
Strawberry plant named `Albion`

Abstract

This invention relates to a new and distinctive day-neutral type cultivar designated as `Albion`. `Albion` is a day-neutral (everbearing) cultivar similar to `Diamante` (U.S. Plant Pat. No. 10,435), but with higher quality fruit, lower cull rate, darker fruit, and substantially better resistance to *Phytophthora cactorum*; it is similar to `Aromas` (U.S. Plant Pat. No. 10,451), but with larger, higher quality, firmer and better-flavored fruit.

Inventors: Shaw; Douglas V. (Davis, CA), Larson; Kirk D. (Irvine, CA)

Assignee: The Regents of the University of California (Oakland, CA)

Family ID: 34808140

Appl. No.: 10/769,471

Filed: January 29, 2004

Prior Publication Data

Document Identifier

US 20050172374 P1

Publication Date

Aug 4, 2005

Current U.S. Class: PLT/209

Current CPC Class: A01H 6/7409 (20180501); A01H 5/08 (20130101)

Current International Class: A01H 5/00 (20060101)

Field of Search: ;PLT/209

Primary Examiner: Grunberg; Anne Marie

Assistant Examiner: Hwu; June

Attorney, Agent or Firm: Townsend and Townsend and Crew LLP

Claims

What is claimed is:

1. A new and distinct cultivar of strawberry plant having the characteristics substantially as described and illustrated herein.

Description

Genus and species: The strawberry cultivar of this invention is botanically identified as *Fragaria*.times.*ananassa* Duch.

Variety denomination: The variety denomination is `Albion`.

BACKGROUND OF THE INVENTION

`Albion` originated from a cross performed in 1997 between the cultivar `Diamante` (U.S. Plant Pat. No. 10,435) and advanced selection Cal 94.16-1. `Albion` was first fruited at the University of California Wolfskill Experimental Orchard, near Winters, Calif. in 1998, where it was selected, originally designated Cal 97.117-3, and propagated asexually by runners. Following selection and during testing, the plant was originally designated `CN220`, and subsequently has been named `Albion` for introduction. Asexual propagules from this original source have been tested at the Watsonville Strawberry Research Facility, the South Coast Research and Extension Center, and to a limited extent in grower fields starting in 1999. The properties of this variety were found to be transmissible by such asexual reproduction. The cultivar is stable and reproduces true to type in successive generations of asexual reproduction.

BRIEF SUMMARY OF THE INVENTION

This invention relates to a new and distinctive day-neutral type cultivar designated as `Albion`. `Albion` is a day-neutral (everbearing) cultivar similar to `Diamante` (U.S. Plant Pat. No. 10,435), but with higher quality fruit, lower cull rate, darker fruit, and substantially better resistance to *Phytophthora cactorum*; it is similar to `Aromas` (U.S. Plant Pat. No. 10,451), but with larger, higher quality, firmer and better-flavored fruit.

BRIEF DESCRIPTION OF THE DRAWINGS

The figures depict various characteristics of the `Albion` cultivar.

FIG. 1 shows the general flowering and fruiting characteristics of plants in a field planting.

FIG. 2 shows rows of typical fruiting plants.

FIG. 3 shows a typical leaf at mid-season.

FIG. 4 shows representative mid-season fruit.

DETAILED DESCRIPTION OF THE INVENTION

This invention relates to a new and distinctive day-neutral type cultivar designated as `Albion`. `Albion` is typical of day-neutral strawberry cultivars and produces fruit regardless of day length when treated appropriately in arid, subtropical climates. `Albion` is moderate to weak in expressing the day-neutral character, being comparable to slightly more day-neutral than `Diamante` (U.S. Plant Pat. No. 10,435), and less so than `Fern` (U.S. Plant Pat. No. 5,267) or `Irvine` (U.S. Plant Pat. No. 7,172). The production pattern for `Albion` is similar to that for `Diamante`, although it is somewhat later to reach peak fruiting with most cultural treatments. `Albion` will be of special interest for winter plantings and in summer plantings where `Diamante` and `Aromas` have been successful.

`Albion` has the following characteristics relative to parent 94.16-1. The 94.16-1 cultivar is a short-day or June-bearing genotype, whereas Albion is day-neutral. Albion has larger and more uniform sized fruit than 94.16-1, its fruit is substantially firmer, and better flavored. The fruit shape of 94.16-1 tends towards a short but symmetrical conic shape; Albion fruit has a long conical shape. Albion has substantially more even external fruit color, whereas 94.16-1 tends to be mottled during some portions of the season.

