



US00PP29675P3

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

(10) **Patent No.:** **US PP29,675 P3**

(45) **Date of Patent:** **Sep. 18, 2018**

(54) **ALMOND VARIETY NAMED ‘MIRA’**

(65) **Prior Publication Data**

(50) Latin Name: *Prunus dulcis*  
Varietal Denomination: **MIRA**

US 2017/0347509 P1 Nov. 30, 2017

(71) Applicants: **ADELAIDE RESEARCH & INNOVATION PTY LTD**, Adelaide (AU); **HORTICULTURE INNOVATION AUSTRALIA LIMITED**, Sydney (AU)

(51) **Int. Cl.**  
*A01H 5/08* (2006.01)

(52) **U.S. Cl.**  
USPC ..... **Plt./155**  
CPC ..... *A01H 5/0837* (2013.01)

(72) Inventors: **Michelle Wirthensohn**, Adelaide (AU); **Andrew Granger**, Montacute (AU)

(58) **Field of Classification Search**  
USPC ..... Plt./155  
CPC ..... *A01H 5/0825; A01H 5/0837*  
See application file for complete search history.

(73) Assignees: **Adelaide Research & Innovation Pty Ltd**, Adelaide (AU); **HORTICULTURE INNOVATION AUSTRALIA LIMITED**, Sydney (AU)

*Primary Examiner* — Kent L Bell

(74) *Attorney, Agent, or Firm* — Marshall, Gerstein & Borun LLP

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

A new and distinct almond variety of *Prunus dulcis* named ‘MIRA’, particularly characterized by self-fertility and very high production. Other desirable characteristics include early harvest time, well-sealed semihard shells, and high quality, sweet kernels with high oil content.

(21) Appl. No.: **14/999,564**

**3 Drawing Sheets**

(22) Filed: **May 26, 2016**

**1**

**2**

Latin name of the genus and species of the plant claimed:  
*Prunus dulcis*.

Variety denomination: ‘MIRA’.

**BACKGROUND OF THE INVENTION**

The present invention relates to a new and distinct cultivar of almond varieties, botanically known as *Prunus dulcis*, and hereinafter referred to by the name ‘MIRA’.

The disclosure provides a new and distinct variety of almond tree, botanically known as *Prunus dulcis*, synonymous with *Prunus amygdalus* Batsch., *Amygdalus communis* L., and *Amygdalus dulcis* Mill., which belongs to the Rosaceae family, and is hereinafter referred to by the variety denomination ‘MIRA’.

The new *Prunus dulcis* variety is a product of a controlled breeding program conducted by the inventors Michelle Wirthensohn and Andrew Granger in Adelaide, Australia. The objective of the breeding program was to develop new almond varieties with high production, self-fertility and good kernel characteristics.

The new *Prunus dulcis* ‘MIRA’ originated from a cross in 1998 in Adelaide, Australia. The female or seed parent is *Prunus dulcis* variety designated ‘Nonpareil’ (unpatented) and the male or pollen parent is the French self-fertile *Prunus dulcis* variety designated ‘Lauranne’ (unpatented). The new *Prunus dulcis* ‘MIRA’ was selected by the inventors from the progeny of the stated cross in field trials in 2009 in Lindsay Point, Australia. First observations occurred in 2003.

Asexual propagation of the new *Prunus dulcis* ‘MIRA’ by grafting onto *Prunus persica* (L.) Batsch rootstock designated ‘Nemaguard’ (unpatented) was first performed in 2005 in the orchard located in Lindsay Point, Australia. Asexual

propagation of the new *Prunus dulcis* ‘MIRA’ has confirmed that the characteristics as herein disclosed for the new variety are stable and retained through successive generations of asexual propagation. The new variety propagates true-to-type.

Asexual reproduction of the new almond tree has shown that the unique features of this new almond tree are stable and reproduced true to type in successive generations of asexual reproduction.

**SUMMARY OF THE INVENTION**

The ‘MIRA’ variety of almond is of medium to large size, similar to ‘Nonpareil’ (unpatented), strong vigor with slightly open growth and demonstrates very high and regular production of semi-hard shell nuts with kernels having an excellent flavour similar to ‘Nonpareil’ (unpatented). The harvest maturity is early, similar to ‘Nonpareil’ (unpatented) and the nuts release from the hulls readily. Doubles are not produced under growing conditions in the Riverland area of South Australia. The tree is self-fertile and, therefore, is able to produce almonds without the use of pollinators.

