Proc. Fla. State Hort. Soc. 125:182–187. 2012.

Growing and Marketing Edible Amaranth (Red and Green Calaloo) and Chrysanthemum Greens at Local Green Markets in Southeast Florida, 2002–2003

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Additional index words. *Amaranthus tricolor, Amaranthus viridis, Glebionis coronarium* var. *spatiosum*, compost, farmers' market, garden, edible amaranth; edible chrysanthemum, edible greens

The growers for Stephen's Produce grew and marketed edible amaranth, *Amaranthus tricolor* L. and *Amaranthus viridis* L., and chrysanthemum greens, *Glebionis coronarium* var. *spatiosum* L.H. Bailey during the 2002–2003 season to help supply local green markets with a weekend supply of "garden fresh" produce. Planting schedules, growing and harvesting methods, yields, and sales figures will be discussed. Redleaf amaranth was direct seeded 14 times beginning 14 Sept. and ending 26 Mar. Greenleaf amaranth was direct seeded six times beginning 14 Sept. and ending 7 Nov. Edible chrysanthemum was a late addition to the crop mix and was planted three times beginning 5 Mar. and ending 19 Mar. Amaranth greens were cut, bunched, and sold on 21 weekends from 19 Oct. to 4 May. For redleaf amaranth, an average of 17 bunches were sold each week at $1.50 to $2.00 per bunch or $29 per week and $610 for the season. For greenleaf amaranth, an average of 14 bunches were sold each week at $1.50 per bunch or $17.75 per week and $107 for the season. Edible chrysanthemum was cut and bagged (90 to 220 g per bag). For edible chrysanthemum, an average of 13 bags were sold each week at $1.00 to $2.00 per bag or $24 per week and $170 for the season.

In 2002, the growers for Stephen's Produce might have been the first vendors to offer edible amaranth and chrysanthemum greens for sale at green markets in southeast Florida. Regular customers of Stephen's Produce were already getting other leafy greens from them: cilantro, Italian parsley, lettuce, arugula, Swiss chard, mizuna, bekana, mache, garden cress, spinach, collards, and kale (Shuler et al., 2003a, 2003b; 2004; 2005; 2006a, 2006b; 2008; 2009a, 2009b). The growers were looking for new crops to grow and sell since the garden had continued to be expanded and there was not a need to greatly expand production of existing crops. There was at least one large-scale commercial producer of edible amaranth in southwest Florida and no large-scale production of chrysanthemum greens. After edible amaranth and chrysanthemum greens were discontinued in 2004, they were not available from other vendors at the greenmarkets in West Palm Beach and Stuart. The first plantings of red and green edible amaranth were made in mid September so that greens would be available for sale at the first market in mid October. Two to four consecutive weekly plantings were made followed by a skip of several weeks to allow for second and third cuttings from the previous plantings. Because of production problems, green amaranth was discontinued after a final planting made on 7 Nov., with final sales made on 4 Jan. Plantings of red amaranth continued until 26 Mar. and the last sale was made 4 May. Redleaf and greenleaf amaranth seeds were obtained from Johnny's Selected Seeds (Winslow, ME). Three consecutive weekly plantings of edible chrysanthemum (cv. 'Shungiku' Johnny's Selected Seeds) were made on a trial basis beginning 5 Mar. 2003. Chrysanthemum greens were harvested from 4 Apr. to 17 May.

Many amaranth species (smooth pigweed, spiny pigweed, prostrate pigweed) are considered to be common weeds in vegetable and field crops throughout the US. Edible types include Chinese amaranth (Chinese spinach or calaloo), which is used as a potherb, and grain amaranth, the seeds of which are used as grain (the seed protein is almost equivalent nutritionally to milk protein) (Markle et al., 1998). The vegetable chrysanthemum, also known as garland chrysanthemum resembles the leafy portion of the ornamental version (Stephens, 1988).

