



Okra Variety Trial: *Abelmoschus esculentum* & *Abelmoschus caillei*

Rachel Cohen, Heather Yates, and Tim Motis
ECHO Inc.
Summer 2003



Abstract

A comparison trial of okra species and varieties was conducted at the ECHO farm in North Fort Myers (zone 9a/10b), Florida. Thirteen varieties of *Abelmoschus esculentum* and two varieties of *Abelmoschus caillei* were evaluated for pod production and taste. Plants were started from seed in trays, with resulting seedlings transplanted to field plots arranged in a randomized complete block design such that each variety was grown/replicated in three plots. Pods were harvested from July through November, 2003. The effect of variety impacted early-/mid- but not late-season pod production. Top-producing varieties during peak pod-producing months, August and September, were Parbhani Kranti, Ever Lucky, Cow Horn and Clemson Spineless. Parbhani Kranti not only yielded well but also ranked highest in taste tests.

Introduction and purpose

Two African okra species, *Abelmoschus esculentum* and *Abelmoschus caillei*, are popular in tropical and temperate climates. Okra produces edible pods for human consumption and seeds for processing into oil and vegetable curd. Okra leaves can be eaten in stews or used as animal fodder. Varieties of okra were compared in sub-tropical Florida conditions to better guide recommendations to ECHO network members.

Table 1. Effect of variety on monthly (July to November) and total number of marketable okra pods. Data are averaged over three replications.

Variety	Pod number (no./16-plant plot) ²					
	July	Aug.	Sept.	Oct.	Nov.	Total
African	0 c	4 f	53 c-f	85	55	197 bcd
Blonde	1 bc	42 c-f	40 c-f	58	42	184 bcd
Borneo	4 bc	47 b-e	72 b-e	102	30	256 bcd
Burgundy	6 bc	59 bcd	45 c-f	51	16	178 bcd
Cherokee Long Pod	0 c	11 ef	33 ef	50	23	118 d
Chubby Okra	1 bc	26 def	38 def	56	23	144 cd
Clemson Spineless	5 bc	87 ab	94 bc	86	36	308 bc
Cow Horn	1 bc	71 abc	110 b	98	55	334 ab
Ever Lucky	9 bc	83 abc	120 b	92	17	321 ab
Greenie	18 ab	86 ab	92 bcd	89	59	343 ab
Kranti-Palestine	5 bc	87 ab	111 b	99	21	323 ab
Martin's Long	0 c	2 f	10 f	69	24	105 d
Parbhani Kranti	10 bc	110 a	175 a	141	46	483 a
Prelude	32 a	103 a	67 b-e	74	28	304 bc
West African	0 c	3 f	27 ef	46	25	101 d
Signif. (P value)^y	0.0462	<0.0001	<0.0001	0.5723	0.7203	0.0032

²Fruit were harvested twice per week (Tues. and Fri.) from 18 July to 14 November

^yWithin each column, means separation letters (obtained via Duncan's Multiple Range Test) are shown if the corresponding P value is ≤ 0.05 . Any two means in a column are statistically similar if followed by one or more letters in common. Any two means in a column sharing no letters in common are statistically different.

Table 2. Effect of variety on the monthly (July to November) and total weight of marketable okra pods. Data are averaged over three replications,

Variety	Fresh weight (grams/16-plant plot) ^z					
	July	Aug.	Sept.	Oct.	Nov.	Total
African	0	73 d	1182 b-e	1993	1230	4477
Blonde	5	1127 ab	1140 b-e	1394	822	4489
Borneo	63	679 bcd	1206 b-e	1991	504	4423
Burgundy	76	906 abc	761 de	749	193	2685
Cherokee Long Pod	0	222 cd	855 cde	920	387	2384
Chubby Okra	13	664 b-d	1114 b-e	1551	409	3751
Clemson Spineless	82	1564 a	1949 ab	1579	550	5724
Cow Horn	7	1169 ab	1894 abc	1624	828	5523
Ever Lucky	110	1269 ab	2438 a	1624	277	5716
Greenie	302	1420 ab	1592 a-d	1503	853	5670
Kranti-Palestine	40	1132 ab	1668 a-d	1211	238	4289
Martin's Long	0	69 d	183 e	1555	429	2237
Parbhani Kranti	118	1526 a	2642 a	1979	595	6860
Prelude	479	1660 a	1148 b-e	973	380	4639
West African	0	53 d	508 e	985	553	2100
Signif. (P value)^y	0.0916	0.0005	0.0025	.08137	0.5911	0.1379

^zFruit were harvested twice per week (Tues. and Fri.) from 18 July to 14 November

^yWithin each column, means separation letters (obtained via Duncan's Multiple Range Test) are shown if the corresponding P value is ≤ 0.05 . Any two means in a column are statistically similar if followed by one or more letters in common. Any two means in a column sharing no letters in common are statistically different.

