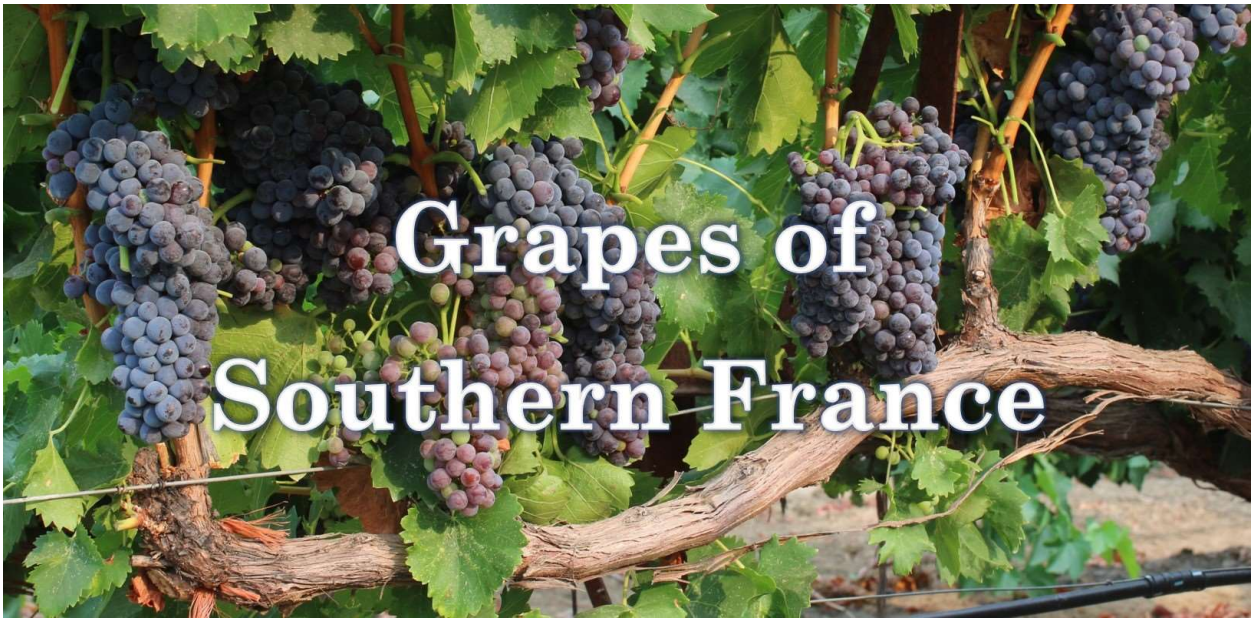


Written by Nancy L. Sweet, FPS Historian, University of California, Davis, December 2020

GRAPES OF SOUTHERN FRANCE

Grapes have been imported to California from southern France since the mid-19th century. The region in southeastern France known as "the Rhône" produces mostly red wines that are high in alcohol relative to other French wines.[1] The grapes of the Rhône have not achieved the same dominance in California that representative varieties from Bordeaux and Burgundy have done. However, the Rhône varieties have an enthusiastic following in the state.

THE RHÔNE REGION OF FRANCE

The wine-producing regions in the Rhône Valley in southern France are connected by the Rhône River, although the two major zones are very different in character. Wine writer Jancis Robinson described the two principal districts in *The Oxford Companion to Wine*.

Northern Rhône

Robinson explained that the northern Rhône region is characterized by vineyards on the slopes and terraced hillsides surrounding the Rhône river. The northern region experiences a Continental climate with hard winters.

The wines from the northern region are designed for the wine connoisseur rather than the mass market. Total production is small compared to that of the southern Rhône region and includes such prestigious appellations as Hermitage and Côte-Rôtie.

The northern Rhône is "prime territory" of the Syrah grape, which is indigenous to that section of the Rhône between Vienne and Tain l'Hermitage. Syrah is the only black (red wine) grape permitted in northern Rhône wines. White wines of the region are made from Viognier, Marsanne and Roussanne.[2]

Reprinted from 2005 FPS Grape Program Newsletter

Southern Rhône

The countryside of the southern Rhône region is flatter and has a definite Mediterranean (warmer) climate punctuated by cold winds from down the Rhône Valley.

The southern Rhône is the more important zone in terms of quantity and produces the overwhelming majority of the wine. Most wines are blends, rather than made from a single variety. Grenache noir is by far the dominant black (red wine) variety,

supplemented by Carignan(e), Cinsaut, Mourvèdre and Syrah. Ugni blanc is the most planted white variety.[3]

One of the important appellations in the southern Rhône in terms of quality is Châteauneuf-du-Pape. The appellation is known for producing rich, spicy, full-bodied red wines typical of those from warm climates. They have also produced full bodied white wines since the 1990's. The name of the appellation (in English, "Pope's new castle") was derived from the Papal summer quarters in Avignon from the 14th century.

Specific rules for making Châteauneuf-du-Pape wine were initiated when the vineyards were replanted after the phylloxera epidemic. Those rules included a list of permitted varieties that were developed between 1923 and 1936 for Châteauneuf-du-Pape wines. Grenache was the dominant variety. The thirteen permitted varieties listed in 1936 were: Grenache, Mourvèdre, Syrah, Cinsaut, Muscardin, Vaccarèse (Brun Argenté), Picpoul/Piquepoul, Terret noir, Counoise, Clairette, Bourboulenc, Picardan, and Roussanne.

In 2009, new varieties were specifically enumerated on the list of permitted varieties for Châteauneuf-du-Pape wines, mostly as a result of recognition of berry color mutations as separate varieties. Those new names were: Clairette rose, Grenache blanc, Grenache gris, Picpoul/Piquepoul gris, and Picpoul/Piquepoul blanc.[4]

There are two other smaller wine districts in the Rhône Valley region. One is a small and ancient district up the Drôme tributary off the Rhône River. The fourth district consists of outlying appellations on the eastern border of the southern Rhône and northern border of Provence.

GRAPES OF THE RHÔNE REGION AND SOUTHERN FRANCE COME TO CALIFORNIA

Many grape varieties of southern France came to California around the mid-19th century. Common red Rhône varieties Grenache, Carignane, Cinsaut and Matarô (Mourvèdre) were well established in California's vineyards by the end of the 1870's and were popular for their good yields and blending potential.[5] It is logical that Mataró, Grenache and Carignane would thrive in Napa vineyards. The upper Napa Valley has a "heat summation" region (Winkler zone) similar to those of the Rhône region of France.[6]

The true variety Syrah and the separate variety Durif (which is not a traditional Rhône variety) were developed for winemaking in the state after the above-named varieties had become established. "True (French) Syrah" was imported to Sonoma around 1878. During the 1880's, several producers experimented with "Syrah" and with white Rhône varieties Marsanne and Roussanne. Durif was first introduced into California vineyards in 1884 under the name Petite Sirah/Syrah.[7]

Old vine in Sonoma County. Photo courtesy of Ridge Vineyards.