The following traits have been repeatedly observed and are determined to be the unique characteristics which make the new variety ‘MIRA’ clearly distinguishable from its parents and the variety most similar of common knowledge which is ‘Guara’ (patented):

1. very high productivity;
2. attractive kernels with early maturity; and
3. self-fertility.

The following characteristics listed in Table 1 have been repeatedly observed in combination and distinguish ‘MIRA’ as a new and distinct almond variety:

TABLE 1

| Trait            | New variety 'MIRA' | Female parent 'Nonpareil' (unpatented) | Male parent 'Lauranne' (unpatented) | Most similar variety of common knowledge 'Guara' (patented) |
|------------------|--------------------|--|-------------------------------------|---|
| Shell type       | Semihard           | Paper                                  | Hard                                | Semihard  |
| Tree vigor       | High               | Medium                                 | Low                                 | Medium  |
| Self-fertility   | Present            | Absent                                 | Present                             | Present   |
| Flowering time   | Medium             | Early-medium                           | Late-very late                      | Medium  |
| Fruit size       | Medium             | Medium                                 | Small                               | Medium  |
| Time of maturity | Early              | Early                                  | Early-medium                        | Medium  |

Distinguishing characteristics of 'MIRA' are set out in Table 1. Plants of the new 'MIRA' almond tree have not been observed under all possible environmental conditions and cultural practices. The phenotype may vary somewhat with variations in environment, such as temperature, day length and light intensity, without, however, any variance in genotype.

The primary difference between the new variety and the female parent 'Nonpareil' (unpatented) is the new variety is self-fertile, whereas 'Nonpareil' (unpatented) is self-sterile and requires a pollinator tree planted near to fertilize the flowers and, thus, produce almonds. In comparison to its male parent 'Lauranne' (unpatented), the new variety blooms earlier by about 5-7 days, has larger fruit, and high tree vigor.

The primary difference between the new variety and the most similar variety of common knowledge 'Guara' (patented) is the new variety has high tree vigor, and early maturity, whereas 'Guara' (patented) has medium vigor and medium maturity.

#### BRIEF DESCRIPTION OF THE DRAWING

The accompanying photographs (drawings) illustrate the overall appearance of the new *Prunus dulcis* 'MIRA' showing the colors, as true as is reasonably possible with digital reproduction. Colors in the photographs may differ slightly from the color values cited in the detailed botanical description, which accurately describe the color of 'MIRA'. The trees were grown on Nemaguard rootstock.

FIG. 1 shows typical flowers of 'MIRA', dissected (FIG. 1A) and in situ (FIG. 1B).

FIG. 2 shows various images of fruit of 'MIRA', including a one year-old shoot, showing green immature fruit (FIG. 2A), mature fruit in situ (FIG. 2B), and kernel and dry fruit shape (FIG. 2C).

FIG. 3 shows a typical four year-old tree of 'MIRA' on 15 Sep. 2010.

#### DETAILED BOTANICAL DESCRIPTION

Plants used in the aforementioned photographs and in the following description were grown outside under natural season conditions and cultural practices which approximate those generally used in commercial almond production. During the production of the plants, day temperatures ranged from about 14.5° C. to 48.2° C., night ranged from about -5.7° C. to 14° C. and light levels ranged from about

126,905 to 564,729 foot-candles. Measurements and numerical values represent averages for typical flowering plants.

The following is a detailed description of the new 'MIRA' variety when observed during the growing seasons from 2010 to 2015 at Lindsay Point, Victoria, Australia. During 2015, the 'MIRA' trees were nine years of age. Quantified measurements are expressed as an average of measurements taken from a number of trees of 'MIRA'. The measurements of any individual tree (or any group of trees) of 'MIRA' may vary from the stated average.

Color references are made to The Royal Horticultural Society Colour Chart (R.H.S.), sixth edition, (2015). Color values were taken under conditions of natural light.

All of the trees of 'MIRA', insofar as they have been observed, have been consistent in the characteristics described below.

Classification:

*Botanical.*—*Prunus dulcis*.

Parentage:

*Female, or seed parent.*—*Prunus dulcis* variety designated 'Nonpareil', unpatented.

*Male, or pollen parent.*—French self-fertile *Prunus dulcis* variety designated 'Lauranne', unpatented.

Propagation:

*Type.*—Budding onto rootstock.

*Time to initiate roots.*—NA.

*Time to produce young plant.*—Eight months.