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Soil Preparation

Garden preparation began shortly after the spring crops were completed in late April. Weeds and remaining crop debris were sprayed with glyphosate (Roundup Ultra, Monsanto Company, St. Louis, MO) herbicide and the resulting dead debris was mowed with a rotary lawn mower to hasten its decomposition. Compost from the Palm Beach County Solid Waste Authority and locally available horse bedding and manure were spread over the garden area in May and June to a depth of 2 to 2.5 inches. Dolomitic limestone and broadcast fertilizer were spread and incorporated with a rotary tiller in August (Shuler et al., 2003a, 2003b). Tilling also mixed the compost in with the underlying sand.

Beds were made with a hand pushed wheel-hoe using the plow attachment. For each bed, multiple passes of the wheel-hoe were made on each side of where the bed was being formed. Soil was thrown to the inside as each pass of the wheel-hoe was moved to the outside by a few inches. A rake was used to pull loose soil away from the alley area and up onto the sides and top of each bed. The loose soil on top was then raked level and the sides and top of the beds were walked on to firm up the loose soil so that the beds would not be worn down by rainfall. For the 2002–2003 season, 25, 105-ft-long beds were formed over a 17-d period (14 to 31 Aug.) to provide some protection from flooding after heavy rains. The beds ran north and south, were on 4-ft centers, and were approximately 5 to 6 inches high with 20- to 30-inch-wide tops (Shuler et al., 2003a, 2003b).

Irrigation.

Untreated well water was supplied to the garden via drip irrigation tape. Water passed through a 100-mesh screen in-line sediment filter and ¾-inch PVC pipe to reach the drip lines. "Medium Flow" Queen Gil International (Burgas, Bulgaria) drip tape was used with 4-inch emitter spacings (rated at 32 gal per 100 ft per h). A single drip line was laid on the surface of each bed. The beds were divided into two zones of 12 and 13 beds, and each zone was irrigated at a different time. Ball shut-off valves were attached to each line to allow for individual bed irrigation if needed. Battery powered automatic timers were used to turn water on and off in each zone (Melnor Electronic Aqua Timer, Melnor, Winchester, VA). Having the drip line on the bed surface, allowed it to be lifted easily and shifted between rows to accommodate crops planted three or four rows per bed. During high evapo-transpiration periods in September and early October, each zone was irrigated three times per day for up to 45 min each irrigation. Irrigation was reduced to as little as two times per day at 30 min each during cold periods in January and February.

Crop Establishment with Direct Seeding.

Chlorpyrifos 1% bait (Mole Cricket Bait, Micro Flo Company LLC, Memphis, TN) was sprinkled on the bed surface just before planting to control wire worms, cutworms, and mole crickets. Topdress fertilizer consisting of equal amounts of KNO_3 and NH_4NO_3 was also spread over the bed top just before planting. Approximately 57 lb/acre N and 49 lb/acre K were applied. The area to be planted was loosened with the cultivator attachment of the wheel-hoe and raked level to further incorporate the insecticide and fertilizer amendments.

A hoe was pushed through the soil, which had been loosened with the cultivator attachment, to open two or three furrows per bed, about 1.5 inches deep, for planting. Amaranth seeds were very small and were sown by either tapping the side of the seed bag or by pinching seed between thumb and index finger and dropping by hand. Chrysanthemum seeds were planted in a similar fashion. Loose soil was pulled over the furrow and an automobile tire was rolled over the plant row to firm up the soil. After rolling, the effective depth of planting was judged to be about 0.5 inch. Plants were generally not thinned.

Crop Scheduling.

A planting plan was set to have amaranth ready for the first market in mid October and to allow for at least a second harvest from each planting every third week (Tables 1 and 2). Thus, amaranth was planted weekly for three consecutive weeks followed by a skip of 4 weeks. Since this was the first season for growing amaranth and yield and market demand were unknown, the area planted each week was relatively small, 18 row ft (6 to 9 bed ft). Amaranth was considered a warm season crop. Thus, as growth slowed with the onset of cool weather in late fall, plantings might need to be larger or made to be harvested at intervals greater than every 3 weeks. However, some scheduled winter plantings were skipped because there was no available space left in the garden for planting at that time.

