

COTTON GROWTH AND YIELD RESPONSE TO ROW PATTERN IN 2004

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ABSTRACT: A study initiated in 2003 was continued in 2004 on a Marietta silt loam soil (Verona, MS) and a Falaya silt loam soil (Falkner, MS) evaluating cotton response to different row pattern production systems. A Clarksdale location on a Dubbs very fine sandy loam soil was added in 2004. The row patterns used in all studies were 15, 30, and 38-inch row solid cotton, 15-inch rows with a 2 x 1 skip row (2 rows of cotton with a 30-inch skip), 15-inch row 2 x 2 skip row (2 rows with a 45-inch skip), 30-inch rows with a 1 x 1 skip-row (cotton in 60-inch rows), 30-inch rows with a 2 x 1 skip row (2 rows of cotton with a 60-inch skip), and 38-inch rows with a 2 x 1 skip row (2 rows of cotton with a 76-inch skip).

In 2004, cotton was planted 4/27/04 at Verona, 5/06/04 at Clarksdale and 5/10/04 at Falkner. The growing season was highly variable at all locations with above normal rainfall in May and June followed by no rainfall from mid-July through mid-August. The study mean lint yield (on a land basis) at Clarksdale, Verona, and Falkner were 1284, 897, and 1128 lb/ac, respectively. The first fruiting branch node at all locations ranged from 5.9 to 6.5 with no difference among row patterns and locations. Verona and Falkner row patterns showed no yield difference between 15-inch solid, 15-inch 2 x 1 skip row, and 30-inch solid; and all were higher than 38-inch solid, 60-inch solid, 38-inch solid, 30-inch 2 x 1 skip row and 38-inch 2 x 1 skip row pattern. However, at Clarksdale, the 38-inch row solid produced yield equal to 15-inch solid, 15-inch 2 x 1 skip and 30-inch solid with no differences between these treatments.

The percent open bolls at maturity indicated the 15-inch row solid cotton was not different from 30 or 38-inch row at all locations. The 2 x 1 skip row pattern for the 38-inch row and the 60-inch solid had a lower percent open than the 15-inch solid, 30 or 38-inch rows at Verona and Clarksdale with no differences at Falkner. Clarksdale and Verona showed no differences between row patterns for boll rot. However, at Falkner, the 38-inch 2 x 1 skip row and 30-inch 2 x 1 skip had more boll rot per 10 ft of row than 15-inch solid, 15-inch 2 x 1 skip, 15-inch 2 x 2 skip, 30-inch solid and 38-inch solid. This research will be continued at all locations to determine whether yield responses are similar and what are the cost and returns for each cotton production system.

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MATERIALS AND METHODS: Studies were initiated in 2003 at Verona and Falkner, and at Clarksdale in 2004 to evaluate cotton row pattern effect on plant characteristics and lint yield. Soil types at Clarksdale, Verona, and Falkner were Dubbs very fine sandy loam, Marietta silt loam and a Falaya sandy loam soil, respectively. The studies were conducted as randomized complete block designs with four replications. Plot size for all 15, 30, 30 2 x 1 skip and 60-inch solid cotton were 16.5 ft by 120 ft. The 38-inch row solid and 38-inch 2 x 1 skip row pattern plot size was 13 ft by 120 ft and 20 ft x 120 ft, respectively. Deltapine DP 449BG/RR cotton cultivar was planted at all locations. Seeding rates at all locations were 3 seed/ft of row for all 15 and 30-inch rows and 4 seed/ft of row for 38-inch rows. The seed was treated with Centric (thiamethoxam) for early season insect control.

All cotton plots were harvested with a John Deere 4020 single row picker equipped with a John Deere PR012® twin row 15-inch spacing spindle picker head. The plots were harvested on 10/05/04, 9/27/04 and 11/08/04 at Clarksdale, Verona, and Falkner, respectively. Four rows of the 15-inch solid, 15-inch 2 x 1 skip row and 15-inch 2 x 2 skip row; 2 rows of the 60-inch; 2 rows of 30 and 38-inch solid; and 2 rows of the 30-inch 2 x 1 skip row and 38-inch 2 x 1 skip row treatments in each plot were harvested for yield. No border rows were harvested for yield.

