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Ackerman et al.

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(54) **RASPBERRY PLANT NAMED 'RADIANCE'**

(50) Latin Name: ***Rubus idaeus***
Varietal Denomination: **RADIANCE**

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See application file for complete search history.

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(57) **ABSTRACT**

This invention relates to a new and distinct everbearing variety of raspberry plant named 'RADIANCE'. The new variety is primarily adapted to the growing conditions of the central coast of California and is characterized by the following: medium sized, firm, medium red fruit of conic shape, even color, and excellent flavor. Foliage is flat to strongly convex, medium green; possessing medium to strong rugosity, and mostly 3-foliate. Primocanes have an absent to very weak waxy coat, medium to dense thorn density, and medium to weak anthocyanin coloration.

4 Drawing Sheets

Latin name of the genus and species of the plant claimed: *Rubus idaeus.*

Variety denomination: 'RADIANCE'.

BACKGROUND OF THE INVENTION

The present invention relates to a new and distinct fall bearing raspberry variety designated as 'RADIANCE'. This new variety is a result of a controlled cross made in 1999 between raspberry variety 'PS-1616' (unpatented) and raspberry variety 'PS-1703' (patented, U.S. Plant Pat. No. 15,151) in an ongoing breeding program. It is unknown as to which parent variety is the seed parent and which parent variety is the pollen parent. The variety is botanically known as *Rubus idaeus.*

The seedling resulting from the aforementioned cross was asexually propagated by dormant canes in Santa Cruz County, Calif. and was subsequently selected by the inventor from a controlled breeding plot in Watsonville, Calif. in 2001. After its selection, the new variety was further asexually propagated by dormant canes, roots and non-dormant root shoot cuttings in Santa Cruz County, Calif. and San Joaquin County, Calif. The new variety was then extensively tested over the next several years in fruiting fields in Santa Cruz County, Calif. This propagation has demonstrated that the combination of traits disclosed herein as characterizing the new variety are fixed and remain true to type through successive generations of asexual reproduction.

BRIEF SUMMARY OF THE INVENTION

'RADIANCE' is primarily adapted to the climate and growing conditions of the central coast of California. This region provides the necessary year-round temperatures required for it to produce and maintain a strong vigorous plant and to remain in fruit production from July through

December on primocanes and in the ensuing year from May through July on the floricanes.

The following traits have been repeatedly observed and are determined to be unique characteristics of 'RADIANCE', which in combination distinguish this raspberry plant as a new and distinct variety:

1. leaf shape ranging from flat to strongly convex;
2. high fruit firmness;
3. excellent fruit flavor;
4. primocane glaucosity ranging from absent to very weak; and
5. brownish purple floricane color.

The raspberry varieties that are believed to be most closely related to the new raspberry variety 'RADIANCE' are the raspberry variety 'PS-1049' (patented, U.S. Plant Pat. No. 10,142), and the raspberry variety 'PS-1703' (patented, U.S. Plant Pat. No. 15,151). In comparison to the similar raspberry varieties 'PS-1049' and 'PS-1703', 'RADIANCE' differs by the following combination of characteristics described in Table 1:

TABLE 1

Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
1. Primocane waxy coat (glaucosity)	Ranges from absent to very weak	Strong	Ranges from medium to strong
2. Predominate number of leaflets	Mostly 3	Equal 3-5	Mostly 5
3. Leaf color (upper side)	7.5GY 2/4 to 3/4 Medium to dark green	7.5GY 3/4 to 4/4 Medium green-yellow	7.5GY 2/4 to 3/4 Medium to dark green

