

Clones of Classic Varieties

The Chardonnay Portfolio

By Nick Hoskins and Geoff Thorpe

Clonal blending provides the backbone for many great White Burgundies, including Corton-Charlemagne.

One of the highlights at the industry Chardonnay Forum held in Gisborne in late May was a special tasting of White Burgundy wines, complete with information on their clonal pedigrees. The idea for the tasting stemmed from a Riversun visit to our ENTAV partners in France in 2007. At the time, we were shown around a number of Corton-Charlemagne vineyards just prior to harvest, and the Chardonnay looked very impressive indeed (more so than the Pinot Noir that year).

Before our visit, we had assumed that vine age would be the key to these legendary white wines and (in this Mecca of Chardonnay) that vineyards would comprise very old non-clonal vines. Instead, we were surprised to find much of the area planted in relatively young ENTAV-INRA® clones. We toured vineyards with many different Chardonnay clones and were impressed with the flavours, open bunches, and clean fruit. The late Dr Rod Bonfiglioli subsequently wrote an article, based on our observations, called "The Clones Behind Corton-Charlemagne," which is posted on the Riversun website.

Old – and new – selections

Since then, we have gathered more information on Chardonnay plantings in Burgundy, and have learned that many of the growers do in fact have a percentage of "old vines" (more than 50 years old) in their vineyards. These vines are non-clonal "selection massale," or mass selected as we call it.

For selection massale, a grower simply takes cuttings from his own or neighbouring vineyards to replant or expand his holdings. The practice was once widespread, but, in recent decades, it has become less common largely because Grapevine Fanleaf Virus (GFLV) has become an issue for older Chardonnay plantings. Fanleaf is a serious nepovirus, causing a wide range of symptoms on grapevines: shortening of internodes; zigzag growth and fasciation on the shoots; asymmetry of the blade, resembling a fan; acute indentation on the leaves; poor fruit set; fewer and smaller bunches with aborted berries; reduced yields, and more than 50% reduced longevity. To avoid planting material infected with Fanleaf, growers have come to prefer clean material from ENTAV-INRA® rather than traditional "selection massale" (which makes sense, really, as the ENTAV clones themselves are



Chardonnay ENTAV-INRA® Clone 548 at Riversun source block

selected from that same very rich gene pool of old vines).

Since the mid-1970s, Chardonnay plantings in Burgundy have favoured a succession of ENTAV-INRA® Clones, starting with Clone 76, followed by Clones 95 and 96. Clone 548, which was registered in 1978, became very popular in the 1990s, and remains so today. ENTAV-INRA® Clone 809 (known as Chardonnay musque) was registered in 1985, and the "1000 series" – Clones 1066, 1067 and 1068 – were all registered in 2003, and appear to have been quickly adopted by Burgundy's winegrowers. A typical Chardonnay blend in a White Burgundy wine may contain varying portions of all of these clones.

The Burgundians' enthusiastic adoption of new clonal material for Chardonnay stands in stark contrast with New Zealand viticulture and winemaking, where, it seems fair to say, clonal blending has been late and limited. Not too long ago, many of our premium Chardonnay wines were still made from a single selection or clone.

Kiwi Chardonnay

New Zealand Chardonnay wines have tended to rely on four main clones: Mendoza, UCD Clones 6 and 15, and Clone B95. The UCD clones are part of the catalogue at the University of California, Davis, which in turn imported its selections from Burgundy. The Mendoza Clone, however, has a murkier heritage that remains somewhat mysterious.

The Mendoza Clone was imported from CSIRO Australia

by David Sheat in 1971, already infected with Grapevine Leafroll-associated Virus 1. Mendoza yields low to moderate crops of medium clusters prone to some hen and chicken formation, and produces rich and intense wines. It was – and still is for many – the preferred clone for premium Chardonnay.

According to an article by David Farmer, the CSIRO source was from Western Australia, where this favoured clone is still known by its nickname “Gin Gin.” Records indicate that Mendoza was introduced to Western Australia by Houghton Wines in 1957. Where it came from, Farmer could not say, although he commented, “Some references say it is from, naturally enough, Argentina. It seems unlikely that Houghton would have looked to South America rather than Europe.”

UCD Clone 6 was imported from Australia by Delegat’s in 1982, and remains popular today. Clone 6 might be termed a “workhorse” in that it consistently produces moderate to large crops with good fruit characters, although sometimes lacking in intensity.

UCD Clone 15 was imported in 1985 by Dr Richard Smart on behalf of the NZGVIG. This clone yields moderate crops with looser bunches than UCD Clone 6; it, too, shows some hen and chicken, with good fruit characters. Some winemakers prefer this clone, and believe it is richer and more intense than UCD Clone 6 or Mendoza – others prefer Clone 6, in part for its reliable cropping.

