



(12) **United States Plant Patent**
Zaiger et al.

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(54) **NECTARINE TREE NAMED ‘POLAR ZEE’**
(50) Latin Name: *Prunus persica* var. *nucipersica*
Varietal Denomination: **Polar Zee**
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See application file for complete search history.

Primary Examiner — Kent L Bell

(57) **ABSTRACT**
A new and distinct variety of nectarine tree (*Prunus persica* var. *nucipersica*). The following features of the tree and its fruit are characterized with the tree budded on ‘Nemaguard’ Rootstock (non-patented), grown on Handford sandy loam soil with Storie Index rating 95, in USDA Hardiness Zone 9, near Modesto, Calif., with standard commercial fruit growing practices, such as pruning, thinning, spraying, irrigation and fertilization. Its novelty consist of the following combination of desirable features:
1. Tree with a vigorous, upright growth habit.
2. Regular and productive bearer of large size fruit.
3. Fruit with an attractive red skin color.
4. Fruit having very good flavor and eating quality with a good balance between acid and sugar.
5. Clingstone fruit with firm, white flesh.

1 Drawing Sheet

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Botanical designation: *Prunus persica* var. *nucipersica*.
Variety denomination: ‘Polar Zee’.

BACKGROUND OF THE VARIETY

Field of the Invention

In the field of plant genetics, we conduct an extensive and continuing plant-breeding program including the organization and asexual reproduction of orchard trees, and of which plums, peaches, nectarines, apricots, cherries, almonds and interspecifics are exemplary. It was against this background of our activities that the present variety of nectarine tree was originated and asexually reproduced by us in our experimental orchard located near Modesto, Stanislaus County, Calif.

Prior Varieties

Among the existing varieties of nectarine trees, which are known to us, and mentioned herein, ‘Honey Haven’ Nectarine (U.S. Plant Pat. No. 12,393) and ‘Polar Magic’ Nectarine (U.S. Plant patent application Ser. No. 14,756, 155).

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH AND DEVELOPMENT

Not applicable.

ORIGIN OF THE VARIETY

The new and distinct variety of nectarine tree (*Prunus persica* var. *nucipersica*) was developed by us in our experimental orchard located near Modesto, Calif. from open pollinated seed collected from ‘Polar Magic’ Nectarine (U.S.

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Plant patent application Ser. No. 14,756,155). A large number of these open pollinated seedlings were budded onto older established trees of ‘Nemaguard’ Rootstock (non-patented) to enhance earlier fruit production. Under close and careful observation the present budded seedling exhibited desirable fruit and tree characteristics and was selected in 2009 for additional asexual propagation and commercialization.

ASEXUAL REPRODUCTION OF THE VARIETY

In 2009 asexual reproduction of the new and distinct variety of nectarine tree was by budding to ‘Nemaguard’ Rootstock (non-patented), as performed by us in our experimental orchard located near Modesto, Calif., and shows that reproductions run true to the original tree and all characteristics of the tree and its fruit are established and transmitted through succeeding asexual propagations.

SUMMARY OF THE NEW VARIETY

The present new variety of nectarine tree (*Prunus persica* var. *nucipersica*) is of large size, vigorous, upright growth and a regular and productive bearer of large size, white flesh, clingstone fruit. The fruit is further characterized by its attractive red skin color and very good flavor and eating quality. In comparison to its nectarine seed parent ‘Polar Magic’ (U.S. Plant patent application Ser. No. 14,756,155) the fruit of the new variety has a higher degree of Brix of 19.0° compared to 14.0° and is approximately 4 days later in maturity. In comparison to the commercial variety ‘Honey Haven’ Nectarine (U.S. Plant Pat. No. 12,393) the fruit of the

new variety has white flesh compared to yellow and is approximately 6 days earlier in maturity.

DESCRIPTION OF THE PHOTOGRAPH

The accompanying color photographic illustration shows typical specimens of the foliage and fruit of the present new nectarine variety. The illustration shows the upper and lower surface of the leaves, an exterior and sectional view of a single fruit divided in its suture plane to show flesh color, pit cavity and the stone remaining in place. The photographic illustration was taken shortly after being picked (shipping ripe) from a 6 year old tree and the colors are as nearly true as is reasonably possible in a color representation of this type.

DESCRIPTION OF THE VARIETY

The following is a detailed botanical description of the new variety of nectarine tree, its flowers, foliage and fruit, as based on observations of 6 year old specimens grown near Modesto, Calif., with color in accordance with Munsell Book of Color published in 1958.

Tree:

Size.—Large, usually pruned to 3 to 3.5 meters in height and width for economical harvesting of fruit.