TABLE 1-continued

Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
4. Leaf shape (cross section)	Ranges from flat to strongly convex	Slightly concave	Ranges from slightly concave to slightly convex
5. Rugosity	Medium to strong	Medium	Medium to strong
6. Color mature fruit	5R 3/8 to 3/10 Medium red	5R 3/6 to 3/8 Medium red	5R 3/8 to 3/10 Medium red
7. Primocane fruit weight (g)	3.0	2.7	3.0
8. Floricane fruit weight (g)	2.8	2.5	2.7
9. Primocane color	10Y 7/4 to 7/6 Medium green yellow	5GY 7/4 to 6/4 Light green yellow	7.5GY 6/2 to 6/4 Medium green yellow
10. Floricane color	2.5YR 3/4 to 4/6 Brownish purple	5YR 4/4 to 4/6 Brown	7.5YR 4/6 to 4/8 Brown

For identification, a series of AFLP molecular markers have been determined for this new variety.

BRIEF DESCRIPTIONS OF THE PHOTOGRAPHS

The accompanying color photographs illustrate the overall appearance of typical specimens of the new raspberry variety, 'RADIANCE' at various stages of development as true as reasonably possible with color reproductions of this type. Color in the photographs may differ slightly from the color value cited in the detailed botanical description which accurately describes the color of 'RADIANCE'. The depicted plant and plant parts of the new raspberry variety 'RADIANCE' were taken in Watsonville, Calif. and are approximately 2 to 16 months old.

FIG. **1**. shows typical primocane foliage and fruit color; foliate and rugosity characteristics of 'RADIANCE' taken in the month of September 2007.

FIG. **2** shows typical floricane foliage and fruit color; foliate and rugosity characteristics of 'RADIANCE' taken in the month of May 2008.

FIG. **3** shows typical harvested fruit of 'RADIANCE' taken in the month of September 2007.

FIG. **4** shows typical dormant cane color characteristics of 'RADIANCE' taken in the month of February 2007.

DETAILED BOTANICAL DESCRIPTION

'RADIANCE' has not been observed under all possible environmental conditions. The characteristics of the new variety may vary in detail, depending upon variations in environmental factors, including weather (temperature, humidity and light intensity), day length, soil type, and location.

The aforementioned photographs, together with the following description of the new raspberry variety 'RADIANCE', unless otherwise noted, are based upon observations taken during the 2007–2008 growing season in Watsonville, Calif. Primocane measurements and ratings were taken from plants of 'RADIANCE' dug from a nursery located in San Joaquin County, Calif. during the middle of December 2006 and planted approximately 3 to 4 weeks later in Watsonville, Calif. The approximate age of the observed primocane plants is 7 to 8 months. Floricane measurements and ratings were taken from the same planting of 'RADIANCE' at an approximate age of 16 to 18 months. Yield observations and fruit quality characteristics are averaged from three years of data collected from the 2002 through 2007 production seasons. Flower measurements and characteristics are from secondary flowers unless otherwise noted. Fruit characteristics and measurements are from secondary fruit unless otherwise noted. Foliage characteristics and measurements are from 3-foliate foliage unless otherwise noted.

Color terminology where noted follows the Munsell Book of Colors, Munsell Color, Baltimore, Md. (1976).

The following Tables 2–6 describe fruit, plant, foliage, flower and pest/disease characteristics of the new raspberry 'RADIANCE' in comparison to the similar raspberry varieties 'PS-1040' (patented, U.S. Plant Pat. No. 10,142) and 'PS -1703' (patented, U.S. Plant Pat. No. 15,151).

TABLE 2

FRUIT CHARACTERISTICS

Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
Color mature fruit	5R 3/8 to 3/10 Medium red	5R 3/6 to 3/8 Medium red	5R 3/8 to 3/10 Medium red
Color achenes	10YR 7/4 to 8/4	10YR 7/4 to 8/4	10YR 7/4 to 8/4
Fruit Length (cm)	2.1	1.9	1.9
Fruit Width (cm)	1.8	1.8	1.8
Length/Width Ratio	1.1 Slightly longer than broad	1.1 Slightly longer than broad	1.1 Slightly longer than broad
Seed weight (mg)	1.5	1.2	1.4
Druplets per berry	79	100	85
Fruit size	Medium	Medium	Medium
Predominant shape	Conical	Conical	Conical
Evenness of color	Even	Even	Even
Glossiness	Medium to strong	Medium	Strong
Adherence of recepticle	Weak	Weak	Weak
Firmness of flesh	Very firm	Very firm	Firm
Firmness of skin	Very firm	Very firm	Medium
Soluble Solids (% Brix)	11.6	10.3	11.3
Flavor	Excellent	Good	Excellent