*Root description.*—'Nemaguard' (unpatented) rootstock.

Plant description:

Tree:

*Size.*—Similar size to Nonpareil. Mature tree height is approximately 4.8 meters with a spread of approximately 5 meters.

*Vigor.*—Strong.

*Density.*—High.

*Habit.*—Slightly open.

Trunk:

*Diameter.*—At 4 years of age, about 15 cm wide at about 47.8 cm high.

*Texture.*—Slightly rough.

*Color of bark.*—RHS 200D, moderate brown.

*Lenticels length.*—About 4.3 mm.

*Lenticels width.*—About 1.9 mm.

*Lenticels density.*—About 7 per cm<sup>2</sup> on nine year-old wood.

*Lenticels shape.*—Narrow elliptic.

*Lenticels color.*—RHS 154B, brownish orange.

Current season shoot:

*Shape in cross section.*—Round.

*Color.*—RHS 143A, strong yellow green.

*Texture.*—Smooth and glabrous.

One year-old shoot:

*Length.*—Up to about 80 cm.

*Texture.*—Smooth to slightly rough.

*Internode length.*—About 15-23 mm.

*Thickness.*—Thin to medium, about 2.8-4.2 mm.

*Shape in cross section.*—Round.

*Color.*—RHS N199B, light olive brown.

*Anthocyanin coloration.*—Very strong coloration on sunny side; Lower surface color: RHS 143A; Upper surface color: RHS 166A.

*Intensity of anthocyanin coloration.*—Strong.

*Feathering.*—Much.

*Lenticels*.—Present.  
*Lenticels density*.—About 11-18 per cm<sup>2</sup>.  
*Lenticels shape*.—Elliptical.  
*Lenticels length*.—About 1.0-1.4 mm.  
*Lenticels width*.—About 0.8-1.0 mm.  
*Lenticels color*.—RHS 161C.

Buds:  
*Shape*.—Lateral: obtuse; Terminal: acute.  
*Length*.—Lateral: About 6.9-8.1 mm; Terminal: About 7.6-8.2 mm.  
*Diameter*.—Lateral: About 2.9-3.3 mm; Terminal: About 2-2.22 mm.  
*Color*.—Lateral: RHS 200B pubescent; Terminal: RHS 200A pubescent.

Spurs:  
*Shape*.—Cylindrical.  
*Length*.—About 14-64.2 mm.  
*Diameter*.—About 3.9-5.1 mm.  
*Color*.—RHS 165A.  
*Leaves per spur*.—About 7.1.

Mature wood:  
*Color*.—RHS 165A.

Foliage:  
*Density*.—Dense.

Leaf blade:  
*Length*.—About 64-90 mm, average 75 mm.  
*Width*.—About 16-25 mm, average 21 mm.  
*Length/width ratio*.—Low.  
*Shape*.—Elliptic.  
*Shape of base*.—Obtuse.  
*Shape of apex*.—Acute.  
*Color*.—Upper surface: RHS NN137A, greyish olive green.  
*Incisions of margin*.—Crenate.  
*Venation type*.—Arcuate to pinnate.

Petiole:  
*Length*.—About 18-29 mm, average 24 mm.  
*Color*.—RHS 143A, strong yellow green.  
*Shape in cross section*.—Concave.

Flower buds:  
*Distribution*.—Intermediate.  
*Shape*.—Conical.  
*Color of tip of petals*.—RHS 62D, pale purplish pink.  
*Color of sepals*.—RHS 183B, dark red.  
*Hairiness of sepals*.—Absent or very weak.

Flower:  
*Diameter of flower*.—About 32-44 mm, average 41 mm, medium.  
*Depth of flower*.—About 15.1 mm (average).  
*Number of flowers*.—Single or clusters up to about seven.  
*Texture of flower*.—Smooth.  
*Scent of flower*.—Fragrant.  
*Length of petals*.—About 18.99 mm (average).  
*Width of petals*.—About 13.05 mm (average).  
*Texture of petals*.—Upper surface: Velvet; Lower surface: Velvet.  
*Margin*.—Indented, retuse, 2 or 3 lobes, wavy jargin.  
*Shape of petals*.—Narrow elliptic to elliptic.  
*Shape of apex*.—Retuse, indented.  
*Shape of base*.—Acute.  
*Number of petals*.—Five.  
*Color of petals*.—Upper surface: RHS N155D, yellowish white. Lower surface: RHS NN155D with small amount of blush.

