



*In pursuit of ever better wines, American pinot growers have demonstrated an uncommon preoccupation for more than two decades with two matters of subtlety, confusion and even mystery. The role of site, aka **terroir**, tops the list but the role of plant material, expressed as clones or selections of the variety, is a close second.*

For most purposes, clones are defined as populations of vines propagated vegetatively from a single parent vine in order that every member of the population is genetically identical. All vines of the same variety would be a single clone and clone would be synonymous with variety but for natural somatic mutation, which affects all grapevines to some degree, and pinot noir dramatically. Almost 800 instance of mutation, each susceptible to being reproduced as a clone, have been identified in French vineyards, and exist now in so-called conservatory collections – more than twice the count for any other variety and an order of magnitude greater than the average count for the varieties cultivated in France.

The bandwidth of variation, which affects everything from growth habit to wine flavor, can easily obsess growers and winemakers anywhere, and the American members of this tribe have not been immune. In the last century, clonal selection based on visibly healthy vines has also emerged as an effective way to fight vine disease, especially virus, making sometime allies and sometime disputants of winegrowers and plant pathologists. Around this nexus, attention swirls like a vortex. Here is the lay of the land and elements of the debate.

Newly selected French clones are now the most widely planted instances of pinot noir in America. In 1955, various French agencies began organizing selection programs to identify and tag clones with numbers assigned by the **Comité technique permanent de la sélection (CTPS)**. Commonly, if imprecisely, known as Dijon (or ENTAV) clones, they have swept across Oregon and California, received by winegrowers a bit like manna from pinot noir's homeland. These clones are now the anchor tenants in most American pinot vineyards – barely 20 years after they were introduced. Reports gathered by the Oregon office of the National Agricultural Statistics Service in 2005 show that just five of these French clones accounted for more than half of the states' pinot acreage. Comparable data is not available for California, but information from three large nurseries shows that the same clones, supplied to growers in 2006 and 2007, constituted almost 60 percent of the pinot noir delivered to their customers.

Dijon clones have some enormous advantages. Each of the so-called Dijon clones was selected from a producing vineyard in one of the Côte d'Or's best appellations, followed in situ for several years, cloned and trialed in experimental vineyards, tracked in these sites for an additional period and repeatedly evaluated against consistent criteria. Small lots of clone-specific wines were made in successive vintages and judged by tasting panels. Clones that developed viral infections were deselected, as were clones that made nonpreferred wine. For every selection that was retained and ultimately approved (**agrée**), about 19 were left aside. Thus, the survivors were gold medalists of a sort, still standing at the end of a long competition.

But Dijon clones may not be well suited to American circumstances. "We need to remember," says Scott Rich of Talisman, "that these clones were originally selected because they worked well with conditions in Burgundy, and that Burgundy is very different from California." Historically, Burgundy benefits from early-ripening vines that compensate from marginal heat accumulation in cooler vintages; early ripeners make it possible to pick grapes before the harvest can be compromised by autumn rain. Low yields are also important, not just because they're often associated with richer flavors, but because they correlate with accelerated maturity.

Oregon vintners, whose environment seemed similar to Burgundy's, thought that what worked for the Burgundians would also work for them. They were instrumental in arranging import and distribution for the first Dijon clones; they

also trialed vines propagated here from imported budwood. Once available on this side of the water, however, Dijon clones were also widely planted in California, even though most of California's pinot-friendly regions are a bit warmer than either Oregon or Burgundy, and typically enjoy dry and sometimes hot weather at the **tail end** of the growing season.

After the fact, more than a few growers and winemakers have wondered if the Dijon clones were a good choice for California, except in very cool, late-to-harvest sites on the true Sonoma Coast and the deep end of Mendocino's Anderson Valley. Matt Licklider, one of the partners behind the Lioco label, argues that "Dijon selections tend to drop acid and accumulate sugar rapidly, while California needs the exact opposite."

Even Oregon vintners have had occasional second thoughts, as global warming has changed the meteorological shape of a typical vintage there. In recent years, the misgivings have turned to polemic. At least two respected critics have pointed fingers at Dijon clones, accusing them of causing superripe, monolithic, incomplete and boring wines. Licklider echoes this criticism, saying that Dijon clones often make wines that are "too blue and too black." "Such wines have the base drum part of the orchestra," he observes, "but lack woodwinds."

Veteran winemaker Bob Cabral, who has recorded 30 California vintages (ten at Williams Selyem), thinks the Dijon clones "are way overplanted in California generally" and by and large ill suited to all but the very coolest regions, like Annapolis, "where the challenge is to drive acids down and persuade tannins to mature."

