groups. However, American born consumers will continue to contribute toward long term market potential. Increased demand will have to be accompanied by innovative marketing techniques, such as combination packs, recipe enclosures, and general consumer education. Florida growers should consider the production of habanero and Hungarian wax to meet potential market demand from May through July and become more involved in the retail display of their products.

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PERFORMANCE OF BELL PEPPER VARIETIES OVER SEVEN SEQUENTIAL PLANTINGS IN SOUTHEAST FLORIDA, 1996-97[1]

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Abstract. **Beginning in September 1996, seven plantings of from 17 to 23 bell pepper varieties were made at approximately monthly intervals during the 1996-97 growing season. The plantings were located at seven different farms in the Palm Beach County production area. The peppers were grown from transplants under full bed plastic mulch culture using subsurface seepage irrigation. Green peppers were evaluated from two to three blocks and an additional block was reserved for the evaluation of colored fruit (mature pepper). Peppers were evaluated for yield and average fruit size. Randomly selected fruits were also evaluated for length and width, lobe number, and bluntness at the blossom end. Mature (colored) fruits were counted, weighed, and evaluated for deformities, etc. Incidence of bacterial spot was low and plants were not rated for the disease.**

Introduction

The value of fresh market green bell peppers was $185.7 million for the 1995-96 season (Fla. Agric. Stat. Serv., 1997). During that season 19.0 million 28-lb bushels were harvested from 20,300 acres for an average yield of 937 bushels per acre. The average price per bushel was $9.76. Pepper production is concentrated in south Florida with 28% (5,600 acres) being produced in Eastern Palm Beach County.

Bacterial spot, caused by *Xanthomonas compestris* pv.*vesicatoria*, is one of the most widespread and serious diseases affecting production of pepper in Florida (Pohronezny et al., 1993). Pepper varieties with resistance to races 1, 2, and 3 of the pathogen are now commercially available and seed companies continue to develop new cultivars with resistance to this disease (Shuler, 1994, 1995, 1996). A series of variety demonstrations were conducted to compare yield potential and plant and fruit characteristics of bell pepper varieties grown sequentially throughout the 1996-97 season (Shuler, 1997).

Materials and Methods

All varieties used were resistant to bacterial spot races 1, 2, and 3 except PR 93-2-1 (resistant to race 2 only) and Hybrid 860 (no resistance). Varieties were replicated in a randomized complete block design with either two or three replications for evaluation of green peppers (immature) and one block for evaluation of colored (mature) peppers. Blocks were single raised beds which had been fumigated with methyl bromide and covered with polyethylene mulch. Transplants were set two rows per bed in rows 18 inches apart. Subsurface seepage irrigation was used. Color of plastic used, bed spacing, within-row plant spacing, plant population, and staking and tying varied with the grower (Table 1). Diseases and insects were managed by the growers.

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Table 1. Summary of horticultural practices for bell pepper variety demonstrations in Southeast Florida, 1996-97.

Demonstration	Bed spacing (feet)	Within-row spacing (inches)	Plants per A	Stake and tie	Transplant date	Days to first harvest	Number of harvests	Harvest period
Fall #1 DuBois G.	6	10.1	17,209	yes	7 Sept.	75	2	21 Nov. - 4 Dec.
Fall #2 Green Cay	5.5	12	15,309	no	26 Sept.	77	3	12 Dec. - 26 Sept.
Winter #1 Pero	5.5	9.3	20,412	yes	23 Oct.	87	2	18 Jan. - 4 Feb.
Winter #2 Bedner	6	9.8	17,719	no	26 Nov.	94	1	28 Feb.
Spring #1 DuBois F.	6	8	21,780	yes	26 Dec.	88	5	24 Mar. - 13 May
Spring #2 Shiloh	5.5	10	19,008	no	17 Jan.	80	3	7 Apr. - 29 Apr.
Spring #3 Conrad	6	8.2	21,336	no	14 Feb.	70	3	25 Apr. - 13 May

Transplants were grown by Johnson Plants, Inc., Immokalee, FL. Dead and dying or weakened transplants were counted within 10 days of transplanting and replaced with original transplants. Plots were monitored for either dead or weakened plants through out the growing season and at each harvest. Green peppers were picked and marketable fruits were counted and weighed. Ten peppers each from two blocks were randomly selected and measured for length and width. The number of lobes were counted, and the number of fruits having a pointed or blunt blossom end were recorded. Incidence of bacterial spot was generally low and plants were not rated for this disease.

Colored peppers were evaluated from one block in four of the seven demonstrations. Colored fruits were counted and

Table 2. Summary of yield and fruit characteristics, bell pepper variety demonstration, Fall #1 (DuBois Growers, Lake Worth, FL, Fall 1996).[z]

