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# 'TexRoyal', a Medium-chilling Peach

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'TexRoyal' peach *[Prunus persica* (L.) Batsch] is a medium-chilling, early midseason peach cultivar that produces consistent and heavy crops of round, yellow-fleshed, semi-free to freestone peaches of uniform shape and size. It is being released for commercial grower trial in the medium-chilling ρεγιον (MCR) of the southeastern United States (Fig. 1). 'TexRoyal' fruits ≈10 days after 'June Gold' and with 'Juneprince'. It has exhibited more consistent cropping than 'Flordaking', 'June Gold', 'Juneprince', and 'Harvester', and more consistent fruit quality than 'Flordaking', 'Texstar', 'June Gold', 'Juneprince', and 'Harvester' in the MCR.

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## Origin

'TexRoyal' is a 1975 selection by H.H. Bowen from a cross made at Rutgers Univ. Fruit Research and Extension Center at Cream Ridge, N.J., in 1970. It is a cross between NJ239 and 'Early Amber' (Fig. 2) and was tested for 10 years as 'Y18-109' at Texas Agricultural Experiment Station orchards at College Station and Yoakum.

## Description

Major advantages of 'TexRoyal' for the MCR are a medium chilling requirement, high yield, and high fruit quality tolerance to adverse weather conditions, fruit size uniformity throughout the tree, and early season stone freeness. 'TexRoyal' has an estimated chilling requirement (CR) of 600 chill units (CU) based on relative bloom time with other cultivars. Full bloom at College Station occurred 1 to 2 days after 'Texstar' (550 CR)

Table 1. Fruit evaluation observations for 'TexRoyal' and five other peach cultivars at College Station.'

| Cultivar | Mean full bloom | Mean first ripe[y] | Mean FDP[x] | Crop load[w] | Fruit diam (mm) | Firm[v] | Blush (%) | Shape[u] | Stone |
|---|---|---|---|---|---|---|---|---|---|
| Flordaking | 19 Feb. | 8 May | 78 | 0–6 | 57–64 | 6–7 | 25–75 | 6–8 | Cling |
| Texstar | 1 Mar. | 19 May | 79 | 4–8 | 57 | 7 | 35–75 | 3–6 | Semifree |
| June Gold | 6 Mar. | 24 May | 79 | 2–6 | 57–64 | 6–7 | 35–75 | 4–5 | Semifree |
| TexRoyal | 2 Mar. | 4 June | 94 | 4–6 | 57–64 | 6–7 | 75–85 | 7–8 | Free |
| Juneprince | 7 Mar. | 5 June | 90 | 1–5 | 57–64 | 6–7 | 75–85 | 6–7 | Semifree |
| Harvester | 17 Mar. | 15 June | 90 | 2–5 | 57–64 | 5–7 | 55–75 | 5–8 | Semifree |

[z]Observations made in 1984-86 and 1988-90. In 1987 a late frost eliminated the crop from all cultivars.
[y]Mean first ripe = date when ≈20% of fruit is firm ripe.
[x]FDP = fruit development period, days from full bloom to first Pipe.
[w]Crop load: 0 = no crop, 5 = full crop, 9 = highly overcropped.
[v]Firm: 0-5 = unacceptably soft, 6 = marginal-good, 7-8 = excellent for commercial use, holds well on tree, 9 = very firm.
[u]Shape: 0-5 = unacceptable, 6 = marginal to good (slight tip and/or suture), 8-9 = round with flat-recessed tip.

Table 2. Morphological and isozyme characteristics' of 'TexRoyal' and five other cultivars grown in the MCR:

| Cultivar | Flower type | Leaf glands | Leaf border | Mdh-1 phenotype | Stone shape | Stone size (mm)[y] |
|---|---|---|---|---|---|---|
| Flordaking | Nonshowy | Globose | Crenulate | B | Elliptic | 32 × 22 × 18 |
| Texstar | Showy | Globose | Crenulate | B | Elliptic | 34 × 24 × 19 |
| June Gold | Showy | Globose | Crenulate | E | Elliptic | 36 × 22 × 17 |
| TexRoyal | Nonshowy | Globose | Crenulate | E | Round/elliptic | 28 × 21 × 19 |
| Juneprince | Showy | Eglandular | Serrate | E | --- | --- |
| Harvester | Nonshowy | Globose | Serrate | B | Elliptic | 33 × 22 × 18 |

[z]Morphological descriptors follow Blake and Edgerton (1946) and Mdh-1 phenotypes follow Mowrey et al., 1990.
[y]Pit length; width, and breadth.

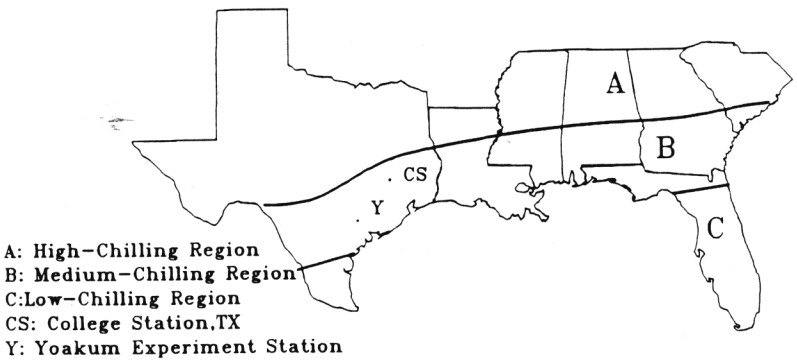


Fig. 1. Medium-chilling region **(B)** of the southeastern United States.