*Number of stamens*.—About 35 (average).  
*Color of stamens*.—White.  
*Number of pistils*.—Always one.  
*Length of pistils*.—About 16 mm (average).  
*Color of pistils*.—RHS 144D.  
*Position of stigma as compared with anthers*.—Below.

Sepals:  
*Number*.—Five to six.  
*Shape*.—Narrow to broad elliptic.  
*Length*.—About 7.04 mm (average).  
*Width*.—About 3.86 mm (average).  
*Apex*.—Rounded.  
*Margin*.—Very hairy.  
*Color*.—Outer surface: RHS 138B with RHS 187C anthocyan; Inner surface: RHS 138B.

Pedicals:  
*Length*.—About 2.82 mm (average).  
*Color*.—RHS 144B.

Stamen:  
*Anthocyanin coloration of filament*.—White.  
*Length of filament*.—About 7.98 mm (average).

Stigma:  
*Size*.—Medium.

Pollen:  
*Amount*.—Abundant.  
*Color*.—RHS 153D.

Green fruit:  
*Size*.—Medium.  
*Shape*.—Ovate.  
*Average length*.—About 33.31 mm.  
*Average width*.—About 26.22 mm.  
*Average thickness*.—About 21.54 mm.  
*Color*.—RHS N148D, moderate yellow green.  
*Pubescence*.—Much.

Dry fruit:  
*Shape*.—Ovate.  
*Shape of apex*.—Pointed.  
*Length*.—About 26-30 mm.  
*Width*.—About 20-24 mm.  
*Thickness*.—About 15-17 mm.  
*Average weight*.—About 2.6 g.  
*Color*.—RHS 164B, moderate orange yellow.  
*Surface*.—Smooth with moderate pitting.  
*Thickness of endocarp*.—About 1.6-3 mm.  
*Resistance to cracking*.—Medium, semihard.  
*Percentage of kernel to dry fruit*.—Approximately 40%.  
*Keel development*.—Medium.  
*Distribution on tree*.—Intermediate.  
*Base*.—Rounded.  
*Color*.—Inner surface: RHS 164C.

Fruit:  
*Percentage of double kernels*.—None.  
*Eating quality*.—Excellent. Oil content average is about 61.3%; Oleic acid is about 59.3%, Vitamin E is about 59.3 mg/100 g oil.  
*Production*.—Regular fruit bearer.

Kernel:  
*Shape*.—Broad elliptic.  
*Size*.—Medium.  
*Average weight*.—About 1.2 g.  
*Length*.—About 20-23 mm.  
*Width*.—About 12-15 mm.  
*Thickness*.—About 8-9.5 mm.  
*Main color*.—RHS 164B, moderate orange yellow.

*Intensity of color.*—Light.  
*Rugosity.*—Weak.  
*Taste.*—Sweet.  
*Apex.*—Mucronate.  
*Base.*—Rounded.  
*Yield.*—About 6,179 kg/ha at 10 years.  
 Blooming/flowering timing:  
*Time of beginning of flowering.*—Mid-August to early September (late winter to early spring — Australia); Full bloom four to six days after ‘Nonpareil’.  
*Time of leaf budburst in relation to beginning of flowering.*—Well after flowering has almost ended.  
*Flowering period.*—Mid-August to early September (late winter to early spring — Australia); Up to three weeks depending on the weather; Full bloom about mid-August.  
*Time of maturity.*—Approximately 29 weeks from beginning of flowering (about 7 months from August to March — Australia).

Cultural characteristics:  
*Susceptibility to disease.*—Fair tolerance to bacterial spot.  
 Storage/shipping:  
 5 *Storage.*—Good storage ability due to high vitamin E levels (about 59 mg/100 ml oil).  
*Shipping quality.*—Good.  
 Harvest:  
 10 *Peak.*—February (late summer — Australia); Approximately 5 days after Nonpareil.  
 Pest resistance/susceptibility:  
*Resistance.*—Semi-hard shell is resistant to insect attacks.  
 15 We claim:  
 1. A new and distinct variety of almond tree (*Prunus dulcis*) named ‘MIRA’, as illustrated and described herein.

