



UNIVERSITY OF CALIFORNIA, DAVIS

PUBLIC STRAWBERRY BREEDING PROGRAM

ANNUAL FIELD DAY

SHORT-DAY CULTIVAR ADVANCEMENT & RESEARCH UPDATE

SANTA MARIA 5 APRIL 2018 & OXNARD 6 APRIL 2018

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16SD045

- **SECOND HIGHEST YIELDING CULTIVAR.** 16SD045 was the second highest yielding cultivar across 2015-16 and 2016-17 field trials (Table 1; Figures 1-2).
- **MARKETABLE FRUIT YIELDS EQUAL OR EXCEED CURRENT MARKET LEADERS.** The cumulative marketable yield of 16SD045 was equivalent to Fronteras and 33-71% greater than Petaluma and San Andreas across locations and years (Table 1; Figures 1-2).
- **COMPACT PLANT.** 16SD045 has performed well in low- and high-input production systems.
- **HIGHLY RESISTANT TO FUSARIUM WILT.** 16SD045 is highly resistant to Fusarium wilt (Table 2).
- **LONG SHELF-LIFE & GOOD FRUIT QUALITY.** The fruit quality and shelf-life of 16SD045 appear to be superior to Fronteras. Fruit quality and shelf-life assessments are currently underway and will be reported at the end of the season.

16SD103

- **HIGHEST YIELDING CULTIVAR.** 16SD103 was the highest yielding cultivar across across 2015-16 and 2016-17 field trials (Table 1; Figures 1-2).
- **SIGNIFICANTLY GREATER YIELD THAN CURRENT MARKET LEADERS.** The cumulative marketable yield of 16SD103 was 6-16% greater than Fronteras and 38-101% greater than Petaluma and San Andreas across across locations and years (Table 1; Figures 1-2).
- **LONG SHELF-LIFE & GOOD FRUIT QUALITY.** The fruit quality and shelf-life of 16SD103 appear to be superior to Fronteras. Fruit quality and shelf-life assessments are currently underway and will be reported at the end of the season.

16SD034

- **MARKETABLE FRUIT YIELDS.** The cumulative marketable yield of 16SD034 was 20-55% greater than Petaluma and San Andreas, but 8-11% less than Fronteras over locations and years (Table 1; Figures 1-2). The primary driver for advanced testing of 16SD034 has been strong resistance to multiple soil-borne diseases (Table 2).
- **HIGHLY RESISTANT TO FUSARIUM WILT AND MODERATELY RESISTANT TO VERTICILLIUM WILT.** 16SD034 was highly resistant to Fusarium wilt and moderately resistant to Verticillium wilt (Table 2).
- **MODERATELY TOLERANT TO MACROPHOMINA.** 16SD034 appears to be more tolerant to Macrophomina than the other short-day cultivars tested (Table 2).
- **LONG SHELF-LIFE & GOOD FRUIT QUALITY.** 16SD034 has less firm fruit than the other cultivars tested, which might translate to decreased shelf-life. Extensive fruit quality and shelf-life assessments are currently underway and will be reported at the end of the season.

TABLE 1. Cumulative marketable yields (g/plant) for three experimental short-day cultivars (16SD035, 16SD045, and 16SD103) and three check short-day cultivars (Fronteras, Petaluma, and San Andreas) tested in Oxnard and Santa Maria, CA in 2015-2016 and 2016-2017, where marketable fruit yield = total fruit yield × percent marketable fruit. The “yield increase over Fronteras” numbers displayed in parentheses are negative, e.g., the yield of 16SD045 was 2% less than Fronteras in 2016 and 2% greater than Fronteras in 2017.

Cultivar	2016 Marketable Fruit Yield (g/plant)	2017 Marketable Fruit Yield (g/plant)	Percent Marketable Fruit	Yield Increase Over Petaluma	Yield Increase Over San Andreas	Yield Increase Over Fronteras
16SD034	781	679	75-80%	21-40%	20-55%	(8)-(11)%
16SD045	865	751	75-80%	34-55%	33-71%	(2)-2%
16SD103	897	886	75-78%	39-83%	38-101%	6-16%
Fronteras	846	763	80-81%	31-58%	29-73%	
Petaluma	646	484	76-78%			
San Andreas	652	439	77-80%			

