‘Randy’ Male Pistachio

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‘Randy’ is a male pistachio (*Pistacia vera* L.) released as a pollenizer for female cultivars Golden Hills and Lost Hills. It has flowered well and uniformly during low-chill seasons (less than 800 h) in Kern and Madera Counties, CA. ‘Randy’ flowers from 4 to 8 d earlier than ‘Peters’ and, like ‘Peters’, has an extended period of pollen shed. Initial pollen germination is high (75%) compared with other males, and pollen remains viable up to 28 d after shed. Randy is not recommended as a pollenizer for ‘Kerman’, because in most years, it sheds pollen before ‘Kerman’ females are receptive.

Origin

‘Randy’ was the result of a cross between *Pistacia vera* seedling parents, female ‘2-35’ (Crane, 1977, 1988; Crane and Iwakiri, 1983) and male ‘ES#3’. The parents were initially selected at the former Plant Introduction Garden at Chico, CA (J. Crane and J. Maranto, personal communication). The original seedling was planted in 1991 at a research plot provided by Paramount Farming Company, Bakersfield, CA. ‘Randy’, evaluated under its seedling designation B15-31, first flowered in 1994. Randy was used as one of three pollenizers in replicated trials in Kern and Madera Counties; field budded in 1997 and 1999, respectively, on both UCB1 (*Pistacia atlantica* Desf. × *Pistacia integerrima* Stewart) and PG1 (*P. integerima*) rootstocks. ‘Randy’ first flowered during 2000 in Kern County and 2003 in Madera County. Performance data

were collected annually at both plots. ‘Randy’ was released 20 June 2005 and patented as PP 18,262 on 4 Dec. 2007. Both test plots are located in USDA hardiness zone 9a (Cathey, 1990) with annual low temperatures of –7 to –4 °C.

Description

All color references are to the Royal Horticultural Society Color Chart (Royal Horticultural Society, 1986) and are designated as RHS. Flowering dates are presented as days after 1 Jan. StatView5.01 (StatView for Windows, 1998) was used for analyses of variance and calculation of means and ses.

Tree

Tree structure. ‘Randy’ has a tree structure and branching habit typical of male *Pistacia vera*. Branch angles are broad, 80° to 90° from horizontal, for both scaffold and lateral branches. Distribution of scaffold and lateral branches are in part a function of pruning and training during the first 3 years of growth. ‘Randy’ has more and thicker subterminal branches than ‘Peters’ (Fig. 1).

Tree vigor. The tree is larger than ‘Kerman’. (Male trees are usually larger than female trees.) Grafted trees are ≈3 m tall at 7 years with a spread equal to the height. Trunk diameters were 10 to 15 cm 7 years after grafting onto rootstocks. ‘Randy’ is significantly larger than ‘Peters’ from mean cross-sectional area measurements (Table 1).

Bark. Bark color is similar to ‘Peters’, between RHS 202C and 202D. Lenticels are somewhat better defined than those of ‘Peters’ but are otherwise similar in distribution and density.

Flowers

Inflorescences. Inflorescences are borne laterally on 1-year-old wood and rarely from terminal buds. Because ‘Randy’ is more highly

branched than ‘Peters’, there is relatively more 1-year-old wood for flower formation on ‘Randy’ trees. Flowers are borne on panicle inflorescences with three to nine branches. The panicle is typically 2.5 to 4 cm long at the beginning of flowering, expanding to 8 cm long after completion of pollen dehiscence. The panicles are approximately two-thirds as wide as they are long when fully expanded. The shape is roughly conical. Anther dehiscence occurs in flowers from the base to the tip of the panicle, and pollen is shed over a 3-week period depending on weather conditions during individual seasons. Young expanding inflorescences are red RHS 52B-C to 54A (red group) at 2 weeks to flower anthesis. Individual flowers are 0.5 to 1.0 mm long, yellow-green (RHS 145C to 154D; yellow-green group), and all are male. Fifty to 200 flowers are typically borne on each inflorescence with a high level of variability among inflorescences (Fig. 2).

Flower buds. A visual score (low, medium, and high) was used to evaluate the 656 male seedlings at the Kern County seedling plot in 1997 and 1998. ‘Randy’ was scored as having a high number of inflorescences. Comparison of ‘Randy’ and ‘Peters’ indicated that ‘Randy’ dormant inflorescence buds are significantly larger than ‘Peters’ buds (Table 1). ‘Randy’ buds are significantly wider but not longer than ‘Peters’ buds. There are also significantly more inflorescence buds/m branch length for ‘Randy’ than for ‘Peters’ (Table 1). Combined with an abundance of 1-year-old wood on which inflorescences are borne, these characters produce a large amount of pollen over a long period.

