



'Cherry Tart' – A Dwarf Red Lance-Leaved Caladium Variety¹

Zhanao Deng²

'Cherry Tart' is an attractive lance-leaved caladium variety with a novel combination of leaf characteristics (including bright red color, slightly undulate leaf margins, and a broadly cordate leaf shape) (Figures 1 and 2; Deng and Harbaugh 2011). It was released in April 2011 by the University of Florida's Institute of Food and Agricultural Sciences. In replicated field and greenhouse trials, tuber yield and pot plant quality were comparable or superior to 'Florida Red Ruffles' and 'Florida Sweetheart', currently the most popular red lance-leaved commercial variety and the most popular lance-leaved variety, respectively (Bell et al. 1998; Deng et al. 2008). 'Cherry Tart' is well suited for producing pot plants and hanging baskets. Tuber de-eyeing produces fuller plants in small or medium containers (4–6 inches), but this practice is not required. 'Cherry Tart' produces large numbers of bright red leaves and performs well in sunny and shady landscapes.

Origin

'Cherry Tart' was selected in 2001 from progeny of selfed 'Florida Sweetheart', which is a caladium variety from cross-pollinating 'Candidum Junior' and 'Red Frill', two unpatented commercial varieties. 'Candidum Junior' and 'Red Frill' are white fancy-leaved and red lance-leaved varieties, respectively. They were selected as parents because of their excellent growth habit as pot and landscape plants.



Figure 1. 'Cherry Tart' plants produced by forcing tubers in 4½-inch square pots. The plant on the left side was forced from one intact no. 1 tuber (1½–2½ inches in diameter), and the plant on the right side was forced from one de-eyed no. 1 tuber. Photo was taken 8 weeks after the tubers were planted in the containers. Credits: Richard Kelly (University of Florida)

Description

'Cherry Tart' plants grown for approximately 4 months in full sun in ground beds had an average height of approximately 12 inches. Leaves are broadly cordate and have slightly undulate margins, averaging 7½ by 5 inches in size. On the upper leaf surface, a dark green margin borders the entire leaf except for the basal leaf valley, where it is gray purple. The leaf center is also a gray purple. As many as 16 large, gray-purple veins radiate from a central main vein and connect marginally with a thin, gray-purple vein that parallels the leaf margin. Irregular yellow-green mottling may appear along the margin. The leaf undersurface has a yellow-green margin, a red-purple center, and red-purple veins, while the center and veins are covered with

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2. Zhanao Deng, associate professor, Environmental Horticulture Department, Gulf Coast Research and Education Center, Florida Cooperative Extension Service, IFAS, University of Florida, Gainesville, FL 32611



Figure 2. 'Cherry Tart' plants grown in a ground bed in full sun.
Credits: Zhanao Deng (University of Florida)

gray-white wax. Irregular yellow-green coloration parallels the margin. Leaf petioles are gray purple at the apex, and the colors diffuse into a light gray purple at the base. The upper portion of the petiole below the apex is frequently covered with a gray-white color, and the low portion of the petiole shows a dense distribution of light brown speckles.

Tuber production

'Cherry Tart' was evaluated for tuber production and plant performance at the Gulf Coast Research and Education Center in Wimauma, Florida, in 2005 and 2006. The soil was fine sand with ~1% organic matter and pH between 6.2 and 6.8. Caladium plants were grown in fumigated, raised, mulched ground beds. The beds were 3 feet wide, 8 inches high, 300 feet long, and covered with white-on-black plastic mulch. Caladium (seed) tuber pieces were planted in the beds in early April each year, with 6-inch spacing between rows and in rows. A constant water table was maintained below the beds using a seepage irrigation system. Osmo-cote® controlled-release fertilizer (18N-6P₂O₅-12K₂O, 8-9 months) was applied to the bed surface when caladium shoot tips were emerging from the soil at a rate of 300 pounds of nitrogen per acre.

Field plots were arranged in three randomized complete blocks; each plot was 3 feet by 5 feet with 30 plants. New tubers were harvested in November 2005 and December 2006, respectively. Tubers were dried in the greenhouse for approximately 4 weeks and then graded by their maximum diameter: no. 2 (1-1½ inches), no. 1 (1½-2½ inches), jumbo (2½-3½ inches), mammoth (3½-4½ inches), and super mammoth (> 4½ inches). The production index, an indicator of the harvested tubers' economic value, was calculated for each plot as follows: N (no. 2) + 2N (no. 1)

+ 4N (jumbo) + 6N (mammoth) + 8N (super mammoth), where N = number of tubers in each grade. 'Florida Red Ruffles', 'Florida Sweetheart', and 'Red Frill' (in 2006 only) were included as commercial checks in the trials.