TABLE 3

PLANT CHARACTERISTICS

Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
General:			
Habit	Upright	Semi-upright	Semi-upright
Size	Medium	Medium	Medium
Productivity	Medium to high	Medium to high	High
Self fruitfulness	Yes	Yes	Yes
Type of bearing	Everbearing	Everbearing	Everbearing
Primocane:			
Color	10Y 7/4 to 7/6 Medium green-yellow	5GY 7/4 to 6/4 Light green-yellow	7.5GY 6/2 to 6/4 Medium to light green-yellow

TABLE 3-continued

PLANT CHARACTERISTICS

Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
Length (m)	1.4	1.8	1.6
Basal diameter (mm)	13.4	15.1	15.8
Diameter central ⅓ (mm)	9.9	11.2	10.9
Lateral length (cm)	33.7	38.8	49.0
No. fruiting laterals per cane	14	14	17
% of cane length fruiting	35%	30%	46%
Internode length at central ⅓ (cm)	5.9	6.1	6.2
Anthocyanin coloration	Weak to medium	Weak to medium	Medium to strong
Pubescence	Absent	Absent	Absent
Length of vegetative bud	Medium to short	Medium to short	Medium to short
Strength of waxy coat	Ranges from absent to very weak	Strong	Ranges from medium to strong
Time of flowering	Medium to early	Medium	Early
Time of fruiting	Medium to early	Medium	Early
Length of fruiting season	Long	Long	Long
% of total yield	53%	49%	54%
Flowering period	Mid June to Late November	Late June to Late November	Early June to Late November
Harvest period	Mid July to Late December	Late July to Late December	Early July to Late December
Primocane fruit weight (g)	3.0	2.7	3.0
Primocane yield (g/plant)	1,936	1,711	2,228
Young Shoots:			
Number	Medium	Medium	Medium
Anthocyanin coloration	Present	Present	Present
Anthocyanin intensity	Weak to medium	Very weak to weak	Weak to medium
Thorns:			
Color	7.5RP 3/6 Purple	7.5RP 3/6 Purple	7.5RP 3/6 Purple
Length central ⅓ (mm)	2.1	2.3	1.9
Presence on cane	Present	Present	Present
Density on cane	Medium to dense	Medium	Medium to dense
Texture	Rigid	Rigid	Rigid
Attitude of the tip	Horizontal	Horizontal	Horizontal
Floricane:			
Color	2.5YR 3/4 to 3/6 Brownish purple	5YR 4/4 to 4/6 Brown	7.5YR 4/6 to 4/8 Brown
Length (m)	1.0	1.3	1.2
Length vegetative bud	Medium to short	Medium to short	Medium to short
Strength of waxy coat (glaucosity)	Ranges from absent to very weak	Strong	Ranges from medium to strong
Fruiting lateral attitude	Erect to semi-erect	Erect to semi-erect	Horizontal to drooping
Time bud burst	Medium	Medium	Medium
Time of flowering	Medium	Medium	Medium
Time of fruiting	Medium	Medium	Medium
Length of fruiting season	Medium to long	Medium to long	Medium to long
% of total yield	47%	51%	46%

TABLE 3-continued

PLANT CHARACTERISTICS

Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
Flowering period	Late April to Late June	Late April to Late June	Mid April to Late June
Harvest period	Late May to Late July	Late May to Late July	Early May to Late July
Floricane fruit weight (g)	2.8	2.5	2.7
Floricane yield (g/plant)	1,832	1,955	2,012