Variety	Seed source	Yield (25-lb cartons per acre)	Fruits/carton[y]	Fruits per plant	Fruit length × width (inches)[x]	Ratio l to w[w]	Fruit lobe no.[x]	Pointed fruits (%)[v]
Brigadier,4153	Rogers	896 a[u]	71.1 abc	3.7 ab	3.21 × 3.22	1.00 fgh	3.75	0
PP-4148	Rogers	863 a	74.2 bcd	3.7 ab	3.23 × 3.20	1.01 fgh	3.88	0
ACX P202	A&Cobb	830 a	75.9 b-f	3.7 ab	3.07 × 3.18	0.96 hi	3.58	1
Yorktown,12205	Asgrow	818 a	68.0 ab	3.2 a-d	3.20 × 3.22	0.99 gh	3.78	2
SPP 5111	Sakata	801 ab	83.9 fgh	3.9 a	3.22 × 2.79	1.16 cd	3.66	9
Sentry,4187	Rogers	791 abc	72.7 a-d	3.3 a-d	2.85 × 3.25	0.88 i	3.83	0
XPH 12250	Asgrow	774 a-d	64.3 a	2.9 b-f	3.42 × 3.31	1.03 fgh	3.32	0
Boynton Bell	Pepper R.	746 a-e	76.6 b-f	3.3 a-d	3.15 × 3.14	1.00 fgh	3.48	5
DPSX 203	Paramount	723 a-e	86.3 ghi	3.6 abc	3.25 × 2.86	1.14 de	3.53	12
DSPX 205	Paramount	717 a-e	88.7 hi	3.7 ab	3.96 × 2.58	1.54 a	3.47	8
PP-4093	Rogers	713 a-f	73.9 bcd	3.1 a-f	3.03 × 3.26	0.93 hi	3.64	0
Enterprise	Asgrow	712 a-f	73.8 bcd	3.1 a-f	3.09 × 3.23	0.96 hi	3.56	0
PR 93-2-1	Pepper R.	686 a-g	72.0 a-e	2.5 d-g	3.12 × 3.13	1.00 gh	3.70	0
X3R Lancelot	Petoseed	667 a-h	76.9 c-f	3.0 b-f	2.96 × 3.13	0.95 hi	3.63	7
SSweet 870	A&Cobb	600 b-h	74.3 b-e	2.6 c-g	3.09 × 3.11	1.00 fgh	3.59	29
PR 300-5	Pepper R.	588 b-h	78.2 c-g	2.7 c-g	3.38 × 2.97	1.13 de	3.55	2
DPSX 204	Paramount	586 c-h	94.6 i	3.2 a-e	3.62 × 2.61	1.38 b	3.56	0
Commandant	Rogers	569 d-h	70.7 abc	2.3 efg	3.70 × 2.99	1.23 c	3.39	21
E5312	Paramount	547 e-h	77.3 c-f	2.5 d-g	3.11 × 2.96	1.05 efg	3.57	29
Hybrid 860	Rogers	539 e-h	80.3 d-i	2.9 b-g	3.14 × 3.16	0.99 fgh	3.53	0
E5317	Paramount	479 fgh	70.5 abc	2.0 g	3.39 × 3.04	1.11 de	3.71	21
SPP 5109	Sakata	452 gh	85.4 fgh	2.2 d-g	3.18 × 2.94	1.08 ef	4.11	4
SPP 5108	Sakata	437 h	82.9 e-i	2.1 fg	3.20 × 2.86	1.12 de	4.02	4

[z]Transplanted 7 Sept. 1996. Average of two replications. Plot size 6.0 ft. × 13.5 ft. Two rows per bed, 32 plants per plot (17,209 plants per acre).
[y]Average number of fruits to weigh 25 lbs.
[x]Average of 10 fruits each from reps 1 and 3.
[w]Ratio of length to width. Average of 10 fruits each from reps 1 and 3. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[v]Flat or pointed at blossom end. Average of 10 fruits each from reps 2 and 3.
[u]Means separated by Duncan's Multiple Range Test (P = 0.05), NS = not significantly different.

weighed and evaluated for sunburn, softness, misshapen, wet and dry rot, stip, and for being completely colored with no green showing.

Fall #1 Planting, Transplanted 7 Sept. 1996, DuBois Growers, Lake Worth FL (Table 2). Two replications with beds spaced 6 feet apart and plots 13.5 feet long. Within-row plant spacing was 10.1 inches (16 plants per row or 32 plants per plot, 17,209 plants per acre). Soil type was a Riviera sand. Plants were seeded 22 July and were 47 days old when transplanted on 7 Sept. White on black polyethylene mulch was used and plants were staked and tied. Green peppers were picked two times: 21 Nov. and 4 Dec. 1996. Weather conditions were considered generally favorable for crop growth. Early season soil moisture fluctuated widely from being too dry to having water standing in the row middles.

Fall #2 Planting, Transplanted 26 Sept. 1996, Green Cay Farm, Boynton Beach, FL (Table 3). Three replications with beds spaced 5.5 feet apart and plots 12.42 feet long. Within-row plant spacing was 12 inches (12 plants per row or 24 plants per plot, 15,309 plants per acre). Soil type was a Myakka sand. Plants were seeded 15 Aug. and were 42 days old when transplanted on 26 Sept. White on black polyethylene mulch was used. Plants were not staked or tied. Green peppers were picked three times: 12 and 27 Dec. 1996 and 12 Jan. 1997. Colored fruits were picked three times from a separate block: 3, 12, and 29 Jan. 1997. Weather conditions were considered generally favorable for crop growth. There was a small amount of worm damage to leaves but no significant damage to fruits.

Winter #1 Planting, Transplanted 23 Oct. 1996, Pero Family Farms, Boynton Beach, FL (Table 4). Two replications with beds spaced 5.5 feet apart and plots 12.42 feet long. Within-row plant spacing was 9.3 inches (16 plants per row or 32 plants per plot, 20,412 plants per acre). Soil type was an Oldsmar sand. Plants were seeded 15 Sept. and were 38 days old when transplanted on 23 Oct. White on black polyethylene mulch was used and plants were staked and tied. Green peppers were picked two times: 18 Jan. and 4 Feb. 1997. Colored fruits were picked once on 12 Feb. from a separate block. Weather conditions were considered generally favorable for crop growth. The demonstration field was relatively dry being the first field of a change in water elevation. Two weeks after transplanting a mild phytotoxicity was observed on some plants throughout the trial. Plants were slightly stunted with some necrosis and browning at the edge of the leaves and the leaves were generally a lighter shade of green. Some lower leaves had fallen off. There were strong winds between the second and third week after transplanting and the wind had rocked the seedlings back and forth. The dry surface sand had been pushed away from the stem by the stem movement. Only a few dead transplants had to be reset; however, the reset transplants grew very slowly. Mature plants were small and short compared to those in other demonstrations. When plants were evaluated January 10, *Sclerotinia* was found affecting the tops and fruit of some plants and there was some sunburning because the small plants lacked adequate foliage cover for the large fruit.

