

TECHNOLOGIES FOR IMPROVING COTTON MATURITY AND PROFITABILITY**N. Ray Benson****University of Arkansas Division of Agriculture****Blytheville, AR****E.D. Vories****USDA-ARS****Portageville, MO****D.K. Morris****Arkansas State University****Jonesboro, AR****Tina G. Teague****Arkansas State University – University of Arkansas Ag. Exp. Station****Jonesboro, AR****Abstract**

An on-farm study was conducted in 2014 to evaluate the effects of irrigation timing and seeding rate on cotton's maturity and profitability. The test was located on a furrow irrigated field in Northeast Arkansas with soils classified as Dundee silt loam. The experiment was arranged as a 3*2*3 factorial design with main plots consisting of irrigation timings and sub-plots comprised of two cultivars planted at three seeding rates. There were six replications. The three irrigation timing treatments were irrigation start time at 10 days prior to first flower, irrigation start time at first flower and rain-fed plots. Cultivars Phytogen 375 and Stoneville 5288 were planted at seeding rates of 1.5, 3.0 and 4.5 seed per foot of row using a John Deere 1700 4-row vacuum planter equipped with a hydrolytic variable rate drive. Stand counts were taken at weekly intervals beginning at approximately one week after planting and continued until 28 days after planting (DAP). COTMAN data was collected weekly beginning at first square and continued until plots had reached cutout (NAWF = 5). With the exception of irrigation timing, all cultural practices were based on the producer's standard practices and were consistent across all plots. Plots were machine harvested on October 26, 2014. Frequent rainfall resulted in no irrigation timing effects. Stand counts were recorded as a percentage of the targeted seeding rate planted. The Phytogen 375 cultivar had a significantly higher % emerged plants at 8 DAP than did Stoneville 5288. However, by 28 DAP, the % emerged plants were not statistically different between the two cultivars for any of the three seeding rates. Although plots planted at the lowest seeding rate tended to reach cutout later than plots planted at either 3.0 or 4.5 seeds per foot, the differences were not significant. There were no differences in yield observed among seeding rate ($P = 0.57$), irrigation timing ($P = 0.64$) or cultivar ($P = 0.51$) in this test. Although frequent rain likely masked any yield or maturity differences in this study, our general conclusions support use of reduced seeding rates as a means to improve profitability of cotton, especially in low yield potential zones within a field.