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(54) **CHERRY TREE NAMED ‘ROYAL HELEN’**

(50) Latin Name: *Prunus avium*
Varietal Denomination: **Royal Helen**

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(57) **ABSTRACT**

A new and distinct variety of cherry tree. The following
features of the tree and its fruit are characterized with the
tree budded on ‘Mahaleb’ Rootstock (non-patented), grown
on Handford sandy loam soil with Storie Index rating 95, in
USDA Hardiness Zone 9, near Modesto, Calif., with stan-
dard commercial fruit growing practices, such as pruning,
thinning, spraying, irrigation and fertilization. Its novelty
consist of the following combination of desirable features:

1. Heavy and regular production of large size fruit.
2. Fruit with very good flavor and eating quality.
3. Fruit with an attractive red skin color.
4. Fruit maturing in the late season.
5. Fruit with good handling and storage quality.
6. Vigorous, upright growth of tree.

1 Drawing Sheet

1

Botanical classification: *Prunus avium*.

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 organiza-
tion 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 cherry tree was
originated and asexually reproduced by us in our experimen-
tal orchard located near Modesto, Stanislaus County Calif.

PRIOR VARIETIES

Among the existing varieties of cherry trees, which are
known to us, and mentioned herein, ‘Bing’ Cherry (non-
patented) and ‘Royal Dawn’ Cherry (U.S. Plant Pat. No.
13,131).

ORIGIN OF THE VARIETY

The present new variety of cherry tree (*Prunus avium*)
was developed by us in our experimental orchard located
near Modesto, Calif. It originated from seed of an open pol-
linated proprietary seedling with the field identification
number 92LB341. The seed parent (92LB341) originated as
a cross between a proprietary selected seedling from an open
pollinated ‘Bing’ Cherry (non-patented) and ‘Royal Dawn’
Cherry (U.S. Plant Pat. No. 13,131). A large number of these
open pollinated seedlings were budded on established trees
of ‘Mahaleb’ Rootstock (non-patented) to accelerate fruit
production and under close and careful observation the
present seedling exhibited desirable fruit and tree character-

2

istics and was selected in 1999 for asexual propagation and
commercialization.

ASEXUAL REPRODUCTION OF THE VARIETY

Additional asexual reproduction of the new and distinct
variety of cherry tree was by budding to ‘Mahaleb’ Root-
stock (non-patented), as performed by us in our experimen-
tal orchard located near Modesto, Calif., and shows that
reproductions run true to the original tree and all character-
istics of the tree and its fruit are established and transmitted
through succeeding asexual propagations.

SUMMARY OF THE NEW VARIETY

The present new variety of cherry tree is of large size,
vigorous upright growth and a regular and productive bearer
of large fruit with very good flavor and eating quality. The
fruit is further characterized by its firm flesh, good handling
and storage ability, its attractive red skin color and maturing
in the late season. In comparison to ‘Royal Dawn’ Cherry
(U.S. Plant Pat. No. 13,131) the fruit of the new variety is
larger in size and matures approximately 22 days later. In
comparison to its ancestor ‘Bing’ Cherry (non-patented) the
fruit of the new variety is larger in size and ripens approxi-
mately 8 days later. In comparison to its immediate seed
parent (92LB341) the fruit of the new variety is larger in size
and matures approximately 8 days later. The new variety is
an excellent pollinator for our proprietary cherry selection
‘24Z978’ that matures in approximately the same season
with similar appearance which facilitates the economics of
harvesting the fruit.

PHOTOGRAPH OF THE VARIETY

The accompanying color photographic illustration shows
typical specimens of the foliage and fruit of the present new

cherry 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 13 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 cherry tree, its flowers, foliage and fruit, as based on observations of 13 year old specimens grown near Modesto, Calif., with color in accordance with Munsell Book of Color.

Tree:

Size.—Large. Tree pruned to 3 to 4 meters in height and 3 to 4 meters in width for economical harvesting of fruit.

Vigor.—Vigorous, tree growth reaching 1 to 2 meters the first growing season. Growth rate varies with soil type and depth, cultural practices and climatic conditions.

Form.—Upright, during the first and second growing seasons, scaffolds are selected and tied down to increase crotch angle and help spread tree to desired width of 3 to 4 meters.