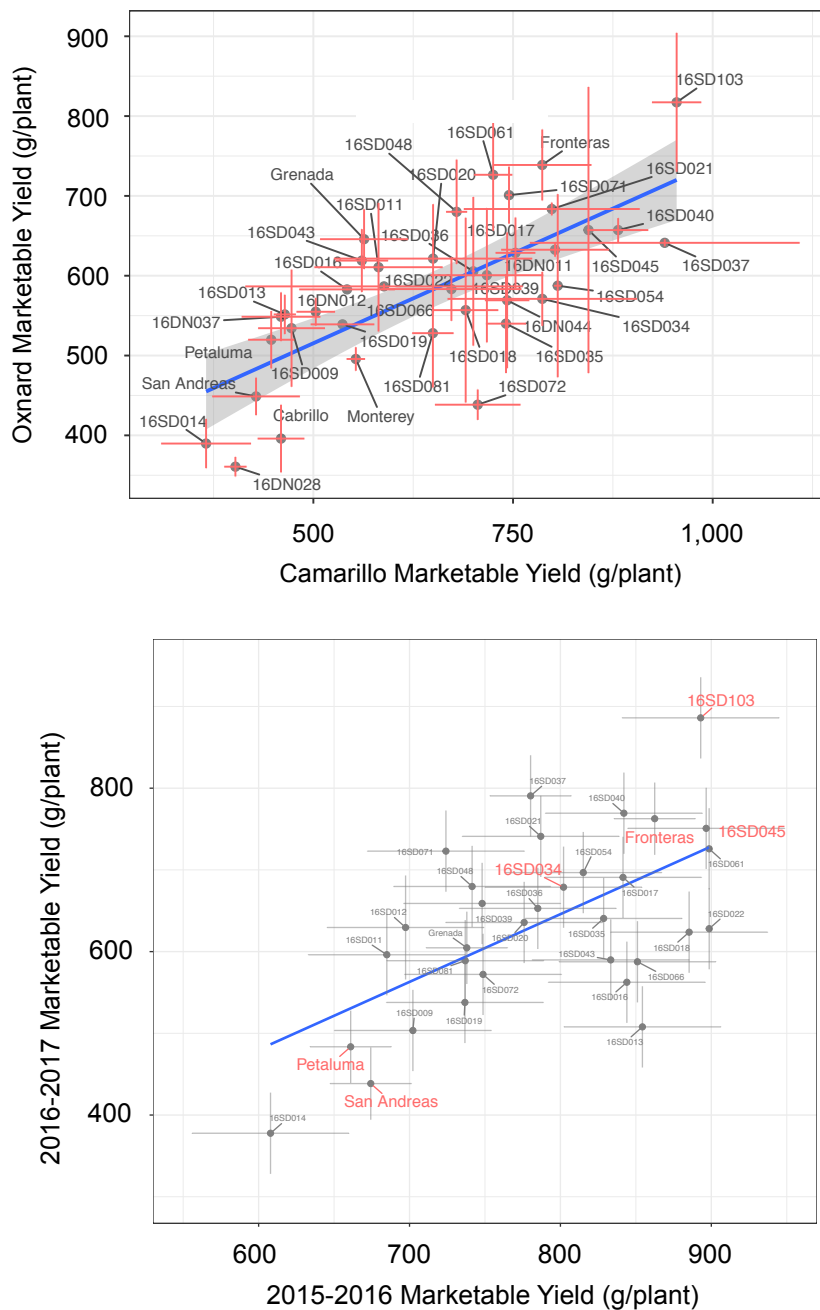


FIGURE 1. Cumulative marketable yields (g/plant) of short-day cultivars tested in Oxnard and Santa Maria in 2015-2016 and Oxnard and Camarillo, CA in 2016-2017. The upper panel shows least square means across years with standard errors displayed as red crosses. The lower panel shows least square means across locations with standard errors displayed as gray crosses.