The seed cotton from the harvested plots was ginned with a mini-gin (state of the art cotton gin, equivalent to a commercial gin) to determine lint yield. Lint samples were analyzed by HVI and AFIS analysis to determine fiber quality and spinning ability. Data collected at all locations were total harvestable bolls/plant, (total open plus green bolls hard to thumb pressure at defoliation) percent open, plant height at harvest, plant population at harvest, plant stem diameter at harvest, boll rot at harvest, seed cotton yield, gin turnout, and lint yield. Data from each location was subjected to Analysis of Variance and means were separated using Fisher's Protected LSD calculated at the 5% significance level.

Verona: Fertilizer (P and K) nutrients were applied based on soil test recommendations. Potash (0-0-60) at 200 lb/ac + 100 lb/ac of phosphate(0-46-0) + 10 lb/ac of zinc sulfate (31% zinc) as a blend mixture were applied broadcast to the soil surface over the entire study on 10/24/03. Land preparation consisted of chiseling plus do-all (row conditioner) on 11/5/03. The entire study was do-alled on 3/25/04 and the cotton was planted on 4/27/04. Ammonium nitrate at 90/lb N/ac was applied surface broadcast on 5/25/04. CoRoN (10-0-10, 0.5% B) at 1 gpa was applied as a foliar application on 7/13/04 and repeated on 7/20/04.

Herbicides and a plant growth regulator were applied as needed for good weed management and to control rank cotton growth. Roundup WEATHERMAX (glyphosate) + Clarity (dicamba) at 1.0 lb + 0.25 ai/ac was applied as a burndown on 3/14/04. Roundup WEATHERMAX at 1.0 lb ai/ac was applied postemergence to 4-leaf cotton on 5/25/04. Assure II (quizalofop) + Staple (pyrothiobac) at 0.068 lb ai/ac + 1.0 oz ai/ac was applied postemergence on 6/10/04. Assure II repeat application at 0.068 lb ai/ac (10 oz/ac) was made on 6/21/04. Pentia (mepiquat pentaborate), plant growth regulator, at 0.08 lb ai/ac (12 oz/ac) was applied 7/9/04 and repeated at 0.09 lb ai/ac on 7/16/04.

The cotton was scouted twice weekly and insecticides were applied when insect pests were at or above threshold. Tarnished plant bug (*Lygus lineolaris*), bollworm (*Helicoverpa zea*), and budworm (*Heliothis virescens*) infestations were low during the growing season. Plant bugs were the most predominant insect pest in 2004. Bidrin (dicotophos) at 0.25 lb ai/ac, and Centric

(thiamethoxam) at 0.05 lb ai/ac were applied 6/15/04 and 8/02/04 for plant bug control, respectively. Cotton was defoliated 9/9/04 with Finish (ethephon + cyclanilide) + Dropp (thidiazuron) at 1.0 + 0.1875 + 0.042 lb ai/ac. The cotton was harvested 9/27/04.

Falkner, Mississippi (Keith Morton Farm): Potash (0-0-60) at 300 lb/ac and 18-46-0 (N-P-K) analysis at 100 lb/ac, sulfur at 10 lb/ac, and boron at 5 lb/ac as a blend mixture were applied surface broadcast on 3/7/04. Ammonium nitrate at 200 lb/ac (64 lb N/ac) was applied surface broadcast to the cotton on 6/10/04 which made the total amount of Nitrogen applied 84 lb N/ac. Land preparations consisted of subsoiling on 3/10/04; disking twice on 3/20/04; and doalling twice on 3/24/04 and at planting on 5/10/04.

Herbicides and plant growth regulator were used for good weed management and to control rank cotton growth. Glyphos (glyphosate) + Staple + Bidrin at 1.0 + 0.5 oz ai/ac + 0.2 lb ai/ac was applied postemergence on 6/7/04. Assure II at 0.055 lb ai/ac was applied postemergence on 6/21/04. Envoke (trifloxysulfuron) at 0.1125 oz ai/ac was applied postemergence on 7/20/04. Pentia + Assure II + surfactant at 0.08 + 0.055 lb ai/ac (8 oz/ac) + 0.2 pt/ac was applied 7/12/04. Pentia at 0.12 lb ai/ac (18 oz/ac) was applied on 7/19/04.

The cotton was scouted weekly and insecticide applications were made when scouting reports indicated that insect pests were at or above threshold. Bidrin at 3.2 oz ai/ac was the only insecticide applied for plant bug control on 6/7/04. Cotton was defoliated on 9/29/04 with Super Boll (ethephon) + Folex (phosphorotrithioate) + Dropp + crop oil at 1.5 + 0.61 + 0.06 lb ai/ac + 0.4 pt/ac. The cotton was harvested on 11/8/04.