First harvest of amaranth was made on 18 Oct. from two plantings (27 to 34 d after planting) for the first market of the season. The last harvest was made on 3 May from plantings seeded 11, 19, and 26 Mar. (53, 45, and 38 d after planting, respectively).

The trial plantings of chrysanthemum were made on three consecutive weeks: 5, 11, and 19 Mar. (Table 3), which was when extra planting space became available after weekly plantings of some of the longer season crops had been stopped. A full season's schedule of chrysanthemum plantings would have been similar to that for amaranth since multiple harvests would have been expected.

Growing the Crop and Pest Management.

The insecticide bait treatments made just before planting seemed to be effective for controlling wire worms, cutworms, and mole crickets as these potential pests did not affect crop production.

The most common weed problems for the 2002–2003 season were pigweed and carpetweed with light populations of purslane, nutsedge, and a few miscellaneous grasses. Sometimes beds were pre-irrigated to encourage a flush of early weed growth, which was sprayed with glyphosate a week before planting. For crops such as amaranth and chrysanthemum that were harvested multiple times, weeds were often pulled at first cut or shortly thereafter and periodically throughout the harvest season. Edible amaranth, with its upright growth, competed well with all weeds except the equally competitive weed species of amaranth, primarily spiny

Table 1. Green amaranth greens production from 144 sq. ft (0.0033 acres) for sale at green markets in southeast Florida, 2002–2003.

Date planted	Harvest period (dates)		Days to harvest		Duration of harvest	Harvests	Days between harvests	Linear bed ft planted	Bunches harvested (no./plot)	Bunches (no./acre)	Bunches (no./acre) per day[z]
	Start	Finish	Start	Finish	(d)	(no.)					
14 Sept.	18 Oct.	8 Nov.	34	55	21	2	21	6[y]	3	5,445	99
21 Sept.	18 Oct.	18 Oct.	27	27	1	1	0	6[y]	8	14,520	538
28 Sept.	25 Oct	25 Oct.	35	35	1	1	0	6[y]	15	27,225	778
24 Oct.	22Nov.	27 Dec.[x]	29	57	28	2	28	6[y]	34	61,710	1,083
31 Oct.	20 Dec.	20 Dec.[x]	50	50	1	1	0	6[y]	13	23,595	472
7 Nov.	3 Jan.	3 Jan.[x]	57	57	1	1	0	6[y]	10	18,150	318
Total								36	83		
Avg for six plantings			39	47	8.8	1.3	24.5[w]	6	13.8	25,108	534
Avg for 6 weeks sales								13.8			

[z]Calculated by dividing "bunches per acre" by "days to harvest – finish".
[y]Calculated at three rows per bed.
[x]Plants were damaged by frost, which limited further harvests.
[w]For two plantings, which were harvested more than once.

Table 2. Red amaranth greens production from 412 sq. ft (0.0095 acres) for sale at green markets in southeast Florida, 2002–2003.