The story of the grapes of the Rhône in California is dominated by identity confusion with many of the black grapes in intermixed plantings in the north state. In particular, the true variety Syrah was considered synonymous for a time with the distinct variety Durif, both known by variations of the name "Petite Sirah".

Charles Wetmore, 1884 Ampelography

Charles Wetmore was the Chief Executive Viticultural Officer of the California Board of State Viticultural Commissioners in the 1880's. He was a viticulturist in his own

right and developed vineyards in the Livermore Valley. Wetmore himself imported many varieties from Europe.

The Board of State Viticultural Commissioners (Examiners) was an industry group and a rival to Eugene Hilgard and the University of California in terms of authority over development of viticulture in the new state. In his *Second Annual Report* to that industry board in San Francisco in 1884, Wetmore attached an *Ampelography* as Part V of the report. He commented extensively in his *Ampelography* on the history of the available resources in the state to date, the need to acquire better varieties and improvement of quality standards for wine production in California.

In terms of the Rhône varieties available in the state by 1884, Wetmore acknowledged the presence of "Mataro", "Carignan", "Grenache", "Petite Sirrah" (Syrah) and Roussanne. The substance of his comments will be discussed in the section below for each of those varieties. For white wine varieties, he stated: "The noblest French and Spanish are scarcely known…." [8]

In the body of the *Second Annual Report* itself, Wetmore explained the "peculiarities of California wines" to those who looked for reproductions of celebrated European wines in the general stocks as handled by the trade and who accused California of being unable to produce them. Wetmore stated:
"….among the bearing vineyards of the State, with the exception of Rhenish stock, Zinfandel, and **two plantations of the Roussillon varieties (Mataro, Carignan, and Grenache)**, there has not been found a single bearing vineyard planted systematically with the varieties necessary to reproduce the types of Bordeaux clarets, Burgundies, Sauternes, **Hermitage,** Portuguese port, Spanish sherry, Madeira or **Cognac**".[9]

Wetmore referred to three "Roussillon varieties": Mataró [Monastrell, Mourvèdre], Carignan [Mazuelo, Carignane], and Grenache [Garnacha]. Roussillon was one of the historical counties of the former Principality of Catalonia on the border between what is now Spain and France. Roussillon became part of Aragon in 1172. The area was frequently the site of military conflict and occasionally of changing boundaries. Roussillon was acquired by France from Spain in the mid-17th century (1659) and is now part of France's Pyrénées-Orientales, Occitanie.

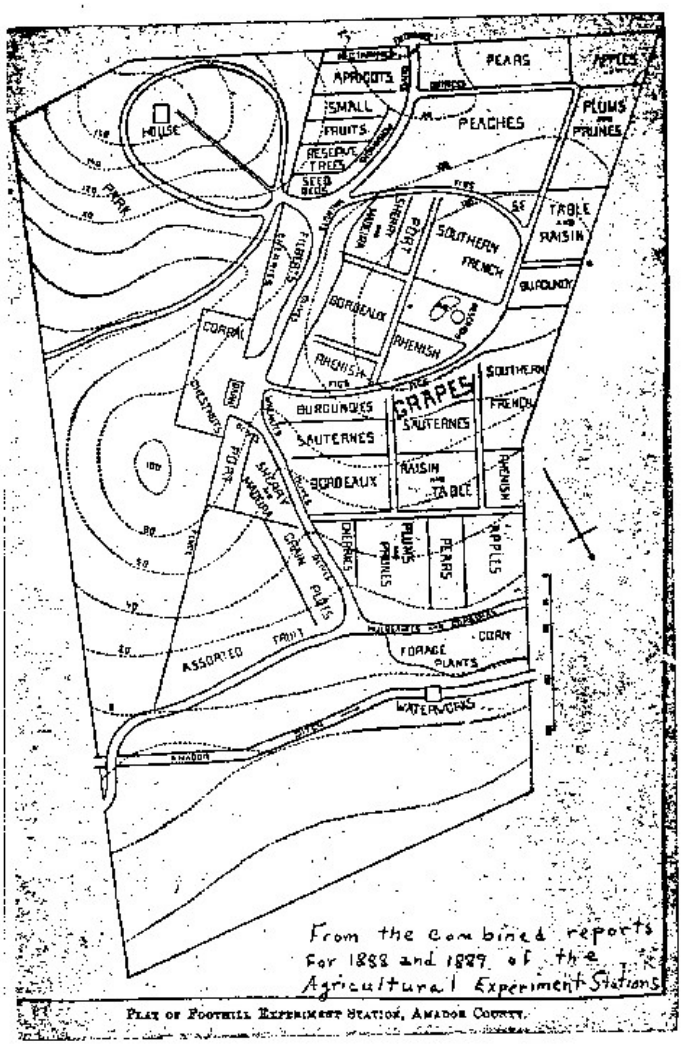
Profiles of the three Roussillon varieties propose that the origin of those three varieties is "thought to be Spain". They are ancient varieties that went to Spain

centuries ago. Jancis Robinson and her colleagues in *WINE GRAPES (2012)* have named the country of origin for all three varieties as Spain based on DNA analyses.[10] The *Vitis International Variety Catalogue (VIVC)* differs only in placing the origin of the Carignan noir as France.

All three "Roussillon varieties" have developed strong associations with both Spain and France and have synonym names that are commonly recognized in both places and used interchangeably by many.

Evaluations of Rhône varieties by the University of California

In the early days of the wine industry in California, the newly-established University of California Department of Viticulture performed evaluations on grape varieties that were suitable for the various regions of the state. Prof. Eugene W. Hilgard summarized the variety tests made prior to 1895 from grapes grown mainly in the Santa Clara Valley and from the Tulare field station. The two U.C. Agricultural Experiment Station Reports that contained the descriptions of those early evaluations and findings were produced by the University of California in 1892 (***13th Report***) and 1896 (***17th Report***).[11]



Map of the vineyard at the Foothill Experiment Station, Amador County, From Experiment Station Reports 1888-1889.

The Experiment Station reports in 1892 and 1896 showed that Hilgard evaluated wines of the "Southern French Type" and "Jura Type/Northern Rhone". The Jura-type northern Rhone varieties included Syrah, Roussanne, and Marsanne. The southern French (Rhône) included Mataró, Carignane, Grenache, Clairette blanche, Mondeuse, Terret noir and Picquepoul.[12]

13th Report, UC Agricultural Experiment Station (1892)

The *Report of Viticulture Work during Seasons 1887-1889* (published in 1892) described wines from Southern France as "mostly destined for brandy and the large trade", while at the same time acknowledging that some quality wines could be produced from the varieties. Hilgard noted that medium quality wines of the "large trade" were obtained from varieties such as Carignane, Grenache and (Henri) Bouschet varieties.

Fine quality wines could be produced from "the Sirah", the Terret Noir, the Mataró (Mourvèdre), the Piquepoul and others, if grown on hill locations.

