TWO-IN-ONE SKIP ROW COTTON EVALUATIONS

Growers are interested in standardizing row spacing across crops. This would help to: optimize grain yields and production systems, maintain the viability and yield potential of cotton, and allow easier growth control in cotton. This trial was initiated in response to grower questions about various cotton row spacing options and configurations.

STUDY GUIDELINES

A demonstration trial was conducted in 2011 at the Monsanto Learning Center near Scott, Mississippi to compare 30", 2:1 skip row planting systems to 38" solid row planting systems in cotton. The trial evaluated multiple cotton varieties at different plant populations.

Five cotton varieties, with maturities ranging from early to late, were planted on April 19, 2011 and harvested in late September. Three plant populations were used and are shown in Table 1. Agronomic management, in general, was similar to the local standard. The exceptions to this were seeding rate and the rates and timing of plant growth regulator (PGR) application(s). PGR (4.2% mepiquat chloride; .35 lb. active ingredient per gallon) was applied as needed per label recommendations on three different dates (Table 2). In an effort to allow for larger, more vegetative, plants which are able to compensate for the skipped row, PGR applications were delayed in the skip row planting systems. In addition, the PGR rates were as much as 50% lower in the 2:1 skip row planting systems compared to the 38" solid row plantings. This compensation is critical in the 2:1 skip row planting configuration to help achieve yield potentials that are competitive with the 38" solid row configurations.

Plant height and yield data were both collected from the trial. Table 3 lists plant height and yield data by variety, plant population, and row configuration.

Table 1. Plants per row foot for each planting population and planting system.

Plant Population Per Acre (PPA)	38" Solid Planting	30", 2:1 Skip Row Planting
	Plants Per Row Foot	
27,000	2	2.66
41,000	3	4.00
55,000	4	5.33

Table 2. Mepaquat chloride plant growth regulator application, as needed, shown by date and rate.

Date of application	38" Solid Row Planting	30", 2:1 Skip Row Planting
	PGR Rate (ounces)	
June 1st	6	0
June 30th	16	12
July 8th	20	10

RESULTS

Across populations, plant heights were similar even with reduced amounts of PGR in the 2:1 skip row plantings. This indicates a potential for less intense agronomic management in a 2:1 skip row planting scenario. However, monitoring and appropriate management will still be necessary. In addition, locally adapted varieties appear to do well in both row configuration planting systems. Growers should consider these factors when selecting varieties and/or production systems. The use of a 2:1 skip row planting system in cotton production could allow for advantages over solid row systems and be compatible with grain crops on 30" rows.

Contrary to some popular beliefs, this protocol demonstrates it may not be the case that 2:1 skip row plantings could save seed and technology fees for Genuity® Bollgard II® Cotton with Roundup Ready® Flex Cotton because less seed is planted. In this study, three plant populations were evaluated for yield potential in both the 2:1 skip and solid planted system. All planted populations in the 2:1 skip row pattern resulted in denser finished stands due to the increased seeding rate per foot of planted row. In effect, we have placed the unplanted seeds which would have been on the skipped row back into the two planted rows in the 2:1 skip. This increased density allows the 2:1 skip row the chance to compensate for the skips with potentially more fruiting positions per foot of planted row.

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Table 3. Yield comparisons by variety, plant population, and row configuration.

Variety	Plant Population	38" Solid Row	30" 2:1 Skip Row	38" Solid Row	30" 2:1 Skip Row
		Plant Height (inches)		Yield lb lint/acre	
DP 0912 B2RF	27,000	49	44	1407	1077
	41,000	49	53	1251	1436
	55,000	51	53	1355	1279
DP 1028 B2RF	27,000	56	54	1330	1288
	41,000	53	52	1247	1264
	55,000	56	51	1219	1193
DP 1034 B2RF	27,000	52	62	1150	1226
	41,000	50	50	1122	1179
	55,000	53	47	1177	1367
DP 1133 B2RF	27,000	51	49	1235	1441
	41,000	49	54	1290	1323
	55,000	49	50	1400	1229
DP 1137 B2RF	27,000	53	51	1372	1300
	41,000	55	50	1262	1300
	55,000	53	49	1317	1134

SOURCES

Cooperative Extension. November 19, 2009. Cotton Plant Growth Regulators. Available On-line: www.extension.org, verified 12/18/11.

Mississippi State University. 2010. Cotton Production in Mississippi, Pix Use. MSUcares.com.

Mississippi State University. 2010. Cotton Production in Mississippi, What final live plant population should I target? MSUcares.com.

The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

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