Date planted	Harvest period (dates) Start	Finish	Days to harvest Start	Finish	Duration of harvest (d)	Harvests (no.)	Days between harvests	Linear bed ft planted	Bunches harvested (no./plot)	Bunches (no./acre)	Bunches (no./acre) per day[z]
14 Sept.	18 Oct.	1 Nov.	34	48	14	2	14	6[y]	17	30,855	643
21 Sept.	18 Oct.	1 Nov.	27	41	14	2	14	6[y]	14	25,410	620
28 Sept.	25 Oct	25 Oct.	35	35	1	1	0	6[y]	15	27,225	778
24 Oct.	22Nov.	13 Dec.[x]	29	50	21	2	21	7[y]	30	46,671	933
31 Oct.	6 Dec.	10 Jan.[x]	29	64	35	3	17	6[y]	21	38,115	596
7 Nov.	20 Dec.	20 Dec.[x]	43	43	1	1	0	6[y]	13	23,595	549
2 Dec.	14 Feb.	30 Mar.	74	118	44	3	22	6[y]	31	56,265	477
8 Dec.	21 Feb.	25 Apr.	75	138	63	6	12	6[y]	35	63,525	460
16 Dec.	7 Mar.	21 Mar.	81	95	14	2	14	7[y]	27	42,004	442
22 Dec.	28 Feb.	25 Apr.	68	124	56	5	14	9[y]	58	70,180	566
5 Jan.	9 Mar.	19 Apr.	63	104	41	6	8	11[y]	88	87,120	838
11 Mar.	3 May	3 May	53	53	1	1	0	9[w]	1	1,210	23
19 Mar.	3 May	3 May	45	45	1	1	0	10[y]	7	7,623	169
26 Mar.	3 May	3 May	38	38	1	1	0	8[y]	7	9,529	251
Total								103	364		
Avg for 14 plantings			50	71	22	2.6	15[w]	7.4	26	38,485	542
Avg for 19 weeks sales									19.2		

[z]Calculated by dividing "bunches per acre" by "days to harvest – finish".
[y]Calculated at three rows per bed.
[x]Plants were damaged by frost, which limited further harvests.
[w]For nine plantings, which were harvested more than once.

Table 3. Chrysanthemum greens production from 86 sq. ft (0.002 acres) for sale at green markets in southeast Florida, 2002–2003.

Date planted	Harvest period (dates) Start	Finish	Days to harvest Start	Finish	Duration of harvest (d)	Harvests (no.)	Days between harvests	Linear bed ft planted	Bags – lbs harvested (no./plot)	Lbs (no./acre)	Lbs (no./acre) per day[z]
5 Mar.	4 Apr.	17 May	30	73	43	6	8.5	7.5[y]	63 – 18.4	26,717	366
11 Mar.	11 Apr.	3 May	31	53	22	3	11	8[y]	19 – 4.5	6,126	116
19 Mar.	25 Apr.	17 May	37	59	22	3	11	6[y]	22 – 5.8	10,527	178
Total								21.5	104 – 28.7		
Avg for six plantings			33	62	29	4	10.2[w]	7.2	17.3 – 4.8	14,537	234
Avg for 6 weeks sales									17.3 – 4.8		

[z]Calculated by dividing "bunches per acre" by "days to harvest – finish".
[y]Calculated at three rows per bed.
[x]Plants were damaged by frost, which limited further harvests.
[w]For two plantings, which were harvested more than once.

and prostrate amaranth. Chrysanthemum, being slower growing, did not compete well with weeds as weather warmed in the spring and needed to be weeded by hand several times.

Nematodes did not cause any crop losses. Renewing the garden with additions of "clean" compost each year helped reduce the chance for nematode infestations.

The major insect pest of amaranth was a blotch leafminer that was never effectively controlled. It was not initially identified and was never targeted for control. Severely damaged lower leaves were usually removed at harvest. Leafminer damage was worse for the green amaranth. To manage the damage from leafminers, intervals between multiple harvests were shortened. This allowed for harvest before the re-growth became infested, but also reduced yield. To prevent damage from worms, crops were usually sprayed every 7 to 10 d with a rotation of spinosad (SpinTor, Dow Agrosciences, Indianapolis, IN), emamectin benzoate (Proclaim, Syngenta, Greensboro, NC), and indoxacarb (Avaunt, DuPont, Wilmington, DE). On the few occasions when a scheduled spray was missed, amaranth was one of the few crops which did become infested with worms. Mining from serpentine leafminers was occasionally found on both amaranth and chrysanthemum leaves. Serpentine leafminers would have been partially controlled by spinosad and emamectin benzoate, which were both labeled for leafminer suppression. Aphids were an occasional pest of both amaranth and chrysanthemum and were treated with imidacloprid (Provado, Bayer Corporation, Kansas City, MO) on an as needed basis.