Clones B95 and B96 were imported by Allan Clarke for the NZGVIG in 1988: they were imported directly from Professor Raymond Bernard, who was affiliated with the Dijon ONIVINS research station in Burgundy. In recent years, Clone B95 has been gaining in popularity, gradually becoming a preferred clone capable of producing excellent wines of weight, balance and complexity. Both clones are productive, with rather large, tight conical-shaped bunches that can become susceptible to rots.

Other clones that have made their way to New Zealand are now less widely used in premium wine production. UCD Clones 4 and 5 were imported by Bill Irwin (Matawhero Wines in Gisborne) in 1976, and UCD Clone 16 was brought to New Zealand at the same time as Clone 15 by Richard Smart on behalf of the NZGVIG. Swiss clone 2/23 was imported from Lausanne by Frank Berrysmith in 1978.

The Riversun portfolio

The first ENTAV-INRA® selections of Chardonnay that Riversun imported were Clones 121 and 548. The former is a “multi-tasker” in that it is suitable for Méthode Champenoise sparkling wines as well as table wines, and, as might be expected, is widely planted throughout Champagne as well as Burgundy. It has a moderate-sized but relatively tight bunch structure and offers some excellent fruit flavours.

ENTAV-INRA® Clone 548 has demonstrated its potential in every year of Riversun’s micro-vinification trials, often garnering high praise from winemakers and viticulturists for its intense fruit flavours, good acidity at full ripeness and

subtle oiliness. Clone 548 is slightly earlier to harvest and offers some of the highest sugar levels among the ENTAV clones for this variety. Its moderate-sized, relatively open bunches have delivered exceptionally clean fruit in each of its first four vintages.

All of the main clones mentioned in this article (with the exception of Mendoza) are planted in adjacent rows at our Gisborne source block, and comparisons are based on the data we have collected since vines began bearing fruit in 2007. The photographs provided in this series of articles were also taken at the Riversun source block, and can be viewed on www.riversun.co.nz.

The next addition to our Chardonnay portfolio, ENTAV-INRA® Clone 809, offers an unusual and highly distinctive Muscat bouquet, ideal for blending in very small quantities given the “lift” it provides to a wine’s aromatics. At the recent Chardonnay Forum, some participants commented on a slight hint of Muscat in two wines from Domaine Louis Latour (Chassagne-Montrachet), and, sure enough, ENTAV-INRA® Clone 809 was part of the blend in each case.

Clone 809’s bunches appear to be a bit bigger and tighter than Clone 548 and thus a little more susceptible to rot, although our vines have held up very well under strong disease pressure.

ENTAV-INRA® Clone 1066 is our most recent arrival, and was released from post-entry quarantine only late last year. In France, it is a low-yielding clone with fairly small and very open bunches, giving exceptional disease tolerance along with very high sugar levels. This clone is now regarded as a key blending component (5%-10%) of Premier and Grand Cru White Burgundies. Like Clone 548, it is also somewhat early to harvest. We (and a number of Gisborne growers) are eagerly anticipating the first fruit next vintage and seeing how it measures up.

Riversun’s micro-vins, produced each year from 2007 to 2010, enable us to predict with some confidence that all of these clones will produce richly flavoured wines. As the Burgundians know well, however, the trick is in the blending, and we look forward to seeing the future offerings from New Zealand winemakers.

Note: This article first appeared in Marlborough Winepress, July 2010

ENTAV-INRA® Clone 121

- Origin: Burgundy
- Suitable for still and MC styles
- Compact and tighter bunch compared to 548, though still small
- Medium cropping, medium sugar content with high acidity
- Consistent fruit set, maturity at low Brix, somewhat tough skins
- When harvested early for MC styles, flavours range from green apple to fresh melon, peach and tropical flavours
- When harvested later for still wines, flavours range from lemon through peach, with fresh clean bright aromas



ENTAV-INRA® Clone 548

- Origin: Burgundy
- Small open bunches with small berries, and high sugar content
- Light cropping load, and early ripening
- Appreciated for its viticultural performance as well as its blending capabilities
- Well suited for areas where grape maturity is otherwise difficult to achieve
- Flavours show intensity and good acid
- A great improvement on Clone 95 in all respects – fast becoming the preferred clone for the complete range of Chardonnay styles: will produce full-bodied, balanced and meaty wines with complex aromas



ENTAV-INRA® Clone 809

- Origin: Burgundy
- Tighter bunches, more like Clone 95, with small yellow berries
- Another early to harvest clone, with high sugar content
- Lovely clean Muscat flavours, with citrus and floral notes – fragrant, yet with a good acid finish
- This is a highly distinctive Chardonnay clone, suitable for blending at small percentages (typically added to Corton-Charlemagne wines at 5%-10% of blend)



ENTAV-INRA® Clone 1066

- Origin: Burgundy
- Low cropping with small, loose berries and bunches and high sugar content
- Prone to “hen and chicken” formations
- Clone is described as early to harvest and is appreciated for its richly flavoured wines