



“Yield components and fruit composition of six Chardonnay grapevine clones in the Central San Joaquin Valley, California”

By: M. Fidelibus, P. Christensen, Donald Katayama, and P. Verdegaal

In: Am. J. Enol. Vitic. 57 (4):503-506. 2006

- Chardonnay is the most widely cultivated grape variety in California. Because of this, the Foundation Plant Services (FPS) at UCD – in charge of producing, testing, maintaining, and distributing virus-free plants - has worked actively in expanding their Chardonnay program. Today, FPS offers more than 70 registered clones. However, the merits of many of these clones in the field are unknown.
- Chardonnay clone 4 (FPS4) is the current industry standard. This selection was the highest yielding in two clonal trials conducted in Napa (1994) and Salinas (2003), due to its exceptionally heavy clusters. In the current article, the authors raise concerns that heavy clusters may also be more susceptible to sour rot, and that other clones may actually show an advantage for the conditions of the San Joaquin Valley.
- So the authors evaluate the viticultural characteristics of 6 Chardonnay clones available from Foundation Plant Services: FPS4, FPS6, FPS15, FPS18, FPS20 and FPS37. Their trial design is a randomized complete block, with 10 single-vine replicates. The experiment ran for four years (2000-2003) in Parlier, California (Region V climate), on Hanford fine sandy loam (1.5 m rooting depth). The vines, planted in 1997, were own-rooted, 2.3m x 3m-spaced, bilateral-cordon trained with a single catch wire, and spur-pruned to 16-18 two-node spurs (14-16 shoots/meter). All clones were harvested on the same day within each year.
- **Yield.** All tested clones earned a “tie” on total yield performance, due mainly to striking fluctuations depending on the year. As an example, in 2000, clone 4 was among the lowest yielding, and clone 15 was among the highest. But in 2001, the trend was reversed, with clone 4 being among the highest yielding and clone 15 among the lowest. All vines had similar yields in 2002 and 2003, regardless of clone.
- **Yield components.** Yield components, however, were more consistent. Clone 4 had the fewest clusters, and they were also the heaviest (3 of 4 years), probably due to the fact that this clone had the most berries per cluster. Clones 6 and 15 consistently had more and lighter clusters. Differences among the other clones with regards to berries per cluster and berry weight were less consistent.
- **Rot incidence.** Sour rot was evaluated based on the proportion of clusters having 4 or more contiguous decaying berries. Clone 15 had 80 to 90% fewer clusters with rot than the other clones in 2001 and 2003, and 70% fewer in 2002. Clones 4, 20 and 37 had similarly high incidences of sour rot. This is in agreement with a previous clonal study (1998), which showed clone 15 to have the least compact clusters and the lowest sour rot. When you factor in the rot percentages into the total yield averages, clone 15 actually had about 4% more rot-free yield, or “harvestable yield”, than clone 4.

• **Fruit composition.** Differences in fruit composition were independent of year. Clone 4 had the fruit composition with the most desirable characteristics of the clones tested: highest Brix, lowest pH, and high TA. Clone 15 had lower Brix and higher pH than clone 4, with a similar TA.

In conclusion, clone 4 had good yield and good fruit composition, but was one of the most susceptible to sour rot. On the other hand, clone 15 had lower yield but much less susceptibility, which “made up” for its lower yield. The authors conclude that growers in the Central San Joaquin Valley may wish to consider Chardonnay clone 15 for new plantings, instead of clone 4.

	Origin	Cluster weight (kg)	Total yield (kg/vine)	Rot	Brix	pH
FPS 4	Martini 5V21 (Olmo #66)	0.29 a	21.9 a	16% a	23.7 a	3.60 c
FPS 6	Martini 3V4 (Olmo #68)	0.22 c	22.0 a	10% b	22.9 b	3.70 a
FPS 15	Prosser, WA (LR2V6)	0.20 d	19.9 b	4% c	22.8 b	3.70 ab
FPS 18	Rauscedo 8, Italy	0.26 b	22.6 a	14% ab	22.7 bc	3.67 b
FPS 20	Conegliano 7, Italy	0.25 b	22.1 a	13% ab	22.4 c	3.68 ab
FPS 37	France (95)	0.24 bc	23.2 a	15% a	23.0 b	3.68 ab

All values are averages of four years

Only a few parameters measured by the authors presented here.

Values which share a letter are practically the same (with probability of 5 in 100 of that not being true, or $p < 0.05$)

Author: Bibiana Guerra, Editor: Kay Bogart. This summary series funded by J. Lohr Vineyards & Wines.