Amaranth was not cold tolerant and leaves were damaged by frost.

Harvesting and Washing.

Harvesting for amaranth was non-destructive. For the first harvest of a given planting of amaranth, handfuls of stems with leaves were gathered, cut with a knife or scissors and banded together. Stem re-growth was cut from each planting every third

to fifth week. Note: Usually three or four plantings were in a harvest cycle at any given time. After the first or second harvest, when re-growth was less uniform, individual stems were often selected and cut. Larger bunches with more stems were usually made when supply was abundant and quality was good. Whenever re-growth had to be harvested after a cold weather incident, stems were selected from several plantings and these plantings were harvested for several consecutive weeks. Whenever plants were damaged by blotch leafminers, lower, more heavily infested leaves were pulled off of cut stems, leaving the younger, less damaged top leaves.

On Fridays, amaranth was usually one of the last crops harvested and was usually cut via headlight after dark. On Saturdays, all crops were usually harvested after sundown. Since the leaves were generally held off the ground by the plant, bunches were usually stored immediately in coolers with ice without being washed. Occasionally, after heavy rainfall and/or strong winds, plants would be bent over and splashed with soil and need to be washed. Bunches of amaranth usually contained from seven to twelve stems. Bunches were either laid flat on top of another crop (to keep leaves from coming in contact with cold water at the bottom of the cooler) or stood upright in a bucket or plastic bin containing a small amount of water. Whenever plastic bins were used, they were placed inside the coolers on top of ice packs. Any amaranth left unsold at the Saturday market would be taken home, placed in sales bags, and held in a household refrigerator until time for loading for the Sunday market.

Harvest of chrysanthemum greens for weekend sales was usually made on Friday afternoons before sunset so that they could be seen more easily to allow for weeds and bad leaves to be discarded in the garden. When they were very clean and weed free, chrysanthemum leaves were bagged in the garden without being washed. Stems with leaves were cut with a knife 3 to 4 inches above the soil line by the handfuls. Whenever they were dirty, stems with leaves were placed in an empty bucket. After harvesting, the bucket was filled with tap water and the leaves submerged briefly before being pulled out and transferred to a spinner to remove excess water. Leaves were then placed back into the empty bucket for bagging. Each transfer (from bucket to spinner to bucket to bag) provided additional opportunities to see and remove yellowed, misshapen, or blemished leaves and weed fragments. Leaves were bagged in quart freezer bags (90 to 120 g per bag), which were partially sealed to allow for air exchange. Bags were cooled in a household refrigerator until being transferred to coolers with ice for transport to the markets. Whenever chrysanthemum greens were washed, moisture left after spinning might contribute to a reduction in shelf-life, especially if any mildew was present.

Marketing, Pricing, and Sales Techniques.

By May 2002, Stephen's Produce had sold vegetables at the green market in West Palm Beach, FL, for four seasons. In Jan. 2003 another market opened in Palm Beach Gardens, FL. This was a Sunday market open from 9 am to 1 pm and was closer to home than the West Palm Beach market. Stephen's Produce sold amaranth at this market for eight out of the 12 market Sundays from 16 Feb. to 6 Apr., when the market closed for the season. Another Sunday market also opened in Stuart, FL, that season and Stephen's Produce sold amaranth at that market for five out of the six market Sundays from 13 Apr. to 18 May 2003. The Stuart market was also open from 9 am to 1 pm and was about the same distance from home as the market in West Palm Beach.

A display area was made with four large coolers, which were raised off the ground by portable stands to a height of 29 inches at the front edge and lined up with their tops opened and supported from behind to form an inclined platform of the inside top surface. The produce display was covered by a tent, which helped shield the vegetables from sunlight.