Size varies with different cultural practices.

Vigor.—Vigorous, growth of 1.5 to 2 meters in height and width the first growing season. Varies slightly with type and fertility of soil, climatic conditions and cultural practices.

Form.—Upright, usually pruned to vase shape.

Branching habit.—Upright, crotch angle approximately 35°, increases with heavy crop load.

Productivity.—Productive, thinning and spacing of fruit necessary for desired market size fruit. Number of fruit set varies with climatic conditions during blooming period.

Bearer.—Regular, has had adequate fruit set 4 consecutive years. No alternate bearing observed.

Fertility.—Self fertile.

Density.—Medium dense, usually pruned to vase shape to increase air movement and sunlight to enhance fruit color and health of fruit wood.

Hardiness.—Hardy in all stone fruit growing areas of California. Tree grown in USDA Hardiness Zone 9. Winter chilling requirement approximately 700 hours at or below 45° F.

Trunk:

Size.—Large, average circumference 48.3 cm at 25.4 cm above ground on a 6 year old tree.

Stocky.—Medium stocky.

Texture.—Medium shaggy, roughness increases with age.

Color.—Varies from 10YR 4/25 to 10YR 3/2.

Branches:

Size.—Medium. Average circumference 14.7 cm at 1.2 meters above ground. Crotch angle approximately 35°, increases with heavy crop load.

Surface texture.—New growth relatively smooth. Mature growth medium rough, roughness increases with age.

Lenticels.—Average number 18 in a 25.8 square cm area. Average length 3.4 mm. Average width 1.9 mm. Color varies from 10YR 4/6 to 10YR 4/8.

Color.—New growth varies from 2.5GY 6/6 to 2.5YR 5/6. Mature growth varies from 10YR 4/4 to 10YR 3/4, varies with age of growth.

Leaves:

Size.—Medium to large. Average length 125.5 mm. Average width 41.4 mm.

Form.—Lanceolate.

Apex.—Acuminate.

Base.—Cuneate.

Margin.—Crenate.

Thickness.—Medium.

Surface texture.—Upper surface relatively smooth, slight indentations over midrib and leaf veins. Lower surface relatively smooth, except for small ridges created by midrib and pinnate venation. Both upper and lower surfaces glabrous.

Petiole.—Average length 7.2 mm. Average width 1.7 mm.

Glands.—Type — reniform. Size — medium to large. Average length 1.2 mm. Average diameter 1.1 mm. Number varies from 2 to 4, average number 3. Located primarily on the base of the leaf blade and the upper portion of petiole. Color 2.5GY 6/6.

Stipules.—Average number 2. Average length 6.3 mm. Edges — pectinate. Color 2.5GY 6/6.

Color.—Upper surface varies from 5GY 3/6 to 5GY 3/4. Lower surface varies from 5GY 4/4 to 5GY 4/6. Midvein color varies from 2.5GY 7/6 to 2.5GY 6/6.

Flower buds:

Size.—Large. Average length 21.8 mm. Average diameter 9.6 mm.

Hardiness.—Hardy with respect to California winters.

Density.—Dense.

Form.—conical, becoming elongated just before opening.

Pedicel.—Average length 4.4 mm. Average width 1.0 mm. Surface- glabrous. Color varies from 5GY 8/6 to 5GY 6/8.

Color.—Varies from 7.5RP 9/2 to 7.5RP 7/8, color fades with age.

Flowers:

Blooming period.—Date of First Bloom Feb. 8, 2015. Date of Petal Fall Feb. 18, 2015, varies slightly with climatic conditions.

Size.—Large. Average height 18.7 mm. Average diameter 47.7 mm.

Petals.—Normally 5, alternately arranged to sepals. Size — large. Average length 22.9 mm. Average width 18.5 mm. Form — elliptical. Petal apex — rounded. Petal base — truncate. Margin — sinuate. Arrangement — slightly overlapping to free. Both upper and lower surfaces glabrous. Color varies from 2.5RP 9/2 to 2.5RP 7/10.

Sepals.—Normally 5, alternately arranged to petals. Size — large. Average length 6.8 mm. Average width 6.3 mm. Shape — ovate, apex rounded to triangular. Margin — entire. Color — upper surface varies from 5GY 6/8 to 5GY 4/8. Lower surface varies from 5RP 4/12 to 5RP 3/10. Surface — upper surface glabrous, lower surface pubescent.

Stamens.—Average number per flower 49. On average, the stamens are above the height of the petals. Filament color N 9.5/(white) to 5RP 5/10, depending on age of flower. Anther color varies from 7.5R 3/12 to 5Y 8/8.