In Oregon, Scott Wright of Scott Paul Wines finds that Pommard, the Oregon workhorse before the introduction of Dijon clones, "typically shows a fuller spectrum of aromas and flavors" than the Dijon, which seem to him "not terribly interesting on their own." Talisman's Rich says it is not clear whether "the monolithic character" of wines made from one Dijon clone or a blend of two or three results from the inherent properties of those clones or reliance on "too small a palette."

Copain's Wells Guthrie revamped his pinot portfolio for the 2006 vintage, casting aside dimpled skin, brown seeds and other indicators of full ripeness in favor of picking at much lower levels of potential alcohol and retaining more canopy to slow ripening. He admits having blamed Dijon clones for slightly fat and clumsy wines, but the real issues, he says now, were viticultural. "I have almost stopped pulling leaves at veraison," he says, "and I pick earlier." With these methods, even Dijon clones give wines that he believes "taste of vintage and place" and display great "vibrancy and purity of fruit."

Inherent properties of individual clones aside, there are questions about how they are planted, farmed and vinified. Whatever the clone, and whatever its propensity toward early ripening or dark flavors, farming clones separately in monoclonal blocks, is a likely contributor to heady, large-framed pinots. New World vineyards are explicitly designed to facilitate even ripening. Insiders call this "equal outcomes in all clusters." Taking advantage of each clones' tendency to ripen at its own rate, growers segregate clones. When they also ferment mono-



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clonal blocks individually and raise them in separate barrels, the single-fermenter mélange of slightly riper and slightly less ripe clusters characteristic of mass-selected vineyards is replaced by a homogeneous brew of “perfectly” ripe clusters. These have a tendency to produce a superripe impression in a finished wine, and more than a few winemakers think this nexus of clone and farming has contributed mightily to big wines.

To counter the trend, Scott Wright planted a new vineyard in the spring of 2008 on the south face of the Chehalem Mountains, adjacent to Adelsheim’s Bryant Creek Vineyard, where the various clonal selections including Pommard, Wädenswil and Dijon, are not segregated in separate blocks but scattered randomly across the site. “I am fairly sure most people think we are crazy,” Wright told me recently. “I expect uneven maturity within the blocks, and a mix of riper and less ripe clusters when we ferment, which is fairly common among my Burgundian colleagues.”

David Hirsch, on the Sonoma coast, has entertained the same thought in relation to his vineyard near Cazadero, on the second ridge from the Pacific shore. “If we ever plant more here,” he says, “we will do some random field selections.

“I am inspired by the nuance of vine on wine,” he continues; “I think we should let site, not geneticists, control the variety.” This is, in general, what has evolved in Burgundy. When clonal selections became available there in the 1970s, vigneron who adopted them did not usually replant entire blocks all at once. Instead, they often deployed the clones almost exactly as they had used mass selections earlier. They replaced a few vines at a time, as disease and/or senescence required. No reliable data is available on the overall percentage of Burgundy vineyard dedicated to clones in the 1970s and since, but insider sources think that no more than three-quarters of the Côte d’Or vigneron ever practiced clone-based plantings (chardonnay is another story, as are pinot noir vineyards in the Mâconnais). They also posit the following; such plantings typically involved less than a full holding some of the clones used were not the approved clones distributed by ENTAV, most vineyards today are a combination of clonal and field selections and the percentage of clone use has now dropped below 50 percent. In other words, Burgundian landholding patterns and viticultural practices tempered the impact of clonal selections, maintaining more intravarietal diversity than is typical here.

Collateral Damage. In California, vineyard area devoted to heterogeneous field selections of pinot noir has declined, particularly as old plantings of field selections have been converted to clones and clonal selections derived from them. Take Mount Eden for example, a vineyard planted to a field selection imported from Burgundy at the end of the 19th century (allegedly by Paul Masson via his neighboring vineyard, La Cresta). In the 1950s and ‘60s, when Joseph Swan and Ambassador James Zellerbach (Hanzell) established vineyards with budwood taken from Mount Eden, they preserved the field selection protocol, selecting cuttings from more than one vine. Josh Jensen did likewise at Calera in the 1970s, using budwood from Burgundy via Chalone.