The demand for fresh amaranth was generally steady and Stephen's Produce often sold out. Customers who were familiar with amaranth would often buy more than one bunch while customers who were looking for greens but who were not familiar with amaranth would usually only buy one bunch. Many customers who bought amaranth would also buy other greens such as Swiss chard, bok choy, kale, cilantro, and Italian parsley.

The bunch size for amaranth varied somewhat with production; however, when less was available for harvest, bunch size was usually maintained and fewer bunches were made. Price per bunch started at $1.50 and was increased to $2.00 at the end of the season. One or two bunches of amaranth were usually kept outside on display and replenished with fresh bunches from the storage cooler as needed. If the amaranth on display became wilted, it would either be replaced with a fresh bunch for display or upon sale the wilted bunch would be left on display and a fresh bunch from the storage cooler sold. Prices were usually not reduced in an attempt to sell more bunches; however, if the last bunch on display was wilted, it would often be sold at a reduced price.

For chrysanthemum, the package size of 90 to 120 g per bag was chosen because that amount of chrysanthemum filled out the bag without crushing. Customers seemed to be satisfied with the package size as there were no complaints about it. A single line of two or three bags of chrysanthemum greens were placed beside lines of other bagged produce such as French beans, snap beans, snow peas, arugula, and spinach. The displayed bags of chrysanthemum greens were re-stocked as customers bought bags off the display. Remaining bags of chrysanthemum were held in the cooler with ice until being put on the display. At times of peak production, unsold bags of chrysanthemum were taken back home and returned to the refrigerator until Sunday morning for sales at the Sunday market.

Chrysanthemum greens were sold for $2.00 per bag for six of seven weeks in spring 2003. For the last week of sales on 18 May, when production had peaked, the price was dropped to $1.00 per bag. Stephen's Produce was the only vendor offering both amaranth and chrysanthemum greens for sale at the West Palm Beach and Stuart green markets for the 2002–2003 season.

Production and Sales Figures.

During the 2002–2003 season, sales of green amaranth averaged 12 bunches per week for $17.75 per week (Table 4). Sales of red amaranth averaged 17 bunches per week for $29 per week (Table 5). Amaranth was sold at 21 of the 30 markets attended. The greatest amount of green amaranth offered for sale was on 26 Oct. and 23 Nov. 2002 (14 bunches were sold for $21). The greatest amount of red amaranth offered for sale was on 15 Mar. 2003 (42 bunches were sold for $69.50).

During the 2002–2003 season, sales of chrysanthemum greens averaged 13 bunches per week for $24.30 per week (Table 6). Chrysanthemum greens were sold at seven consecutive markets in the spring when it was available. The greatest amount of chrysanthemum greens offered for sale was 26 Apr. 2003 (24 bags were sold for $48).

Table 4. Weekly sales of green amaranth greens at greenmarkets in southeast Florida, 2002–2003.

Market weekend	Bunches Taken to market (no.)	Sold (no.)	Unsold (no.)	Sales ($)
19 Oct.	10	10		$15.00
26 Oct.	15	14	1	$21.00
2 Nov.				
9 Nov.				
16 Nov.				
23 Nov.	23	14	9	$21.00
30 Nov.				
7 Dec.				
14 Dec.				
21 Dec.	13	13		$19.50
28 Dec.	11	11		$16.50
4 Jan.	10	9	1	$13.50
Total	82	71	11	$106.50
Avg/wk 6 weeks	13.7	11.8	1.8	$17.75
$ per bunch				$1.50
Percent unsold			13.4%	

During 2002–03, total production for green amaranth (103 total bunches harvested from 30 bed ft measuring 4 ft wide or 120 square ft or 363 plots per acre) was 30,129 bunches per acre. Total value was $107 (average price of $1.50 per bunch) or $38,660 per acre or $823 per acre per day over the average 47-d growing and harvesting period. Total production for red amaranth (364 total bunches harvested from 84 bed ft measuring 4 ft wide or 336 square ft or 130 plots per acre) was 47,320 bunches per acre. Total value was $610 (average price of $1.67 per bunch) or $79,082 per acre or $1,114 per acre per day over the average 71-d growing and harvesting period.