Plants and foliage: Fruiting plants of `Albion` are similar in morphology to `Diamante` although slightly more erect and more open; `Albion` plants are substantially more open and erect than `Aromas` plants. Comparative statistics for foliar characters near mid-season are given for `Albion` and the two comparison

cultivars in Table 1. Individual leaflets for `Albion` are smaller than for `Aromas` or `Diamante`, and somewhat less rounded than for `Diamante`. Leaves (including petioles) for `Albion` are shorter than those for the comparison cultivars, mostly due to shorter petiole length. Petioles are generally thicker than those of the comparison cultivars and tend to have heavy pubescence. The adaxial (upper) and abaxial (lower) surfaces of leaves for `Albion` are similar in color to `Aromas` and `Diamante` leaves at mid season, but tend to remain darker and less yellow than those of either comparison cultivar late in the harvest season. Leaves of `Albion` have consistently less concavity than `Aromas`, and are similar in form to `Diamante`, with more, and usually more rounded serrations than the comparison cultivars.

TABLE-US-00001 TABLE 1 Foliar characteristics for `Albion`, `Aromas`, and `Diamante`. Foliar Cultivar Character `Aromas` `Diamante` `Albion` Plant height (mm) mean 257 231 252 range 230-330 160-275 210-270 Plant spread (mm) mean 318 357 341 range 241-382 292-419 304-394 Mid-tier leaflet Length (mm) mean 92 77 73 range 67-100 55-110 50-95 Width (mm) mean 74 81 68 range 65-85 55-110 50-95 Mid-tier leaf Length (mm) mean 253 215 185 range 172-305 169-290 153-223 Width (mm) mean 156 149 135 range 135-200 90-210 105-170 Leaf components Petiole length (mm) mean 154 126 105 range 100-225 92-170 70-130 Petiole diameter (mm) mean 3.6 3.7 4.1 range 3.0-4.2 3.0-4.8 3.7-4.6 Petiolule length (mm) mean 7.2 11.4 7.4 range 7-12 8-15 5-10 # leaflets/leaf 3 3 3 Leaf convexity some flat, most some flat, most slight concave slight concave slight concave Serrations number/leaf 65.1 63.1 71.8 range 57-71 45-72 55-87 shape semi-pointed semi-pointed semi-pointed Leaf pubescence moderate very light light-moderate Petiole pubescence density moderate moderate to heavy heavy direction perpendicular perpendicular to perpendicular slightly acropetal Petiole color 5GY 6/8 5GY 6/8 5GY 7/10 (Munsell) 5GY 7/10 Stipule length (mm) mean 26.9 26.5 23.3 range 25-31 20-35 14-34 Stipule color core 5GY 6/8 5GY 6/8 5GY 6/8 margins 2.5R 7/8 2.5R 6/11 2.5R 7/8 Stolons per 30.3 24.4 22.5 nursery mother plant Venation pinnate pinnate pinnate pattern color 2.5GY 6/8 2.5GY 6/8 2.5GY 6/8

Flowering, fruiting, fruit, and production characteristics: `Albion` is similar to other California day-neutral cultivars (e.g., `Diamante` and `Aromas`) in that it will flower independently of day length, given appropriate temperature and horticultural conditions. Comparative statistics for flower and fruit characters near mid-season are given for the three cultivars in Table 2. The primary flowers for `Albion` are similar in size to `Diamante` and larger than those of `Aromas`; the sepals are similar in length to both comparison cultivars, but intermediate in width. The calyx for `Albion`

varies in position but is more frequently slightly necked than either comparison cultivar; each primary flower has 5-8 petals.

The habit is semi-erect to prostrate, usually semi-erect. The relative position of the inflorescence to the leaves is exposed, or above the foliage.

