Okra Cultivar and Planting Method Evaluation, 2024

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Objective

The objective of this study was to conduct a comprehensive evaluation of commercial okra varieties in Georgia by assessing their maturity, yield, and pod quality, and to investigate the effect of different planting methods on these traits.

Materials & Methods

The experiment was conducted at the University of Georgia, Tifton Campus, Hort Hill Research Farm during the spring season. A randomized complete block design (RCBD) with four replications was used. Two factors were evaluated: variety and planting method.

The variety factor consisted of six commercial okra varieties, including four green types ('Jambalaya 2.0', 'Buffalo Bill 91', 'Louisiana Green Velvet', and 'Clemson Spineless') and two red types ('Bowling Red' and 'Burgundy'). The planting method factor included two approaches: direct seeding and transplanting.

Data Collection

Data were collected on plant growth and yield traits. Plant height was measured in inches from the base of the plant to the tip of the main stem. Pod quality was assessed by recording pod length and width (in inches), using the average of five randomly selected pods from each plot. Yield components included the total number of pods per plot and overall yield, expressed in pounds per acre. Additionally, pod color was observed visually at harvest.

Data Analysis

Analysis of variance (ANOVA) was used to evaluate the effects of variety and planting method on the measured parameters. Where significant effects were detected, means were separated using Tukey's Honestly Significant Difference (HSD) test at the 95% confidence level. Means followed by the same letter are not significantly different based on Tukey's HSD test at 95%. All statistical analyses were performed using JMP Pro 17 (SAS Institute Inc., Cary, NC, USA).

Results

Table 1: Measurements recorded in the okra trial: plant height, pod dimensions, pod count, yield, and pod color.

Treatment	Planting method	Variety	Plant height (inches)	Pod length (in)	Pod width (in)	Total pod count (no./plot)	Total yield (lbs/acre)	Pod color
1	Transplant	Louisiana Green Velvet	28.3 ab	5.2 a	0.7 a	291 c	10970.7 ab	Light green
2	Transplant	Buffalo Bill 91	28.3 ab	4.0 a	0.7 a	402 ab	11222.0 ab	Dark green
3	Transplant	Clemson Spineless	28.0 ab	4.3 a	0.7 a	383 b	13538.6 a	Light green
4	Transplant	Burgandy	30.3 a	3.6 a	0.6 a	300 c	9248.3 b	Red
5	Transplant	Jambalaya 2.0	24.5 b	4.0 a	0.7 a	469 a	14247.1 a	Dark green
6	Transplant	Bowling Red	28.3 ab	4.4 a	0.8 a	339 bc	9913.8 b	Red
7	Direct seed	Louisiana Green Velvet	18.5 cd	3.5 a	0.6 a	96 def	3981.5 c	Light green
8	Direct seed	Buffalo Bill 91	19.8 c	4.2 a	0.6 a	172 d	5103.2 c	Dark green
9	Direct seed	Clemson Spineless	17.3 cd	3.9 a	0.7 a	94 ef	4031.2 c	Light green
10	Direct seed	Burgandy	18.0 cd	3.3 a	0.6 a	53 f	2152.1 c	Red
11	Direct seed	Jambalaya 2.0	15.3 d	3.5 a	0.7 a	86 ef	4816.4 c	Dark green
12	Direct seed	Bowling Red	20.3 c	4.5 a	0.6 a	132 de	4120.1 c	Red
P value			<.0001*	0.0585	0.5823	<.0001*	<.0001*	

[i]Means followed by the same letter are not significantly different based on Tukey's HSD test at 95%.

Table 2: Marketable and unmarketable pod counts and yields per plot in the okra trial.