The UC researchers were unable to assign a special, uniform quality to wines of this Southern French type. They singled out "the Sirah" from the group, which they characterized as producing heavy and coarse wines. The southern French varieties were often used for blending with thin and medium wines to add tannin, color (Bouschet) and alcohol where needed.[13]

17th Report, UC Agricultural Experiment Station (1896)

Hilgard and his colleagues continued the evaluation of the red wines of southern France with a report produced in 1896. They divided the varieties from southern France into two groups. One group was defined as a subcategory they called the "Jura type" as follows: "There is a class of full-bodied, deep-colored wines, of good and even high character, which are produced at various places in the region of the Rhone from the slopes of the Jura Mountains to the vineyards of the Hermitage". The Jura Mountains run along the border of France and Switzerland and separate the Rhône and Rhine River basins. The report also included white grapes in the evaluation that year.[14]

The Syrah grape (they called Petite Sirah) was in the "Jura type" group in the 1896 report. The researchers noted that good wines in this class reached their highest development in the first growth of the Hermitage, "made principally from Petite Sirah" (Syrah). They noted that "Petite Sirah" and Mondeuse (most of which later turned out to be Refosco in California) were the varieties of this type that had shown the highest quality in California. They further explained that the variety Hilgard referred to as Petite Sirah (Syrah) had nevertheless been abandoned by 1896 in California on account of its poor bearing qualities.[15]

The second group in the 1896 report included red grapes of the "Southern French type". The group was defined as follows:
"The conditions of the vast vine-growing district of Southern France are such as to make the production of large quantities of wine of medium quality more desirable than smaller quantities of high-class wines. We thus find that all the varieties of vines cultivated extensively there are heavy bearers and produce wines more suitable to blending purposes than for direct consumption. Of these varieties several have been planted extensively in California, and in many cases have given excellent results".[16]

By 1896, the grape varieties Carignane and Mataró (Mourvèdre) had been given "a large place in California vineyards" and gave good results only on warm, well-drained soils in early localities. Hilgard and his colleagues opined that Carignane gave wine of higher quality than Mataró. Grenache, Béclan (from the Jura) and Petit Bouschet (from southwest France) were reviewed. Cinsaut was given an optimistic assessment for the hot valleys of interior California.

The "White Grapes Southern French Type" were also reviewed in the 1896 report. Hilgard explained that, at that time, there was no well-marked type of Southern French white wine. The white grapes were generally used in small quantities with red grapes, to give "smoothness and delicacy to the red wines". Hilgard was not optimistic about the future of those white wines in California. He mentioned Marsanne and Clairette blanche as two options that could realize future potential in the state.[17]

The early University work was the basis for later specific variety recommendations of Frederic Bioletti, who became Viticulture Department Chair in the 20th century and oversaw the creation of the University vineyard at the Davis Farm beginning around 1910. Bioletti authored publications in 1907 and 1929 (rev. 1934) containing his own recommendations on plantings for California.[18]

First UC Vineyard at Davis Farm in 1913

Bioletti oversaw the development of the vineyards installed at the University Farm in Davis starting around 1910. One of the blocks in that vineyard was a large *Vitis* variety collection sourced from the U.C. Experiment Station Vineyards throughout the state, private vineyards and foreign collections.

A document entitled "Vines Growing at Davis, December 1913" showed that many characteristic grapes of the Rhône region of France were included in that variety collection: Carignane, Cinsaut (Black Malvoisie), Clairette blanche, Durif, Grenache, Marsanne, Mataró (Mourvèdre, Monastrell), Picpoule noir, Serine, Petit Sirah, and Ugni blanc (St. Émilion, Trebbiano Toscano). Other grapes of southern France were included in that collection: Béclan, Alicante Bouschet, Petit Bouschet, Gros Mansenc, Mondeuse, St. Macaire and Tannat.[19]

The University suspended its enology program during Prohibition (1920-1933), although the vineyards were preserved in part for teaching purposes. Winemaking was still permitted in the United States in that era for limited purposes such as sacramental

wines or home wine production for personal use.[20] Winegrapes were shipped by rail from California throughout the United States. The most popular winegrapes for transportation during Prohibition were Alicante Bouschet, Zinfandel, Petite Sirah (Durif), Carignane and Mataró (Mourvèdre).

Amerine and Winkler Studies

After the Repeal of Prohibition (1933), UC Davis Viticulture & Enology Professors Maynard A. Amerine (Enology) and A.J. Winkler (Viticulture) collaborated on a study of the appropriate winegrapes for the distinct growing regions in California. They issued their initial report in 1944 and final report in 1963. The comprehensive evaluations included results of wine evaluations for varieties in all terroirs and recommendations for and against the varieties.[21]

In the first report in 1944, Amerine and Winkler divided the state into five growing regions characterized by environmental conditions such as climate and terroir. The key determinant was temperature differential that they based on "summation of heat as degree days above 50º F. for the period April to October".[22] The regions are often referred to as "Winkler zones", although the idea for the regions may have been generated initially by Frederic Bioletti. The regions go from Region I (coolest) to Region V (hot interior valleys of California). Parts of the coastal counties and Napa are included in regions I-III. Davis is in Region IV.

The ultimate University winegrape recommendations in 1963 were based on suitability of climate (Winkler zone), adequacy of production, chemical composition of musts, time of maturation (early or late), and freedom from viruses. Rhône varieties that Amerine and Winkler either recommended or found acceptable for California included: (1) **Carignane** (regions II and III); (2) **Clairette blanche** (region IV); (3) **Grenache noir** (all regions); (4) "Petite Sirah, California" aka **Durif** (regions II-IV); and (5) "Petite Sirah, French", aka **Syrah** (region I). The individual data is discussed below in the individual section for each variety.

The following varieties were specifically mentioned as "not recommended" in the 1963 report: Marsanne; Mataró (Mourvèdre); Petite Bouschet; Ugni blanc (Saint Émilion, Trebbiano Toscano); Tannat. Although not mentioned in 1963, Béclan and Black Malvoisie (Cinsaut) were "of limited recommendation" in the 1944 report. Roussanne was not mentioned in either report.

The popular and recommended varieties from those University evaluations were included in the vineyards of the Department of Viticulture & Enology on the UC Davis campus and often introduced into the FPS foundation vineyards beginning in the 1950's and 1960's.

Rhône Varieties in Original FPMS Foundation Vineyard in 1956

When the California Grapevine Registration & Certification Program (R&C Program) was first established in the 1950's, the foundation vineyard collection for the program was entrusted to the University of California, Davis. Foundation Plant Materials Service (now Foundation Plant Services) was created in 1956 and assumed responsibility for creation and maintenance of the foundation vineyard for the virus-tested grapevines.

The list of the registered vines in the first foundation vineyard in the R&C Program ("Block A" at Armstrong Vineyard) was issued in 1956. Most of those initial foundation selections were sourced from the vineyards maintained by the UC Department of Viticulture on the Davis campus.

