

TABLE 4. Effect of storage duration after priming on percent germination and mean days to germination (MDG) of 4 celery cultivars germinated at 15°C.²

Treatment	Germination %	MDG
Primed at 15°C and stored 4 days at 7°C and 50% RH	73 a ^y	6.7 a
Primed at 15°C and stored 4.5 months at 7°C and 50% RH	21 b	12.1 b
Nontreated seeds	64 a	10.7 ab

²Cultivars included Earlybelle, 683-K, Florida 2-14, and Junebelle primed in PEG or KNO₃ + K₃PO₄ as separate priming solutions.

^yMean separation at the 5% level by Duncan's multiple range test, 5% level. Data were combined since differences between cultivars or priming solution were not significant.

The work reported herein clearly demonstrated the beneficial effects of priming celery seed, especially when germination was at 25°C in the dark. The beneficial effects were observed as an increase in total germination, germination rate, and, in the last experiment, as an increased early seedling growth rate under commercial greenhouse conditions. Clearly, only the highest quality seed should be used for priming, and regardless of cultivar or seed quality, celery seed will not store well after priming. Probably most significant was the response of celery seed to natural cytokinin in the prime solution. Cytokinins have been reported many times to promote celery seed germination, however, the negative effect of synthetic cytokinins on seedling growth have been largely overlooked. The levels of natural cytokinin in the BL9-97 prime solution were high enough to improve germination, but did not inhibit early seedling growth as evidenced with the 100 ppm BA treatment.

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SLICING CUCUMBER CULTIVAR TRIAL, FALL, 1988

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TABLE 5. Effect of priming with growth regulators at 15°C for 14 days on fresh and dry weight of 33 day-old celery seedlings cvs. Earlybelle and 683-K planted in speedling trays in a greenhouse.

Priming treatment	Seedling weight (mg)	
	Fresh	Dry
PEG	113 ab ^z	7.1 a
PEG + GA _{4/7} + BA	94 b	7.6 a
PEG + GA _{4/7} + Ethephon	107 ab	8.6 a
PEG + GA _{4/7} + BL 9-97	123 ab	8.0 a
PEG + Response extra	136 a	9.5 a
Not treated	55 c	3.1 b

^zData for cultivar combined. Data not available for emergence rate. Mean separation at the 5% level by Duncan's multiple range test, 5% level.

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Abstract. Eight slicing cucumbers (*Cucumis sativus* L.) cultivars were evaluated in a replicated trial at the Live Oak Agricultural Research and Education Center, Live Oak, FL in the fall of 1988. Cultivars were grown on full-bed, white-on-black polyethylene mulch with drip irrigation and were evaluated for early yield, total yield, and quality. Total marketable yields ranged from 745 to 610 bu/acre for 'Dasher II' and 'Striker,' respectively. Early marketable yields ranged from 332 to 176 bu/acre for 'Dasher II' and 'Striker,' respectively. The best overall performing cultivars, based on early yield, total yield, U. S. Fancy, and U. S. No. 1 grade, were Dasher

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II, Supersett, and Revenue. Intermediate overall performance was found with 'Centurion,' 'Monarch,' and 'Comet A II.' The poorest overall performers were 'General Lee' and 'Striker.'

Interest in the production of slicing cucumbers has recently increased in the Suwannee Valley area of North Florida. Much of this interest is from new growers with small to moderate acreages (5-50 acres) whose crops are being graded, packed, and marketed at the Suwannee Valley State Farmers Market near Live Oak, FL.

One of the initial steps in cucumber production is cultivar selection (4). At least 7 slicing cucumber cultivars currently are recommended for production in Florida (5). Cultivars considered "standard" for Central Florida are Dasher II and Poinsett 76 (1). Currently, Centurion and Dasher II are also among recommended cultivars (4,5). In a replicated trial at Leesburg, FL, Dasher II was one of the highest yielding cultivars for U. S. Fancy Fruit (1). 'Poinsett 76,' however, performed very poorly. Dasher II also was one of the highest yielding cultivars for total marketable yield. Other cultivars producing a high proportion of U. S. Fancy fruits were Centurion, Comet A, and Monarch. This study was conducted to determine if cultivars that performed well in Central Florida would be suitable for North Florida.