Clarksdale: Soil test results indicated high Pand K nutrient levels and no P or K fertilizer was applied. The area was subsoiled 11/3/03. The study site received 60 lb N/ac (32% UAN solution) applied as a surface broadcast spray and incorporated with a field cultivator on 3/25/04. The area was harrowed before planting cotton on 5/6/04. Urea at 60 lb N/ac was applied aerial broadcast on 7/7/04. Weed control was maintained at high levels with Staple at 1.0 oz ai/ac applied on 5/21/04; Select (clethodim) + crop oil at 0.1875 lb ai/ac + 2 pt/ac applied on 6/8/04; and Envoke + surfactant at 0.075 oz ai/ac + 0.2 pt/ac applied on 6/9/04.

The cotton was scouted twice weekly and insecticides were applied when insect pests were at or above threshold. Tarnished plant bug was the major pest during the growing season. Bollworm and budworm infestations were mostly at low levels. Eleven total applications of Orthene (acephate), Centric or Orthene + Ammo (cypermethrin) were applied during the growing season. Most applications were made for tarnish plant bug control.

Pentia at 0.053 lb ai/ac (8.4 oz/ac) and at 0.08 lb ai/ac (12 oz/ac) were applied on 6/29/04 and 7/10/04, respectively, to control rank cotton growth. Cotton was defoliated with Dropp (thidiazuron) + Prep (ethephon) at 0.0625 + 1.5 lb ai/ac on 9/23/04. The cotton was harvested on 10/05/04.

RESULTS AND DISCUSSION: The growing season was highly variable, with above normal rainfall for May and June followed by no rainfall from mid-July through mid-August at all locations. This resulted in some early fruit shed from cloudy rainy weather in late June and early

July and some late season fruit shed due to dry weather in mid-July through mid-August. However, yields were above average to excellent.

Verona: Seeding rates of 26,000 to 104,000 seed/ac resulted in populations at harvest ranging from 21,300 plants/ac for 60-inch rows to 85,400/ac for 15-inch solid rows (Table 1). The populations were reflective of the seeding rates which varied across row patterns from 26,200/ac for 60-inch row solid cotton to 104,600/ac for the 15-inch row solid cotton.

Height at harvest and fruiting branch node location indicated no difference among row patterns (Table 1). The average first fruit branch node location was 5.9 with no differences between row patterns. The percent of plants with a bloom on 7/12/04 indicated the 15-inch solid rows had 60% of the plants blooming which was less than 15-inch 2 x 2 skip row, 30-inch solid and 30-inch 2 x 1 skip row patterns (Table 1). Stem diameter at harvest indicated the 15-inch row solid stem diameter of 0.352 inches was less than 30-inch solid, 30-inch 2 x 1 skip row, 60-inch solid and 15-inch 2 x 2 skip row pattern. The 38-inch solid, 38-inch 2 x 1 skip row and 15-inch 2 x 1 skip row and the 15-inch solid had similar stem diameters. Plant height at harvest indicated a range from 33 to 38 inches with no difference among row patterns.

Lint yield, percent open bolls and harvestable bolls showed differences between row patterns with no differences in boll rot (Table 2). Lint yield ranged from 759 to 1043 lb/ac with a mean of 897 lb/ac. The 15-inch solid, 15-inch 2 x 1 skip and 30-inch solid showed no yield differences and were higher than the 30-inch 2 x 1 skip row and 38-inch row 2 x 1 skip row, 38-inch solid, and the 60-inch solid row. The 30-inch solid, 15-inch 2 x 2 skip row, and 15-inch 2 x 1 skip row showed no yield differences. Except for the 60-inch solid and the 38-inch 2 x 1 skip, row patterns showed no differences with a range of 68 to 79% open bolls. The 38-inch 2x1 skip row and the 60-inch solid had the lowest percent of bolls open with 55 and 62%, respectively.

The 15-inch solid rows which had the most plants per acre, had the fewest harvestable bolls/plant with 3.6/plant (Table 2). The 60-inch solid had the highest number of bolls/plant and the fewest plants/ac. However, 15-inch 2 x 1 skip, 15-inch 2 x 2 skip, 30-inch solid and 38-inch solid bolls/plant were not different from the 15-inch solid. Although rotten bolls per 10 ft of row showed no row patterns differences, the trend was for more boll rot with the 60-inch solid and 38-inch 2 x 1 skip row pattern.

