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PLANT POPULATIONS AND PLANTING DATES FOR UNR COTTON

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Abstract

Cotton in Central Alabama is traditionally planted in wide (36-40 inch) rows from mid-April to late May. Cotton planted after these dates often suffers yield declines, but earlier planting limits the use of cover crops which can enhance soil quality and moisture conservation. Ultra Narrow Row (UNR) cotton planted at high populations may require only 3-4 bolls per stalk to produce high lint yields, and may also result in a shorter production season. Earlier research has shown that UNR cotton can be successfully planted in early June in this area, after allowing optimum growth of cover crops. However, it is not known what are the optimum or latest planting dates for UNR cotton in this region.

UNR cotton is grown at relatively high plant populations to decrease branching and facilitate machine harvesting with a finger-harvester. Recommendations for final populations have ranged from 80,000 to 200,000 plants/Acre. Since seed costs can constitute a major production expense, particularly for the transgenic varieties often used in this system, optimum plant populations need to be better defined.

A study was conducted for three years on a Compass sandy loam (coarse-loamy, siliceous, subactive, thermic Plinthic Paleudults) soil in east-central AL to investigate the optimum planting dates and populations for UNR cotton. Paymaster PM 1220 BG/RR (1998 & 1999) or PM 1218 BG/RR (2000) was planted with a no-till drill in a 4-replication, split-plot design in early May, June, and July and thinned to 80-, 120-, 160-, and 200,000 plants/A three weeks after planting. All plots were maintained weed-free and treated with insecticides and growth regulators as needed. Due to mechanical problems and adverse weather conditions, May planted 160- and 200,000 population plots were not available in 1998 and 2000.

There were interactions of planting dates and populations for lint yield, with May plantings tending to increase in yield with populations below 200,000 plants/A, while June planted yields decreased with increasing populations. In general, May planted lint yields ('98 = 1008 to 1232, '99 = 1551 to 1879 lb/A) were greater than June ('98 = 868 to 1045, '99 = 1278 to 1564 lb/A) which were greater than July ('98 < 150 lb/A, '99 = 412 to 542 lb/A) in 2 of 3 years, while in a year with an extremely dry early summer, June (1200 to 1482 lb/A) > July (765 to 1174 lb/A) > May (1080 to 1092 lb/A) planted yields. Maturity as measured by percentage open bolls followed yield trends within planting dates.

Bur and stick content was not affected by plant populations within dates. Lint turnout ranged from 30 – 36% after ginning machine harvested samples.

Based on these results, it appears that producers can successfully plant UNR cotton in early June with economical yields, although May plantings yielded better in 2 of 3 years. July plantings' yields were too low for economical returns in 2 of 3 years. Producers should consider increasing plant populations for May plantings (but less than 200,000 plants/A), but decrease them for June plantings of UNR cotton.