Pollen.—Self fertile. Color varies from 2.5Y 7/12 to 5Y 7/12.

Pistil.—Normally 1. Average length 20.5 mm. Position of stigma even with the anthers. Surface- glabrous. Color varies from 2.5Y 7/12 to 5Y 7/12.

Fragrance.—Wanting.

Color.—Varies from 2.5RP 9/2 to 2.5RP 7/10.

Pedicel.—Average length 5.6 mm. Average width 1.0 mm. Color varies from 5GY 7/6 to 5GY 6/10. Surface — glabrous.

Number flowers per flower bud.—Normally one.

Fruit:

Maturity when described.—Firm ripe and ready for consumption.

Date of first picking.—Jun. 12, 2015.

Date of last picking.—Jun. 22, 2015, varies slightly with climatic conditions.

Size.—Large. Average diameter axially 70.4 mm. Average transversely in suture plane 78.8 mm. Average weight 244.2 grams, varies slightly with fertility of the soil, amount of thinning and climatic conditions.

Form.—Globose.

Suture.—Some fruit with slight suture, extends from base to apex.

Ventral surface.—Slightly lipped.

Apex.—Slightly retuse.

Base.—Flat.

Stem cavity.—Rounded to slightly elongated in suture plane. Average depth 11.0 mm. Average diameter 8.8 mm.

Stem:

Size.—Medium. Average length 9.4 mm. Average diameter 3.3 mm.

Color.—Varies from 5GY 5/6 to 5GY 4/8.

Flesh:

Ripens.—Evenly.

Texture.—Firm, meaty.

Fibers.—Few, small, tender.

Firmness.—Firm, comparable to other commercial nectarine varieties.

Aroma.—Moderate.

Amydgalin.—Undetected.

Eating quality.—Very good.

Flavor.—Very good, good balance between acid and sugar.

Juice.—Moderate amount, enhances flavor.

Acidity.—Not available.

Brix.—Average Brix 19.0°, varies slightly with amount of fruit per tree and climatic conditions.

Color.—Varies from N 9.5/(white) to 7.5Y 8.5/2.

Pit cavity.—Average length 36.5 mm. Average width 27.3 mm. Average depth 10.6 mm. Color varies from 10Y 7/4 to 7.5Y 7/4.

Skin:

Thickness.—Medium.

Surface.—Smooth.

Pubescence.—Wanting.

Tendency to crack.—None.

Color.—Ground color varies from 7.5Y 9/2 to 10Y 8.5/4. Overspread with 7.5R 4/12 to 7.5R 2/4.

Tenacity.—Tenacious to flesh.

Astringency.—Undetected.

Stone:

Type.—Clingstone, strong adherence to the flesh.

Size.—Large. Average length 35.5 mm. Average width 26.3 mm. Average thickness 19.2

Form.—Obovoid.

Base.—Flat.

Apex.—Slightly pointed. Average length 1.5 mm.

Surface.—Pitted throughout, pits vary from rounded to elongated.

Sides.—Unequal, one side extending further from suture plane.

Ridges.—Relatively smooth, extending from base to apex.

Tendency to split.—None.

Color.—Varies from 5YR 5/6 to 7.5YR 5/6 when dry.

Kernel:

Size.—Large. Average length 18.0 mm. Average width 12.4 mm. Average depth 1.7 mm.

Form.—Ovate.

Viability.—Viable, complete embryo development.

Skin color.—Varies from 5Y 9/2 to 5Y 9/4.

Use: Dessert.

Market.—Local and long distance.

Keeping quality: Good, held firm in cold storage 3 weeks at 38° to 42° F. without shriveling, internal breakdown of flesh or appreciable loss of flavor.

Shipping quality: Good, showed minimal skin scarring or flesh bruising during picking, packing and shipping trials.

Plant/fruit disease resistance/susceptibility: No specific testing for relative plant/fruit disease resistance/susceptibility has been designed. Under close observation during planting, growing, and harvesting of fruit, under normal cultural and growing conditions near Modesto, Calif., no particular plant/fruit disease resistance or susceptibility has been observed. Any variety or selection observed during indexing of plant characteristics with abnormal fungus, bacterial, virus or insect susceptibility is destroyed and eliminated from our breeding program. No atypical resistances/susceptibilities have been noted under normal cultural practices.

The present new variety of nectarine tree, its flowers, foliage and fruit herein described may vary in slight detail due to climate, soil conditions and cultural practices under which the variety may be grown. The present description is that of the variety grown under the ecological conditions prevailing near Modesto, Calif.

The invention claimed is:

1. A new and distinct variety of nectarine tree, substantially as illustrated and described.

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