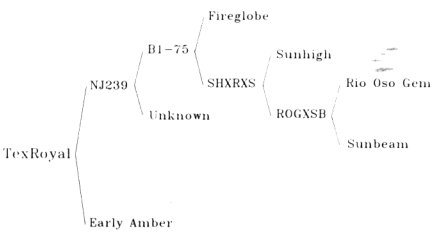


**Fig. 2. Pedigree of 'TexRoyal' peach.**

and 3 to 4 days before 'June Gold' (650 CR) (Table 1). 'TexRoyal' demonstrated yield tolerance to mild winter conditions by setting heavy crops after the unusually mild winters of 1985-86, 1988-89, and 1989-90 when 'June Gold' and 'Harvester' set poorly due to insufficient chill accumulation. 'TexRoyal' ripens at a desirable time; 10-days after 'June Gold' and 11 days before 'Harvester'. Ripening season is with 'Juneprince', but 'TexRoyal' has exhibited superior yield and shape consistency at College Station (Table 1). Also, 'TexRoyal' is the only medium-chilling, freestone cultivar ripening in this season. 'TexRoyal' exhibits fruit quality tolerance to mild winter conditions when other cultivars, including 'Texstar', 'Flordaking', and 'June Gold' develop enlarged tips (Fig. 3). Fruit are uniformly round with a slightly protruding suture and tip. Fruit diameter is generally > 57 mm and averages 63 mm when adequately thinned. The fruit has a rich red blush over >75% of the surface, and harvest may be hindered in some years when ground color is difficult to see. However, because of the uniform size and shape, maturity can be judged on size as well as ground color. 'TexRoyal' sets heavily and demonstrated a greater tolerance to spring freeze damage in 1988 when yields of 'June Gold', 'Harvester', 'Juneprince', and 'Flordaking' were reduced by a marginal spring freeze (–2.2C) at College Station. Based on relative resistance to spring freeze damage and yield and quality tolerance to mild winter conditions, 'TexRoyal' should have superior cropping and fruit quality consistency in the MCR.

Fruit flesh is melting, firm, and yellow, with some red flecks dispersed uniformly throughout and no excessive red coloration

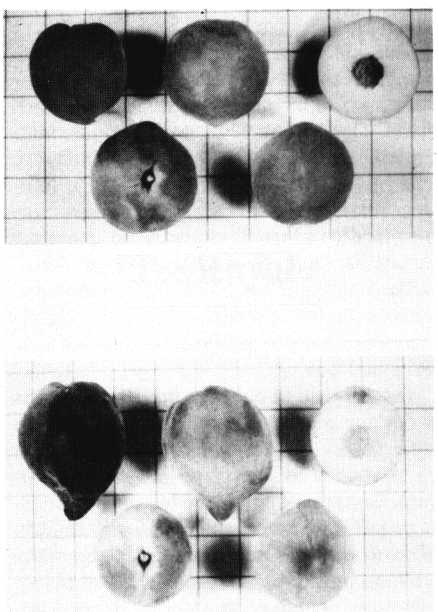

Fig. 3. 'TexRoyal' **(top)** and 'June Gold' **(bottom),** showing quality tolerance and intolerance to mild winter conditions, respectively.

at suture or tip. The flesh does not brown readily upon air exposure. The stone is intermediate between semi-freestone and freestone but tends to be free by harvest-maturity. We judged flavor to be similar to 'June Gold and 'Harvester'. No problem with split pits, buttons, or double-fruits were observed during 10 years of evaluation.

The tree is vigorous with an intermediate: spreading growth habit and is moderately resistant to bacterial leaf spot *[Xanthomonas compestris* pr. *pruni* (Sm. Young et al.)], as is 'Texstar'. Leaves are lanceolate with acute bases, sharply acute apices, crenulate margins, and globose leaf glands. Flowers are

self-fertile, small, pink, and nonshowy. Pollen is yellow and-abundant. Fruit pits are medium in size, have a roundish-elliptic shape, and an apex that is less prominent than that of 'Flordaking', 'June Gold', 'Texstar', or 'Harvester'. The malate dehydrogenase isozyme phenotype is the heterozygous E pattern (Table 2).

## Availability

A limited amount of budwood for propagation is available under a license agreement with the Texas Agricultural Experiment Station. All inquiries concerning availability of budwood should be directed to D.H.B. and T.A.B.

## Literature Cited


Blake, M.A. and L.J. Edgerton. 1946. Standards for classifying peach characters. N.J. Agr. Expt. Sta. Bul. 728.

Mowrey, B.D., D.J. Werner, and D.H. Byrne. 1990. Inheritance of isocitrate dehydrogenase, malate dehydrogenase, and shikimate dehydrogenase in peach and peach × almond hybrids. J. Amer. Soc. Hort. Sci. 115:312-319.