TABLE-US-00002 TABLE 2 Flower and fruit characters for `Albion`, `Diamante`, and `Aromas`. Cultivar Character `Aromas` `Diamante` `Albion` Petal number mean 5.7 5.4 6.0 range 5-7 5-6 5-8 Petal shape apex truncate to truncate to truncate to slightly obtuse slightly obtuse slightly obtuse base attenuate attenuate attenuate margin entire entire entire Petal length (mm) mean 13.8 13.4 12.7 range 12-16 11-17 11-15 Petal width (mm) mean 13.6 13.2 12.6 range 11-16 12-15 11-14 Flower position most even most even most exposed, (relative to some internal and some even foliage) exposed Calyx diam. (mm) mean 28.6 35.2 35.8 range 27-30 24-40 30-39 Corolla diam. (mm) mean 26.3 28.8 27.0 range 23-28 21-34 25-30 Sepal length (mm) mean 15.8 19.1 18.5 range 15-19 13-25 14-24 Sepal width (mm) mean 5.8 9.5 7.1 range 4-8 7-16 5-9 Sepal color 5GY 5/6 5GY 5/6 7.5GY 4/4 (Munsell) Pedicel length (mm) mean 129.5 148.2 113.0 range 110-160 110-180 83-190 Pedicel diameter (mm) mean 2.4 2.3 2.9 range 1.9-3.3 1.8-2.7 2.2-3.5 Pedicel color 5GY 6/8 2.5GY 6/8 5GY 6/8 Fruit shape Fruit length (mm) mean 48.4 53.5 60.6 range 45-57 45-60 55-75 Fruit width (mm) mean 43.7 51.1 49.7 range 35-50 45-60 45-55 Length/width ratio 1.1 1.0 1.2 range 0.9-1.3 0.9-1.3 1.1-1.4 subjective mostly medium to rounded to flat most long short rounded conic symmetrical conic conic Calyx position even to indented even to indented even to indented Seed position even to indented mostly indented, slight neck some even mostly indented, some even

The fruit shape for `Albion` can vary but is typically a long and symmetrical conic, and is easily distinguished from `Aromas` (shortened and rounded conic) or `Diamante` (rounded and occasionally flattened conic); `Albion` usually has a greater proportion of symmetrical fruit than either comparison cultivar. External and internal fruit color for `Albion` is darker than for `Diamante` and slightly lighter than for `Aromas` with substantially greater red color (Table 3). Achenes vary from yellow to dark red (Table 3), and are even with the fruit surface or slightly indented. The mean number of achenes per berry is 440.8 (range of 330-548). The average berry weight is 33 grams (Table 4). The adherence of the calyx to the fruit is medium. The hollow portion of the fruit interior generally ranges from about 0-15%, subjectively, and is variable with culture and season.

`Albion` is substantially sweeter than `Diamante` throughout the season, but has moderate acid levels as well. Average brix was 8.5 and average acidity was 0.74 for two evaluations performed on two dates in 2003.

Secondary fruit is similar in shape to primary fruit and is generally about 75%, subjectively, of the size, although this is variable through the season and with culture conditions. Calyx for secondary fruit can vary from slightly larger than the berry to slightly smaller, depending on the season.

TABLE-US-00003 TABLE 3 Foliar and fruit color characteristics for `Albion`, `Aromas`, and `Diamante`. Cultivar Color Character `Aromas` `Diamante` `Albion`
 Leaf color (CIELAB) Adaxial L* mean 32.7 32.4 32.7 range 31.1-34.2 29.9-35.8 31.5-34.1 a* mean -7.0 -8.1 -7.4 range -5.8--8.2 -7.3--10.2 -6.3--8.1 b* mean 11.8 12.0 11.7 range 9.6-14.0 9.1-13.9 10.4-13.1 Munsell 2.5GY 3/3 10GY 3/2 5GY 3/2
 Abaxial L* mean 52.3 50.7 49.1 range 34.1-52.3 48.3-52.4 48.6-52.1 a* mean -8.3 -9.0 -8.8 range -6.8--8.8 -8.4--9.5 -7.6--9.2 b* mean 18.1 19.1 19.3 range 13.1-20.1 17.9-21.3 15.7-21.6 Munsell 5GY 5/6 5GY 5/6 5GY 5/6 7.5GY 5/7
 Fruit color (CIELAB) External L* mean 38.1 43.7 40.0 range 36.6-41.4 39.5-47.4 34.3-44.8 a* mean 39.3 41.7 41.2 range 37.3-41.2 35.0-46.3 34.8-44.2 b* mean 27.2 32.1 28.4 range 21.7-32.9 27.0-35.9 20.9-36.9 Munsell 5R 3/7 7.5R 4/11 5R 3/7
 Internal L* mean 65.1 68.3 63.2 range 56.4-70.6 63.7-71.1 56.3-64.4 a* mean 31.2 23.9 31.1 range 13.3-40.3 15.5-30.6 20.1-35.9 b* mean 34.5 29.2 33.1 range 17.1-41.7 20.3-35.9 24.0-35.9 Munsell 5R 4/12 7.5R 6/12 7.5R 4/11
 Achene color Munsell 7.5R 3/6 7.5R 3/6 7.5R 3/6 *CIELAB is the abbreviation of the international color system known as "Commission Internationale De L'Eclairage" 1978. For recommendations concerning uniform color spaces, color difference equations, and psychometric color terms see Supplement No. 2 of CIE Publication No. 15, Paris.