Materials and Methods

Fifteen different varieties of okra were evaluated in 2003 at ECHO's Global Demonstration Farm in Fort Myers, Florida (Zone 9a/10b). These were varieties of two species of okra, as indicated below:

Abelmoschus esculentum: Blonde, Borneo, Burgundy, Cherokee Long, Chubby, Clemson Spineless, Cow Horn, Ever Lucky, Greenie, Kranti-Palestine, Martin's Long, Parbhani Kranti, Prelude

Abelmoschus caillei: African, West African

Clemson Spineless was considered a control since many Florida farmers grow it commercially. Each experimental unit was replicated three times in a randomized complete block design, with each block located on a separate section of the farm. An experimental unit consisted of one row of 16 plants in reps one and two and two rows of eight plants in rep three.

Plots were established, starting from seeds sown in plug trays in a greenhouse on June 4th. Seedlings were then transplanted into the field on June 26th, 2003. Plants in the field were spaced 46 cm (18 in) apart within each row, with rows spaced 61 cm (2 ft) apart.

Plants were watered initially by drip irrigation for three weeks (three hours a day, three days a week) after transplanting, after

Table 3. Taste Test Ratings

Variety	Rating (-3 to 3) ^z
Parbhani Kranti	2.5
Cherokee Long	1.9
Marin's Long	1.5
Kranti Palestine	1.1
Borneo	1
Everlucky	0.5
Chubby	0
Cowhorn	-1.7
Burgundy	-0.4
Prelude	-1
Greenie	-1.5
Blonde	-1.5
Clemson Spineless	-2.5
African	-3

^zAverage rating of okra varieties on scale of -3 to 3 with -3 being the worst and 3 the best tasting. Some varieties had limited number of raters.

which they were rain fed for the remainder of the trial. Plants received granular slow release fertilizer (8-2-8 N-P-K) and micronutrients at the time of planting. Then 8-2-8 was side dressed once a month at a rate of 1.4 kg per 9.3 m² (3 lbs per 100 ft²). Orthene was sprayed twice in July 2003 to control grasshoppers.

Observations were made weekly after transplanting to check for overall plant health and insect damage. Harvest began 18 July and continued through 14 November. At each harvest, pods 6 cm or more in length were picked twice a week (Tuesdays and Fridays) and weighed. A taste test was conducted in August 2003 of fourteen varieties (West African was not producing the time of the taste test). Okra was fried in cornmeal with salt and oil for the taste test. Each person evaluating the okra selected three most and three least favorites. For each variety, evaluators' ratings were averaged.

Results and Discussion

Yield

Prelude and Greenie produced the highest, and statistically similar, number (Table 1) of pods during the month of July. July fruit weights (Table 2), however, did not differ between varieties.

In general, most pod production occurred between August and October, with yields declining in November. Most treatment differences occurred during August and September, at which times Prelude, Parbhani Kranti and Clemson Spineless were among the top producers in terms of fruit weight. Their fruit numbers and weights were matched statistically, during August and/or September, by Burgandy, Cow Horn, Ever Lucky, Greenie,

and Kranti-Palestine. August-September Prelude, Burgandy, and Greenie fruit numbers/weights, though similar to top-producing varieties, were also similar to lowest-producing varieties, African, Martin's Long, and West African.

Variety had no effect on yields in October and November. Thus, none of the varieties showed significant potential for boosting late-season yield in comparison to the control, Clemson Spineless. Sanders (2001) suggests that a late-spring pruning can extend the harvest season.

Variety impacted total-season fruit number but not total-season fruit weight. Total-season fruit numbers were highest and similar with Cow Horn, Ever Lucky, Greenie, Kranti-Palestine, and Prelude. Since total-season fruit weights did not vary between varieties, results suggest that varietal choice has the most potential to impact early and mid-season okra production

Consumption value

Taste evaluators chose Parbhani Kranti, Cherokee Long, and Martin's Long, in order of preference, as the best tasting varieties (Table 3). Least favored were African, Clemson Spineless and Blonde.

Conclusion

Parbhani Kranti, Ever Lucky, Cow Horn, and Clemson Spineless varieties produced steady, consistent and high yields. Based on the results of this trial, these are recommended as optimal varieties for the peak okra season. Parbhani Kranti was highly favorable in both taste and overall production, making it the preferred choice.

References

Sanders, Douglas C. 2001. [Home Garden Okra](#). Department of Horticultural Science, College of Agriculture & Life Sciences, North Carolina State University