Branching habit.—Upright, crotch angle approximately 25° when juvenile, the weight of the fruit tends to increase branch angles.

Productivity.—Productive, produces adequate fruit set annually.

Bearer.—Regular, adequate fruit set 8 consecutive years.

Fertility.—Self sterile, pollinator required.

Density.—Medium dense. Normally pruned to vase shape to allow more sunlight to the center of tree to enhance health of fruit spurs and fruit color.

Hardiness.—Hardy in all stone fruit growing areas of California. Trees grown in USDA Hardiness Zone 9. Winter chilling requirement is approximately 750 hours at or below 45° F.

Trunk:

Size.—Large. Measured 78.8 cm at 27.9 cm above ground on a 13 year old tree.

Stocky.—Medium stocky.

Texture.—Medium rough, roughness increases with age of tree.

Color.—Varies from 5YR 2/4 to 7.5YR 6/2.

Branches:

Size.—Average circumference 19.7 cm at 1.3 meters above the ground.

Surface texture.—Smooth on new growth, becoming medium rough on mature growth.

Lenticels.—Average number 23 in a 25.8 sq cm section. Average length 5.2 mm. Average width 1.6 mm. Color varies from 7.5YR 7/8 to 10YR 6/8.

Color.—New growth varies from 7.5Y 6/4 to 7.5Y 5/4. Old growth varies from 5YR 3/2 to 7.5YR 6/2, varies with age of growth.

Leaves:

Size.—Large. Average length 158.5 mm. Average width 71.0 mm.

Form.—Elliptic.

Apex.—Acuminate.

Base.—Cuneate.

Margin.—Serrate.

Thickness.—Medium.

Surface texture.—Upper surface relatively smooth, slight indentations over leaf veins, glabrous. Lower surface relatively smooth, slight ridges created by midrib and pinnate venation, glabrous.

Petiole.—Average length 45.0 mm. Average width 2.4 mm. Longitudinally grooved. Color varies from 10Y 5/6 to 2.5Y 5/6. Glabrous.

Glands.—Reniform. Average length 2.5 mm. Average width 1.5 mm. Number varies from 1 to 2, average number 2. Located primarily on the upper portion of the petiole.

Color.—Upper surface varies from 5GY 4/6 to 5GY 3/6. Lower surface varies from 5GY 5/4 to 2.5GY 5/4. Midvein color varies from 10Y 7/4 to 2.5GY 7/4.

Flower buds:

Size.—Large. Average length 19.3 mm. Average diameter 10.2 mm.

Hardiness.—Hardy with respect to California winters.

Form.—Plump, conical.

Pedicel.—Average length 11.8 mm. Average width 1.1 mm. Color varies from 2.5GY 5/6 to 2.5GY 5/8.

Color.—N 9.5/ (white).

Number of buds per spur.—Average number 5, varies from 3 to 8.

Flowers:

Size.—Large. Average height 18.3 mm. Average diameter 35.4 mm.

Petals.—Number 5, alternately arranged to sepals. Average length 17.5 mm. Average width 16.8 mm. Nearly orbicular, narrows at point of attachment. Margin is sinuate. Color N 9.5/ (white).

Sepals.—Number 5, alternately arranged to the petals. Triangular shape. Average length 5.6 mm. Average width 4.8 mm. Both upper and lower surfaces glabrous. Margin — entire. Color — upper surface varies from 2.5GY 6/6 to 2.5GY 6/8. Lower surface varies from 2.5GY 5/8 to 5R 3/6.

Stamens.—Average number per flower 29. Average filament length 11.7 mm. Filament color N 9.5/ (white). Anther color varies from 5Y 8/6 to 5Y 8/8.

Pollen.—Self sterile, pollinator required. Color varies from 5Y 7/10 to 5Y 7/12.

Pistil.—Normally 1 per flower. Average length 13.4 mm. Position of stigma is an average of 1.3 mm below anthers. Surface — glabrous. Color varies from 2.5GY 8/6 to 2.5GY 7/8.

Fragrance.—Very slight.

Blooming period.—Date of First Bloom Mar. 13, 2007. Date of Petal Fall Mar. 20, 2007, varies slightly with climatic conditions.