`Albion` has been tested under a variety of cultural regimes, and optimal performance is obtained when nursery treatments and nutritional programs similar to those for `Diamante` are used. In general, `Albion` is very similar in vigor to `Diamante` and requires less chilling to maintain excellent fruit quality than `Aromas`. `Albion` retains good fruit quality in summer planting systems, similar to `Diamante`.

It is possible that the phenotype may vary somewhat with variations in the environment. Phenotypic features may also vary depending on culture conditions.

When treated with appropriate planting regimes, `Albion` has similar fruit size and

produces similar individual-plant yields to `Diamante`; it produces less per plant but develops higher quality fruit than `Aromas` (Table 4). `Albion` has a similar production pattern to `Diamante`, although the production is less peaked and less affected by yearly variation in climate. The following is an exemplary flowering and fruiting schedule for Watsonville, Calif. These exemplary times are based on planting runners in fruiting fields during the first part of November (November 1-10). Initiation of flowering depends on the weather. It may occur as little as 6 week after planting and is typically around 3 to 4 months (February 1 to March 20). Termination of flowering is temperature dependent and day-length independent for this cultivar. From flowering to ripe fruit takes as long as 7 weeks in the short days and cool temperatures of winter, as little as 3 weeks in summer. First fruit is typically available April 1-May 15 for this example.

Commercial appearance ratings have been better than those for `Diamante` and substantially better than those for `Aromas`; these superior appearance scores translate directly into a smaller fraction of non-marketable fruit than is produced by the comparison cultivars. Fruit for `Albion` is substantially firmer than fruit from `Aromas`, slightly less firm than `Diamante`. Subjectively, `Albion` has outstanding flavor. The fruit will be exceptional for both fresh market and processing, and will be useful for home garden purposes.

TABLE-US-00004 TABLE 4 Performance of `Albion`, `Aromas`, and `Diamante` evaluated at the Watsonville Research Facility in 2001 and 2002. All plants for these trials were harvested from Macdoel on October 15, and transplanted after 20-28 days supplemental storage. Harvest was initiated in early April and continued through the last week of October. Late yield is that accumulated after August 15 (52" 2-row beds, 17,300 plants/acre). Late Appearance Fruit Yield Yield Score Size Item (g/plant) (g/plant) (5 = best) (g/fruit) Firmness* `Aromas` 2,762 582 3.3 28.0 8.6 `Diamante` 2,346 456 3.6 33.5 9.8 `Albion` 2,417 522 4.0 33.0 9.3 *Fruit firmness ratings are the amount of force in tenths of pounds required to drive a 3 mm flat probe 1 cm into a ripe fruit. This is measured with a Hunter Force Gauge.

Disease and pest reaction: `Albion` is moderately resistant to common leaf spot (*Ramularia tulasnei*) and powdery mildew (*Sphaerotheca macularis*). It is quite resistant to *Verticillium* wilt (*Verticillium dahliae*) and *Phytophthora* crown rot (*Phytophthora cactorum*), and moderately resistant to Anthracnose crown rot (*Colletotrichum acutatum*) (Table 5). When treated properly, it has tolerance to two-spotted spider mites (*Tetranychus urticae*) equal to that for `Diamante` and better than

that for `Aromas`. `Albion` is tolerant to strawberry viruses encountered in California.

TABLE-US-00005 TABLE 5 Disease resistance scores for `Albion`, `Aromas`, and `Diamante`; Phytophthora and Verticillium scores were obtained in evaluations conducted in 2000-2003, Colletotrichum was evaluated in 2003. Phytophthora Verticillium Colletotrichum Resistance Resistance Resistance Score Score Score Genotype (5 = best) (5 = best) (5 = best) `Aromas` 4.2 3.5 2.7 `Diamante` 2.4 2.7 2.6 `Albion` 4.9 3.4 3.1