

‘White Zest One’, a Medium-chill, White-fleshed Peach Cultivar

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The ‘White Zest One’ peach is being released by Texas A&M AgriLife Research to provide a firm, attractive, sweet-acid, white-fleshed peach for the medium chill zone. This

peach ripens in early to mid-June depending on the location. This new white-fleshed peach is appropriate for both the commercial and home garden markets.

TX3D45W, a white-fleshed seedling, and ‘TropicPrince’ (Tropicpeachone, USPP # 12,965; Byrne, 2002), which was planted in the high-density seedling selection field in 2004. The parents of TX3D45W are ‘TexRoyal’ (Byrne and Bacon, 1991) and a white-fleshed seedling of complex heritage with ‘O’Henry’, ‘Giant Babcock’, ‘Redwing’, and ‘Red Delight’ in its background. The seedling designated as TX3C331W was discovered in 2006 and propagated for further observation.

Two-year-old and older trees of the variety were subsequently evaluated during the 2008–13 fruit growing seasons in two medium-chill sites (College Station and Fairfield, TX) and a higher chill location (Fowler, CA). College Station, TX (lat. 30°37’ N, long. 96°22’ W, 94 m elevation)

Table 1. Chilling conditions at the College Station (TX), Fairfield (TX), and the Fowler (CA) evaluation sites.

Location	December temp (°C)		January temp (°C)		Chilling accumulation ²		Common cultivars
	Mean	Range	Mean	Range	Mean	Range	
College Station	11.2	7.3–12.9	10.7	8.4–14.1	723	561–1,097	TexKing, TexRoyal
Fairfield	9.4	6.8–10.8	8.9	6.7–12.9	947	757–1,303	Regal, June Gold, Harvester, Sentinel
Fowler	7.6	5.3–10.3	7.9	5.1–12.0	1119	788–1,301	O’Henry, Elegant Lady

²Chilling estimated with the mean monthly temperatures of the two coldest months using the equation Chilling = 2079 – (123.8*December/January mean monthly temperature in °C) (Byrne and Bacon, 1992; Sharpe, 1970; Weinberger, 1956). Floresville used data from San Antonio and Fowler used data from the Fresno weather station. All sites used data from 2000 to 2011.

Table 2. Fruiting characteristics of ‘White Zest One’ peach compared with seven commercial peach cultivars at Fairfield, TX (2008–12) arranged by ripe date.

Name	Full bloom ^z	FDP (days) ^z	Ripe date ^z	Size ^y	Wt (g)	Firm ^x	Blush ^x	Shape ^x	Tip ^x	Ground color ^x	Appearance ^x	Soluble solids (°Brix)	Taste ^x
Regal	10 Mar. ab ^w	69 e	19 May e	5.2	104 b	7.0 ab	7.0 ab	6.5 bc	6.3 cd	7.0 a	6.8 bd	10.8 ab	6.2 c
White Delight One	2 Mar. b	79 de	23 May e	6.2	137 ab	6.8 b	5.3 bd	7.6 a	7.7 a	6.4 ab	7.2 ac	12.0 ab	6.5 bc
June Gold	6 Mar. ab	83 cd	27 May de	6.3	141 ab	6.5 b	4.1 de	5.8 c	5.5 d	6.8 ab	5.7 d	10.4 b	6.4 c
White Zest One	2 Mar. b	103 ab	8 June cd	6.9	154 ab	7.2 ab	7.0 ab	7.3 ab	7.3 ab	6.6 ab	7.6 cd	13.0 ab	6.6 ac
Scarlet Pearl	15 Mar. a	94 bc	16 June bc	6.6	159 a	7.4 ab	5.8 ad	6.9 ab	6.9 ac	6.8 ab	6.6 bd	11.8 ab	6.3 c
White Delight Two	5 Mar. b	104 ab	17 June c	6.1	140 ab	7.8 a	7.8 a	7.3 ab	7.5 a	6.5 ab	8.1 a	13.5 a	7.3 ab
White Delight Three	8 Mar. ab	114 a	30 June ab	5.8	148 ab	7.1 ab	4.8 ce	6.8 ab	6.6 bc	6.0 b	6.0 d	14.3 a	7.5 a
White Delight Four	9 Mar. ab	114 a	8 July a	6.2	143 ab	7.7 a	3.1 e	7.0 ab	7.1 ac	6.2 ab	6.3 cd	14.2 a	6.9 ac

^zFull bloom = 60% to 80% flowers open; FDP = fruit development period, days from full bloom to ripe; Ripe date = date when 20% of the fruit is firm ripe.

^ySize ratings of diameter (mm) 0 to 9: 4 = 51 to 57, 5 = 58 to 64, 6 = 65 to 70, 7 = 71 to 76.

^xRating scale 0 to 9: 0 to 4 = unacceptable, 5 = marginal, 6 = good, 7 = very good, 8 to 9 = excellent for commercial use.

^wMean separation within columns by Student’s *t* test at the 5% level. Items with the same letter are not significantly different. No letters within a column indicate no significant differences.

Table 3. Fruiting characteristics of ‘White Zest One’ peach compared with six medium chill peach cultivars at Fowler, CA (2008–13) arranged by ripe date.