Registered vines in Block A, Foundation Vineyard, California Registration & Certification Program in 1956 (click here)

Carignane-1 and Grenache-1 were the only registered selections on the 1956 list that would be considered in the "Grapes of the Rhône" category. Those two varieties had very long histories in the State of California. The choice of varieties for the foundation vineyard was not surprising given the recommendations of Amerine and Winkler developed between the 1930's and 1960's.

There was no "Petite Sirah" (California or French), Syrah, Sérine, or Durif selection in the initial list of registered vines. Those names would appear in the FPS grapevine collection much later.

The RHÔNE RANGERS

Most Rhône varieties in California before the 1980's were grown in the Central Valley and went into inexpensive table and fortified wines.[23] The "Rhône varieties" entered a golden era of sorts in California in the 1980's through the efforts of a dedicated group of enthusiasts.

A loose affiliation of about 120 wine producers with an affinity for grapes whose ancestral home is in the Rhône Valley coalesced in the 1980's to promote and produce wines in the style of the red and white wines of the Rhône Valley in France. The group was nicknamed the "The Rhône Rangers". Their story is told in some detail by Patrick J. Comiskey in *AMERICAN RHÔNE, How Maverick Winemakers Changed the Way Americans Drink.*[24]

Some of the early leaders experimenting with Rhône varietals in California were Bob Lindquist of Qupé (Napa) and Randall Graham of Bonny Doon (Santa Cruz Mountains).[25] Other active Rhône Rangers included Joseph Phelps and Sean Thackrey of Napa Valley, John Buechsenstein (McDowell Valley), Gary Eberle of Paso Robles, Steve Edmunds (Edmunds St. John Winery), David Gates (Ridge Winery, Sonoma) Matt Cline (Cline Cellars) and Robert Haas (Tablas Creek Vineyards, Paso Robles).

Most of the Rhône winegrape varieties used by the new movement (with the exception of Viognier) had a presence in California since the 19th century. Small producers of mostly premium wines in the coastal counties of northern and central California experimented with very old vines such as Carignane, Grenache and Mataró (Mourvèdre) that had been idle for decades. Other varieties of interest included Counoise, Roussanne and Marsanne. More importantly, the movement resulted in a dramatic increase in new plantings of Syrah (red) and Viognier (white), two varieties that "stood out among the rest".[26]

Old vines at Lytton Springs. Photo courtesy of Ridge Vineyards

The mainstay or dominant varietal of the Rhône Rangers movement was Syrah (Shiraz). Comiskey noted that "American Syrah remains the tent pole of the Rhône pantheon".[27]

The results of the first focused tasting of American Rhône-variety wines were reported in the *Wine Advocate* issue published on June 30, 1988. The wines were portrayed as "maverick and cool" as opposed to the more traditional varieties that dominated in California.[28]

Robert Haas and the Perrin family of southern France later joined to bring what Comiskey characterized as "order" and "an authoritative presence" to the prior efforts with Rhône varieties in California.[29] Many quality clones of Rhône varieties were imported to the state by the Tablas Creek partnership from a respected vineyard in France in the 1980's and again in 2004. The importations included a unique group of varieties that did not have a presence in California at the time. The Tablas Creek story is told below in more detail in connection with the grapes of the Southern Rhône region.

Foundation Plant Services at UC Davis has developed an extensive collection of grapes associated with Rhône wines and southern France through the efforts of plant collectors such as Harold Olmo, growers and winemakers like Robert Haas and other Rhône Rangers dedicated to preserving California heritage clones. The stories of those grapes and a description of the FPS selections for each variety follows.

GRAPES OF THE NORTHERN RHÔNE REGION OF FRANCE

Appellations in the Northern Rhône region allow many fewer varieties than those of the Southern Rhône region. Total production is smaller than that in the Southern Rhône and emphasis in the North is primarily on high-quality wines.

Syrah is the only red winegrape allowed in the appellations of the Northern Rhône region. Permitted white varieties in the Northern region include Roussanne, Marsanne and Viognier. All four of those varieties are also allowed in the wines in the Southern Rhône region.

Syrah, Roussanne and Marsanne have long histories in California, having been in the state since the middle of the 19th century. Viognier is a more recent arrival and was imported for the first time in the 1970's. All four varieties have a presence in the foundation grapevine collection at FPS.

SYRAH AND PETITE SIRAH: Confusion in California vineyards

The story of the grape varieties in California from France's Rhône Valley begins with intermixed plantings and confused naming patterns in the state in the 19th and early 20th centuries. The variety Syrah has been known in California over the years as Petite Sirah, Petit Syrah, Sirah, Serine, and "true" French Syrah. The related but not identical French variety Durif also acquired the name Petite Sirah in California in the late 19th century and is now known more popularly by the latter name.

The naming problem started early on when the varieties first arrived in the state. Many early California plantings of the southern French varieties, including Syrah and Durif, were intermixed in field blends with grapes such as Mondeuse, Péloursin, Grenache, Carignane and Zinfandel. When a mass of cuttings was taken from the mixed block for further propagation elsewhere, the variety name for the entire group was referred to "simply as Petite Sirah".[30]

Many naming errors resulted and identities became merged. Identification for some of the varieties continued to be confused until DNA technology allowed for clarification after the middle of the 20th century.[31] The story of the true identities of Syrah, Petite Sirah, Durif and Péloursin would take many decades to unravel.

The "true" Syrah. Photo by Jack Kelly Clark, © Regents of University of California

THE "TRUE" SYRAH

The "true Syrah" grape is perhaps the most important ingredient in high-quality wines of the Rhône region. Syrah is a shy bearer noted for producing the great red wines of Hermitage and Côtes-du-Rhône and those of Coteaux du Languedoc.[32]

The name and synonyms attached to the Syrah variety in France have been explained as reflective of the qualities of the variety, i.e., late ripening grapes and wine with lasting structure. Wine writer Gerald Asher reported that some scholars believe "Syrah" is a corruption of Sérine or Séreine, names formerly used for the grape by local growers in the Rhône region. Syrah, via its synonym Sérine, could be based on the word *ser,* "a root word in the ancestry of Indo-European languages meaning long-lasting" or "late ripening".[33]

In the report on the state's vineyards to the Board of Viticultural Examiners in 1884, Charles Wetmore referred to wines made in France's Rhône region as "famous

Hermitage wines made from Petite-Syrah (black) with Roussanne and Marsanne (white); so, also the equally celebrated Côte-Rôtie is made from *Sérine* (same as Petite-Syrah) and Viognier".[34]

It is known that John H. Drummond of Glen Ellen brought this "true Syrah" to Sonoma, California, in 1878 and planted it in his vineyard as "Petite Sirrah from the Hermitage". Drummond recommended cane pruning to remedy low fruitfulness.[35]

Syrah vines were also fruiting in Wetmore's vineyard near Livermore by 1884. There is evidence from statements in his *Ampelography* that the Syrah variety was already in the state by the time of the Drummond importation, perhaps under other names.