TABLE 4

FOLIAGE CHARACTERISTICS

Characteristic	'RADIANCE' (3 Foliate)	'PS-1049' (U.S. Plant Pat. No. 10,142) (3 Foliate)	'PS-1703' (U.S. Plant Pat. No. 15,151) (5 Foliate)
General:			
Color of upper surface	7.5GY 2/4 to 3/4 Medium to dark green	7.5GY 3/4 to 4/4 Medium green-yellow	7.5GY 2/4 to 3/4 Medium to dark green
Color of lower surface	5GY 6/2 to 7/2 Light to pale grey-green	5GY 5/4 to 6/4 Pale yellow-green	5GY 6/2 to 7/2 Light to pale grey-green
Shape in cross section	Ranges from flat to strongly convex	Slightly concave	Ranges from slightly concave to slightly convex
Arrangement	Compound	Compound	Compound
Relief between veins	Medium to strong	Medium	Medium to strong
Glossiness	Weak	Weak	Medium
Number of leaflets/leaf	Mostly 3	Equal 3-5	Mostly 5
Terminal Leaflet:			
Length (cm)	10.8	11.7	10.4
Width (cm)	9.3	9.2	5.5
Length/Width Ratio	1.2 Longer than broad	1.3 Longer than broad	1.9 Much longer than broad
Size	Medium to large	Medium to large	Medium to small
Shape	Cordate	Cordate	Lobed oblique
Shape of base	Cordate	Cordate	Acute
Shape of tip	Acuminate	Acuminate	Acuminate
Margins	Biserrate	Biserrate	Biserrate
Lateral Leaflet:			
Length (cm)	9.3	10.4	9.2
Width (cm)	6.1	6.3	5.2
Rachis length (cm)	3.0	3.2	2.9
Orientation	Opposite	Opposite	Opposite
Arrangement	Compound	Compound	Compound
Shape	Ovate	Ovate	Oblique
Overlapping	Touching	Touching	Free
Shape of the base	Oblique rounded	Oblique rounded	Acute oblique
Shape of the tip	Acuminate	Acuminate	Acuminate
Margins	Biserrate	Biserrate	Biserrate
Petiole:			
Length (cm)	3.6	4.3	4.4
Width (mm)	2.8	2.6	2.9
Thorn presence	Yes	Yes	Yes
Thorn orientation	Erect	Erect	Erect

TABLE 4-continued

FOLIAGE CHARACTERISTICS			
Characteristic	'RADIANCE' (3 Foliate)	'PS-1049' (U.S. Plant Pat. No. 10,142) (3 Foliate)	'PS-1703' (U.S. Plant Pat. No. 15,151) (5 Foliate)
Anthocyanin coloration of upper surface	Medium	Ranges from absent to very weak	Ranges from medium to strong
Pigmentation of lower surface	Light green-yellow	Light green-yellow	Light green-yellow
Stipule length (cm)	0.9	1.1	0.9
Stipule orientation	Erect	Erect	Erect

TABLE 5

FLOWER CHARACTERISTICS			
Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
Petal color	N 9.5/90% R to N 9.25/ 84.2% R White	N 9.5/90% R to N 9.25/ 84.2% R White	N 9.5/90% R to N 9.25/ 84.2% R White
Flower diameter (cm)	2.0	2.1	1.9
Petal Length (mm)	7.0	5.9	6.2
Petal width (mm)	3.2	3.0	3.0
Petal length/width ratio	2.2 Much longer than broad	2.0 Much longer than broad	2.1 Much longer than broad
No. petals/flower	5.1	5.0	5.2
No. sepals/flower	5.1	5.0	5.3

TABLE 5-continued

FLOWER CHARACTERISTICS			
Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
Pedicel no. spines	Medium	Many	Medium
Peduncle anthocyanin presence	Present	Present	Present
Peduncle anthocyanin intensity	Weak	Very weak	Weak