Materials and Methods

Plots were established in a Klej fine sand using full-bed white-on-black polyethylene mulch with drip irrigation (3). A preplant soil test (Mehlich-I extract) showed medium-high P (68 ppm) and low K (40 ppm). Soil pH was 6.3 using a 1:2 (soil:water) extract. Fertilizer applied was 130-17.4-108.3 lb. acre of N-P-K and was incorporated into the bed prior to laying polyethylene mulch (2,3). Beds were formed on 5-foot centers and drip irrigation tube was buried 2 inches deep in the middle of the bed. Seeds were planted by hand into holes punched 9 inches apart within the row and 15 inches between rows with 1 row on each side of the tube. Each hill was planted with 4 to 5 seeds on 19 August and thinned to one plant on 25 August. Each plot was 25 feet in length and treatments were replicated 4 times in a randomized complete block design. Irrigations were scheduled by the use of a tensiometer. Irrigation was applied to maintain a tensiometer reading of -12 centibars at a 12-inch depth. Each irrigation event lasted approximately 30 minutes, with an average of 3 events per day during peak water demand periods.

Integrated pest management techniques were used to determine insecticide applications and resulted in 2 applications of methomyl, primarily for cabbage looper and leafminer, early in the season. A fungicide application of chlorothalonil was used on a 7 to 10 day schedule during the entire season.

Marketable fruits were harvested on 27 and 29 Sept., and on 3, 5, 7, 11, and 14 Oct. Harvested fruits were graded into U.S. grade standards of U.S. Fancy, U.S. No. 1, U.S. No. 1 Small, U.S. No. 1 Large, U.S. No. 2, and Cull (6). Total weight for each grade in each plot was recorded.

Results

Stand establishment of the cucumbers was excellent and growth was very satisfactory. No major differences for vine type or growth patterns were noted among the cultivars tested.

Early yields of U. S. Fancy fruits ranged from 77 to 163 55-lb bu/acre (Table 1). For U. S. Fancy yield, 'Dasher II', 'Revenue', and 'Supersett' performed best, and 'Monarch', 'General Lee', 'Comet A II', 'Striker', and 'Centurion' performed poorest. Yields for the total U. S. No. 1 and Fancy categories combined ranged from 123 to 240 bu/acre for 'Striker' and 'Dasher II', respectively. 'Dasher II' produced 72% of its early fruit as U.S. No. 1 or Fancy grade fruit, while 'General Lee' only produced 55% of its early fruit as U. S. No. 1 or Fancy grade.

Total seasonal yields (Table 2) ranged from 610 to 745 bu/acre for 'Striker' and 'Dasher II', respectively. These yields are at least twice that of the state average (5). The U. S. Fancy yields ranged from 285 bu/acre for 'Dasher II' down to a low of 176 bu/acre for 'Monarch'. These yields represented 38 and 25% of the total marketable yields, respectively, for these 2 cultivars. Yields of combined U. S. No. 1 and Fancy classes ranged from 464 bu/acre for 'Dasher II' down to 328 bu/acre for 'Monarch'.

Best performing cultivars for total yields (considering U. S. Fancy and U. S. No. 1 fruits as well as total marketable fruits) were Centurion, Dasher II, Supersett and Revenue. Poorer performers were 'Monarch', 'Comet A II', 'General Lee', and 'Striker'.

There were very few differences among cultivars for other grade categories, except that Monarch produced more large fruit than other cultivars. This tendency was present throughout the season. This characteristic might mean that 'Monarch' requires careful attention to timely

TABLE 1. Early yield (first 2 harvests) of eight slicing cucumber cultivars grown on polyethylene mulch in fall, 1988 at Live Oak, FL.

Cultivar	Seed ^y source	Yield by U.S. grade category (by/acre)						Total
		Fancy [*]	No. 1	No. 1 Large	No. 1 Small	No. 2	Cull	
Centurion	NK	105 cd	41 bd	12 b	30 b	15 a	6 abc	204 bc
Comet A II	AS	105 cd	63 abc	16 ab	54 ab	16 a	6 abc	254 abc
Dasher II	PS	163 a	77 a	13 b	49 ab	30 a	12 a	332 a
General Lee	FM	81 d	42 bc	0 b	81 a	18 a	4 bc	223 bc
Monarch	AS	116 cd	70 ab	34 a	28 b	20 a	8 abc	268 ab
Revenue	FM	154 ab	35 c	0 b	53 ab	13 a	4 bc	256 abc
Striker	AS	77 d	46 bc	6 b	37 b	10 a	2 c	176 c
Supersett	PS	130 abc	65 abc	2 b	54 ab	23 a	9 ab	274 ab

^ySeed sources were Northrup King (NK), Asgrow (AS), Peto Seed (PS), and Ferry-Morse (FM).

