'Spring Gem' Peach

David W. Ramming

Horticultural Crops Research Laboratory, U.S. Department of Agriculture, Agricultural Research Service, 2021 South Peach Avenue, Fresno, CA 93727

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'Spring Gem' peach [*Prunus persica* (L.) Batsch] produces large, attractive, early-ripening, semi-freestone, yellow-fleshed fruit. It is recommended for commercial production where 'Springcrest' peach has been grown successfully to provide a large peach ripening between 'Springcrest' and 'Gemfree'.

Origin

'Spring Gem' resulted from a 1979 cross of two advanced U.S. Dept. of Agriculture (USDA) breeding selections, P113-98 x FV9-164 (Fig. 1); FV9-164 was a sibling of 'Springcrest' developed by USDA at Fort Valley, Ga. Cultivars in its heritage can be traced to germplasm from California ('Red King' nectarine and 'Springtime' peach), New Jersey ('Fireglow'), and Georgia ('Hiley' = chance seedling) breeding programs. The seedling was produced in 1979 by aseptic embryo culture. 'Spring Gem' first fruited in 1983 at the Horticultural Crops Research Laboratory, Fresno, Calif., and was selected by David W. Ramming and Owen Tanner and tested as P46-12.

Description

'Spring Gem' trees bloom ≈ 1 d after 'Springcrest' [650 chill units (cu)]; thus, the chilling requirement is rated similarly, at 650-700 cu. Full bloom occurs from the last week of February to the 2nd week of March in Fresno, Calif., depending on winter chilling received and maximum daily temperatures in January and February. Leaves are similar in size to 'Springcrest' and have reniform glands. Flowers are showy, light pink with red anthers and are self-fertile.

Fruit (Fig. 2) of 'Spring Gem' have been evaluated on budded trees since 1989 (Table 1). Two trees of each cultivar or selection were grown at the Univ. of California, Kearney Agricultural Center, Parlier, Calif. Fruit from one tree was harvested and graded for size and fruit characteristics. The major advantage of 'Spring Gem' is its relatively large, round fruit for the maturity season, averaging 65-75 mm (2.6-3.0 inches) in diameter when firm-ripe for commercial harvest (Table 1), which is one to two sizes larger than 'Springcrest' (Table

2). It is rounder and more attractive, with a greater red overcolor, than 'Gemfree' (Table 1). In 1993, fruit diameter averaged 70 mm

and fruit mass averaged 173 g and were larger than 'Springcrest' (64-mm diameter and 138 g) and the same size as 'Gemfree' (70-mm diameter and 176 g) (Table 2). Even though 'Springcrest' had larger crops, it does not seem to be enough to compensate for its smaller size. Fruit ripen ≈ 85 d after bloom, between 'Springcrest' and 'Gemfree', about the last week of May at Fresno, Calif. At shipping maturity, a bright-red blush covers 60% to 80% of the fruit surface, which was more than 'Springcrest' or 'Gemfree' (Table 1). Attractiveness, the combined appearance of ground color and red blush, was also better for 'Spring Gem'. Chromameter readings were taken on

Fig. 1. Pedigree of 'Spring Gem' peach (* = nectarine).

Fig. 2. Fruit of 'Spring Gem' peach.

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Table 1. Fruit characteristics of 'Spring Gem', 'Springcrest', and 'Gemfree' peach grown at the Univ. of California, Kearney Agricultural Center, Parlier (1987–95).

Cultivar	Crop ^z	Diam (mm)	Shape ^y	Pubescence ^y	% Red overcolor	Attractiveness ^y	Firmness ^y	Texture ^y	Quality ^y
Springcrest	7.6	65.7	7.6	7.1	50	6.3	6.7	6.9	6.7
Spring Gem	6.4	70.2	7.6	7.6	69	7.4	7.4	6.9	7.0
Gemfree	4.3	70.8	5.9	6.7	51	4.7	7.1	6.6	6.6

^zCrop rating at harvest: 1 = no crop; 7 = thinned commercial crop; 10 = overcropped.

