

'Strawberry Festival' Strawberry

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Most of the strawberries (*Fragaria ×ananassa* Duchesne) produced in Florida are shipped fresh to locations throughout the eastern United States and Canada (Florida Agricultural Statistics [www.nass.usda.gov/fl]). Therefore, Florida growers need cultivars that produce fruit that are attractive and flavorful, and maintain these qualities during and after long-distance shipment. 'Strawberry Festival' strawberry has produced commercially acceptable yields of firm, attractive, and flavorful fruit in trials at the Univ. of Florida's Gulf Coast Research and Education Center in Dover (GCREC-Dover) and in two commercial fields in west central Florida. It is recommended for trial in areas where strawberries are grown in the annual hill plasticulture system. The clone was named 'Strawberry Festival' in recognition of the Florida Strawberry Festival®, an annual festival in Plant City that celebrates the abundant crop of berries harvested in eastern Hillsborough County during late February and early March.

Origin

'Strawberry Festival' originated from a 1995 cross between 'Rosa Linda' (Chandler et al., 1997b) and 'Oso Grande' (U.S. plant patent no. 6578). 'Rosa Linda', a 1996 release from the Florida Agricultural Experiment Station, was used as a parent because of its high early season yield potential and its desirable fruit shape. 'Oso Grande', a Univ. of California cultivar, was used as a parent because of its ability to produce large, firm

fruit. The original plant of 'Strawberry Festival' was selected in 1995 from a field nursery at GCREC-Dover. 'Strawberry Festival', tested as selection FL 95-41, has been evaluated in replicated plot trials at this location and in observational trials for 2 years at the Univ. of Florida's Suwannee Valley Research and Education Center, Live Oak, in north central Florida. Replicated plot trials were limited to only one location in Florida because most of Florida's 2500 ha of strawberries are within a 30-km radius of the Dover center. Strawberries in Florida are grown using the annual hill cultural system (Hancock, 1999). In the trials at GCREC-

Dover, fresh transplants with leaves intact were planted each October through black polyethylene mulch on two-row raised beds. Beds were fumigated with a mixture of methyl bromide (98%) and chloropicrin (trichloronitromethane) (2%) prior to planting. Four plots (10 plants each) of each clone in 1997, 1998, and 1999 were planted in a randomized complete-block design. Plants were spaced 38 cm apart in the row, with 30 cm between rows. Ripe fruit were harvested, graded, counted, and weighed twice a week from December through March. Each season's data were analyzed separately because of planting date and plant source differences among seasons. For sensory analysis, ripe fruit was harvested in the morning, cooled to 2 °C, and transported to the Food Science and Human Nutrition Dept. in Gainesville. Trained panelists evaluated samples for color uniformity, flavor intensity, sweetness, and firmness, as described by Sims et al. (1997). Samples were evaluated from three harvest dates (Jan., Feb., and Mar. 1999).

Description and performance

'Strawberry Festival' is a short-day cultivar. The vigorous plant tends to produce numerous runners if planted in early October in central Florida. Average petiole length is 120 mm. Average length and breadth of leaflets is 78 and 73 mm for terminal leaflets, respectively, and 69 and 72 mm, respectively, for secondary leaflets. Leaflet mar-



Fig. 1. Fruit of 'Strawberry Festival' strawberry.

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gins are crenate and average 21 serrations per terminal leaflet, and 26 per secondary leaflet. The fruit is attached to long pedicels; those of mature primary fruit are 188 to 240 mm long, with branching of the inflorescence usually occurring close to the crown. 'Strawberry Festival' has a mean fruit weight similar to that of 'Sweet Charlie' (Chandler et al., 1997), currently one of the major cultivars grown in west central Florida (Table 1). The fruit are mostly conic in shape (Fig. 1). The external color of fully mature fruit is deep red and glossy; internal color is bright red (188 and 179, respectively, in the Pantone® Color Formula Guide). These colors match those of 'Camarosa' (U.S. plant no. 8708), currently a major cultivar in Florida, California, and

other annual hill growing areas. The calyx is large and showy. Fruit of 'Strawberry Festival' have a very firm texture and excellent flavor (Table 2).

In trials at GCREC-Dover, 'Strawberry Festival' produced total marketable yields as high or higher than those of 'Sweet Charlie'; yields were as high as those of 'Camarosa' in 1997–98, but not as high as those of 'Camarosa' in 1998–99 and 1999–00 (Table 1). In two commercial fields in the Dover/Plant City area in 1999–00, 'Strawberry Festival' had a fruiting pattern and yield similar to those of 'Camarosa'. In the observational plots at Live Oak, 'Strawberry Festival' was less vigorous and had lower fruit yields than 'Camarosa', but has been more vigorous and

had higher fruit yields than 'Sweet Charlie' (R.C. Hochmuth, personal communication).

