YIELD AND QUALITY OF DIFFERENT MATURITY CLASSES OF COTTON WHEN PLANTING IS DELAYED

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Abstract

Planting deadlines for cotton in West Texas vary considerably ranging from 31-May in the Northern High Plains to 20-Jun in the Rolling Plains. In general, planting mostly occurs between 5-May and 6-Jun; however, provisions are in place that provides protection on acreage that is prohibited from being planted by the final planting date. This late planting period extends 15 days after the final planting date. Several factors including soil temperature, soil moisture and seedling disease pressure may affect when cotton is planted. Furthermore, adverse weather conditions such as hail, excess wind, extreme drought or flooding may result in the need to replant. Previous studies have shown that delayed planting of the same variety leads to lower yields and often results in reduced fiber quality. Changes in general production practices may be required to ensure even stands, increase earliness and maximize productivity. Significant variety and nitrogen rate effects were observed for most all variables, as were a number of interactions. Lint yields ranged from 286 to 930 lb ac^{-1} and 270 to 802 lb ac^{-1} for the low and high nitrogen rates, respectively. Under both fertility levels, yields were greatest for PHY 222 WRF. The addition of nitrogen generally led to increased plant height and reduced lint yield by 122 lb ac^{-1}. Yields were similar among seeding rates under both fertility programs. Greater nitrogen reduced micronaire by 0.25 units and led to a 0.03 inch reduction in length. Micronaire values were highest for the early maturing variety PHY 222 WRF and early-mid maturing varieties NG 3406 B2XF, DP 1321 B2RF and NG 3500 B2XF. Differences in staple length were observed among factors. Values were consistently highest for PHY 444 WRF and lowest for FM 1320 GL. Leaf grades values varied by variety and were significantly influenced by nitrogen and seeding rate. Values were lowest the smooth leaf variety NG 3405 B2XF and highest for DP 1410 B2RF. After deducting seed/technology and nitrogen costs, differences in net returns ranged from \$48 ac^{-1} to \$362 ac^{-1} for PHY 444 WRF and PHY 222 WRF, respectively. Net returns were lower for higher seeding and nitrogen rates. Results from these studies suggest that changes in variety selection are critical in maximizing yield potential and quality when planting is delayed. Likewise, fertility inputs should be curbed under late-planted conditions. Reduced seeding rates may be utilized to lower input costs, as high soil temperatures lead to rapid germination and emergence.