

# EVALUATION OF ULTRA NARROW ROW COTTON IN NORTH CAROLINA

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## Abstract

Ultra narrow row cotton (UNRC) is cotton grown in 10" rows or less. Previous studies have found this system results in higher yields than conventionally grown cotton. In the following studies, comparisons between UNRC and conventional cotton found UNRC had equal or higher lint yields than conventionally grown cotton. Later planting had less of an effect on yield in UNRC than conventional row spacing.

## Introduction

Studies demonstrating higher yields and a shorter growing season in reduced row width systems have spurred interest in UNRC. Gwathmey (1996) and Koli and Morrill (1976) found yields to be higher in 10" rows when compared to wider row width (40" and 30" respectively). Reduction in row spacing equates to increased plants per acre. Galanopoulou-Sendouka et al. (1980) found higher populations encouraged earliness but, Hawkins and Peacock (1973) found no earliness advantage in higher populations. There has been no research on UNRC in North Carolina: because of this and strong grower interest the following studies were initiated.

## Materials and Methods

Two studies were conducted at the Upper Coastal Plain Research Station in Rocky Mount, North Carolina. The first study was a comparison between UNRC and conventionally grown cotton. Paymaster RR1330 was planted in May 14, 1997 and Paymaster RR1220 was planted May 13, 1998. UNRC widths were 7.5" at 2 seeds per row foot and conventional were in 36" rows at 3.3 seeds per row foot. Canopy closure was measured using a Sony DKC ID-1 digital camera. Measurements were taken from 45 DAP to canopy closure. Height, number of nodes, white bloom, and NAWB measurements were taken approximately every ten days from the beginning of the bloom period until plant mapping prior to harvest. Six plants per rep were mapped for height, number of vegetative branches and bolls, number of main stem nodes, and first and second position.

The second study was a planting date study. In the first year (1997), only UNRC at 7.5" row widths was planted.

Paymaster RR1330 was planted on May 14 and 29, and June 9, 17, and 25. The following year (1998), Paymaster RR1220 was planted on May 13 and June 1, 12, 17, and 25 at both row widths 7.5" and 36" were planted. This study was performed to discover if and how much yield reduction occurred because of late planting. In both studies, an Allis-Chalmers finger stripper was used to harvest the UNRC and a John Deere spindle picker for the conventional. Experimental design was a RCB with four reps.

## Results and Discussion

### Plant Structure

Height was reduced by 25 percent or more in the UNRC system. This reduction in plant height was evident before first bloom and was due to pix (Mepiquat Chloride) application and plant competition. UNRC plants had far fewer vegetative branches, resulting in less than 2 percent of all bolls being vegetative bolls. Overall, the narrow row width resulted in more slender, columnar plants than those in 36" row spacing. While individual plant canopy was reduced, canopy closure was more rapid in the UNRC because of the narrower rows and higher number of plants.

### Flowering and Cutout

In both years, peak white bloom and cutout were 7-10 days earlier in the UNRC.

### Yield

Conventional rows had a greater number of bolls/plant, in both years. The conventional and UNRC averaged 6 bolls vs. 3 bolls/plant respectively, in 1997 and 9 bolls vs. 6 bolls/plant respectively in 1998. This higher boll production did not equal higher yields. In 1997, lint yields were the same for both row spacings. There was a significant difference in yield in 1998, with UNRC producing 50 percent more lint than the 36" rows.

In the planting date study in 1997, yield for the first three planting dates May 14, 29 and June 9 were not significantly different. The fourth date June 17 had a significant reduction in yield. No harvestable bolls were produced from the fifth planting date. The second year (1998) there was no significant difference in yield due to planting dates (except for the last date June 25) within each row width. There was significant difference, in yield between the two row spacings.

## Conclusion

Reduced row width resulted in a more compact plant that produced fewer bolls per plant. Fewer bolls did not equate a lower yield. Lint yields of UNRC were equal or greater than conventional cotton in 1997 and 1998, respectively.

## References

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