Wetmore described "true Syrah" in the 1884 *Ampelography* as follows:
"Petite Sirrah—This noble variety is the same that forms the foundation for the grand wines of the Hermitage and Côte Rôtie in the valley of the Rhône, France. It requires long pruning and is a shy bearer, though a vigorous vine…A small quantity of wine made in 1882 by Mr. Drummond sufficiently proved its fidelity to its reputation. None are yet planted in practical quantities. A white grape, the *Roussanne*, is the most prominent associate that it has in the Hermitage…The *Sirrah* makes a wine celebrated for its keeping qualities…Mr. George West of Stockton informs me that he has had this variety since 1853 at Stockton under one of its synonyms, *Schiras…"* [36]

H.W. Crabb and Charles Krug were using Syrah by the mid-1880's to make wines in Napa. Several producers experimented with Syrah and with the white Rhône varieties Marsanne and Roussanne. During those early years, Syrah was referred to by many California producers as the Petit Sirah, Petit Syrah, Sérine or Syrah.[37]

In the late 19th century, the University of California evaluated Syrah grapes under the names Sirah (Syrah), Petit(e) Sirah and Sérine – they ultimately concluded that all were the same variety. The variety was cultivated at the University experiment stations under both names Petit Sirah and Sérine.[38]

The UC Experiment Station report published in 1892 contained the following comment: "it has been stated several times in California that Sirah and Sérine were two distinct varieties, for their growth, crops and products have been found to be somewhat different. Such differences are simply due to the nature of the soil and to selection of cuttings, for this variety degenerates easily, so as to make it seem that

there are two different varieties, while in reality they are identical. In France they are recognized as a single variety".[39]

Although the Syrah variety had performed well in the coastal counties in northern California, the low yield caused typical growers to discontinue its use by the turn of the 20th century. The UC researchers reported: "Petite Sirah (Syrah) has been largely abandoned on account of its poor bearing qualities".[40] Adding insult to injury, much of all the original plantings of the true Syrah was decimated by phylloxera, and the variety was not replanted until the 20th century.[41]

Frederic Bioletti succeeded Hilgard as UC Department of Viticulture Chair. Bioletti had a theory about the "disappearance" of the true Syrah variety from the mixed plantings in early California vineyards. He explained the scarcity of the "Petite Sirah (Syrah)" grape in a 1929 circular (revised 1934) published by the California Agricultural Extension Service. Bioletti noted that the bearing with the true Syrah variety had generally been "disappointing" in the late 19th century. One group of vines in the "Petite Sirah" vineyards (later identified as true Syrah) appeared to be a low yielding vine. Another group in the "Petite Sirah" vineyards included a smaller and very productive vine (later identified as Durif). Bioletti speculated that those latter more productive vines in those early mixed "Petite Sirah" plantations had been observed as good bearers and were selected as the source of cuttings for new vineyards. Those new vineyards subsequently showed good yields.

Bioletti concluded that the "Petite Sirah" variety in California was not "improved" by the selection process, but rather the poorer yielding true Syrah vines were "eliminated" in the process. The smaller but more productive cuttings that were selected in the mixed plantings were not Petite Sirah (Syrah) but another variety of similar appearance that had been mixed with the true Syrah. As Harold Olmo would later write, "an unknown interloper took its (Syrah's) place and appropriated the name".[42]

Bioletti identified that "other variety" as "the Duriff", well known in France by 1929, where it was grown in the same district as Sirah (Syrah). Bioletti wrote: "our so-called Petite Sirah is therefore the Duriff. It is the best of the red wine grapes grown extensively in California and succeeds in most regions".[43]

The "true" Syrah did manage to survive in a few small and isolated plantings in California despite the challenges presented by low yield and phylloxera. As noted

above, UC viticulturists included Sérine and Petit Sirah in the Department of Viticulture variety collection in the then-new vineyard at the Davis Farm in 1910. Additionally, a vineyard containing Syrah was planted in McDowell Valley in Mendocino County in 1919 and was still yielding fruit as of 2002, and one "unmixed block" was planted in Napa at around the same time.[44]

Identification

With the resumption of wine work at UC Davis after Prohibition, Harold Olmo spent much of his time for several years working on variety identification. He spent time in France making comparisons with old collections in Montpellier and other locations. One of his issues was the proper identification of "Petite Sirah" vines in California. Olmo described his work on Petite Sirah in a handwritten memo to Professor Carole Meredith in 1992.

At the time of Olmo's work in the 1930's, "Petite Sirah" was a widely planted variety in California. The identity of "Petite Sirah" had been uncertain for most of its history in the state. Olmo knew that the "true Syrah" variety had carried the name Petite Sirah since its importation from France in the 19th century.

Olmo collected grapes from California vineyards for wine tests with Enology Professor Maynard Amerine in the mid-1930's. Olmo immediately noticed that the Petite Sirah in the vineyards appeared to him to be a much different variety than the Petite Sirah (true "Syrah") that was described in French ampelographies. Olmo discussed his observations with Bioletti and was surprised when Bioletti told him he thought the variety grown as Petite Sirah in California might be Duriff. Bioletti urged that Olmo investigate the possibility.

In July, 1938, during a study period at Montpellier, Olmo took the opportunity to compare varieties in the "old vine collection" from the Drôme tributary region of the Rhône. He identified vines named Syrah, Syrah Marsanne, Syrah Motton, Bas plant, and Durif noir. He concluded that each vine represented a different variety. The Durif noir and Bas plant were the only ones that had very compact clusters and the typical bluish green color in July, typical of the color of the "Petite Sirah" vines in California. Olmo believed that the morphology of the Durif noir differed from California "Petite Sirah", but the variety Bas plant appeared identical to the (non-Syrah) Petite Sirah of California. During that study period, Olmo also visited the Hermitage region in the Rhône Valley to observe the "true Syrah".[45]

Olmo believed that "the Durif" was closely allied to another French variety, the Péloursin. Louis Levadoux, well known ampelographer and former Director of the Grande Ferrade Station in Bordeaux, reported that Péloursin was at one time erroneously known as "Petite Syrah" in the Lot et Garonne region of France. Pierre Galet wrote in his *Grape Varieties and Rootstocks* that "in California, a vine variety called Syrah is often Durif and sometimes Péloursin".[46]

In 1954, Olmo expressed an opinion in a paper to the American Society of Enology & Viticulture that "Petite Sirah" in California comprised at least three varieties in intermixed plantings.[47]

DNA Analysis Confirms Origin of Syrah

After importation of much material from France, the identity of vines in California carrying the name "Petite Sirah" was sorted by way of DNA analyses, beginning with "true" Syrah in 1998.