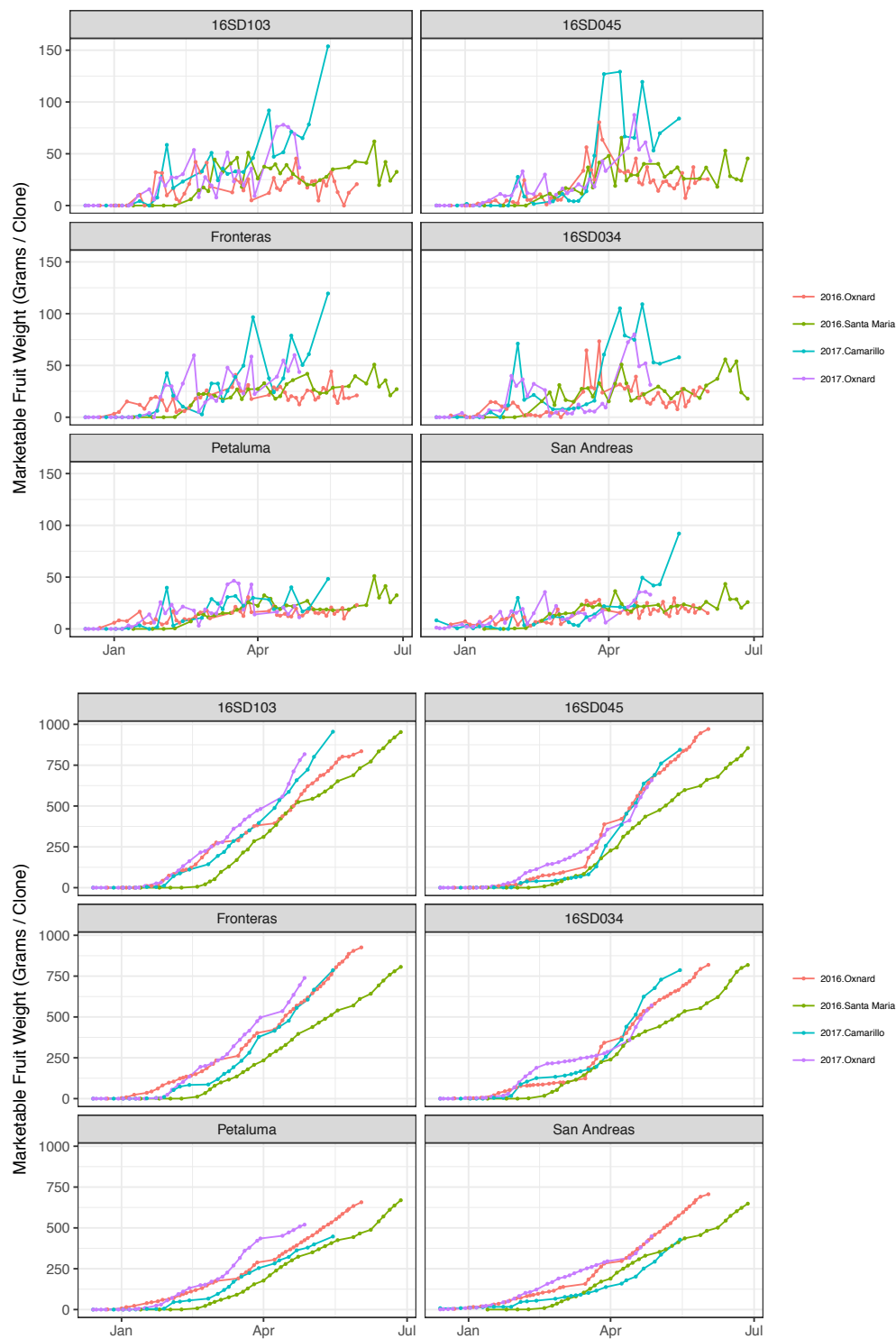


FIGURE 2. Marketable yields (g/plant) for individual harvests (upper panel) and cumulative marketable yields (g/plant; lower panel) of short-day cultivars tested in Oxnard and Santa Maria in 2015-2016 and Oxnard and Camarillo, CA in 2016-2017. The points are least square means at each harvest (upper panel) and summed over harvests (lower panel).

TABLE 2. Fusarium wilt, Verticillium wilt, Phytophthora crown rot, and Macrophomina (charcoal rot) resistance scores for short-day cultivars screened in artificially inoculated fields in Davis, CA in 2015-2016, 2016-2017, and 2017-2018, where 1 = highly resistant, 2 = resistant, 3 = intermediate, 4 = susceptible, and 5 = highly susceptible. Experiments are currently underway to assess Phytophthora crown rot resistance.

Cultivar	Fusarium Wilt	Verticillium Wilt	Phytophthora Crown Rot	Macrophomina
16SD034	1.0	2.6	TBD	2.5
16SD045	1.0	4.2	TBD	5.0
16SD103	3.4	2.5	TBD	5.0
Fronteras	1.5	2.8	TBD	4.5
Petaluma	3.0	2.2	TBD	3.0
San Andreas	1.1	3.0	TBD	5.0