Color.—N 9.5/ (white).

Number flowers per flower bud.—Average 3, varies from 1 to 5.

Pedicel.—Average length 15.6 mm. Average width 1.1 mm. Color varies from 5GY 5/6 to 5GY 5/8.

Fruit:

Maturity when described.—Firm ripe.

Date of first picking.—Jun. 2, 2007.

Date of last picking.—Jun. 9, 2007, varies slightly with climatic conditions.

Size.—Large. Average diameter axially 26.2 mm. Average transversely in suture plane 30.9 mm. Average

- weight 15.6 grams, varies slightly with fertility of the soil, amount of thinning and climatic conditions.
- Form*.—Nearly globose, slightly flattened at apex and base.
- Suture*.—Nearly smooth, extends from base to apex.
- Ventral surface*.—Nearly smooth to very slightly lipped.
- Apex*.—Varies from rounded to slightly retuse.
- Base*.—Varies from flat to slightly retuse in suture plane.
- Cavity*.—Rounded to slightly elongated in suture plane. Average depth 1.9 mm. Average diameter 5.9 mm.
- Stem:**
- Size*.—Large. Average length 52.6 mm. Average diameter 1.2 mm.
- Color*.—Varies from 2.5GY 5/6 to 5GY 5/4.
- Flesh:**
- Ripens*.—Evenly.
- Texture*.—Firm, meaty.
- Fibers*.—Few, small, tender.
- Firmness*.—Very firm, comparable to its ancestor 'Royal Dawn' Cherry (U.S. Plant Pat. No. 13,131).
- Aroma*.—Slight.
- Amydgalin*.—Undetected.
- Eating quality*.—Very good.
- Flavor*.—Very good, a good balance between acid and sugar.
- Juice*.—Moderate amount, enhances flavor.
- Brix*.—Average 21.9°, varies slightly with amount of fruit per tree and climatic conditions.
- Color*.—Varies between 2.5R 4/6 to 5R 4/6. Pit cavity varies between 2R 2/6 to 5R 2/8.
- Skin:**
- Thickness*.—Medium.
- Surface*.—Smooth.
- Bloom*.—Wanting.
- Tendency to crack*.—None during dry weather. Only slight tendency to crack in wet weather, depends on stage of fruit maturity.
- Color*.—Varies from 5R 3/8 to 5R 3/10.
- Tenacity*.—Tenacious to flesh.
- Stone:**
- Type*.—Clingstone.
- Size*.—Large. Average length 11.7 mm. Average width 10.6 mm. Average thickness 7.9 mm.
- Form*.—Ovoid.
- Base*.—Flat.
- Apex*.—Slightly pointed. Average length 0.5 mm.

- Surface*.—Smooth, except for ridges near the suture.
- Sides*.—Equal to unequal. Some stones have one side extending further from the suture plane.
- Ridges*.—A small narrow ridge on each side of suture, extends from base to apex.
- Tendency to split*.—None.
- Color*.—Varies from 5YR 6/4 to 7.5YR 6/4 when dry.
- Kernel:**
- Form*.—Ovoid.
- Taste*.—Bitter.
- Viability*.—Viable, good embryo development.
- Size*.—Average length 8.0 mm. Average width 6.3 mm. Average depth 5.3 mm.
- Skin color*.—Varies from 5Y 8.5/4 to 7.5Y 9/2 when dry.
- Use:** Dessert.
- Market*.—local and long distance.
- Keeping quality:** Good, held well for 14 days in cold storage at 38° to 42° F. and maintained good appearance and eating quality.
- Shipping quality:** Good, showed minimal bruising or scarring 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.
- The present new variety of cherry 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.
- It is claimed:
1. A new and distinct variety of cherry tree, substantially as illustrated and described, characterized by its large size, vigorous upright growth and being a regular and productive bearer of late maturing, large size fruit with very good flavor and eating quality; the fruit is further characterized by its attractive red skin color, its good handling and storage qualities, and in comparison to 'Royal Dawn' Cherry (U.S. Plant Pat. No. 13,131) the fruit of the new variety is larger in size and matures approximately 22 days later.

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