\* \* \* \* \*

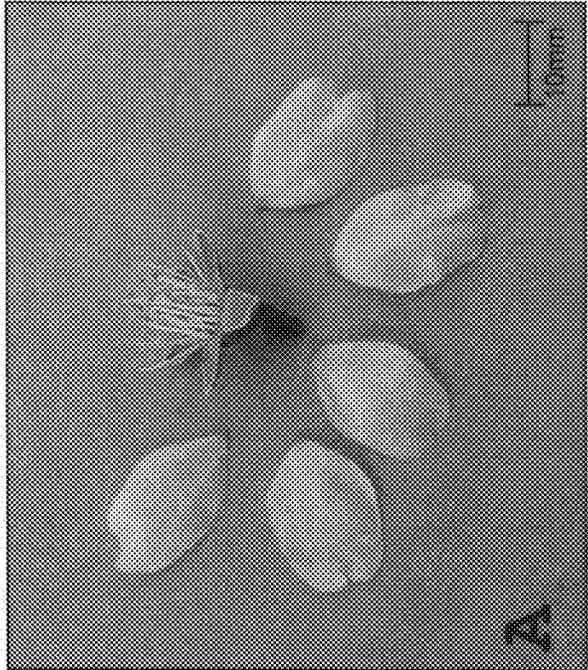


Figure 1

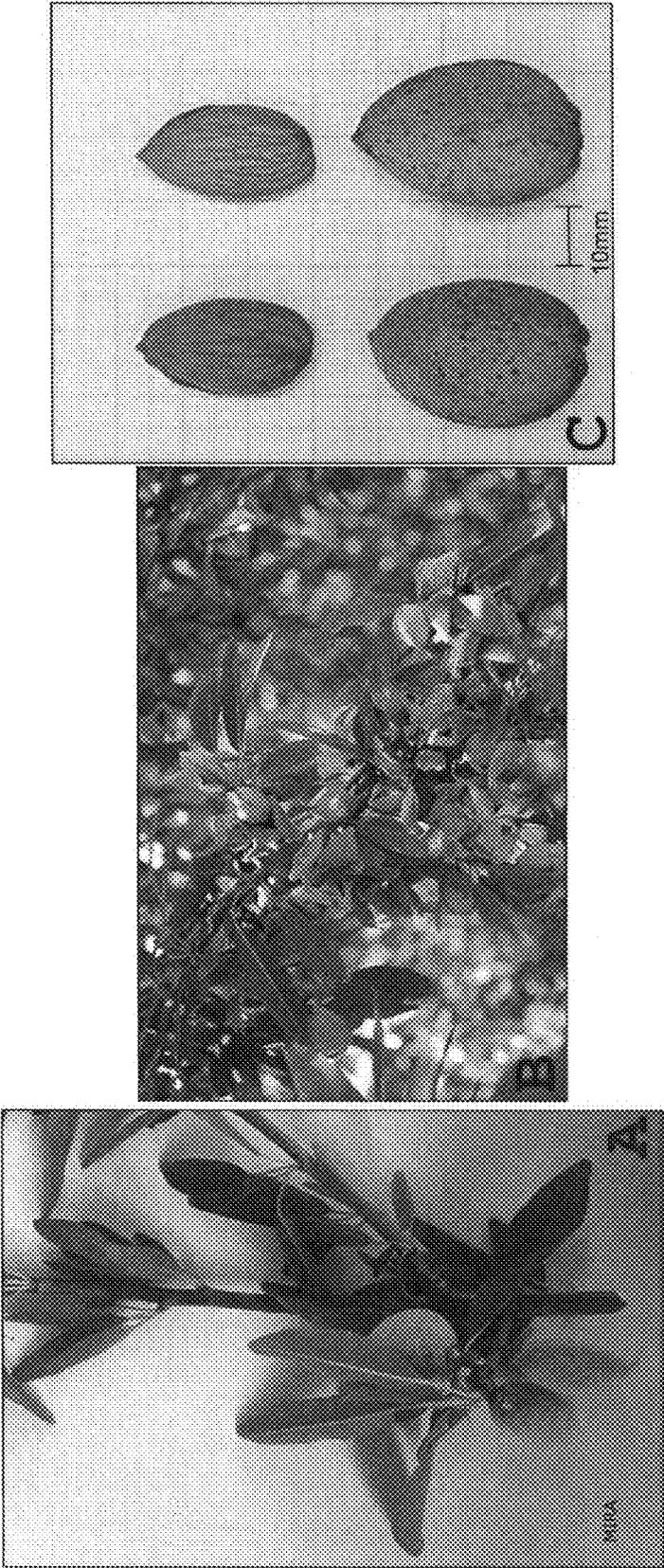


Figure 2



Figure 3