But when other growers sourced budwood from Swan, Mount Eden and Calera, the classic field selection protocol was often discarded, given the allure of clonal selection. New plantings were often homogeneous clonal instances taken from the erstwhile field selections. This is the story behind Swan selections from or via Carneros Creek, UCD 37 (a clonal instance of Mount Eden) and UCD 90 (from Burgundy, Chalone and Calera via Carneros Creek.) Meanwhile, the oldest piece of the original Mount Eden vineyard has been entirely replanted, with only one of the original seven acres devoted to vines propagated from the original field selection and the balance planted to Dijon clones. And, when Joseph Swan’s Trenton Estate Vineyard was partially replanted in 1996, five Dijon clones were introduced, reducing the surface allocated to the original mixed planting.

First-generation clones widely planted before the Dijonnais tsunami have been eclipsed. Since about 1990, many new California vineyards have been planted with token quantities of the Pommard, Wädenswil and Mariafeld clones – distributed through Foundation Plant Services during and after the 1960s – although the Pommard remains very popular in Oregon. Martini, a fam-

ily of selections taken from old plantings at Inglenook (trialed clonally while the Martini family owned the Stanly Ranch in Carneros, then sanitized and certified at Foundation Plant Services and distributed as UCD 13 and 15), has fallen into special disfavor, despite having made excellent pinot at Olivet Lane Vineyard in Russian River, the Sierra Madre Vineyard in Santa Barbara county and elsewhere. Reversing a trend, a few growers are once again giving it a shot.

Mark Lingenfelder, Chalk Hill’s vice president for winegrowing, planted three acres of UCD 13 when he developed his own small vineyard near Olivet Lane in 1996. Before choosing it, he tasted selections with a track record in the Russian River Valley, including wines from Dijon clones. Although he found the latter appealing – “lots of fruit, richness and baby fat,” – he was concerned that experience with them was still too short-lived. He does not regret choosing Martini. It has proven thick skinned and late ripening, with less overt fruit than either the Dijon clones or Pommard, but capable of serious and structured wine. In the hands of Hank Skewis (Skewis Wines), who makes minuscule quantities of wonderfully elegant pinots from several Russian River and Anderson Valley sites, Lingenfelder’s Martini gives an elegant, cherry-infused, mineral-rich edition of Russian River Valley pinot noir.

In the end, site trumps clone. When the partisans of individual clones step back from the edge, almost everyone admits that, at the end of the day, terroir has a more significant influence on wine quality and character than plant material. In other words, site trumps clone. Not only are clones powerless to “make a bad site better,” as one veteran of Oregon clonal trials put it 20 years ago, they have a disconcerting tendency to behave like chameleons, giving utterly different wines from different sites. This seems as true of selections like Pommard, propagated as a clone since the 1940s, as of the Dijon clones, selected two to four decades later.

For example, Wright finds that Pommard tends toward red fruit flavors when it is grown in the Dundee Hills, while “black fruit and earth” predominate in wines made from Eola Hills fruit. “Structure,” he continues, “seems to be even more site-specific. Pommard will give very tannic wines in the foothills west of McMinnville, but soft or velvety editions in Ribbon Ridge or Dundee.” Wädenswil produces very perfumed, light-bodied wines in most Oregon sites, but delivers a dramatically darker and fleshier wine when it is grown, for example at Talley Vineyards in the Arroyo Grande Valley. And Marimar Torres reports that Dijon 667 and 777, known fairly universally for ripening early, are among the last selections to ripen in her Don Miguel Vineyard in Green Valley. Every generalization about every clone spawns a list of exceptions, strengthening the case for the dominant force of terroir, no matter what clone or clones may be used.

Clones are no more stable, over time, than field selections. The irony of clonal selection is that the properties of clones are unstable. Every clone changes, everywhere, with the passage of time. The homogeneous population of genetically identical vines that results initially from each instance of clonal selection – no matter where or when this occurs – remains homogeneous only until somatic mutation sets in all over again, creating some degree of the same heterogeneity that typifies field selections, for better or for worse.

Growers do not agree on how long this take to affect whatever merits or weaknesses the clone had at the outset, but reports of nearly spontaneous mutations are often heard at technical conferences. Like so much else that is asserted and debated about new World winegrowing, the long-term impact of clonal selection on pinot noir and other varieties demands another half century or more of experience, and a much larger inventory of genuinely mature vines than we have now. Meanwhile, the accumulation of experience *ceteris paribus* threatens to be overtaken by global warming, both in the New and Old worlds, as practitioners rush to modify viticultural practices, including the selection criteria for clones, in an effort to compensate for rising temperatures. In Alsace, the conservatory collection of more than 200 clones of Riesling overseen by the **Institut national de la recherche agronomique** is being reevaluated in a search for instances of late ripening rather than early ripening. Pinot noir may be the next object of their interest. Stay tuned.