

## PLANT CHARACTERISTICS OF ULTRA NARROW ROW COTTON

**J. R. Johnson and J. R. Saunders**

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

**ABSTRACT:** Improvements in technology over the past several years have allowed producers to grow cotton in rows narrower than the traditional row spacing. Some of the technology includes better and more precise drill planters, more efficient harvesting equipment, and genetically modified seed with herbicide and insect resistance. Roundup Ready cotton, however, has played the greatest role in allowing growers to have success with Ultra Narrow Row (UNR) cotton. In our study we found, when rows were decreased from 30 in to 7.5 and row population increased, plants were shorter and number of barren plants increased with the increase in plant population. When the plant population increased to more than three plants per square foot the percent of barren plants increased to 30 percent. Boll size was also greatly affected by plant population. Boll size was larger with the low population and was smaller with the high population. The highest lint yield of 877 lb/ac was for four seed per foot of row and was higher than the 1, 2, and 6 seed/ft of row.

**CITATION:** Johnson, J. R., J. R. Saunders. 2003. Plant Characteristics of Ultra Narrow Row Cotton. Annual Report 2002 of the North Mississippi Research & Extension Center, Mississippi Agriculture and Forestry Experiment Station Information Bulletin 398:138-139.

**KEY WORDS:** Cotton, Ultra Narrow Rows, and Population

### **MATERIALS AND METHODS:**

Objective: To ascertain the difference in plant characteristics of Ultra Narrow Cotton planted in 7.5 in rows at different populations.

A study was conducted in 2002 to ascertain the plant characteristics of cotton planted in Ultra Narrow Rows at four different populations. In the fall of 2001 the old cotton stalks were shredded after harvest. The land was idle until the spring of 2002. In March a burndown treatment of Roundup (glyphosate) 1.0 lb ai/ac was broadcast over the entire plot area. The experimental design was a RCB design with 4 replications. Plots size was 12 feet wide and 300 feet long. Treatments were four seeding rates of 1, 2, 4, and 6 seed/ft of row. Fertilizer was applied according to soil test recommendation in April. Sure-Grow 215 BG/RR was planted the first week of May with a Great Plains grain drill. Row spacing was 7.5 in. The entire plot area was sprayed with Gramoxone (Paraquat) 0.625 lb ai/ac after planting. Bidrin (dicotophos) 0.2 lb ai/ac was sprayed over the cotton at 2, 3, and 4 weeks after planting. Roundup (glyphosate) at 1.0-lb ai/ac was sprayed over the top of all plots at 2 weeks after emergence. Staple (pyrithiobac) 1.2 oz ai/ac was sprayed over the entire plot area at 6 weeks after planting. Poast (sethoxydim) 0.25 lb ai/ac was sprayed over the entire plot area at 8 weeks after planting. Plots were hand sampled before harvest for the number of bolls and boll size. Cotton was defoliated in mid September with Prep (ethephon) 1.5 lb ai/ac + Def (tribufos) 1.5 lb ai/ac. Gramoxone at 0.5 lb ai/ac was sprayed two weeks after defoliation as a desiccant. The entire plot was harvested in mid October with a John Deere 7465 Stripper.

Data collected: Plant populations at 4 WAP and at harvest; plant height measured in nodes per plant and inches per plant; bolls per plant; boll weight per plant; and lint yield.

**RESULTS AND DISCUSSION**: For many years cotton was only grown on 38 or 40 in rows. This occurred mostly in the equipment sector. Today equipment companies are working on new harvesting ideas, new planting techniques, and new and better spray equipment for growing cotton in narrow rows. Another factor that has enhanced ultra narrow row cotton is Genetic Modified Organism (GMO) plants that have herbicide and insect resistance in the plant genetics.

Survival rate was the highest for the low populations (Data not shown). Boll size was significantly larger with the low population (Table 1). Plant height measured by node numbers was higher for the low population. This has been true for previous years where plant height decreased as population increased. Yields were significantly higher for 86,000 plants/ac (4 seed/ft row) and it was higher than all other seeding rates (1, 2, and 6 seed/ft row).

**Table 1.** Seeding rates, number of bolls, boll size, nodes, and yield for Ultra Narrow Row cotton.

<u>Seeding rate/ ft</u>	<u>Plants/ac</u>	<u>Gms/boll</u>	<u>Bolls/ac</u>	<u>Nodes/Plt</u>	<u>Lint lb/ac</u>
1	33,000	5.62	188,400	13.9	675
2	49,000	4.64	243,600	13.3	721
4	86,000	4.56	289,500	13.0	877
6	131,000	3.53	287,900	12.7	677
LSD 0.05	14,500	1.63	87,320	.94	145