In 2005, tuber weight of 'Cherry Tart' (8.2 pounds) was 23% greater than that of 'Florida Red Ruffles' (6.6 pounds) and 12% greater than that of 'Florida Sweetheart' (7.3 pounds) (Table 1). The production index value for 'Cherry Tart' (166.8) was 29% and 15% higher than that of 'Florida Red Ruffles' (129.7) and 'Florida Sweetheart' (144.3), respectively. 'Cherry Tart' produced 58% and 38% more tubers than 'Florida Red Ruffles' (40.7) and 'Florida Sweetheart' (46.7), respectively.

In 2006, 'Cherry Tart' tuber weight was 7.3 pounds, 43% and 18% higher than that of 'Florida Red Ruffles' (5.1 pounds) and 'Florida Sweetheart' (6.2 pounds), respectively (Table 1), but the difference was not statistically significant. Tuber weight of 'Cherry Tart' was 1.75-fold greater than that of 'Red Frill'. In production index and number of marketable tubers, 'Cherry Tart' was comparable to 'Florida Red Ruffles' and 'Florida Sweetheart'. Tuber weight for 'Cherry Tart' was ~1.8 fold greater and its production index 75% greater than that of 'Red Frill'.

In tuber grade distribution, the majority (55% or more) of 'Cherry Tart' tubers were no. 1, jumbo, or mammoth, which was similar to the grade distribution of 'Florida Red Ruffles' and 'Florida Sweetheart'. 'Cherry Tart' produced more tubers in the mammoth and jumbo grades than 'Red Frill', whose majority (> 95%) tubers were no. 1 and no. 2.

Container forcing and performance

The suitability of 'Cherry Tart' for pot plant production was evaluated by forcing tubers in 4½-inch square containers. No. 1 tubers were planted either intact or de-eyed in a peat/vermiculite mix (2 sphagnum peat moss, 1 vermiculite, and 1 perlite by volume, VerGro Container Mix A, Verlite, Tampa, Fla.) in March 2007. The evaluation was conducted in a greenhouse with 45% light exclusion during the summer in Wimauma, Florida. Daily temperatures ranged from 16°C to 29°C during the experiment. Potted plants were arranged on metal benches in the greenhouse in a randomized complete block design with 10 replications. Three commercial varieties, 'Florida Red Ruffles', 'Florida Sweetheart', and 'Red Frill', were included as the checks. These varieties are popular pot plant varieties because of their bright colorful foliage and growth habits. Plant height, number of leaves, and foliar characteristics were recorded

8 weeks after planting. Plant quality was rated on a scale of 1–5, with 1 being very poor, 3 being fair and acceptable, and 5 being excellent in plant vigor, fullness, and color display.

‘Cherry Tart’ produced high-quality pot plants regardless of tuber treatments (intact or de-eyed) (Table 2). When tubers were planted intact, ‘Cherry Tart’ sprouted 39 days after planting, which was similar to the sprouting time of ‘Florida Red Ruffles’ and ‘Florida Sweetheart’, but 8 days later than ‘Red Frill’. Tuber de-eyeing did not cause any change in sprouting time in ‘Cherry Tart’. Intact plants of ‘Cherry Tart’, ‘Florida Red Ruffles’, and ‘Florida Sweetheart’ were similar in plant height (6.3–6.8 inches), number of leaves (9.4–10.9), leaf length (6.4–7.0 inches), and leaf width (4.3–4.9 inches). When plants were de-eyed, ‘Cherry Tart’, ‘Florida Red Ruffles’, and ‘Florida Sweetheart’ were also similar in plant height (5.7–6.5 inches), number of leaves (13.3–17.2), leaf length (6.5–6.9 inches), and leaf width (4.1–4.8 inches). Pot-grown ‘Cherry Tart’ plants received the highest quality ratings (4.1–4.5) compared to the three commercial varieties (2.8–4.1). Quality pot plants were produced without de-eyeing, but de-eyeing appeared to improve plant quality ratings (from 4.1 to 4.5).