For many years, there were several myths about the origin of the grape variety Syrah. Some theorized that Syrah was taken from Shiraz (Schiraz), Persia (Iran), to the Hermitage by "hermits" or to the Rhône region by Crusaders returning from the Holy Land. Others believed the variety came much earlier to what was then Gaul with Roman Emperor Probus (276-282 A.D.).

Syrah has been known in France in the Rhône Valley for centuries. The French claimed that Syrah was of French origin. DNA results later showed that the true origin of the variety was in fact the Rhône region of France.[48]

The matter was settled in 1998 when UC Davis and INRA in Montpellier, France, discovered through DNA analysis that the parents of Syrah were French varieties Dureza and Mondeuse blanche, both of Rhône origin. Mondeuse blanche is a minor white variety from the Savoie. Dureza is an obscure black variety from the northern Ardéche in the Valley of the Rhône, where it was cultivated along with Syrah. It is believed that Syrah was the result of a natural cross in a region where both parent varieties were cultivated together, probably in the French Rhône-Alpes region (Isère).[49]

Interest in Syrah grows in California

In California, very little old vine Syrah survived from the early years and plantings were few and far between after Prohibition. Olmo was still sorting through the

varietal identification while Amerine and Winkler pursued their wine grape studies in the 1940's to the 1960's.

Amerine and Winkler based their 1963 evaluation of "Petite Sirah (French)" (Syrah) on extensive testing of the variety in Regions I (very cool, including Napa, Santa Clara, Santa Cruz and Sonoma Counties) and IV (warm, including San Joaquin, San Diego, Solano, Ventura, and Yolo Counties). They concluded that the variety was better adapted to region I and made a wine of above average quality. They found that Syrah did not mature early and required considerable barrel aging to reach its highest quality. They believed that "it is not a particularly distinctive type of wine and would therefore need a period of familiarization before being accepted by the public".[50]

Olmo, Joseph Phelps and Gary Eberle experimented with Syrah in the 1970's. Syrah was the mainstay of the Rhône Rangers movement in California in the 1980's.[51] Increases in Syrah acreage crept forward in the 1980's and began to accelerate moving toward 2000. The Rhône Rangers garnered press attention for the wines and created "marketplace acceptance for California Syrah from a base that was close to zero".[52]

Syrah (Shiraz) acreage in California increased substantially between 1982 (87 acres) and 2000 (13,000 acres). Syrah received its first individual listing in the statistics of the Department of Food & Agriculture in 1982 and was no longer lumped in with "other reds". The planted acreage was as follows over time:

1982: 87 acres (Syrah first individual listing in grape acreage statistics)[53]
1993: 400 acres
1996: 2,000[54]
2000: 13,000
2003: 17,000[55]
2010: 19,283 acres
2019: 15,458 acres[56]

Syrah is now grown in a wide range of districts in the state, including the Central Valley, the Sierra Foothills and all but the coolest coastal regions.[57]

The interest in Syrah stimulated interest in other Rhône varieties that had been in California in mixed vineyard plantings since the 1880's. Some of the red wine grapes with renewed attention included Grenache noir, Mataró/Mourvèdre, Carignane, Counoise, and Cinsaut. Rhône white varieties with increased interest included Roussanne, Marsanne, Grenache blanc, and the newly arrived Viognier.

Petite Sirah (Durif) is not considered to be a Rhône variety. Petite Sirah (Durif) was only gradually accepted into the Rhône Rangers blends.[58] The Rhône Rangers eventually adopted Petite Sirah (Durif) due to its extensive interplanting with traditional Rhône varietals in California.[59]

Syrah is a versatile variety and makes good wine in a broad spectrum of climates. The variety may be used to produce varietal table wines of distinct character in the cooler districts and has also demonstrated high potential for red table wine production in the warmer districts, including California's Central Valley.

Syrah is planted for longevity and has good blending qualities with a deep ruby color, high tannin content and good acidity. The variety is favored for "enhancement of mellowness and aging of high-quality companions". In order to avoid the very long aging to bring the wine to its maximum quality level, Syrah was often blended with lighter wines, such as Marsanne and Roussanne.[60]

Former UC Viticulture & Enology Professor Carole Meredith and her husband Steve Lagier grow Syrah grapes in their vineyard in the Mount Veeder appellation overlooking the Napa Valley. Meredith explained that Syrah is a very vigorous variety which is difficult to manage in deep, fertile soils. Extreme vigor is usually at the expense of fruit quality. Hillsides are heavily eroded and have shallower soils. Meredith stated that in the Rhône, it is believed that the best vineyards are up on the hills and not down by the River. The vine will not have to fight vigor on a site that is not as fertile, has shallow soil, fewer nutrients, and less water-holding capacity. The canopy and fruit are more balanced under those circumstances.

Jean-Louis Chave, whose family has plantings in Hermitage in the Rhône region, visited the Meredith-Lagier vineyard in 1991. At the time, they were considering planting Syrah vines. Chave stood on the deck overlooking the Napa Valley and told them that Syrah would do well there because "Syrah loves a view".[61]

Harold Olmo began the acquisition of Syrah clones for the FPS foundation collection in the 1930s when he was hired as UC Davis faculty and began his plant exploration work. He would become one of the primary advocates for the Syrah variety and other grapes of the Rhône in California. His support for Syrah began with a trip to France in 1936. The story of the Montpellier Syrah is told here out of order because Olmo was a primary force in the revival of interest in the Syrah variety in California.

Syrah FPS 14 (Montpellier France, 1936)

The first documented importation of "true Syrah" to California in the 20th century was generated by Harold Olmo during a plant exploration trip to France in 1936. The selection was maintained in the Department of Viticulture collection at UC Davis and the research vineyard at Oakville in Napa for many years after 1936. The Olmo Syrah would not appear in the FPMS foundation vineyard collection until 2006.

Olmo imported what he referred to as a "good clone [of true Syrah]" from Montpellier, France, in 1936. The plants were purchased from the Richter's Nurseries in Montpellier. (USDA Plant Identification number 113643). The 1936 importation could not be named "Petite Sirah" due to the confusion about naming in California, so Olmo named it "French Syrah".[62]

Olmo discovered that the "Syrah" from Montpellier proved identical to the occasional old vines found in the early "Petite Sirah" vineyards of the North Coast. He planted the selection in the UC Viticulture Department Wine Grape Varieties collection at block C85 v5 on the Davis campus and later (1949) as "Petite Sirah" in the Department Wine (W) Varieties collection, Armstrong block I(eye)71 v11-12. He grafted the new importation in 1948 to a location (Oakville S20) at the Oakville South Vineyard Field Station for wine tests.[63]

In 1974, Michel Courtial, director of the coop winery in Tain l'Hermitage in the Rhône region, brought Olmo photos and leaf specimens of the "typical Syrah" and confirmed the identity of the Syrah material at Davis. Courtial affirmed that the clone was a "very good one".[64]

Olmo saw that the Montpellier selection was the source of commercial plantings of Syrah in California in the 1960's and 1970's, first at Christian Brothers and later in the Joseph Phelps Vineyard in Napa.[65]