Winter #2 Planting, Transplanted 26 Nov. 1996, Bedner Farms, Delray Beach, FL (Table 5). Two replications with beds

Table 3. Summary of yield and fruit characteristics, bell pepper variety demonstration, Fall #2 (Green Cay Farm, Boynton Beach, FL, Fall/Winter 1996-97).[z]

Variety	Seed source	Yield (25-lb cartons/A) Early[y]	Yield (25-lb cartons/A) Total	Fruits/carton[x]	Fruits per plant	Fruit length × width (inches)[w]	Ratio l to w[v]	Fruit lobe no.[u]	Pointed fruits (%)[u]
PP-4093	Rogers	1166	1654 a[t]	52.1	5.6 abc	3.23 × 3.78	0.86 ijk	3.53	15
PP-4148	Rogers	1235	1650 ab	49.4	5.3 a-d	3.56 × 3.69	0.97 cd	3.76	5
SSweet 870	A&Cobb	938	1608 abc	59.8	6.3 a	2.97 × 3.55	0.84 k	3.90	50
Brigadier,4153	Rogers	1223	1602 abc	47.8	5.0 c-f	3.43 × 3.63	0.95 de	3.78	4
PR 93-2-1	Pepper R.	1108	1586 abc	48.8	5.1 c-f	3.43 × 3.83	0.90 ghi	3.63	11
XPH 12250	Asgrow	1078	1579 abc	51.5	5.3 b-f	3.24 × 3.76	0.86 ij	3.60	3
PR 300-5	Pepper R.	686	1545 abc	59.7	6.0 ab	3.32 × 3.29	1.01 cd	3.43	16
Boynton Bell	Pepper R.	1113	1543 a-d	51.9	5.2 b-f	3.22 × 3.53	0.91 fgh	3.63	29
Sentry, 4187	Rogers	1051	1542 a-d	53.2	5.4 a-e	3.18 × 3.80	0.84 jk	3.69	12
SPP 5108[s]	Sakata	466	1501 a-e	62.0	6.1 abc	3.26 × 3.30	0.99	3.68	5
Enterprise	Asgrow	1076	1491 a-e	50.7	5.0 def	3.32 × 3.66	0.91 fgh	3.39	10
ACX P202	A&Cobb	1045	1479 a-e	54.3	5.3 b-f	3.33 × 3.76	0.89 ghi	3.50	22
Commandant	Rogers	912	1475 a-e	52.5	5.1 b-f	3.90 × 3.42	1.14 a	3.21	18
Hybrid 860	Rogers	1083	1471 b-e	55.4	5.3 b-e	3.31 × 3.60	0.92 fg	3.78	13
Yorktown, 12205	Asgrow	1092	1466 cde	52.0	5.1 c-f	3.34 × 3.55	0.94 de	3.39	3
E5312	Paramount	703	1370 def	60.1	5.5 a-d	3.06 × 3.41	0.90 hij	3.93	53
SPP 5109	Sakata	956	1353 ef	54.0	4.8 fg	3.26 × 3.46	0.94 ef	3.68	32
X3R Camelot	Petoseed	791	1273 f	57.0	4.8 efg	3.49 × 3.39	1.03 bc	3.58	7
X3R Aladdin	Petoseed	903	1240 f	50.1	4.1 g	3.56 × 3.43	1.04 b	3.80	5

[z]Transplanted 26 Sept. 1996. Average of three replications. Plot size 5.5 ft. × 12.42 ft. Two rows per bed, 24 plants per plot (15,309 plants per acre).
[y]Yield of first pick, 12 Dec. 1996.
[x]Average number of fruits to weigh 25 lbs.
[w]Average of 10 fruits each from reps 1 and 2.
[v]Ratio of length to width. Average of 10 fruits each from reps 1 and 2. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[u]Flat or pointed at blossom end. Average of 10 fruits each from reps 1 and 2.
[t]Means separated by Duncan's Multiple Range Test (P = 0.05), NS = not significantly different.
[s]Yield from one replication.

Table 4. Summary of yield and fruit characteristics, bell pepper variety demonstration, Winter #1 (Pero Family Farm, Boynton Beach, FL, Fall/Winter 1996-97).[z]

Variety	Seed source	Yield (25-lb cartons/A) Early[y]	Yield (25-lb cartons/A) Total	Fruits/cartons[x]	Fruits per plant	Fruit length × width (inches)[w]	Ratio l to w[v]	Fruit lobe no.[w]	Pointed fruits (%)[u]
SPP 5109	Sakata	1017	1385[t]	49.3	3.4 ab	4.33 × 3.53	1.22 c	3.62	13
SSweet 870	A&Cobb	1025	1350	54.3	3.6 a	3.87 × 3.46	1.12 fgh	3.71	16
Hybrid 860	Rogers	1037	1275	52.5	3.3 abc	4.16 × 3.48	1.19 cde	3.52	2
ACX P202	A&Cobb	1030	1217	48.7	3.1 a-d	4.05 × 3.70	1.09 ghi	3.33	8
Commandant	Rogers	931	1199	46.0	2.8 a-f	5.16 × 3.53	1.46 a	3.43	8
Brigadier, 4153	Rogers	1027	1188	44.8	2.6 b-f	4.14 × 3.63	1.14 d-g	3.68	2
X3R Camelot	Petoseed	951	1187	47.6	2.8 a-f	4.20 × 3.55	1.18 c-f	3.67	6
Boynton Bell	Pepper R.	929	1159	48.7	2.8 a-f	4.39 × 3.57	1.23 c	3.25	12
X3R Aladdin	Petoseed	949	1156	49.4	2.8 a-f	4.43 × 3.38	1.31 b	3.57	1
PP-4148	Rogers	974	1132	48.5	2.8 a-f	4.15 × 3.50	1.19 cde	3.48	2
Sentry,4187	Rogers	956	1121	50.4	2.9 a-e	3.58 × 3.72	0.96 j	3.72	4
Enterprise	Asgrow	945	1099	44.4	2.4 def	3.75 × 3.66	1.03 i	3.63	1
PR 300-5	Pepper R.	912	1088	47.2	2.6 b-f	4.03 × 3.82	1.06 hi	3.37	5
PR 93-2-1	Pepper R.	862	1078	42.9	2.3 def	4.29 × 3.79	1.13 efg	3.48	7
Yorktown, 12205	Asgrow	829	1053	42.1	2.2 ef	4.21 × 3.51	1.20 cd	3.20	3
PP-4093	Rogers	898	1049	48.0	2.5 c-f	3.88 × 3.73	1.04 i	3.57	8
XPH 12250	Asgrow	862	1011	39.7	2.0 f	4.20 × 3.83	1.09 ghi	3.24	2
E5312[s]	Paramount	821	951	45.6	2.8 a-f	3.84 × 3.41	1.13 efg	3.60	11