Falkner: Plant population, percent of plants blooming, stem diameter at harvest, and plant height were affected by row pattern (Table 3). Plant populations at harvest ranged from 18,100/ac for the 60-inch row which had a seeding rate of 26,200 to 87,100/ac for the 15-inch solid which had a seeding rate of 104,600 seed/ac.

The percent of plants blooming on 7/19/04 ranged from 34 to 71% (Table 3). The 15-inch solid had the fewest plants blooming at 34% and was less than 15-inch 2 x 1 skip row, 15-inch 2 x 2 skip row 30-inch row solid, 30 inch 2 x 1 skip row, 60-inch solid and 38-inch 2 x 1 skip row pattern. The percent of plants blooming for the 38-inch row solid was not different from the 15-inch solid. Although the 15-inch solid indicated fewer blooming on 7/19/04, it had the highest lint yield. The bloom delay did not affect lint yield or delay maturity (% open bolls at defoliation) in comparison to the other row patterns.

Stem diameter ranged from 0.341 to 0.549 inches (Table 3). The 15-inch solid had the lowest stem diameter and was less than all other row patterns. The 60-inch row solid had the largest stem diameter of 0.549 inches, which was equal to 30-inch 2 x 1 skip row pattern and were larger than 15-inch 2 x 1 skip, 15-inch solid and 38-inch solid. The 15-inch 2 x 1 skip row, 15-inch 2 x 2 skip-row, 30-inch solid and 38-inch solid stem diameters were not different.

Plant height at harvest for the 15-inch row solid was 37 inches, which was shorter than all other row patterns (Table 3). Except for the 15-inch solid, there was no difference in plant height among row patterns. The first fruiting branch node location mean was 6.5 and there were no differences among row patterns.

Lint yield, harvestable bolls per plant and boll rot were affected by row pattern (Table 4). Although the percent of bolls open on 9/28/04 ranged from 36% for 38-inch 2 x 1 skip row to 53% for the 15-inch row solid, there were no differences among row patterns. Lint yield ranged from 923 lb/ac for the 38-inch 2x1 skip row to 1304 lb/ac for the 15-inch solid with a study mean yield of 1128 lb/ac. The 15-inch solid, 15-inch 2 x 1 skip and 30-inch row solid had no yield differences. These treatments were higher in yield than 60-inch solid, 30-inch 2 x 1 skip, 38-inch solid, and 38-inch 2 x 1 skip row. The 15-inch 2 x 2 skip had yield equal to 30-inch solid and 15-inch 2 x 1 skip row, 30-inch 2 x 1 skip row and 38-inch solid. The 60-inch solid and 38-inch 2 x 1 skip had the lowest yields of 969 and 923 lb/ac which were lower than all other treatments.

Boll rot/10 ft of row was greater in the 38-inch 2 x 1 skip row than 30-inch solid, 60-inch solid, 15-inch 2 x 1 skip 15-inch solid, and 15-inch 2 x 2 skip row. The 15 inch row solid, 15 inch 2 x 1 skip, 15 inch 2 x 2 skip, 30 inch solid, 30-inch 2 x 1 skip and 38 inch solid showed no difference in boll rot. The 30-inch 2 x 1 and 38-inch 2 x 1 skip pattern showed no differences in boll rot. The 15-inch row solid which had the highest seeding rate (104,600/ac) also had the fewest harvestable bolls/plant (4.8). The 15-inch row solid harvestable bolls/plant was equal to the 15-inch 2 x 1 skip but lower than all other treatments. The treatments with the lower seeding rates and wider rows had a higher number of bolls/plant. The 30-inch 2 x 1 skip, 38-inch 2 x 1 skip and the 60-inch had more harvestable bolls/plant than 15-inch solid 15-inch 2 x 1 skip row 30-inch solid and 38-inch solid. The 60-inch row had the highest number with 16.7 bolls/plant.

