

Essential Steps to Successful Ultra-Narrow Row Cotton Production

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Abstract: Ultra narrow row cotton (UNRC • 10" or less) production is now a viable management option for growers across the cotton belt. New technologies include selective over top herbicides, growth regulators, earlier varieties, precision planters, HVI classing and No-Till production systems.

Introduction

Scientists and growers have searched for the optimum row width and plant density spacing for many years. Research conducted all across the cotton belt in the late 60's and early 70's showed that the structure of the cotton plant is favorably influenced by very narrow row spacing and plant density. Yields were higher for the UNRC and the plant structure indicated the possibility of a broadcast harvester. For practical purposes the system failed because of the growers inability to effectively control grass and broadleaf weeds, rank growth, and precision plant in order to obtain the necessary columnar plants.

One by one new technologies that are very effective have resolved those problems, making UNRC a viable production system. Grasses are now routinely controlled with over the top selective herbicides such as Poast Plus. Staple herbicide along with Roundup and Buctril tolerant cotton varieties will take care of the broadleaf weed problem. Pix plant regulator is well known for controlling rank cotton growth and setting fruit. Precision drill type planters are now available that will strategically place the seed for consistent, predictable stands across various soils and conditions. Although finger stripper harvesters are being used, much improvement is needed.

Using the new technology the UNRC system was evaluated in 1995 in Texas, Louisiana, Mississippi, Arkansas, and Tennessee. Seventeen on farm demonstrations ranged from 2 to 40 acres. Our objective was to build an economical system to grow higher yielding, high quality, short season cotton across a wide variation of soils, topography, and tillage conditions. Excellent stands were obtained at every location using a Great Plains 2,000 series UNRC drill planter with depth bands. Seven were No-Till, four were stale seed bed, and six were conventional tilled. Soils ranged from clays to deep sandy loams and from flat to 12% slope. At eleven of the locations there was a direct comparison to wide rows. Ten of the demonstrations were harvested with a 7450 John Deere stripper with a modified AC finger header. Two

demonstrations were harvested with John Deere 7445; two others were harvested with John Deere 484, and the remaining demonstrations were harvested with an Allis-Chalmers Finger Stripper.

Lint Yields for UNRC ranged from 645 lbs./ac. to 1118 lbs./ac., with a 748 average. Wide row yields were from 445 to 900 lbs./ac. with a 678 lbs./ac. average. Cost and profit figures showed a 52% advantage for UNRC. UNRC resulted in an average profit of \$280.80/ac. compared to \$147.50/ac. for wide rows. Gin turnout ranged from 27% to 34% for UNRC stripper harvest to 32% to 36% for wide rows with an average of 28% for UNRC and 32% for wide rows. Thirty percent of the UNRC bales graded light bark. More tests need to be done in this area.

UNRC System

- Burndown (no-till) or conventional tillage
- * Pre-emerge herbicide
- Plant with UNRC planter
- Control grass and broadleaf weeds over the top
- Monitor and control insects
- Monitor and regulate cotton growth and development with Pix
- Apply defoliant and boll opener
- Apply desiccant
- Harvest with broadcast stripper
- * Sow cover crop and cut stalks

Conclusions

The UNRC system works very well and is easy to do, but it is very different. These demonstrations along with other recent tests suggest that UNRC is a viable, economical alternate cotton production system that will allow producers to grow high yielding, quality, short season cotton across a wide variation of soils, topography, and tillage conditions.

UNRC Advantages

- Fits across all tillage systems
- Fits across most soils, topography, and conditions
- Less erosion
- Less machinery cost
- * Less labor

Table 1. 1995 BASF UNRC Demo field trials yield and profit results

Rep/Ave. of all Locations	UNRC		WRC	
	Y ₀ Gin Turnout	Lint Yield/ac.	Y ₀ Gin Turnout	Lint Yield/ac.
Brad Guice, Winnsboro, LA	27	929	32	900
Wade Stewart, Scott, MS		1052		799
John Harden, Keiser, AR	28	824	32	807
Sam Atwell, Memphis, TN	28	897	32	813
Russ Perkins, Lubback, TX		765		556
Average	28	894	32	775
Example				
Ave. price \$.70 Gross		\$625.80		\$542.50
Ave. Cost UNRC \$345.00/ac.				
Ave. Cost WRC \$395.00/ac.				
Net		\$280.80		\$147.50

- * Less input cost
- Less weed pressure
- Potential for higher yield
- Potential for higher quality cotton
- More profit

UNRC Problems Or Needs

- Improve harvesters
- Improve planters
- * Ginner acceptance
- Improve leaf grade

UNRC Disadvantages

- All applications must be broadcast
- * No post-directed applications
- No cultivation
- * Must plant flat
- Difficult to furrow irrigate
- * Once-over harvest
- Potential for lower grades/trash

Precautions

- * Do not plant UNRC on poorly drained, cold natured soils.
- Do not plant UNRC on land with weed problems that cannot be controlled easily with the current herbicide arsenal.
- Do not plant UNRC without a precision drill planter on 10" or less row spacings.
- * Do not plant UNRC without a good over top broadcast sprayer.
- * Do not plant UNRC without a good finger stripper harvester.
- Do not plant UNRC before consulting with your Ginner.
- UNRC works very well and is easy to manage, but it is very different. Management is generally more difficult on good fertile soils.