conducted at four locations (Virginia, Arkansas, Georgia and Louisiana). Treatments consisted of untreated control (high N no MC), High N + MC at PHS and FF and Low N (70% of the control) and no MC. COTMAN crop monitoring records of major phenological stages (PHS, FF and NAWF = 5) was recorded. To determine flower values first position white flower at: NAWF = 7, NAWF = 6, NAWF = 5, and NAWF = 4 were tagged by placing tags on the main-stem branch. Tagged bolls were hand harvested at the end of the growing season. Arkansas development curve tracked the standard development curve (TDC) with slopes similar to the target. At first flower the apogee for the three treatments were 7.5, 8, and 7.5 for the check, low N and high N +PIX, respectively, which was lower than the TDC (9.3). At this location, for all treatments there was an increase in bolls required to produce one lb of seedcotton for NAWF = 5 or less. However, this increase in bolls/1 lb of seed cotton was even higher for the untreated control (high N no PIX).Georgia development curve showed slow development of squaring nodes followed by premature cutout for the low N No PIX treatment. At first flower the apogee for the three treatments were 8.3, 7.7, and 7.9 for the check, low N and high N + PIX, respectively, which was lower than the TDC (9.3). NAWF values declined to cutout 70 DAP which was only 10 days from first flower for the low N no PIX treatment. Louisiana development curve showed early initiation of flowering followed by premature cutout with for all the treatments except the untreated control. At first flower the apogee for the three treatments were similar to the TDC (9.3) except the low N no PIX treatment which was 8.6. NAWF values declined rapidly for the Low N and Hi N + PIX treatments. For all treatments there was an increase in bolls required to produce one lb of seedcotton above NAWF =4. Number of flowers required to produce one lb of seedcotton was lower for Hi N + PIX treatment compared with the check and low N treatments. Relative to the COTMAN's TDC Virginia development curve showed slow development of squaring nodes, and low apogee. For all treatments there was an increase in bolls required to produce one lb of seedcotton above NAWF =5. However, this increase in bolls/1 lb of seed cotton was even higher for the Low N + no PIX treatments. The standard fruiting growth curve varied slightly under different environments (locations) and management inputs. The variation in the fruiting growth pattern across location mainly were due to seasonal growing conditions (moisture, temperature). Production management inputs such as nitrogen and PIX effected flower values at some locations.

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