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- (54) **SEEDLESS GRAPEVINE NAMED ‘ARDFORTY’**
- (50) Latin Name: *Vitis vinifera*
Varietal Denomination: **ARDFORTY**
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- (52) **U.S. Cl.**
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(57) **ABSTRACT**

A new distinct variety of grapevine named ‘ARDFORTY’ abundantly forms attractive large seedless berries with a red skin coloration, lax and medium clusters which display a natural flavor, and the fruit commonly is ready for harvesting during September in San Joaquin Valley of Central California, U.S.A, and displays good eating qualities as a table grape, as the firmness renders the fruit well amenable for handling, shipping, and storage.

1 Drawing Sheet

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Classification: The present invention relates to a new *Vitis vinifera* Grapevine.

Variety denomination: The new Grapevine has a varietal denomination ‘ARDFORTY’.

BACKGROUND OF THE INVENTION

A breeding program was initiated during the late 1990’s near Bakersfield in San Joaquin Valley of Central California. In 2012, during this breeding program, a new variety of *Vitis vinifera* was created by deliberate cross breeding of two parent plants by emasculation of the pollen bearing organ of the female and introducing pollen from another male origin. The female parent of the new variety was 25-5+2, which is a seedless red table grape variety with a natural sweet flavor (non-patented in the United States). The male parent (I.e. the pollen parent) of the new variety was 10-10+2, a very fertile and crispy seedless white table grape variety (non-patented in the United States).

TABLE 1

| ARDFORTY compared with parents & closely related variety: | | | | |
|---|-------------|------------------------|-------------------------|---|
| | ‘ARDFORTY’ | 25-5 + 2 (Maternal) | 10-10 + 2 (Paternal) | ‘Red Globe’ U.S. Plant Pat. No. 4,787 |
| Seed trace | Sterile | Rudimentary | Sterile | Seeded |
| Berry shape | Cylindrical | Globose | Cylindrical | Globose |
| Berry color | Red | Red | White | Brownish red |

The parentage of the new variety can be summarized as follows:

25-5+2 X 10-10+2

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An artificial pollination was created, and the result was an embryo which possessed unique genetic qualities. The rudiments resulting from the above pollination were embryo rescued.

In 2013 the plant was transplanted to Bakersfield in San Joaquin Valley of Central California.

It was found that the new grapevine of the present invention possesses the following combination of characteristics:

- (a) Forms attractive large seedless berries with a red skin coloration; in lax medium clusters which display a natural flavor,
- (b) Commonly bears fruit during the month of September in the San Joaquin Valley of Central California, U.S.A., and
- (c) Bears fruit that is firm and is well amenable for storage, handling, and shipping.

The new variety during observation to date has displayed no visible disease, and has displayed an ability to well resist cold, drought, heat; but sensitive to direct exposure to sun and wind. The fruit of the new variety has been found to display excellent handling and shipping qualities combined with desirable dessert eating qualities.

The new variety of the present invention has been found to undergo asexual propagation beginning in 2014 near Bakersfield in the San Joaquin Valley of Central California, U.S.A. by bud grafting on mature ‘Thompson Seedless’ rootstock (non-patented in the United States). Such asexual propagation has been conducted thereafter in successive years to date and has shown that the characteristics of the new variety are strictly transmissible from one generation to another. Accordingly, the new variety undergoes asexual propagation in a true to type manner.

SUMMARY OF THE INVENTION

The new variety ‘ARDFORTY’ is a red seedless table grape with a high production, e.g., about 90 bunches per vine, and an average of about 2 bunches per shoot.

Asexual reproduction by micro propagation of the new variety as performed near Bakersfield, Calif., U.S.A., shows that the forgoing and other distinguishing characteristics come true to form and are established and transmitted through succeeding propagations.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying photographic illustration shows typical six-year-old specimens of the new variety, vegetatively propagated, in color as nearly true as it is reasonably possible to make in a color illustration of this character. Colors in the photograph may differ from the color values cited in the detailed botanical description below, which accurately describes the colors of the new Grapevine.

The drawing shows leaves, stems and grapes of 'ARD-FORTY'.

