Southern Weed Science Research Unit

Narrow Row (15”) vs. Wide Row (40”) Cotton Production – Agronomic and Weed Control Studies

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Overview

Narrow row cotton production systems are not new. The stripper harvesters of the early 1990’s fueled interest among researchers whose goal was to reduce inputs and increase net returns, therefore increasing the sustainability of cotton production. For stripper production, 7 ½ inch and 10 inch row spacings were considered, but the bottom line was stripper cotton was never widely adopted due to increased seed costs and high penalties at ginning due to trash in the lint.

John Deere’s new narrow row system is a picker system that utilizes blades and guides to cut and move every other row over and through the picker. Although marketed for less optimum environments, the new system has been adopted by some Mississippi Delta growers. When the picker system is coupled with the new Roundup Flex and Ignite Cotton systems, effective weed control could be possible using over-the-top applications. The USDA-ARS Southern Weed Science Research Unit scientists are conducting several studies to determine the agronomic and economic benefits of narrow row (15”) cotton.

Objectives

The objectives of the studies were to evaluate several factors, including:

- Planting density
- Weed control inputs
- Irrigation
- Harvesting efficiency

Figure 2. Weed Control in 15” Cotton:
a. Prowl + Cotoran PRE fb Roundup Weathermax at 3-4 lvs.
b. Prowl + Cotoran PRE fb Roundup Weathermax at 3-4 lvs fb Roundup Weathermax at 8-10 lvs.
c. Prowl + Cotoran PRE fb Roundup Weathermax at 3-4 lvs fb Roundup Weathermax + Dual Magnum at 8-10 lvs.
d. Prowl + Cotoran PRE fb Roundup Weathermax at 3-4 lvs fb Roundup Weathermax + Envoke at 8-10 lvs.

40” Cotton | **Twin Row Cotton (10” Spacing)** | **15” Cotton**

9 WAP

10 WAP

12 WAP

Figure 1. At 9 WAP, canopy closure has already occurred in 15 inch cotton, while in 40 inch cotton canopy closure still has not occurred by 12 WAP. Twin row canopy closure occurred at 10 WAP.

Conclusions

In general, the results of the first year of study indicate:

1. The major difference between the two systems is the timing of the last herbicide application.
2. Canopy closure occurred 4 weeks faster in 15” cotton than in 40” cotton.
3. Irrigation is possible using an 80 inch bed similar to that of soybean narrow row production.
4. The use of a preemergence herbicide system is important for reducing weed infestations at the later postemergence applications, thus reducing the likelihood of missed weeds and reducing the selection pressure placed on those weeds.
5. The best cotton weed control systems for 15” row cotton spacing is one that includes two to three applications of herbicides with different modes of action and a residual herbicide at the last application.
6. Based on the first year’s results, annual grasses will probably pose the biggest problem for narrow row cotton producers.
7. Early canopy has the potential to reduce late season weed emergence and establishment.