[z]Transplanted 23 Oct. 1996. Average of two replications. Plot size 5.5 ft. × 12.42 ft. Two rows per bed, 32 plants per plot (20,412 plants per acre).
[y]Yield of first pick, 18 Jan. 1997.
[x]Average number of fruits to weigh 25 lbs.
[w]Average of 10 fruits each from reps 2 and 3.
[v]Ratio of length to width. Average of 10 fruits each from reps 2 and 3. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[u]Flat or pointed at blossom end. Average of 10 fruits each from reps 2 and 3.
[t]Means separated by Duncan's Multiple Range Test (P = 0.05), NS = not significantly different.
[s]Yield from one replication.

Table 5. Summary of yield and fruit characteristics, bell pepper variety demonstration, Winter #2 (Bedner Farms, Delray Beach, FL, Fall/Winter 1996-97).[z]

Variety	Seed source	Yield (25-lb cartons per A)[y]	Plant stand (%)	Fruits/carton[x]	Fruits per plant	Fruit length × width (inches)[w]	Ratio l to w[v]	Fruit lobe no.[w]	Pointed fruit (%)[u]
Commandant	Rogers	1384 a[t]	100	43.7 abc	3.4 a	4.79 × 3.56	1.35 a	3.55	30
PP-4093	Rogers	1260 ab	100	44.5 abc	3.2 abc	4.07 × 3.95	1.03 g	3.40	25
Enterprise	Asgrow	1187 bc	96	47.0 bc	3.3 ab	3.79 × 3.74	1.02 g	3.80	10
XPH 12250	Asgrow	1141 bc	100	42.4 ab	2.7 cd	4.03 × 3.85	1.05 fg	3.35	15
Boynton Bell	Pepper R.	1114 bcd	100	44.4 abc	2.8 cd	4.19 × 3.72	1.13 def	3.55	25
PP-4148	Rogers	1111 bcd	100	41.9 ab	2.6 de	4.39 × 3.72	1.18 bcd	3.80	5
Sentry, 4187	Rogers	1076 b-e	100	43.6 abc	2.6 de	3.93 × 3.88	1.02 g	3.65	10
Hybrid 860	Rogers	1051 cde	100	49.5 cd	2.9 a-d	4.17 × 3.70	1.13 def	3.60	20
Yorktown,12205	Asgrow	1033 c-f	98	41.4 ab	2.5 de	4.40 × 3.72	1.18 bcd	3.50	5
X3R Aladdin	Petoseed	934 d-g	100	49.4 cd	2.6 de	4.07 × 3.43	1.19 bcd	3.95	10
Brigadier,4153	Rogers	922 d-g	83	42.4 ab	2.7 cde	4.38 × 3.78	1.16 cd	3.85	5
ACX P201	A&Cobb	892 efg	100	55.8 ef	2.8 bcd	4.02 × 3.49	1.15 cde	3.55	10
PR 93-2-1	Pepper R.	862 efg	100	40.7 a	2.9 bcd	4.18 × 3.89	1.07 efg	3.85	5
SPP 5109	Sakata	843 fgh	100	54.3 de	2.6 de	3.97 × 3.47	1.15 cde	3.75	45
Ssweet 880	A&Cobb	799 ghi	100	55.9 ef	2.5 de	4.13 × 3.39	1.22 bc	3.65	20
X3R Camelot	Petoseed	660 hij	100	61.0 f	2.3 ef	3.97 × 3.24	1.22 bc	3.75	15
PR 300-5	Pepper R.	585 j	100	56.8 ef	1.9 f	4.07 × 3.26	1.25 b	3.45	40

[z]Transplanted 26 Nov. 1996. Average of two replications. Plot size 6.0 ft. × 9.83 ft. Two rows per bed, 24 plants per plot (17,719 plants per acre).
[y]Yield from first pick, 28 Feb. 1997.
[x]Average number of fruits to weigh 25 lbs.
[w]Average of 10 fruits each from reps 2 and 3.
[v]Ratio of length to width. Average of 10 fruits each from reps 2 and 3. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[u]Flat or pointed at blossom end. Average of 10 fruits each from reps 2 and 3.
[t]Means separated by Duncan's Multiple Range Test (P = 0.05), NS = not significantly different.