'Strawberry Festival' is susceptible to anthracnose fruit rot (caused by *Colletotrichum acutatum* Simmonds), Colletotrichum crown rot (caused by *Colletotrichum gloeosporoides* Penz.), and angular leaf spot (caused by *Xanthomonas fragariae* Kennedy & King); therefore we recommend that fruit growers choose their transplant source carefully to avoid starting with infected plants. 'Strawberry Festival' appears to be less susceptible than 'Sweet Charlie' to botrytis fruit rot (caused by *Botrytis cinerea* Pers. ex Fr.) and less susceptible than 'Camarosa' to powdery mildew (caused by *Sphaerotheca macularis* [Wallr. ex Fr.] Jacz. f. sp. *fragariae*). 'Strawberry Festival's relative susceptibility to the twospotted spider mite (*Tetranychus urticae* Koch) is unknown, but a serious infestation has not yet been observed in research center or commercial plantings.

Table 1. Performance of 'Strawberry Festival' strawberry compared with two standard cultivars grown at Dover, Fla.^z

Cultivar	Marketable yield ^y (g/plant)					Weight/fruit ^x (g)
	December	January	February	March	Total	
1997–98						
S. Festival	47 b	90 ab	205 ab	357 ab	700 a	17.6 b
Sweet Charlie	91 a	54 b	219 a	257 b	622 a	17.6 b
Camarosa	50 b	105 a	167 b	426 a	748 a	20.0 a
1998–99						
S. Festival	43 b	62 b	68 b	273 b	446 b	15.9 b
Sweet Charlie	36 b	52 b	134 a	289 b	511 b	15.7 b
Camarosa	81 a	154 a	110 ab	615 a	961 a	19.6 a
1999–2000						
S. Festival	37 a	192 b	103 c	436 a	768 b	18.0 b
Sweet Charlie	49 a	115 c	169 b	269 b	602 c	18.7 b
Camarosa	39 a	279 a	252 a	393 a	963 a	23.3 a

^zTransplants were obtained from the following nursery locations: 'Strawberry Festival' from Florida in 1997, New York in 1998, and Ontario in 1999; 'Sweet Charlie' from Florida in 1997, North Carolina in 1998, and Ontario in 1999; and 'Camarosa' from North Carolina in 1997 and Quebec in 1998 and 1999. Planting dates were 9 Oct. 1997, 16 Oct. 1998, and 20 Oct. 1999.

^yValues represent mean per plant yield for four 10-plant plots.

^xMean fruit weight was determined by dividing total marketable fruit yield per plot by total marketable fruit number per plot.

^zMean separation within columns and seasons by Fisher's protected LSD test, $P \leq 0.05$.

Table 2. Sensory characteristics of 'Strawberry Festival' strawberry fruit compared with those of two standard cultivars grown at Dover, Fla.^z

Cultivar	Color	Flavor		Firmness ^y
	uniformity ^y	intensity ^y	Sweetness ^y	
S. Festival	11.4 (0.35)	7.5 (0.65)	7.4 (0.56)	10.7 (0.95)
Sweet Charlie	9.4 (0.37)	6.8 (0.79)	7.6 (0.55)	6.8 (0.71)
Camarosa	10.5 (0.74)	6.1 (0.25)	6.5 (0.34)	9.3 (0.42)

^zMeans based on the ratings of 12 to 15 trained panelists who rated samples of fruit from each cultivar three times in 1999. SES in parenthesis.

^yRating scale 1 to 15, with a higher score indicating more uniform color, more strawberry flavor intensity, more sweetness, and more firmness.

Availability

The Florida Agricultural Experiment Station at the Univ. of Florida's Institute of Food and Agricultural Sciences has applied for a U.S. plant patent on 'Strawberry Festival', and this cultivar has been uniquely characterized using a set of oligonucleotide DNA primers in randomly amplified polymorphic DNA (RAPD) analysis. 'Strawberry Festival' is licensed to the Florida Strawberry Growers Association by Florida Foundation Seed Producers. Information on nurseries sublicensed to propagated 'Strawberry Festival' can be obtained from the Florida Strawberry Growers Association, P.O. Drawer 2550, Plant City, FL 33564.

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