Treatment	Planting method	Variety	Marketable count (no./plot)	Unmarketable count (no./plot)	Marketable yield (lbs/plot)	Unmarketable yield (lbs/plot)
1	Transplant	Louisiana Green Velvet	260 d	31 bcd	7.9 bc	1.4 abc
2	Transplant	Buffalo Bill 91	385 ab	17 cde	9.1 b	0.9 bcde
3	Transplant	Clemson Spineless	349 bc	34 bc	9.7 b	1.5 ab
4	Transplant	Burgandy	236 d	64 a	5.8 d	2.0 a
5	Transplant	Jambalaya 2.0	448 a	21 cde	11.7 a	1.2 abcd
6	Transplant	Bowling Red	291 cd	48 ab	7.1 cd	1.8 a
7	Direct seed	Louisiana Green Velvet	79 fg	17 cde	2.0 ef	0.5 de
8	Direct seed	Buffalo Bill 91	161 e	11 de	3.8 e	0.4 de
9	Direct seed	Clemson Spineless	81 fg	13 cde	2.2 ef	0.4 e
10	Direct seed	Burgandy	33 g	20 cde	0.8 f	0.5 de
11	Direct seed	Jambalaya 2.0	79 fg	7 e	2.2 ef	0.3 e
12	Direct seed	Bowling Red	112 ef	20 cde	2.6 ef	0.7 cde
P value			<.0001*	<.0001*	<.0001*	<.0001*

[i]Means followed by the same letter are not significantly different based on Tukey's HSD test at 95%.

Table 3: Marketable and unmarketable yields, bushel equivalents, and pod quality percentages in the okra trial.

Treatment	Planting method	Variety	Marketable yield (lbs/acre)	Unmarketable yield (lbs/acre)	Marketable bushel box (28 lbs)	Percent marketable count (%)	Percent culls (%)
1	Transplant	Louisiana Green Velvet	9492.7 bcd	1478.0 abc	339 bcd	89.5 ab	10.5 cd
2	Transplant	Buffalo Bill 91	104550.0 bc	767.0 bc	373 bc	95.8 a	4.2 d
3	Transplant	Clemson Spineless	11909.2 ab	1629.4 ab	425 ab	91.3 ab	8.7 cd
4	Transplant	Burgandy	6945.5 de	2302.9 a	248 de	78.5 c	21.5 b
5	Transplant	Jambalaya 2.0	13250.0 a	997.1 bc	473 a	95.6 a	4.4 d
6	Transplant	Bowling Red	8231.4 cd	1682.4 ab	294 cd	85.9 abc	14.1 bcd
7	Direct seed	Louisiana Green Velvet	3142.2 fg	839.3 bc	112 fg	82.2 bc	17.8 bc
8	Direct seed	Buffalo Bill 91	4692.6 ef	410.6 c	168 ef	93.8 a	6.2 d
9	Direct seed	Clemson Spineless	3495.4 fg	535.9 bc	125 fg	85.1 abc	14.9 bcd
10	Direct seed	Burgandy	1251.2 g	900.9 bc	45 g	62.3 d	37.7 a
11	Direct seed	Jambalaya 2.0	4190.9 f	625.5 bc	150 f	91.7 ab	8.3 cd
12	Direct seed	Bowling Red	3397.6 fg	722.4 bc	121 fg	85.2 abc	14.8 bcd
P value			<.0001*	<.0001*	<.0001*	<.0001*	<.0001*

[i]Means followed by the same letter are not significantly different based on Tukey's HSD test at 95%.

Conclusion

The 2024 okra trial demonstrated that transplanting significantly enhanced plant growth and yield compared to direct seeding. Although pod length and width were unaffected by variety or planting method, transplants produced taller plants, more pods, and higher yields. Among the cultivars, 'Jambalaya 2.0' had the highest total and marketable yields, followed by 'Clemson Spineless' and 'Buffalo Bill 91', all maintaining high marketability with low cull rates. Conversely, the red cultivars ('Burgundy' and 'Bowling Red') yielded less and had higher proportions of unmarketable pods, though they may have value for specialty markets. Overall, based on these preliminary results, transplanting high-yielding green cultivars, such as 'Jambalaya 2.0', 'Clemson Spineless', and 'Buffalo Bill 91', is recommended to maximize okra production in Georgia.

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