Table 6. Summary of yield and fruit characteristics, bell pepper variety demonstration, Spring #1 (DuBois Farms, Boca Raton, FL, Winter/Spring 1996-97).[z]

Variety	Seed source	Yield (25-lb cartons/A) Early[y]	Yield (25-lb cartons/A) Total	Fruits/carton[x]	Fruits per plant	Fruit length × width (inches)[w]	Ratio l to w[v]	Fruit lobe no.[u]	Pointed fruits (%)[u]
Enterprise	Asgrow	1943	2797 a[t]	61.9 c-f	7.9 a	3.32 × 3.62	0.92 fg	3.57	3
PP-4148[s]	Rogers	2003	2748 a	64.4 e-h	8.9	3.60 × 3.54	1.02 bcd	3.57	2
Brigadier,4153[s]	Rogers	1933	2647 ab	61.7 cde	8.2	3.50 × 3.60	0.97 def	3.82	5
Sentry, 4187	Rogers	1908	2640 ab	60.1 bcd	7.3 abc	3.12 × 3.64	0.86 h	3.78	5
PR 93-2-1	Pepper R.	1938	2639 ab	58.8 abc	7.1 abc	3.48 × 3.52	0.99 cde	3.65	9
XPH 12250	Asgrow	1768	2570 abc	55.5 a	6.5 cd	3.48 × 3.69	0.94 ef	3.42	5
Yorktown,12205	Asgrow	1906	2466 bcd	56.9 ab	6.5 cd	3.69 × 3.49	1.06 a	3.37	2
Boynton Bell	Pepper R.	1800	2433 bcd	64.0 def	7.2 abc	3.35 × 3.49	0.96 ef	3.60	27
PP-4093	Rogers	1899	2425 bcd	65.5 e-h	7.3 abc	3.12 × 3.58	0.87 gh	3.61	11
Hybrid 860	Rogers	1860	2421 bcd	69.6 hi	7.7 ab	3.37 × 3.44	0.98 cde	3.65	17
SSweet 880	A&Cobb	1663	2410 bcd	66.2 f-i	7.3 abc	3.55 × 3.39	1.05 b	3.52	21
X3R Aladdin	Petoseed	1769	2387 cde	63.5 def	7.0 bc	3.55 × 3.32	1.07 b	3.62	11
Commandant	Rogers	1830	2381 cde	61.4 cde	6.7 cd	3.93 × 3.39	1.16 a	3.51	36
ACX P201	A&Cobb	1595	2257 def	69.9 i	7.3 abc	3.38 × 3.40	0.99 cde	3.41	18
E5312	Paramount	1432	2161 ef	69.5 hi	6.9 bc	3.12 × 3.28	0.95 ef	3.68	56
PR 300-5	Pepper R.	1465	2157 ef	70.1 i	7.0 bc	3.34 × 3.24	1.03 bc	3.50	10
SPP 5109	Sakata	1667	2064 f	68.6 ghi	6.5 cd	3.30 × 3.39	0.97 def	3.81	29
X3R Camelot	Petoseed	1643	2056 f	62.6 c-f	5.9 d	3.60 × 3.40	1.06 b	3.55	4

[z]Transplanted 26 Dec. 1996. Average of three replications. Plot size 6.0 ft. × 8.0 ft. Two rows per bed, 24 plants per plot (21,780 plants per acre).
[y]Yield of first and second pick, 24 Mar. and 3 Apr. 1997.
[x]Average number of fruits to weigh 25 lbs.
[w]Average of 10 fruits each from reps 1 and 2.
[v]Ratio of length to width. Average of 10 fruits each from reps 1 and 2. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[u]Flat or pointed at blossom end. Average of 10 fruits each from reps 1 and 2.
[t]Means separated by Duncan's Multiple Range Test (P = 0.05), NS = not significantly different.
[s]Yield from one replication.

Table 7. Summary of yield and fruit characteristics, bell pepper variety demonstration, Spring #2 (Shiloh Farm, Jupiter, FL, Winter/Spring 1997).[z]

Variety	Seed source	Yield (25-lb cartons/A) Early[y]	Yield (25-lb cartons/A) Total	Fruits/carton[x]	Fruits per plant	Fruit length × width (inches)[w]	Ratio l to w[v]	Lobe no.[u]	Pointed fruits (%)[u]
Hybrid 860	Rogers	1145	1509	63.7	5.1	3.33 × 3.54	0.94	3.51	9
Sentry, 4187	Rogers	1273	1507	56.6	4.5	3.26 × 3.74	0.87	3.86	4
E5312	Paramount	1053	1479	65.0	5.1	3.11 × 3.37	0.92	3.84	31
Brigadier, 4153	Rogers	1147	1478	55.9	4.3	3.62 × 3.63	1.00	3.49	10
PP-4148	Rogers	1179	1460	57.1	4.4	3.73 × 3.51	1.06	3.57	1
Boynton Bell	Pepper R.	1131	1433	56.9	4.3	3.27 × 3.46	0.94	3.68	19
PP-4093	Rogers	1188	1423	56.4	4.2	3.37 × 3.83	0.88	3.78	7
Enterprise	Asgrow	1024	1411	62.1	4.6	3.26 × 3.58	0.91	3.37	6
XPH 12250	Asgrow	1025	1348	54.5	4.0	3.48 × 3.72	0.94	3.20	2
PR 93-2-1	Pepper R.	1047	1328	56.7	4.1	3.63 × 3.77	0.96	3.69	15
Commandant	Rogers	920	1324	63.4	4.4	3.72 × 3.40	1.09	3.55	8
SPP 5109	Sakata	812	1279	70.8	4.8	3.28 × 3.21	1.02	3.48	15
ACX P201	A&Cobb	874	1262	67.8	4.6	3.44 × 3.39	1.02	3.55	10
ACX P202	A&Cobb	981	1231	59.2	3.9	3.21 × 3.64	0.88	3.76	19
E5317	Paramount	716	1219	67.1	4.3	3.12 × 3.53	0.88	3.98	13
X3R Camelot	Petoseed	814	1173	61.6	3.8	3.46 × 3.34	1.04	3.74	5
Yorktown, 12205	Asgrow	932	1153	57.9	3.6	3.42 × 3.42	1.00	3.59	11
X3R Aladdin	Petoseed	777	1056	67.5	3.9	3.38 × 3.22	1.05	3.75	4
SSweet 880	A&Cobb	739	1004	71.0	3.8	3.50 × 3.20	1.09	3.42	19
PR 300-5	Pepper R.	533	802	70.8	3.0	3.30 × 3.36	0.98	3.47	10

[z]Transplanted 17 Jan. 1997. Average of three replications. Plot size 5.5 ft. × 10 ft. Two rows per bed, 24 plants per plot (19,008 plants per acre).
[y]Yield of first pick, 7 Apr. 1997.
[x]Average number of fruits to weigh 25 lbs.
[w]Average of 10 fruits each from reps 1 and 2.
[v]Ratio of length to width. Average of 10 fruits each from reps 1 and 2. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[u]Flat or pointed at blossom end. Average of 10 fruits each from reps 1 and 2.