^{*}Means in the column with the same letter are not significantly different by Duncan's multiple range test (p = .05).

TABLE 2. Total yield (7 harvests) of eight slicing cucumber cultivars grown on polyethylene mulch in fall, 1988 at Live Oak, FL.

Cultivar	Seed ^y source	Yield by U.S. grade category (by/acre)						Total
		Fancy ^x	No. 1	No. 1 Large	No. 1 Small	No. 2	Cull	
Centurion	NK	261 ab	164 ab	47 bc	78 c	137 a	50 ab	687 ab
Comet A II	AS	184 bc	154 ab	73 bc	120 abc	120 ab	58 a	651 b
Dasher II	PE	285 a	179 a	35 c	126 ab	120 ab	57 ab	745 a
General Lee	FM	197 bc	151 ab	44 bc	138 a	110 ab	36 b	641 b
Monarch	AS	176 c	152 ab	151 a	87 bc	132 a	60 a	699 ab
Revenue	FM	252 abc	129 b	80 b	108 abc	109 ab	48 ab	678 ab
Striker	AS	252 abc	156 ab	39 c	106 abc	92 b	47 ab	610 b
Supersett	PE	239 abc	153 ab	50 bc	116 abc	126 a	56 ab	684 ab

^ySeed sources were Northrup King (NK), Asgrow (AS), Peto Seed (PS), and Ferry-Morse (FM).

^xMeans in the column with the same letter are not significantly different by Duncan's multiple range test (p = .05).

and very frequent harvest to prevent the fruits from sizing excessively.

Overall, 'Dasher II', 'Supersett', and 'Revenue' were the best performers in this trial. They were in the highest yielding group for early and total marketable yields. In addition, these 3 cultivars produced higher yields of U. S. Fancy and U. S. No. 1 grade fruit, the highest value grades. 'Comet A II' performed in the intermediate class for earliness but ranked low for total yields. This cultivar is evidently early, but does not produce high yields over an extended harvesting season. 'Monarch' was intermediate to good in performance for both early and total yield, but had poor quality as evidenced by low U. S. Fancy and U. S. No. 1 grades.

The poorest performing cultivars in this test were Striker and General Lee. Both had low early yields and low total seasonal yields.

All 8 of the cultivars in this trial were also evaluated in a larger trial conducted at Bradenton in the fall of 1988 (Bradenton GCREC Research Report BRA 1989-5). Very

similar results were obtained for most of the cultivars. 'Revenue', 'Supersett', and 'Dasher II' were among the top performers in both trials. All other cultivars in both trials performed in a very similar manner relative to each other.

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PRUNING METHOD EFFECTS ON YIELD, FRUIT SIZE, AND PERCENTAGE OF MARKETABLE FRUIT OF 'SUNNY' AND 'SOLAR SET' TOMATOES

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1989) were reduced by heavy pruning but largest fruit size occurred with heavy pruning. Heavy pruning also produced the lowest percentage of marketable fruit. Heavy pruning of 'Solar Set' removed too much foliage and allowed top fruit to be sunburned while heavy pruning of 'Sunny' did not.

Additional index words. *Lycopersicon esculentum*, suckering.

Abstract. Tomato (*Lycopersicon esculentum* Mill.) pruning studies were conducted in 1983, 1984, 1988 and 1989. Treatments included no pruning, removal of 50% of the suckers to the first fork (light) and removal of all axillary shoots (suckers) to the first fork (heavy). Heavy pruning of 'Sunny' reduced yields over no pruning or light pruning. Fruit size increased as the degree of pruning increased in 2 of 3 years (excluded in 1989). Pruning method did not affect percentage of marketable fruit. Total yields of 'Solar Set' (planted 1988 and

Florida ranks first in fresh market tomato production in the United States. During the 1988-89 season tomatoes had a farm value in excess of \$600 million on 57,600 acres (Hawkins, 1989. 1988-89 Annu. Rpt. of Florida Tomato Comm.) and they comprised about 40% of the value of vegetables produced in Florida. Production costs before harvest range from \$3000 to \$4000/acre depending upon the production area (Taylor and Smith. Econ. Infor. Rpt. 245). Most of these tomatoes are produced using the short-stake culture method because of increased yields and quality over ground tomatoes and determinate cultivars that self-terminate at about 3 to 4 feet. In most short-stake production systems some pruning is done. The amount of

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