^yRatings on a scale of 1–10. 1 = completely unsatisfactory, 10 = a perfect score; a rating of ≥7 is commercially acceptable.

Table 2. Yield and percent fruit in each size category. Fruit grown and sized at the Univ. of California, Kearney Agricultural Center, Parlier.

Cultivar	Date	Yield/tree (kg)	Grader Size ^z (% fruit per size)							
			1	2	3	4	5	6	7	8
Springcrest	20 May 93	29.0	7.0	30.5	49.7	12.8				
Spring Gem	20 May 93	19.0	2.3	11.0	35.5	36.4	9.5	5.2		
Gemfree	2 June 93	12.5			21.2	28.3	36.4	12.1	1.9	
Springcrest	24 May 94	29.8	1.0	16.8	45.8	31.3	4.5			
Spring Gem	27 May 94	24.2	0.5	1.9	4.7	19.8	37.6	21.0	12.6	
Springcrest	24 May 95	26.5	0.7	6.9	38.3	43.0	10.0			
Spring Gem	31 May 95	16.9	1.1	5.7	4.6	13.1	29.6	32.4	8.9	3.2

^zOptical grader used to separate the fruit sizes. Grader size mean mass (range): size 1 = culls; size 2 = 83.0 g (80–87); size 3 = 113.3 g (94–133); size 4 = 143.1 g (137–148); size 5 = 175.0 g (165–182); size 6 = 207.1 g (198–217); size 7 = 241.5 g (234–251); size 8 = 270 g.

the ground color, overcolor, and flesh color (Table 3), in which the "L" scale ranges from black (L = 0) to white (L = 100), the "a" scale from green (negative values) to red (positive values), and the "b" scale from blue (negative values) to yellow (positive values). There was no significant difference in ground color but flesh a and b readings indicate that there was some red in the flesh of 'Gemfree', while in 'Spring Gem' and 'Springcrest' there was none. The flesh of 'Spring Gem' is clear yellow, firm, melting, semi-free, and of good dessert-type quality and flavor. The soluble solids content and titratable acid were about the same for all three cultivars.

Availability

'Spring Gem' was released as a public variety. There are no restrictions on its propagation. It was indexed by the NRSP5/IR2 project (the national virus-tested fruit tree program) located at Prosser, Wash., and found free of known viruses. Certified virus-free propagation material is available from NRSP5/IR2, Washington State Univ., Irrigated Agriculture Research and Extension Center, 24106 North Bunn Road, Prosser, WA 99350-9687.

Table 3. Fruit color, firmness, % soluble solids (SS), and titratable acidity of 'Spring Gem', 'Springcrest', and 'Gemfree' peach at the Univ. of California, Kearney Agricultural Center, Parlier (1993).

Cultivar	Skin									Firm- ness (N) ^y	% SS	Acid- ity ^x
	Ground color ^z			Overcolor ^z			Flesh color ^z					
	L*	a*	b*	L*	a*	b*	L*	a*	b*			
Springcrest	64.9	6.9	38.0	46.3 a ^w	27.8	24.4 ab	72.7 a	−0.5 b	42.5 b	97 c	10.9	11.4
Spring Gem	60.1	7.6	38.1	42.9 b	28.2	23.4 b	69.8 a	0.4 b	45.8 b	111 b	11.4	12.0
Gemfree	62.0	4.9	42.4	44.0 ab	30.4	27.0 a	69.5b	3.5 a	47.5 a	128 a	11.8	16.7
	NS	NS	NS	*	NS	*	*	**	**	**	NS	NS
n for each CV ^v	9	9	9	9	9	9	18	18	18	18	3	3

^zColor determined with a chromameter (model CR 200; Minolta Camera Co., Osaka, Japan). See text for description of readings.

^yA Magness-Taylor penetrometer equipped with an 8-mm tip was used to measure firmness on two opposite, pared sides of the fruit.

^xMalic acid (g/100 mL).

^wMean separation within columns by Tukey's test.

^vCultivar.

NS, *, ** Nonsignificant or significant at $P \leq 0.05$ or 0.01 , respectively.