Table 8. Summary of yield and fruit characteristics, bell pepper variety demonstration, Spring #3 (Bob Conrad Farm, Loxahatchee, FL, Spring 1997).[z]

Variety	Seed source	Yield (25-lb cartons/A) Early[y]	Yield (25-lb cartons/A) Total	Fruits/carton[x]	Fruits per plant	Fruit length × width (inches)[w]	Ratio l to w[v]	Fruit lobe no.[w]	Pointed fruit (%)[u]
Boynton Bell	Pepper R.	1194	1644[t]	64.5	5.1 abc	3.66 × 3.42	1.07 fgh	3.19	12
SSweet 880[s]	A&Cobb	1005	1596	67.4	5.5	3.81 × 3.22	1.18 bcd	3.32	0
Hybrid 860	Rogers	1117	1524	67.3	5.2 ab	3.69 × 3.35	1.10 d-g	3.49	5
PP-4148	Rogers	1142	1439	63.4	4.5 cde	3.68 × 3.50	1.05 ghi	3.64	1
PR 300-5[r]	Pepper R.	816	1432	67.7	4.5	3.74 × 3.10	1.21 bc	3.55	4
SPP 5109	Sakata	890	1425	68.6	5.3 a	3.73 × 3.17	1.17 b-e	3.56	15
PR 93-2-1	Pepper R.	1139	1421	58.8	4.4 def	3.83 × 3.55	1.08 fgh	3.58	5
X3R Aladdin	Petoseed	964	1405	64.5	4.4 de	3.73 × 3.12	1.20 bc	3.57	0
Sentry, 4187	Rogers	1195	1396	58.8	4.0 ef	3.54 × 3.65	0.97 i	3.31	0
Brigadier,4153	Rogers	1179	1379	60.1	4.4 de	3.56 × 3.60	1.07 fgh	3.43	8
ACX P201	A&Cobb	959	1361	67.7	4.7 bcd	3.90 × 3.22	1.21 bc	3.34	1
Commandant	Rogers	919	1349	65.2	4.6 bcd	4.17 × 3.16	1.32 a	3.35	19
E5312	Paramount	926	1333	67.1	4.3 def	3.42 × 3.34	1.02 ghi	3.64	26
ACX P202	A&Cobb	988	1330	63.2	4.3 def	3.62 × 3.51	1.03 ghi	3.47	11
Yorktown,12205	Asgrow	976	1327	61.4	4.5 cde	3.76 × 3.30	1.14 c-f	3.46	0
XPH 12250	Asgrow	1075	1313	57.3	4.0 ef	3.63 × 3.47	1.05 ghi	3.31	0
Enterprise	Asgrow	928	1177	59.4	4.3 def	3.56 × 3.52	1.01 hi	3.36	4
PP-4093[s]	Rogers	911	1174	62.8	4.6	3.44 × 3.73	0.92 j	3.53	0
X3R Camelot	Petoseed	868	1173	65.4	3.8 f	3.99 × 3.24	1.23 b	3.45	7
E5317	Paramount	718	1058	68.6	4.3 def	3.50 × 3.17	1.10 d-g	3.58	7
E2312[s]	Paramount	532	676	68.4	7.1	3.49 × 3.21	1.09 e-h	3.58	22

[z]Transplanted 14 Feb. 1997. Average of three replications. Plot size 6.0 ft. × 8.2 ft. Two rows per bed, 24 plants per plot (21,336 plants per acre).
[y]Yield of first pick, 25 Apr. 1997.
[x]Average number of fruits to weigh 25 lbs.
[w]Average of 10 fruits each from reps 1 and 2.
[v]Ratio of length to width. Average of 10 fruits each from reps 1 and 2. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[u]Flat or pointed at blossom end. Average of 10 fruits each from reps 1 and 2.
[t]Means separated by Duncan's Multiple Range Test (P = 0.05), NS = not significantly different.
[s]Yield from one replication.

Table 9. *Choices of* bell pepper varieties for late fall, summary of yield and fruit characteristics, Southeast Florida, 1996-97.

Variety	Seed source	Yield (25-lb cartons/A)	Fruits/carton[z]	Ratio l to w[y]	Fruit 3 & 4 lobe (%)[x]
Late fall: Top yielding varieties[w]					
PP-4148[v]	Rogers	**1257**	**61.8**	**0.99**	82
Brigadier (4153)[v]	Rogers	**1249**	**59.5**	**0.98**	92
PP-4093[v]	Rogers	**1184**	63.0	0.90	**93**
XPH 12250[v]	Asgrow	**1177**	**57.9**	0.95	**96**
Sentry (4187)[v]	Rogers	1167	63.0	0.86	91
ACX P202	A&Cobb	1155	65.1	0.93	90
Boynton Bell[v]	Pepper R.	1145	64.3	**0.96**	**96**
Yorktown (12205)	Asgrow	1142	**60.0**	**0.97**	**93**
SSweet 870	A&Cobb	1104	67.1	0.92	88
Enterprise[v]	Asgrow	1102	62.3	0.94	**95**
Top yields in late fall					
PR 300-5	Pepper R.	1067	69.0	1.07	92
X3R Lancelot[u]	Petoseed	667	76.9	0.95	93