During the 11-week spring season when chrysanthemum was grown, total production for chrysanthemum greens (104 total bags or 28.7 lb harvested from 21.5 bed ft measuring 4 ft wide or 86 square ft or 506 plots per acre) was 52,677 bags per acre or 14,537 lbs per acre. Total value was $170 (average price of $1.82 per bag) or $86,107 per acre or $1,389 per acre per day over the average 62-d growing and harvesting period.

Customer Profile, Observations, and Customer Comments.

A wide range of customers purchased vegetables from Stephen's Produce. Customers included older retired couples, single men and women, young families with children, as well as winter residents from the northern USA, Canada, and Europe.

When asked, customers would share how they ate or prepared the amaranth and chrysanthemum greens—most would cook them as potherbs or eat them raw in salads. Customers often commented on the excellent taste of these greens and that they did not have any sand in them like much of the store bought greens. Occasionally they would store it for a week before eating it. There was very little or no wastes, as all leaves were usually edible.

Customers, especially those of oriental and Caribbean Island descent, would often purchase amaranth each time that they visited the market. Sales were also made to customers looking for a new green to try. Some, but not all, of these customers would make repeat purchases. Customers buying chrysanthemum greens

Table 5. Weekly sales of red amaranth greens at greenmarkets in southeast Florida, 2002–2003.

Market weekend	Bunches Taken to market (no.)	Sold (no.)	Unsold (no.)	Sales ($)
19 Oct.	22	22		$33.00
26 Oct.	15	11	4	$16.50
2 Nov.	9	8	1	$12.00
9 Nov.				
16 Nov.				
23 Nov.	16	16		$24.00
30 Nov.				
7 Dec.	9	9		$13.50
14 Dec.	18	18		$27.00
21 Dec.	13	13		$19.50
28 Dec.				
4 Jan.				
11 Jan.	8	8		$12.00
18 Jan.				
25 Jan.				
1 Feb.				
8 Feb.				
15 Feb.	8	8		$12.00
22 Feb.	16	16		$24.00
1 Mar.	16	15	1	$22.50
8 Mar.	26	26		$52.00
15 Mar.	42	42		$69.50
22 Mar.	26	26		$45.00
29 Mar.	25	25		$45.50
5 Apr.	25	24	1	$40.50
12 Apr.	24	24		$44.50
19 Apr.	22	22		$40.50
26 Apr.	19	19		$28.50
4 May	15	12	3	$24.00
11 May	2	2		$4.00
18 May				
Total	376	366	10	$610.00
Avg/wk 21 weeks	17.9	17.4	0.48	$29.00
$ per bunch				$1.67
Percent unsold			2.7%	

Table 6. Weekly sales of chrysanthemum greens at greenmarkets in southeast Florida, 2002–2003.

Market weekend	Bags Taken to market (no.)	Sold (no.)	Unsold (no.)	Sales ($)
5 Apr.	7	7		$14.00
12 Apr.	8	8		$16.00
19 Apr.	16	16		$32.00
26 Apr.	24	24		$48.00
4 May	15	11	4	$22.00
11 May	12	10.5	1.5	$21.00
18 May	21	17	4	$17.00
Total	103	93.5	9.5	$170.00
Avg/wk 7 weeks	14.7	13.4	1.4	$24.29
$ per bunch				$1.82
Percent unsold			9.2%	

for the first time often remarked that the smell and flavor were too strong for their "taste" and did not make repeat purchases. Sales were maintained satisfactorily because there were always new customers who wanted to try a "new green." Amaranth was discontinued after the first year because of its susceptibility to blotch leafminer damage and lack of cold hardiness. Chrysanthemum greens were discontinued primarily because there were few repeat sales from "regular" customers.

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