Leaves

Leaf description. Leaves were deciduous simple compound imparipinnate with one or two pairs of oppositely arranged lateral leaflets. Average number of leaflets is three or five. Leaves are 10 to 15 cm long with 5- to 8-cm leaflets. Leaves vary considerably in shape, in general being ovate with cuspidate to rounded tips and a rounded base. Leaf surfaces are glabrous, smooth, and waxy. Leaves range from light green at first emergence to dark green at maturity. Upper and lower leaf surfaces do not differ significantly in color (RHS 137-C to 136A) with RHS 1145B-C midribs and are similar to values for ‘Peters’. Petioles are 2 to 4 cm long, glabrous with a few glands, somewhat angular in cross-section, without wings, greenish RHS 138A-B to RHS139C-D, with some having a purple-red tint (RHS 46A) at the base.

Production Comparisons

Flowering date. ‘Randy’ flowers ≈1 week before ‘Peters’ (Fig. 3). ‘Randy’ blooms for an extended period (longer than 3 weeks), a characteristic that it shares with ‘Peters’. Unselected *P. vera* male seedlings typically shed pollen for ≈1 week (Parfitt, personal observation).

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Fig. 1. Comparison of 'Randy' and 'Peters' dormant branches showing differences in branching and bud density.

Fig. 2. Comparison of 'Randy' and 'Peters' inflorescences showing appearance of typical inflorescences.

Fig. 3. First, last, and maximum flowering dates for 'Randy' and 'Peters'. Shown as number of days from 1 Jan. Data from 1995 to 2000 were recorded on original seedling tree; data from 2003 to 2010 were recorded on grafted trees.

Table 1. Mean comparisons for 'Randy' and 'Peters' bud and trunk measurements.

Character	Cultivar	No.	Mean	SE	ANOVA <i>P</i> value
Trunk cross-sectional area ^z (cm ²)	Peters	5	32.4	1.34	0.008
	Randy	5	50.7	5.06	
Mean bud no./cm ^y	Peters	50	0.187	0.018	<0.0001
	Randy	50	0.468	0.020	
Mean bud volume (mm ³) ^y	Peters	50	4.23	0.19	<0.0001
	Randy	50	6.64	0.29	
Mean bud length (mm) ^y	Peters	50	11.42	0.13	0.4
	Randy	50	11.26	0.14	
Mean bud width (mm) ^y	Peters	50	8.48	0.18	<0.0001
	Randy	50	10.84	0.20	

^zMeasurements taken 40 to 60 cm from the ground.

^yDormant buds.

ANOVA = analysis of variance.

Pollen viability and durability. Pollen viability is typically described as percentage germination immediately after pollen shed, whereas pollen durability is a measure of germination several weeks after pollen shed.

'Randy' has excellent performance in both categories. Mean germination for 656 seedlings from 107 crosses evaluated in 1996 for initial pollen viability was 30% ± 23% SE with a value of 75% for 'Randy' and 45% for 'Peters'. After

4 weeks of storage, mean germination for 622 seedlings was 2% ± 6% SE, 35% for 'Randy' and 5% to 15% for 'Peters'.

Rootstocks. No compatibility problems have been observed on either 'UCB1' or 'PG1' rootstock.

Use

'Randy' is a pollinizer for 'Golden Hills', 'Lost Hills', or any other cultivar that flowers earlier than 'Kerman'. 'Randy' can also serve as a pollinizer for 'Kerman' during seasons when 'Kerman' and 'Peters' bloom periods are asynchronous or when 'Kerman' has an extended or interrupted bloom period as a result of insufficient chilling. Normal chilling in Kern County is greater than 900 h, whereas winters with less than 812 h have been reported four times since 1998 (data from Kallsen). Characteristics that make 'Randy' a superior pollinizer for early-season flowering

cultivars are excellent pollen viability and durability, early-season flowering, large numbers of flower buds/cm of branch opening over an extended bloom period, flowering precocity, and a large tree size.

Availability

Propagation wood has been distributed to California pistachio nurseries under license through the UC Davis Technology Transfer Center (Patent no. PP18262). Licenses for

nursery production of propagation wood may be obtained through the UC Davis Technology Transfer Center, One Shields Avenue, University of Calif., Davis CA 95616 (phone: 530-757-3432).

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