[z]Number of fruits to weigh 25 lbs.
[y]Ratio of length to width. Average of 10 fruits each from two replications. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[x]Average of 10 fruits each from two replications.
[w]Average of Fall #1 (DuBois Growers) and Fall #2 (Green Cay Farm) demonstrations. Transplanted 7 and 26 Sept. Harvested 21 Nov. through 12 Jan.
[v]Varieties equally suited for two or more seasons.
[u]Only planted in first demonstration, DuBois Growers.

spaced 6 feet apart and plots 9.83 feet long. Within-row plant spacing was 9.83 inches (12 plants per row or 24 plants per plot, 17,719 plants per acre). Soil type was a Myakka sand. Plants were seeded 14 Oct. and were 43 days old when transplanted on 26 Nov. Black polyethylene mulch was used. Plants were not staked or tied. Green peppers were picked once on 28 Feb. 1997. Commercial harvest was made over the demonstration area after the first pick so no further picks were made and there was no evaluation of colored pepper. Weather conditions were considered generally favorable for crop growth. Only a few dead transplants had to be reset; however, most of the transplants reset on 17 Dec. grew very slowly and did not survive. On 31 Dec. leafminer damage was noticed especially on the older leaves.

Spring #1 Planting, Transplanted 26 Dec. 1996, DuBois Farms, Boca Raton, FL (Table 6). Three replications with beds spaced 6 feet apart and plots 8 feet long. Within-row plant spacing was 8 inches (12 plants per row or 24 plants per plot, 21,780 plants per acre). Soil type was a Boca sand. Plants were seeded 11 Nov. and were 45 days old when transplanted on 26 Dec. Black polyethylene mulch was used. Plants were staked and tied. Green peppers were picked five times: 24 Mar., 3, 17, and 29 Apr., and 13 May 1997. Colored fruits were picked three times: 3, 16, and 29 Apr. from a separate block. Weather conditions were considered generally favorable for crop growth. Plant stand was very good and plant growth was very vigorous. Bacterial spot developed in some varieties near the

Table 10. Choices of bell pepper varieties for winter, summary of yield and fruit characteristics, Southeast Florida, 1996-97.

Variety	Seed source	Yield (25-lb cartons/A)	Fruits/carton[z]	Ratio l to w[y]	Fruit 3 & 4 lobe (%)[x]
Winter: Top yielding varieties[w]					
Commandant	Rogers	**1292**	**44.9**	1.41	**95**
PR 93-2-1[v]	Pepper R.	**1175**	**41.8**	**1.10**	89
Hybrid 860[v]	Rogers	**1163**	51.3	1.16	**97**
PP-4093[v]	Rogers	**1155**	46.3	1.04	**99**
Enterprise[v]	Asgrow	1143	**45.7**	**1.03**	85
Boynton Bell[v]	Pepper R.	1137	46.6	1.18	**100**
PP-4148[v]	Rogers	1122	**45.2**	1.19	92
SPP 5109	Sakata	1114	51.8	1.19	89
Sentry (4187)[v]	Rogers	1099	47.0	**0.99**	91
Top yields in winter					
X3R Aladdin[v]	Petoseed	1045	49.4	1.25	94
X3R Camelot[v]	Petoseed	924	54.3	1.20	93

[z]Number of fruits to weigh 25 lbs.
[y]Ratio of length to width. Average of 10 fruits each from two replications. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[x]Average of 10 fruits each from two replications.
[w]Average of Winter #1 (Pero Family Farms) and Winter #2 (Bedner Farms) demonstrations. Transplanted 23 Oct. and 26 Nov. Harvested 18 Jan. through 28 Feb.
[v]Varieties equally suited for two or more seasons.

end of the harvest period, but it was felt that the infection had a minimum influence on yield.

Spring #2 Planting, Transplanted 17 Jan. 1997, Shiloh Farm, Jupiter, FL (Table 7) Three replications with beds spaced 5.5 feet apart and plots 10 feet long. Within-row plant spacing was

Table 11. Choices of bell pepper varieties for spring, summary of yield and fruit characteristics, Southeast Florida, 1996-97.

Variety	Seed source	Yield (25-lb cartons/A)	Fruits/carton[z]	Ratio l to w[y]	Fruit 3 & 4 lobe (%)[x]
Spring: Top yielding varieties[w]					
PP-4148[v]	Rogers	**1882**	61.6	**1.04**	**97**
Sentry (4187)[v]	Rogers	**1848**	**58.5**	0.90	**94**
Boynton Bell[v]	Pepper R.	**1837**	61.8	**0.99**	93
Brigadier (4153)[v]	Rogers	**1835**	**59.2**	**1.01**	**94**
Hybrid 860[v]	Rogers	1818	66.9	**1.01**	**95**
PR 93-2-1[v]	Pepper R.	1796	**58.1**	**1.01**	91
Enterprise[v]	Asgrow	1795	61.1	0.95	93
XPH 12250[v]	Asgrow	1744	**55.8**	0.98	92
Top yields in spring					
Ssweet 880	A&Cobb	1670	68.2	1.11	96
E5312	Paramount	1658	67.2	0.96	91
ACX P201	A&Cobb	1627	68.5	1.07	100
X3R Aladdin[v]	Petoseed	1616	65.2	1.11	94
X3R Camelot[v]	Petoseed	1467	63.2	1.11	93

[z]Number of fruits to weigh 25 lbs.
[y]Ratio of length to width. Average of 10 fruits each from two replications. Scale: 1.00 = blocky, width same as length. >1.00 = degree of elongation, length greater than width. <1.00 = degree of flatness, length less than width.
[x]Average of 10 fruits each from two replications.
[w]Average of Spring #1 (DuBois Farms), Spring #2 (Shiloh), and Spring #3, (Bob Conrad Farm) demonstrations. Transplanted 26 Dec., 17 Jan., and 14 Feb. Harvested 24 Mar. through 13 May.
[v]Varieties equally suited for two or more seasons.