Landscape performance

Landscape performance of ‘Cherry Tart’ under full sun conditions was evaluated in the same plots used for evaluating tuber production. Overall plant performance and sunburn tolerance were rated in June, July, and August 2005; August and September 2006; and July, August, and September 2007. Overall plant performance was rated on a scale of 1–5, with 1 being very poor (few leaves and lack of vigor) and 5 being excellent (full plants, numerous leaves, and bright color display). Leaf sunburn tolerance was evaluated on a scale of 1–5, with 1 being very susceptible to sunburns (leaves having numerous sun-damaged areas or holes) and 5 being resistant to sunburns (no visible sun-damaged areas). Approximately 4 months after planting, plant height, number of leaves, and leaf size were measured on three randomly chosen plants in each plot.

Plants of ‘Cherry Tart’ were approximately 3 inches taller than those of ‘Florida Red Ruffles’ and ‘Florida Sweetheart’ (Table 3). ‘Cherry Tart’ were similar to those of ‘Florida Sweetheart’, but ~1 inch wider than those of ‘Florida Red Ruffles’. The most significant difference among the entries was in the leaf number produced per plant (42.7 by ‘Cherry Tart’ vs. 20.9, 21.5, and 26.3 by ‘Red Frill’, ‘Florida Sweetheart’, and ‘Florida Red Ruffles’, respectively) (Table 3). ‘Cherry Tart’ produced full plants with many leaves

and bright color display. It received the highest ratings for plant performance among the entries in the trials: 3.4–3.5 in June 2005 and August 2006; 4.0 in September 2006 and July, August, and September 2007; and 4.7–4.8 in July and August 2005 (Table 4). The plant performance rating for ‘Cherry Tart’ was significantly higher than that of ‘Florida Red Ruffles’ in four out of eight evaluations and significantly higher than that of ‘Florida Sweetheart’ in six out of eight evaluations. ‘Florida Red Ruffles’ and ‘Florida Sweetheart’ are considered to be sunburn-tolerant varieties. ‘Cherry Tart’ received similar sunburn tolerance ratings as ‘Florida Red Ruffles’ and ‘Florida Sweetheart’ in all eight evaluations in 3 years.

Recommendation

‘Cherry Tart’ is a new lance-leaved variety. Plants of ‘Cherry Tart’ are dwarf and suitable for a range of container sizes for pot plant production. Tuber de-eyeing is optional for small containers (4 inches in diameter), although tuber de-eyeing can further enhance plant quality. ‘Cherry Tart’ pot plant production time is similar to the production time for ‘Florida Red Ruffles’ and ‘Florida Sweetheart’. ‘Cherry Tart’ produces large numbers of bright red leaves and can perform well both in sun and under shade.

Research and evaluation of this variety have been performed on small acreages. Growers are encouraged to grow only limited quantities of ‘Cherry Tart’ until they have gained experience in producing this variety. Standard post-harvest treatment of tubers is recommended (Harbaugh and Tjia 1985), and preplant hot water treatment of tubers (Rhodes 1964) is encouraged to prolong the variety’s life.

Availability

The Florida Agricultural Experiment Station will be applying for a patent for ‘Cherry Tart’ and production of this variety is to be with a licensing agreement with the Florida Foundation Seed Producers, Inc., P.O. Box 309, Greenwood, FL 32443. Information about tuber availability and propagation agreements can be obtained from the Florida Foundation Seed Producers, Inc.

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Table 1. Tuber weight, production index, number, and grade distribution of 'Cherry Tart' and commercial caladium varieties (2005 and 2006).

Variety	Tuber			Tuber grade distribution (%) ^a				
	Weight (pounds)	Production index ^b	Marketable (no.)	Super mammoth	Mammoth	Jumbo	No. 1	No. 2
2005								
'Cherry Tart'	8.2	166.8	64.4	0	7.0	28.1	39.7	25.1
'Florida Red Ruffles'	6.6	129.7	40.7	0.8	15.6	35.2	33.1	15.2
'Florida Sweetheart'	7.3	144.3	46.7	2.8	17.9	24.7	27.1	27.5
2006								
'Cherry Tart'	7.3	118.6	49.7	2.5	7.1	17.5	42.8	30.0
'Florida Red Ruffles'	5.1	87.9	43.8	0	6.5	19.7	30.1	42.7
'Florida Sweetheart'	6.2	111.0	48.6	0.9	3.1	20.7	49.1	27.2
'Red Frill'	2.6	67.7	38.8	0	0	1.4	66.8	31.9

Note: Values presented are means of three replications with 30 propagules planted in a plot.
^aTubers graded by maximum diameter: no. 2 (1–1½ inches), no. 1 (1½–2½ inches), jumbo (2½–3½ inches), mammoth (3½–4½ inches), and super mammoth (> 4½ inches).
^bThe production index is an indicator of the economic value of the tubers harvested and is calculated as follows: N (no. 2) + 2N (no. 1) + 4N (jumbo) + 6N (mammoth) + 8N (super mammoth), where N = number of tubers in the grade.