TABLE 6

PEST AND DISEASE REACTIONS			
Characteristic	'RADIANCE'	'PS-1049' (U.S. Plant Pat. No. 10,142)	'PS-1703' (U.S. Plant Pat. No. 15,151)
Two spotted spider mite	Susceptible	Susceptible	Susceptible
Grey fruit mold	Susceptible	Susceptible	Susceptible
Powdery mildew	Moderately Susceptible	Moderately Susceptible	Moderately Susceptible
Yellow rust	Moderately Susceptible	Moderately Susceptible	Moderately Resistant

We claim:

1. A new and distinct variety of raspberry plant named 'RADIANCE', as herein described and illustrated by the characteristics set forth above.

* * * * *

FIG. 1

FIG. 2

FIG. 3

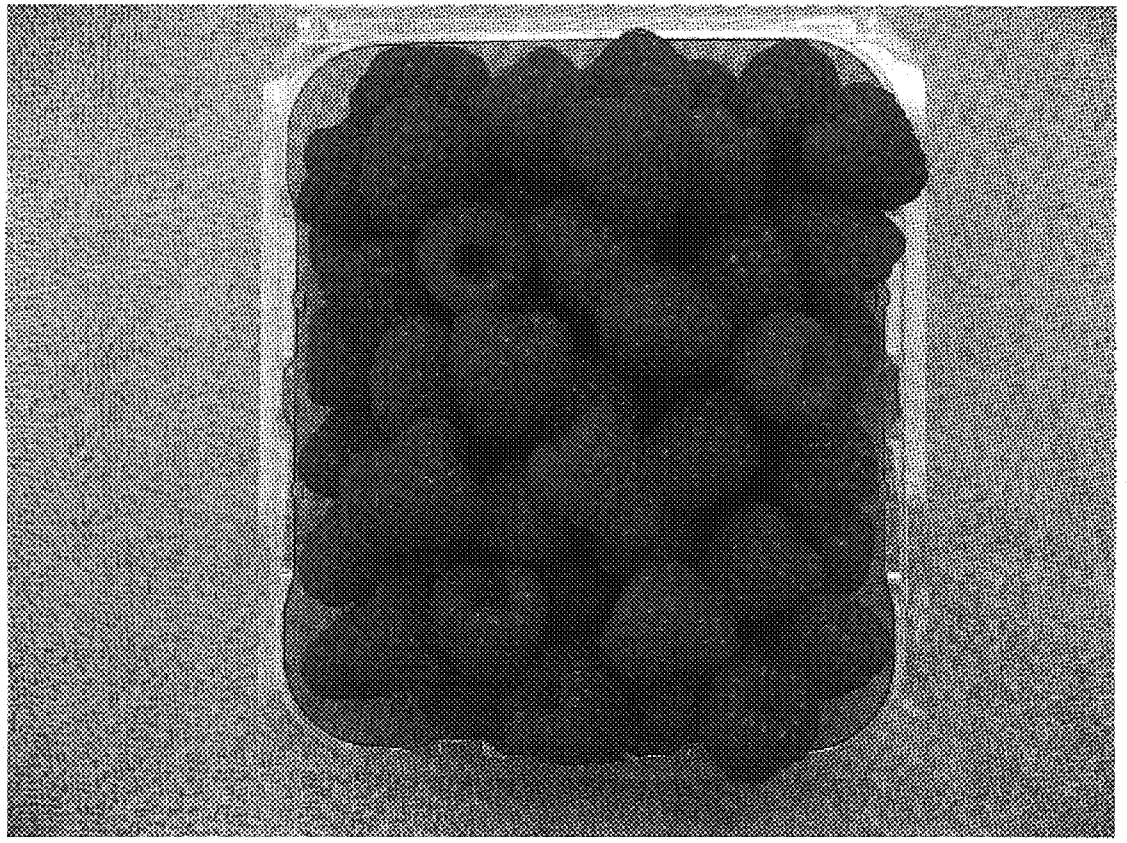

FIG. 4