ROUNDUP READY FLEX VARIETIES VERSUS DP 555 BG/RR

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Introduction

Scientists with The University of Georgia have been working with the weed management aspects of Roundup Ready Flex (RF) technology for several years. Commercialization is expected for the 2006 growing season, with seed supplies sufficient for almost 3 million acres across the U.S. To increase experience with RF varieties, in 2005 Monsanto encouraged seed company providers to submit entries to Official Variety Trials managed by public institutions and also sponsored specific RF trials managed by Extension scientists. Of the latter group, one such trial was established at a non-irrigated site on the ABAC Farm at Tifton, Georgia. The field had not been planted in cotton for many years.

DP 555 BG/RR is the most widely planted variety in Georgia. A USDA survey indicated that it was planted on 73 percent of the acreage in the state in 2005. Because of its high yield potential, DP 555 BG/RR was used as a control variety in this experiment.

Materials and Methods

Cotton was planted on May 3, 2005, with a cone planter at a rate of 3.0 seed/ft. Plot size was 2 rows by 40 feet and there were 4 replications. The field had been strip-tilled but had limited surface residues of small grain and corn stubble. Varieties included RF, Bollgard II/RF, and WRF technologies. Two treatments of DP 555 BG/RR were included, one which received glyphosate applications identical to the RF varieties and one for which the mid-post (9 to 10-leaf over-the-top) application was omitted. Preplant fertilization included 330 lb/A of 17-4-15 and 1 ton/A of lime. A sidedress application of 28-0-0-5 at 15 gal/A was made on June 14. Plots were hand thinned in late May to eliminate clumps of plants and to reduce populations to 1.5 to 2 plants/ft. Weed control treatments included PRE (May 6) - Roundup Weather Max (22 oz) + Prowl (1 qt); EARLY POST (cotyledon to 1-leaf, May 16) - MON 3539 (22 oz); EARLY POST (4-leaf, May 25) - MON 3539 (22 oz); MID POST (9 to 10-leaf, June 13) -MON 3539 (22 oz) except on 'DP 555 BG/RR RR Program;' and minimal hand weeding as needed. All glyphosate treatments were applied over-the-top. Pentia was applied at 16 oz/A on June 30 and July 8. Plots were machine harvested on September 23. Small seed cotton samples were taken from 2 replications and subjected to hand ginning to determine lint turnout. Lint samples were sent to the LSU Fiber Lab.

Results and Discussion

A good stand was achieved with all varieties and there were minimal differences in early season vigor (data not shown). Few instances of drought/heat stress were observed

throughout the season until late August and September. Late-season drought/heat was intense, and it limited upper boll production as well as boll rot.

Yield and lint percent (turnout) data are provided in Table 1, fiber quality data in Table 2. Several varieties produced lint yields comparable to DP 555 BG/RR but none statistically greater. Among these are RF as well as B2RF and WRF varieties. It is interesting to note there was no difference between DP 555 BG/RR which received the standard Flex program (Treatment 1) and which received only two early post over-the-top Roundup applications (Treatment 25). Favorable uniformity and short fiber content data reflect the results of processing on a table top gin. Micronaire is surprisingly good with most varieties.

Table 1. Yield and turnout of Roundup Ready Flex Trial, ABAC Farm, 2005.

Variety	Seed cotton yield, lb/A	Lint, lb/A	Lint, %
1 DP 555 BG/RR RR Flex Program	4843.8 ab	2092.5 a	0.4320 c
2 3020 GA	4442.2 b-f	1821.3 cde	0.4100 m
3 3520 GA	4358.3 c-f	1773.8 c-g	0.4070 n
4 4020 GA	4766.6 abc	1954.3 abc	0.4100 m
5 PHY 475 WRF	4260.7 efg	1827.8 cde	0.4290 d
6 PHY 485 WRF	4957.2 a	2096.9 a	0.4230 f
7 PHY 415 RF	4610.1 a-e	1922.4 a-d	0.4170 i
8 PHY 425 RF	4605.6 a-e	1925.1 a-d	0.4180 h
9 STX 6611 B2RF	4664.5 a-e	1856.5 b-e	0.3980 r
10 STX 6622 RF	4521.6 b-f	1930.7 abc	0.4270 e
11 STX 5885 B2RF	4410.5 b-f	1724.5 efg	0.3910 t
12 STX 4664 RF	4626.0 a-e	2100.2 a	0.4540 a
13 BCG-1505 RF	4113.2 fg	1637.1 fg	0.3980 r
14 BCG-1004 BBIIF	4689.5 a-e	1941.5 abc	0.4140 k
15 BCG-3255 BBIIF	4678.2 a-e	1871.3 b-e	0.4000 q
16 BCG-4021 BBIIF	4662.3 a-e	1836.9 cde	0.3940 s
17 BCG-4630 BBIIF	4812.0 ab	2025.9 ab	0.4210 g
18 BCG-9124 BBIIF	4698.6 a-d	1949.9 abc	0.4150 j
19 BCG-9775 BBIIF	4641.9 a-e	1782.5 c-g	0.3840 u
20 DPX 04X495 F	4326.5 def	1782.5 c-g	0.4120 l
21 DPX 04X462 F	3850.1 g	1620.9 g	0.4210 g
22 DPX 04X419 DF	4514.8 b-f	1815.0 c-f	0.4020 p
23 DPX 04X436 DF	4322.0 def	1746.1 d-g	0.4040 o
24 DPX 04T126 DF	4483.0 b-f	1860.5 b-e	0.4150 j
25 DP 555 BG/RR RR Program	4616.9 a-e	2054.5 a	0.4450 b
26 STX 0404 B2RF	4723.5 a-d	2102.0 a	0.4450 b
LSD (P=.10)	434.91	181.24	0.00042
CV	8.1	8.13	0.09