Name	Full bloom ^z	FDP (days) ^z	Ripe date ^z	Size ^y	Wt (g)	Firm ^x	Blush ^x	Shape ^x	Tip ^x	Ground color ^x	Appearance ^x	Soluble solids (°Brix)	Taste ^x
Flordaking	24 Feb. ab ^w	85 c	22 May d	7.0 b	178 bc	6.5 ab	2.7 b	7.0 c	7.3 b	6.0 b	5.0 c	11.5 ab	6.0 c
White Delight One	1 Mar. ab	101 ac	1 June c	7.6 ab	185 ac	5.3 b	6.0 a	7.6 ab	7.4 ab	6.0 b	6.4 b	11.6 ab	6.0 c
TexKing	27 Feb. ab	98 b	3 June c	7.2 ab	193 ab	6.9 a	6.1 a	7.1 bc	7.4 b	6.9 a	7.0 ab	11.1 b	6.1 c
White Robin	23 Feb. ab	107 ab	6 June c	7.3 ab	183 ac	6.5 ab	6.0 a	7.3 ac	7.7 ab	6.7 ab	7.0 ab	10.5 b	6.3 ac
White Zest One	21 Feb. b	118 a	14 June b	6.7 b	145 c	6.4 ab	6.3 a	7.7 a	8.0 a	6.8 ab	7.6 ab	11.8 ab	6.4 ab
White Delight Two	25 Feb. ab	113 a	16 June b	8.0 a	233 a	7.3 a	6.7 a	7.8 a	7.8 ab	6.7 ab	8.0 a	12.7 ab	6.8 ab
White Delight Three	8 Mar. a	121 a	29 June a	7.2 ab	220 ab	7.3 a	5.2 a	7.6 ab	7.6 ab	6.4 ab	6.8 ab	13.2 a	7.0 a

^zFull bloom = 60% to 80% flowers open; FDP = fruit development period, days from full bloom to ripe; Ripe date = date when 20% of the fruit is firm ripe.

^ySize ratings of diameter (mm) 0 to 9: 4 = 51 to 57, 5 = 58 to 64, 6 = 65 to 70, 7 = 71 to 76.

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^wMean separation within columns by Student’s *t* test at the 5% level. Items with the same letter are not significantly different. No letters within a column indicate no significant differences.

Origin

This variety was selected from a population of seedlings generated by the Stone Fruit Breeding and Genetics Program at Texas A&M University from a cross between

has a mean monthly temperature of its coldest month of 10.7 °C and a chilling accumulation that is generally greater than 550 chilling units (Byrne and Bacon, 1992; Sharpe, 1970; Weinberger, 1956). Fairfield, TX (lat. 31°44’ N, long. 96°10’ W, 439 foot elevation) has

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Fig. 1. Fruit of 'White Zest One' as produced in the San Joaquin Valley in California (left) and the medium chill zone of Texas (right).

a mean monthly temperature of its coldest month of 8.9 °C and a chilling accumulation that is generally greater than 750 chilling units. The Fowler, CA, site (lat. 36°38' N, long. 119°42' W, 92 m elevation) has a mean monthly temperature of its coldest month of 8.5 °C and has a chilling accumulation that is generally above 850 chilling units (Table 1) (Byrne and Bacon, 1992; Sharpe, 1970; Weinberger, 1956). This new white-fleshed peach was productive at all three sites.

Description

'White Zest One' (TX3C331W) is productive in the medium-chill zones where cultivars such as 'TexKing' (Byrne and Bacon, 2004), 'TexRoyal', 'June Gold' (Brooks, 1958), and 'Scarlet Pearl' (Okie, 1993) are adapted. 'White Zest One' bloomed ≈4 to 5 d before 'June Gold', 2 weeks before 'Scarlet Pearl', and with or slightly before 'White Delight One' and 'White Delight Two' (Byrne and Anderson, 2013). Thus, their chilling requirement is ≈500 to 550 chill units. 'White Zest One' has showy flowers.

In the medium-chill zone of Texas (Fairfield), 'White Zest One' bears a crop of white, melting-flesh peaches with a sweet-acid flavor that are firm, attractive, semifreestone to freestone with medium-large to large size fruit (Tables 2 and 3). The fruit is round to slightly ovate with a cream-white flesh and ground color and a 60% to 70% light to dark red over color with many degrees of shading and blending occurring between these colorations. Under lower chill conditions (College Station and Floresville), this new cultivar may develop a small tip and a slight suture bulge. The fruit flesh does not brown readily nor has it shown a tendency to develop split or shattered pits during the final stage of fruit swelling. The quality of this cultivar is equal to or better than that of the other major cultivars in terms of flesh firmness, percent red blush, shape, ground color, appearance, flavor, and soluble solids (Tables 2 and 3; Fig. 1).

In the medium-chill zone of Texas, this cultivar is picked from early June until mid-June depending on the year and the site of the orchard. The average time of harvest for Fairfield, TX, was 8 June, which was ≈10 d

after 'June Gold' and 7 to 9 d before 'Scarlet Pearl' and 'White Delight Two' (Table 2).

The stone is normally ovoid to elongated and has a medium size with the dimensions of 32 to 33 mm in length, 25 to 27 mm in width, and ≈18 to 20 mm in thickness.

The 'White Zest One' tree is vigorous with the typical semispreading growth habit of a peach tree as is seen in 'TexKing', 'TexPrince', and 'TexRoyal'. No observations have been made on resistance for either peach rust (*Tranzschelia discolor*) or bacterial leaf spot [*Xanthomonas campestris* pv. *pruni* (E. F. Smith) Dye]. The moderately large leaves are lanceolate with crenulate margins and have two to three reniform petiolar glands.

Availability

Requests for budwood should be directed to the Texas A&M University System's Office of Technology Commercialization. This cultivar is the subject of a plant patent application.

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