Table 2. Plant and leaf characteristics and pot plant quality of 'Cherry Tart' and three commercial caladium varieties grown from no. 1 tubers in 4½-inch containers in a 45% shaded glasshouse in Wimauma, Florida, in 2007.

Variety	Days to sprout ^a		Plant height (inches)		Leaves (no.)		Leaf length (inches)		Leaf width (inches)		Quality rating ^b	
	Intact	De-eye	Intact	De-eye	Intact	De-eye	Intact	De-eye	Intact	De-eye	Intact	De-eye
'Cherry Tart'	38.6	38.0	6.4	5.7	10.0	17.2	6.4	6.5	4.8	4.1	4.1	4.5
'Florida Red Ruffles'	36.8	39.6	6.3	6.5	9.4	13.3	7.0	6.9	4.9	4.8	3.5	4.1
'Florida Sweetheart'	42.3	40.0	6.8	6.4	10.9	14.8	6.9	6.5	4.3	4.2	3.2	4.0
'Red Frill'	30.9	31.5	4.3	4.4	10.8	16.7	5.9	5.6	4.2	3.9	2.8	3.9

Note: Values represent the means of 10 plants produced from intact or de-eyed no. 1 tubers planted individually per container. Data were taken 8 weeks after planting.
^aNumber of days from planting to the first unfurled leaf.
^bPlant quality was rated on a scale of 1-5, with 1 being very poor, 3 being fair and acceptable, and 5 being excellent in plant vigor, fullness, and color display as pot plants.

Table 3. Plant characteristics from planting 1-inch caladium tuber propagules in ground beds in full sun (2005–2007).

Variety	Plant height (inches)				Leaf			
	Plant height (inches)		Number	Length (inches)	Width (inches)			
'Cherry Tart'	11.9		42.7	7.6	5.0			
'Florida Red Ruffles'	8.6		26.3	7.2	4.2			
'Florida Sweetheart'	9.5		21.5	7.9	5.2			
'Red Frill'	5.6		20.9	5.8	3.1			

Note: Values presented for plant height, leaf number, length, and width are means of three replications with three plants measured per plot per year. Data were taken over three growing seasons (2005, 2006, and 2007) after tubers were panted in April each year.

Table 4. Plant performance and sunburn tolerance from planting 1-inch caladium tuber propagules in ground beds in full sun (2005–2007).

Variety	Overall plant performance ratings ^a										Sunburn tolerance ratings ^b					
	06/05	07/05	08/05	08/06	09/06	07/07	08/07	09/07	06/05	07/05	08/05	08/06	09/06	07/07	08/07	09/07
'Cherry Tart'	3.4	4.7	4.8	3.5	4.0	4.0	4.0	4.0	3.5	4.7	4.5	3.8	4.3	3.7	4.6	4.0
'Florida Red Ruffles'	2.8	4.1	4.3	2.0	3.0	3.8	3.1	2.9	3.6	4.4	4.3	4.0	4.7	3.5	4.3	4.0
'Florida Sweetheart'	2.6	3.8	4.1	3.3	4.0	3.3	3.1	2.8	3.0	4.1	4.2	4.0	4.6	3.5	4.3	3.8
'Red Frill'				2.5	2.5	4.2	2.8	2.0			3.8	4.2	3.8	3.8	3.4	2.3

Note: Performance and sunburn tolerance ratings are means of three replications based on whole plot evaluation. Data were taken over three growing seasons (2005, 2006, and 2007) after tubers were planted in April each year.
^aPlants were rated on a scale of 1-5, with 1 being very poor, 3 being fair and acceptable, and 5 being excellent in plant vigor, fullness, and color display.
^bPlant sunburn tolerance was rated on a scale of 1-5 with 1 being very poor, 3 being fair and acceptable, and 5 being excellent without showing any signs of leaf burns or resulted holes on leaf surfaces.