Table 12. Choices of bell pepper for colored fruit, summary of yield for four pepper variety demonstrations, Southeast Florida, 1996-97.[z]

Variety	Fully colored fruit (% of total harvest)[y]	Marketable fruit (% of total harvest)[x]	Percent of total that were fully colored and marketable	Marketable yield (25-lb cartons/A)
Top yielding varieties				
Ssweet 870[w]	56	**87**	**48**	**897**
Hybrid 860[v]	**73**	73	**53**	**876**
X3R Aladdin[v]	30	70	20	**869**
Yorktown (12205)	50	**84**	**42**	**808**
Enterprise	53	77	39	**804**
Boynton Bell	49	**81**	39	797
PP-4093	**71**	77	**53**	785
PR 93-2-1	37	**80**	29	736
SPP 5109	42	72	32	716
ACX P202[u]	**60**	74	**44**	712
Brigadier, 4153	51	**80**	40	707
PR 300-5	29	**83**	24	702
Other varieties				
Sentry (4187)	**69**	73	49	643
X3R Camelot	45	**84**	38	632
Ssweet 880[t]	35	**80**	26	456

[z]Mature (colored) pepper was harvested from one block at the following demonstrations: Fall #2 (Green Cay Farm), Winter #1 (Pero Family Farm), Spring #1 (DuBois Farms), and Spring #2 (Shiloh Farm).
[y]Represents all fully colored fruit (including unmarketable fully colored).
[x]Includes both fully colored and not fully colored.
[w]Only from evaluation at Green Cay and Pero Family Farms.
[v]Matured green to yellow.
[u]From evaluation at all demonstrations except DuBois Farms.
[t]Only from evaluation at DuBois Farms and Shiloh.

10 inches (12 plants per row or 24 plants per plot, 19,008 plants per acre). Soil type was a Riviera sand. Plants were seeded 9 Dec. and were 39 days old when transplanted on 17 Jan. Black polyethylene mulch was used and plants were not staked or tied. Green peppers were picked three times: 7, 18, and 29 Apr. 1997. Colored fruits were picked once on 26 Apr. from a separate block. Weather conditions were considered generally favorable for crop growth. The plants were smaller than normal at transplanting and they sustained some slight frost damage from cold weather on 19 Jan. Damage was to the cotyledon leaves with some damage to the large true leaf. Strong winds in late March had blown over some of the plants and sunburning and blossom end rot were worse than expected at harvest.

Spring #3 Planting, Transplanted 14 Feb. 1997, Bob Conrad Farm, Loxahatchee, FL (Table 8). Three replications with beds spaced 6 feet apart and plots 8.2 feet long. Within-row plant spacing was 8.2 inches (12 plants per row or 24 plants per plot, 21,336 plants per acre). Soil type was a Pineda sand. Plants were seeded 31 Dec. and were 45 days old when transplanted on 14 Feb. Black polyethylene mulch was used. Plants were not staked or tied. Green peppers were picked three times: 25 Apr. and 2 and 13 May 1997. Weather conditions were considered generally favorable for crop growth. A fall pepper crop had been recently terminated and plowed under in the field used for the variety demonstration. The block was refumigated and recovered with plastic mulch; however, roots and stems of the first crop had not decomposed. In several plots there was a gradual loss of plants to *pythium* and/or *phytophthora* through out the season.

Table 13. Choices of bell pepper for colored fruit, summary of fruit characteristics for four pepper variety demonstrations, Southeast Florida, 1996-97.[z]

Variety	Culls (percent)						
	Sunburn	Soft	Flat and misshapen	Wet and dry rot	Blossom end rot	Stip	Total
Top yielding varieties							
Ssweet 870[y]	**1**	**5**	2	6	**0**	0	**13**
Hybrid 860[x]	5	15	3	4	1	0	27
X3R Aladdin[x]	5	14	**1**	6	4	0	30
Yorktown, 12205	**1**	**8**	2	4	2	0	**16**
Enterprise	3	15	**1**	3	1	0	23
Boynton Bell	2	12	2	**2**	2	0	**19**
PP-4093	**1**	15	5	**2**	0	**0**	23
PR 93-2-1	6	10	3	**2**	**0**	0	20
SPP 5109	2	17	2	3	4	0	28
ACX P202[w]	5	11	3	3	5	0	26
Brigadier,4153	2	**8**	4	5	**0**	0	20
PR 300-5	**0**	**3**	**1**	5	4	4	**17**
Other varieties							
Sentry,4187	2	12	3	9	1	0	27
X3R Camelot	2	**5**	**0**	**2**	5	3	**16**
Ssweet 880[v]	3	10	3	4	1	0	20

[z]Mature (colored) pepper was harvested from one block at the following demonstrations: Fall #2 (Green Cay Farm), Winter #1 (Pero Family Farm), Spring #1 (DuBois Farms), and Spring #2 (Shiloh Farm).
[y]Only from evaluations at Green Cay and Pero Family Farms.
[x]Matured green to yellow.
[w]From evaluations at all demonstrations except DuBois Farms.
[v]Only from evaluations at DuBois Farms and Shiloh.

Results and Discussion

Results from the first two demonstrations (harvested 21 Nov. 1996 through 12 Jan. 1997) were averaged and are presented as "late fall choices for bell pepper varieties" (Table 9). Results from the next two demonstrations (harvested 18 Jan. through 28 Feb. 1997) were averaged and are presented as "winter choices for bell pepper varieties" (Table 10). Results from the last three demonstrations (harvested 24 Mar. through 13 May 1997) were averaged and are presented as "spring choices for bell pepper varieties" (Table 11). Data for colored peppers were averaged over the four demonstrations where colored peppers were harvested. Yield of colored peppers is presented in Table 12 and fruit characteristics of colored peppers is presented in Table 13.

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