

EVALUATION OF ULTRA NARROW COTTON FOR THE HILL SECTION OF MISSISSIPPI

J. R. Johnson and J. R. Saunders¹

¹North Mississippi Branch Station; North Mississippi Research and Extension Center; Mississippi State University; Holly Springs MS 38635

ABSTRACT: Planting cotton in 7.5-in rows with a grain drill is far different than the traditional method of cotton production practiced in the mid-south. In our study cotton was planted in 7.5-in rows at populations of 90,000, 120,000, 150,000, and 180,000 seeds per acre. One of our objectives was to study the plant growth and development at the different populations, especially how much energy went into leaf, stem, root, and fruit development. At the 90,000 plants per acre level the amount of energy that went into leaf production was higher than the other populations. As the populations increased the amount of energy going into leaf production decreased and more energy went into root and stem production. The amount of energy going into fruit production stayed nearly constant from 90,000 to 150,000 plants per acre. At the population level of 180,000 plants per acre, a higher percentage of the plants' energy went into fruit production than the lower populations but failed to correlated with yield.

CITATION: Johnson, J. R., J. R. Saunders. 2002. Evaluation of Ultra Narrow Cotton for the Hill Section of Mississippi. Annual Report of the North Mississippi Research & Extension Center, Miss Agric. & For. Expt. Sta. Info. Bull. 386. pp. 126-128.

MATERIALS AND METHODS: In the fall of 2000 the old cotton stalks were shred after harvest. The land was idle until the first week of April in 2001. A burndown treatment of Roundup (glyphosate) 1.0 lb ai/ac + Clarity (dicamba) 0.5 lb ai/ac was broadcast over the entire plot area. Fertilizer was applied according to soil test recommendations by a custom applicator. Deltapine brand cotton 451 BR was drilled with a Great Plains grain drill with rows on 7.5 in centers. Plots were sprayed after planting and before emergence with Graxamone (paraquat) 0.25 lb ai/ac. Bidrin (dicotophos) 0.2 lb ai/ac was applied at 2, 4, and 6 weeks after planting. Roundup 1.0-lb ai/ac was sprayed at two weeks after emergence. Prep (ehtephon) 1.5-lb ai/ac + Def 6 (tribufos) 1.5 lb ai/ac was sprayed as a defoliant on the 20th of September. A desiccant was sprayed on October 8. Cotton was harvested October 20.

Plants were sampled from each replication at end of bloom to determine the amount of the plant energy that was going into separate component part of the plant. Plants were dug from the plots in the field and transported to the laboratory in a cooler within an hour after digging. Plants were processed in the laboratory by removing the leaves, squares, and bolls from the stem. Green weights were made of each of the component parts of the plant before plants were dried in a forced air oven at 110 degrees centigrade. After three days of drying, the plant parts were weighed and returned to the oven. On the fourth day, the plants were removed and weighed a second time. If the plant weight had not changed more than one percent, the last weight was used as the final dry weight. If weight was more than one percent, the plants were returned to the oven and the process continued until the last weight was one percent or less of the previous day's weight.

RESULTS AND DISCUSSION: When comparing the amount of the plant energy that went into separate component parts of the plant for the different population the energy shifted as the population increased or decreased. In the population of 90,000 the amount of energy into the leaves was higher than for the other populations. When the population increased to 120,000 and 150,000 plants per acre the percentage of energy going to leaves dropped and more energy went into the stems and roots of the plant (Figure 2 and 3). The percentage of energy going to fruit stayed nearly constant from 90,000 to 150,000 plants per acre. However, after the populations increased to 180,000 the percent of energy going into leaves decreased and the amount going into fruit increased (Figure 4). Yields increased with the increase in populations (Figure 5).