Means followed by same letter do not significantly differ (P=.10, LSD)

Table 2. Fiber Quality of Roundup Ready Flex Trial, ABAC Farm, 2005

Variety	Length, inches	UNIF	Short fiber, %	Strength, g/tex	mic
1 DP 555 BG/RR RR Flex Program	1.165 f-j	82.50 def	6.35 a-d	31.30 a-d	4.20 a-d
2 3020 GA	1.160 g-j	83.40 a-e	5.05 def	27.65 j	3.95 def
3 3520 GA	1.190 def	83.90 ab	5.50 b-f	28.15 ij	3.90 def
4 4020 GA	1.230 a	83.40 a-e	5.30 c-f	28.85 f-j	3.70 ef
5 PHY 475 WRF	1.155 hij	83.70 abc	4.95 def	31.60 abc	3.95 def
6 PHY 485 WRF	1.160 g-j	84.00 ab	4.55 f	31.80 abc	4.25 a-d
7 PHY 415 RF	1.155 hij	83.55 a-d	5.60 b-f	29.65 d-i	4.20 a-d
8 PHY 425 RF	1.150 ij	83.80 abc	5.20 def	30.65 a-g	4.40 abc
9 STX 6611 B2RF	1.160 g-j	83.05 a-e	6.05 a-e	28.60 hij	4.15 bcd
10 STX 6622 RF	1.180 d-h	83.40 a-e	5.95 b-f	30.00 c-i	4.20 a-d
11 STX 5885 B2RF	1.195 cde	83.95 ab	4.95 def	31.90 ab	4.05 cde
12 STX 4664 RF	1.155 hij	82.30 ef	6.75 abc	31.05 a-e	4.00 c-f
13 BCG-1505 RF	1.195 cde	83.35 a-e	5.95 b-f	31.15 a-e	3.95 def
14 BCG-1004 BBIIF	1.205 a-d	84.10 a	4.65 ef	30.65 a-g	4.25 a-d
15 BCG-3255 BBIIF	1.175 e-i	83.80 abc	4.95 def	28.20 ij	3.90 def
16 BCG-4021 BBIIF	1.175 e-i	83.75 abc	5.10 def	29.10 f-j	3.60 f
17 BCG-4630 BBIIF	1.180 d-h	84.10 a	5.70 b-f	29.60 d-i	4.10 cde
18 BCG-9124 BBIIF	1.200 b-e	84.10 a	5.00 def	30.70 a-f	4.00 c-f
19 BCG-9775 BBIIF	1.225 ab	84.10 a	4.95 def	29.05 f-j	3.85 def
20 DPX 04X495 F	1.200 b-e	82.70 c-f	6.35 a-d	29.40 e-j	4.00 c-f
21 DPX 04X462 F	1.205 a-d	81.70 f	7.50 a	30.50 a-g	4.00 c-f
22 DPX 04X419 DF	1.220 abc	82.95 a-e	6.95 ab	28.80 g-j	3.90 def
23 DPX 04X436 DF	1.180 d-h	83.00 a-e	6.15 a-d	29.45 d-j	4.05 cde
24 DPX 04T126 DF	1.185 d-g	83.20 a-e	6.00 b-f	30.70 a-f	4.20 a-d
25 DP 555 BG/RR RR Program	1.145 j	83.10 a-e	5.90 b-f	30.35 b-h	4.55 ab
26 STX 0404 B2RF	1.140 j	82.85 b-f	6.15 a-d	32.30 a	4.60 a
LSD (P=.10)	0.0260	1.180	1.483	1.882	0.435
CV	1.29	0.83	15.31	3.67	6.25

Means followed by same letter do not significantly differ (P=.10, LSD)