DETAILED BOTANICAL DESCRIPTION

The chart used in the identification of colors is The R.H.S. Colour Chart of The ROYAL HORTICULTURAL SOCIETY (3rd Edition). The description is based on the observation of plants growing on 'Thompson Seedless' rootstock outdoors near San Joaquin Valley of Central California, U.S.A.

| VINE CHARACTERISTICS: | |
|-----------------------|---|
| vigor | Vigorous upright shoots |
| productive capacity | Bearing at a natural, average capacity. Spur pruning. |
| trunk | Strong and developed. Diameter is 2.1 inches, measured at 7.6 inches above ground. Rough with a fibrous, shaggy exterior. Light maple brown coloring (greyed orange 166D) |

Date of bud burst in Bakersfield Calif.: March 1st.

| YOUNG SHOOT CHARACTERISTICS: | |
|--|--------------------------|
| Openness of tip | fully open |
| Density of prostrate hairs on tip | medium |
| Anthocyanin coloration of prostrate hairs on tip | none (yellow green 144B) |
| Density of erect hairs on tip | sparse |

| YOUNG LEAF CHARACTERISTICS: | |
|--|-----------------------|
| Color of upper side of blade | yellow green 144A |
| Color of lower side of blade | yellow green 144C |
| Density of erect hairs between main veins on upper side of blade | absent or very sparse |
| Density of erect hairs between main veins on lower side of blade | absent or very sparse |
| Density of prostrate hairs on main veins on upper side of blade | absent or very sparse |
| Density of prostrate hairs on main veins on lower side of blade | absent or very sparse |

| SHOOT CHARACTERISTICS: | |
|--|------------------------------------|
| Attitude (before tying) | semi-erect |
| Color of dorsal side of internodes | yellow green 144A |
| Color of ventral side of internodes | yellow green 152B |
| Color of dorsal side of nodes | yellow green 152C |
| Color of ventral side of nodes | yellow green 151A |
| Density of erect hairs on internodes | absent or very sparse |
| Density of prostrate hairs on internodes | absent or very sparse |
| Length of tendrils | 6.4 inches |
| Diameter of tendrils | 0.08 inches |
| Color of tendrils | yellow green 151A |
| Number of tendrils at bloom | 7 |
| Positioning of first flowering and fruiting node | the first bunch is in the 4th node |
| Inflorescence number per flowering shoot | 2 |

| FLOWER CHARACTERISTICS: | |
|-------------------------|---|
| Reproductive organs | fully developed stamens and fully developed gynoecium |
| Flower length | 0.4 inches |
| Flower diameter | 0.04 inches |
| Pistil length | 0.15 inches |
| Pistil color | green 141C |
| Pollen amount | poor |
| Pollen color | yellow 11C |
| Stamen color | yellow green 145A |
| Stamen length | 0.3 inches |
| Number of stamen | 6 |

First bloom in Bakersfield, Calif.: April 28th.

Date of full bloom in Bakersfield, Calif.: May 6th.

| MATURE LEAF CHARACTERISTICS: | |
|--|-----------------------|
| Size of blade | 5.5 x 4.2 inches |
| Shape of blade | pentagonal |
| Base descriptors | pentagonal |
| Leaf margin | doubly serrate |
| Leaf apex | acute |
| Blistering of upper side of blade | absent or very sparse |
| Depth of upper lateral sinuses | shallow |
| Number of lobes (Only varieties with lobed leaves) | five |
| Arrangement of lobes of upper lateral sinuses | slightly overlapped |
| Arrangement of lobes of petiole sinus | wide open |
| Length of teeth | 0.8 inches |
| Ratio length/width of teeth | medium |
| Shape of teeth | both sides convex |
| Density of prostrate hairs between main veins on lower side of blade | absent or very sparse |
| Density of erect hairs on main veins on lower side of blade | absent or very sparse |
| Density of erect hairs between the main veins on upper side of blade | absent or very sparse |
| Density of prostrate hairs on main veins on upper side of blade | absent or very sparse |
| Length of petiole compared to length of middle vein | moderately shorter |
| Top side color | yellow green 146A |
| Bottom side color | yellow green 146D |
| Texture of upper side of blade | little rough |
| Texture of lower side of blade | rough |
| Vein color on upper blade | yellow green 145A |
| Vein color on lower blade | yellow green 145C |
| Venation pattern for upper blade | netlike venation |
| Venation pattern for lower blade | netlike venation |
| Petiole length | 2.5 inches |