Olmo asked Christian Brothers of Napa to establish a small vineyard of Syrah after growers had not shown much interest in the selection. Christian Brothers planted seven acres of what they called "Syrah noir" in an experimental plot at Wheeler Ranch on Zinfandel Lane in St. Helena, Napa, in 1959. The vines became virused, and Christian Brothers never marketed a varietal Syrah.[66]

In 1974, Christian Brothers gave cuttings from their Syrah vines to neighbors at Joseph Phelps Winery, who sought Syrah clones for a trial. Christian Brothers thereafter removed their Syrah vines.[67]

Olmo had donated the Montpellier Syrah selection to the USDA National Clonal Germplasm Repository in Davis in 1939, where it was given the accession number DVIT 0896. The germplasm continued to be known by the name "Petite Sirah" at the Repository (DVIT 0896). In 1999, the material was identified as the "true Syrah" through DNA testing by the (Carole) Meredith lab at UC Davis.[68]

The Montpellier selection did not become a part of the FPS grapevine collection until 2000, when FPS obtained cuttings of the DVIT 0896 accession from the USDA Repository. After microshoot tip tissue culture therapy and testing, the selection became **Syrah 14** in the FPS foundation collection in 2006 – 70 years after its arrival in the United States.

Taking data at FPS

EARLY IMPORTED SYRAH SELECTIONS IN THE FPMS FOUNDATION VINEYARD

Although the Montpellier clone (*above*) did not become a part of the FPMS collection until 2006, other early Syrah selections were imported to FPMS from Australia and France and appeared on the list of registered vines for the California Registration & Certification Program beginning in the mid-1970's.

The Australian Shiraz selections first appeared on the list of registered vines in 1974. The Shiraz clone from Australia was the most popular selection of Syrah in the FPMS foundation vineyard for most of the 1980's and 1990's. The Shiraz clone was the only "Syrah" at FPMS to achieve a lasting "registered status" on the CDFA list of registered vines until after 2000.

A French Syrah clone appeared briefly on the list of registered vines at FPMS in 1979 and 1980 before it was taken off the list after testing positive for *Rupestris* stem pitting virus. Further efforts to expand the number of Syrah selections available at FPMS only began to accelerate around the year 2000.

SHIRAZ IMPORTED TO FPMS FROM AUSTRALIA IN 1970

Syrah is the leading red wine variety in Australia, where it is known by the synonym name Shiraz. That synonym name reflects a theory (later disproved by DNA results) that the variety Syrah originated in the Middle East from Shiraz, Persia.[69]

Shiraz was also sometimes referred to by the name "Hermitage" in Australia. That name is listed as another synonym for Syrah on the *Vitis International Variety Catalogue (VIVC)* in Europe. The name Hermitage is associated with an estate on which quality Syrah wine is produced in the Northern Rhône region of France.[70]

Syrah was known as "Scyras" when it was first taken to Australia, "probably from Montpellier by [a man named] James Busby in 1832". Busby was a Scottish engineer who had studied viticulture in France and moved to Australia in 1824. He imported hundreds of new varieties to the colony and has been referred to as "the father of Australian wine".[71]

Busby visited the vineyards at the Hermitage on a hill overlooking the Rhône River near the town of Tain l'Hermitage. Red wines have been produced there for centuries. The red wine of Hermitage is made from Syrah grapes and is known as "Hermitage".

Busby learned during his visit that the mix of soils and southern exposure across the Rhône were responsible for the deep and lasting flavor of the wine produced there. It is possible that Busby's experience could explain how the Syrah/Shiraz variety came to have the synonym name "Hermitage" in Australia.[72]

In Australia, Shiraz is versatile, is grown in all viticultural areas and is used for all types of red wines. In the 1980's, acreage of the variety in Australia exceeded that planted in France. Australia's success with the wine has inspired plantings of "Shiraz" grapes and the making of "Shiraz" wine throughout the world, beginning in the 1990's.[73]

Shiraz FPS 01-07 (Australia, 1970)

The "Shiraz" clone that came to FPMS from Australia in 1970 has been the most widely distributed Syrah clonal material in California. The clone was registered in the California R&C Program in a series of numbered selections (Shiraz FPS 01 to Shiraz FPS 07), subclones that differed only on the length of their heat treatment at FPMS. All of those selections have shown good viticultural and fruiting characteristics.[74]

The Shiraz clone was collected from the Victorian Plant Research Institute in Burnley, Victoria, Australia (USDA Plant Identification no. 364287). The source of that Shiraz material was given as "Bests R3 v 34 19/8". According to Richard Hamilton at Southcorp, Australia, that information probably means that the source was Best's Vineyard (a mixed black vineyard) at Great Western, near Ararat in Victoria.[75]
The original material in the Best Vineyard dated from the late 1800's and included a collection of vines reputed to be from the "original Busby collection [in Australia dating] from the 1830's". The Best collection survived phylloxera and was maintained as a replanted collection from the early 1900's.

At FPMS, Austin Goheen created seven selections from the single importation of Shiraz, using heat treatments that ranged from 62 to 125 days in duration. After successful completion of testing, those seven selections ultimately received the selection names Shiraz FPS 01, 02, 03, 04, 05, 06 and 07. They were planted in the foundation vineyard in 1973.

In the October, 1999, *FPS Grape Program Newsletter*, then-UCD Professor Carole Meredith reported that she compared all seven FPS Shiraz selections, as well as selections called Syrah-01 (Pont-de-la-Maye) and Sirah-01 (l'Espiguette) to four Syrah accessions from the French national variety collection in Montpellier. All the FPMS vines had exactly the same DNA profile as the "true" French Syrah.[76]

Shiraz selections in UC Cooperative Extension clonal trial

Cooperative Extension Viticulture Specialist Matthew Fidelibus of the UC Kearney Agricultural Center in Fresno County conducted a trial with 10 Syrah clones from the FPS foundation vineyard collection. Shiraz 01, 02, 03, and 07 were included in the trial, planted at Kearney in 2006. The remaining clones in the trial were French clones.

Fidelibus reported that, in general, the biggest differences in the clones were between groups of selections, Shiraz from Australia versus the Syrah clones from France. He observed that the Shiraz clones had higher soluble solids, higher pH, smaller berries, smaller clusters and less sour rot than the French Syrah selections. Although all the Shiraz selections originated from the same source vine in Australia, Shiraz 02 was consistently different from the other Shiraz selections in that it always had greater rot incidence. The yield from the Australian selections was generally lower than that from the French clones, which Fidelibus attributed to earlier ripening and shrivelling.[77]

Old growth Shiraz at SAVII. Reprinted from 2006 FPS Grape Program Newsletter.

Shiraz FPS 08 and 09 (SAVII, Australia, 2003)

Australia was able to do clonal selection from extremely old vineyards on original plantings dating back to the 1830-1840's. The old vineyards survived on their own roots due to minimal phylloxera infestation in the country. The South Australian Vine Improvement Inc. (SAVII) carries out selection work for new clones in those old vineyards.