Clarksdale: First fruiting branch node and plant height at harvest were not influenced by row pattern (Table 5). However, stem diameter and plant population was affected by row pattern. The first fruiting branch node mean was 6.5 with no difference among treatments. Plant populations ranged from 18,900 for 60-inch solid row to 85,100 for 15-inch solid. The population was reflective of the seeding rates which ranged from 26,200/ac for 60-inch solid to 104,600 for the 15-inch solid. The population showed differences between each row pattern. Stem diameters at harvest ranged from 0.294 to 0.433 inches. The 15-inch solid had the smallest stem diameter of 0.294 inch and was less than all other row patterns. The 15-inch 2 x 1, 15-inch 2 x 2, 30-inch solid, 38-inch solid and 38-inch 2 x 1 skip had similar stem diameters and were less than 30-inch 2 x 1 skip and 60-inch solid which had the largest stem diameters. Plant height at harvest indicated a mean of 33 inches with no difference among row patterns.

Lint yield, percent open bolls, and harvestable bolls were affected by row pattern (Table 6). Boll rot, however, was not affected by row pattern. Lint yield ranged from 1148 lb/ac for 60-inch solid to 1396 lb/ac for 30-inch solid. The 15-inch solid, 15-inch 2 x 1 skip row, 30-inch solid and 38-inch solid produced no difference in yields which ranged from 1310 to 1396 lb/ac. The 30-inch 2 x 1 skip and 60-inch solid produced lower but similar yield which ranged from 1148 to 1168 lb/ac. The percent of bolls open on 9/16/04 ranged from 55% for 60-inch solid to 83% for 15-inch 2 x 1 skip row pattern. Except for 38-inch 2 x 1 skip and 60-inch solid, the percent open bolls for all other row patterns ranged from 73 to 83% and were not different. The 60-inch solid, and 38-inch 2 x 1 skip row pattern had lower but similar percent open bolls at 55 to 57%.

Harvestable bolls indicated that 15-inch row solid which had the highest seeding rate (104,600/ac), also had the fewest bolls/plant (4.5). The bolls/plant were less than all other treatments, except 15-inch 2 x 1 skip row pattern. The 60-inch solid had the fewest plants/ac, also had more bolls/plant than all other treatments. The number of plants at harvest ranged from 18,900/ac for the 60-inch solid to 85,100/ac for the 15-inch solid. The differences in plant population were related to the seeding rates differences for each row pattern.

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Table 1. Cotton plant characteristic at harvest as influenced by row pattern on a Marietta silt loam soil in 2004, Verona, MS.

Row pattern (in)	Planted seed/ac -----x 1000-----	Pl/ac 9/22/04	FFBN ¹ 10/02/03	% PI bloom 7/12/04	Diameter stem (in) 9/22/04	Height (in) 9/21/04
15-in solid	104.6	85.4	6.0	60	0.352	35
15-in 2 x 1 skip	78.4	56.4	5.8	65	0.386	36
15-in 2 x 2 skip	52.3	47.8	6.1	80	0.428	33
30-in solid	52.3	49.1	5.5	79	0.409	37
30-in 2 x 1 skip	34.9	32.5	6.1	76	0.446	38
60-in solid	26.2	21.3	6.3	71	0.511	34
38-in solid	55.0	52.3	5.6	58	0.390	34
38-in 2 x 1 skip	36.7	33.7	5.8	70	0.396	33
Mean	---	47.3	5.9	70	0.410	35
LSD (0.05)	---	9.9	NS	13	0.055	NS
% CV	---	14.2	9.6	13	9.150	10

¹ FFBN means first fruiting branch node location.

Table 2. Lint yield on a land basis, percent open bolls, harvestable bolls, and boll rot, as influenced by row pattern on a Marietta silt loam soil in 2004, Verona, MS.

Row pattern (in)	Lint lb/ac	Bolls % Open 9/08/04	H. bolls/ plant ¹ 9/08/04	B. rot/ 10 ft row 9/22/04
15-in solid	1043	71	3.6	2.0
15-in 2 x 1 skip	967	70	5.0	2.3
15-in 2 x 2 skip	923	75	4.8	1.8
30-in solid	987	79	5.3	2.0
30-in 2 x 1 skip	844	68	9.2	2.3
60-in solid	759	62	11.4	5.0
38-in solid	855	77	5.1	2.8
38-in 2 x 1 skip	796	55	6.7	3.8
Mean	897	69	6.4	2.7
LSD (0.05)	96	11	1.9	NS
% CV	11	10	20.2	58.7

¹ H. bolls/plant means the harvestable bolls which included open bolls and green bolls resistant to thumb.