-continued

| MATURE LEAF CHARACTERISTICS: | |
|------------------------------|----------------|
| Petiole diameter | 0.11 inches |
| Petiole color | red purple 58A |
| Petiole texture | smooth |

Date of beginning of berry ripening in Bakersfield Calif.:
August 5th.

| BUNCH CHARACTERISTICS: | |
|---------------------------------------|-------------------|
| Size (peduncle excluded) | medium |
| Density of berries on bunch | lax |
| Bunch length | 9.5 inches |
| Bunch diameter | 6.5 inches |
| Length of peduncle of primary bunch | 2.1 inches |
| Diameter of peduncle of primary bunch | 0.18 inches |
| Peduncle of primary bunch color | yellow green 145B |
| Peduncle texture | smooth |
| Bunches per vine | up to 90 |
| Average bunch weight | 1.7 lbs |

| BERRY CHARACTERISTICS: | |
|---------------------------------|--------------------------|
| Size | large |
| Length | 1.3 inches |
| Weight | 0.28 oz |
| Diameter | 0.8 inches |
| Shape | Cylindrical |
| Color of skin (without bloom) | red 53A |
| Flesh color | yellow green 145C |
| Brix | 19.5 |
| Titriable acidity percentage | 0.49% |
| Juice | 3.8 pH |
| Ease of detachment from pedicel | difficult |
| Thickness of skin | medium |
| Anthocyanin coloration of flesh | none (yellow green 145C) |
| Firmness of flesh | moderately firm |
| Particular flavor | none |
| Formation of seeds | none |
| Berries per bunch | 133 |

| PEDICEL CHARACTERISTICS: | |
|--------------------------|------------|
| Length | 0.4 inches |
| Diameter | 0.1 inches |
| Color | green 143C |
| Pedicel texture | rough |

| WOODY SHOOT CHARACTERISTICS: | |
|------------------------------|--------------------|
| Woody shoot texture | rough |
| Woody shoot color | greyed orange 175A |
| Woody shoot length | 168 inches |
| Diameter | 0.5 inches |
| Internode length | 4.1 inches |

Market use of observed plants: Fresh market.

- 10 Age and growing conditions: Six years growing under Y system in South Joaquin Valley during hot, dry summers. Shipping characteristics: Fruit was in cold storage. Stored in poly bags inside Styrofoam boxes with sulfur pads. After 30 Days: rachises were 60% green; 1% berry shattering; no berry wrinkling or cracks were apparent.
- 15 DNA profile: To further the characterize the new variety DNA was extracted from plant samples and a DNA profile was obtained at California Seed & Plant Lab, California USA using base pairs for 10 standard microsatellite DNA markers. The data is presented hereafter.

TABLE 2

| DNA profile for 'ARDFORTY' | | | |
|----------------------------|----------------------------|-----|-----|
| Microsatellite DNA Marker | Allele Sizes in Base Pairs | | |
| | M 1 | 228 | 238 |
| M 2 | 249 | 253 | |
| M 3 | 179 | 194 | |
| M 4 | 212 | 216 | |
| M 5 | 251 | 273 | |
| M 6 | 151 | 151 | |
| M 7 | 187 | 189 | |
| M 8 | 255 | 259 | |
| M 9 | 214 | 214 | |
| M 10 | 237 | 247 | |

25 The 'ARDFORTY' variety has not been observed under all possible environmental conditions to date. Accordingly, it is possible that the phenotypic expression may vary somewhat with changes in light intensity and duration, cultural practices, and other environmental conditions.

Additional information relating to plant and fruit disease and pest resistance or susceptibility has not been observed to date. Specification of the plant hardiness zone and the heat/cold resistance has not been observed to date.

What is claimed is:

- 40 1. A new and distinct grapevine, botanically known as *Vitis vinifera*, identified as 'ARDFORTY' substantially as shown and described herein.

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