Table 3. Cotton plant characteristics as influenced by row pattern on a Falaya silt loam soil in 2004, Falkner, MS.

Row Pattern (in)	Planted Seed/ac -----x 1000----- -----	Pl/ac 11/05/04	FFBN ¹ 9/28/04	Plants % bloom 7/19/04	Stem dia (in) 11/8/04	Plant ht (in) 11/05/04
15-in solid	104.6	87.1	6.1	34	0.341	37
15-in 2 x 1 skip	78.4	47.6	6.5	61	0.424	44
15-in 2 x 2 skip	52.3	37.3	6.7	54	0.463	42
30-in solid	52.3	41.2	6.5	64	0.445	43
30-in 2 x 1 skip	34.9	22.2	6.5	71	0.504	42
60-in solid	26.2	18.1	6.6	68	0.549	44
38-in solid	55.0	47.2	6.4	51	0.416	41
38-in 2 x 1 skip	36.7	25.3	6.5	65	0.479	44
Mean	-----	40.8	6.5	58	0.450	42
LSD (0.05)	-----	8.7	NS	19	0.061	4
CV %	-----	14.5	3	22	0.210	7

¹ FFBN means first fruiting branch node

Table 4. Lint yield on a land basis, percent open bolls, stem diameter, and boll rot, as influenced by row pattern on a Falaya silt loam soil in 2004, Falkner, MS.

Row pattern (in)	Lint lb/ac	% Open boll 9/28/04	H. boll/pl ¹ 9/28/04	B. rot/ 10 ft row 11/05/04
15-in solid	1304	53	4.8	2.0
15-in 2 x 1 skip	1236	42	7.1	3.0
15-in 2 x 2 skip	1159	42	9.4	2.8
30-in solid	1230	45	8.7	2.8
30-in 2 x 1 skip	1110	49	11.6	6.8
60-in solid	969	38	16.7	5.8
38-in solid	1092	41	8.4	2.8
38-in 2 x 1 skip	923	36	12.0	9.8
Mean	1128	43	9.8	4.4
LSD (0.05)	96	NS	2.3	3.8
% CV	8	21	15.9	57.9

¹ H. boll/pl means harvestable bolls and included open bolls plus green bolls resistant to thumb pressure.

Table 5. Cotton plant characteristic at harvest as influenced by row pattern on a Dubbs very fine sandy loam soil in 2004, Clarksdale, MS.

Row pattern (in)	Planted seed/ac -----x 1000 -----	pl/ac 10/05/04	FFBN ¹ 10/02/03	Diameter stem (in) 10/05/04	Height (in) 10/05/04
15-in solid	104.6	85.1	6.3	0.294	34
15-in 2 x 1 skip	78.4	62.7	6.3	0.358	36
15-in 2 x 2 skip	52.3	41.5	6.6	0.350	32
30-in solid	52.3	43.6	6.5	0.379	32
30-in 2 x 1 skip	34.9	23.4	6.6	0.422	29
60-in solid	26.2	18.9	6.5	0.433	32
38-in solid	55.0	45.9	6.4	0.355	33
38-in 2 x 1 skip	36.7	32.2	6.6	0.362	33
Mean		42.2	6.5	0.370	33
LSD (0.05)		12.3	NS	0.03	NS
% CV		19.8	5.4	5.7	15

¹ FFBN means first fruiting branch node.

Table 6. Plant populations, percent open bolls, harvestable bolls, boll rot, and lint yield on a land basis as influenced by row pattern on a Dubbs very fine sandy loam soil in 2004, Clarksdale, MS.

Row pattern (in)	Lint lb/ac	Boll % Open 9/16/04	H. Bolls/ Plant ¹ 9/16/04	Boll rot/10 ft row 9/22/04
15-in solid	1355	75	4.5	1.3
15-in 2 x 1 skip	1311	83	7.1	1.5
15-in 2 x 2 skip	1261	75	9.1	0.8
30-in solid	1397	80	9.5	2.3
30-in 2 x 1 skip	1168	68	13.0	1.0
60-in solid	1149	55	17.7	0.5
38-in solid	1358	73	7.8	2.0
38-in 2 x 1 skip	1273	57	10.9	0.5
Mean	1284	71	10.0	1.2
LSD (0.05)	112	17	2.9	NS
% CV	6	17	19.6	112

¹ H. bolls/plant means the harvestable bolls which included open bolls and green bolls resistant to thumb pressure.