FPS received two Australian Shiraz clones in 2003 coming out of the SAVII program at Nuriootpa in the Barossa Valley in South Australia. Shiraz 08 is the SAVII 17 clone. Shiraz 09 is SAVII clone 19.

Wayne Farquhar, then Executive Officer of SAVII, described the selection process in an article in the *FPS Grape Program Newsletter* from November 2006.[78] He detailed the clonal evaluation for Shiraz clones at Nuriootpa. Both SAVII clones 17 and 19 rated highly in the SAVII evaluations. SAVII 17 had lower bunch weight than the industry benchmark and lower vine weight. SAVII 19 had a looser bunch structure and lower yield, favorable attributes for cooler areas. SAVII 19 tested more favorably for wine quality.

Shiraz SAVII 19. Reprinted from 2006 FPS Grape Program Newsletter.

Syrah FPS 20 and 26 (Shiraz clones from SAVII, 2012)

Two additional Shiraz clones from Australia were donated to the FPS public grapevine collection in 2012 and were given the name "Syrah" to maintain consistency with preferred name conventions at FPS.

The clones were initially imported to Foundation Plant Services in 2001 from SAVII in Nuriootpa, Australia. After successful completion of testing for the California R & C Program, Syrah 20 and Syrah 26 were installed in the foundation vineyard in 2005 as proprietary selections. It was reported that Syrah 20 and Syrah 26 were different clones "from Barossa". Both clones were donated to the FPS public grapevine collection in 2012.

EARLY SYRAH SELECTIONS TO FPMS FROM FRANCE

The Olmo selection from Montpellier (1936) was not incorporated into the FPS foundation grapevine collection until 2006. Several other Syrah clones from France and Italy were also present on the UC Davis campus starting in the 1970's but had never been made a part of the California R&C Program. Aggressive testing of those clones initiated around 2000 resulted in new Syrah clones for the FPS foundation collection.[79]

Syrah FPS 09 > Syrah FPS 22 (l'Espiguette, France, 1973)

Sirah 01 (later Syrah 09 > Syrah 22) was imported from Domaine de l'Espiguette, France, 1973, and planted for a brief period in 1976 in the old foundation vineyard.

The l'Espiguette selection was imported to Davis by Austin Goheen as part of an identification block. Goheen had visited the ENTAV repository facility at Domaine l'Espiguette, Le Grau du Roi, France, and asked Director M. Claude Valat to send him "the best Syrah clone he had available." Cuttings were presented to FPMS by Valat in October, 1973, from the collection of certified clones selected and planted at l'Espiguette. (USDA Plant Identification no. 391452). The origin of all the Syrah clones planted at l'Espiguette in 1973 was the Drôme in the Rhône-Alpes section of ANTAV/ENTAV.[80]

Although the material was denominated "Syrah" in the USDA importation record, the selection was planted in the FPMS foundation vineyard in 1976 with the name "Sirah

01". At the time, FPMS already had the Pont-de-la-Maye selection with the name Syrah 01 *(see below)*; the name of the l'Espiguette introduction was spelled "Sirah 01" in order to avoid duplication.

The l'Espiguette Syrah selection first appeared on the list of registered vines in the California R&C Program in 1979. At the time, it was planted in the old foundation vineyard off Hopkins Road (location C2 v 15-16). The selection tested positive for *Rupestris* stem pitting virus in 1980 and was removed from the list of registered vines in 1981.[81]

Vines testing positive for *Rupestris* stem pitting virus were not allowed in the then-new FPS foundation vineyard in Brooks tract when it was established in the early 1980's. In order to qualify for the foundation vineyard at Brooks tract (now known as the Classic Foundation Vineyard), Sirah 01 underwent tissue culture therapy in 1997 (from the vine located at FV C2 v15 in the old Hopkins Foundation Vineyard). The resulting plant material was released as Syrah 09 in 2002.

In 2007, a hold was placed on the only Syrah 09 vine in the FPS foundation vineyard due to the possibility of GVA virus. That suspicion was based on a Kober 5BB field index indicator test recently used on a sibling vine which detected GVA virus. FPS scientists ultimately concluded that the Kober 5BB woody index often gave false or ambiguous results and discontinued use of the field test, replacing it with improved PCR testing for GVA virus. High throughput sequencing tests in 2016 on the single Syrah 09 vine remaining in the Classic Foundation Vineyard revealed that the vine was negative for GVA, and the hold on the vine was removed.

Meanwhile, the original material for Syrah 09 had also undergone microshoot tip tissue culture therapy at FPS in 2007. The treated material was ultimately advanced as Syrah 22 in 2011. Syrah 09 and 22 vines are still present in the Classic Foundation Vineyard but are on "hold" (not available) based on possible "Syrah decline genetics" (the significance of which is discussed below after the Tablas Creek Syrah clones).

Syrah FPS 01 > Syrah FPS 10 (Pont-de-la-Maye, France, 1974)

The material for this selection was imported to FPMS in 1974 from the Station de Recherches de Viticulture, Pont-de-la-Maye near Bordeaux, France, by Harold Olmo. USDA plant inventory records show that the importation was identified as INRA M VI-I SI (USDA Plant Identification no. 391482).

It took several years for FPMS to qualify the Pont-de-la-Maye material for the foundation vineyard. The original material underwent initial treatment and testing at FPMS as Syrah S1, Syrah-1 and Syrah 01. Those initial selection numbers were given to the Pont-de-la-Maye material before the l'Espiguette selection was named, giving rise to the need to name the l'Espiguette selection "Sirah 01".

The Pont-de-la-Maye selection was planted in FPMS field quarantine blocks with the name Syrah-1 (S1) while undergoing heat treatment and indexing. FPMS indexing records show that the original material was subjected to differing lengths of heat treatment therapy beginning in 1975. The subclone material that eventually was chosen had been subjected to heat treatment for 71 days. The Pont-de-la-Maye selection never qualified for the foundation vineyard in this initial round of testing and treatment.

In 1984, Syrah 01 (S1) tested positive for *Rupestris* stem pitting virus, so it was not allowed out of quarantine and was ineligible for the California R&C Program. A change occurred at FPMS around 1993 in regard to the selections testing positive for RSP virus. RSP+ selections with commercial value were installed in block VII in the Department of Viticulture's Tyree vineyard, south of FPMS on Hopkins Road.

FPMS distributed the RSP+ selections with commercial value to nurseries from the Tyree vineyard VII block. Syrah 01 appeared on the list of the "FPMS *Rupestris* Stem Pitting Infected Collection" in 1998. The RSP+ selections were not registered nor certified, but FPMS sold them to nurseries and charged user fees on them. Those selections were eventually made available for fear that withholding them when demand for a French clone was so strong could lead to illegal importations that might present greater threats.[82]

Many of the RSP+ selections later underwent microshoot tip tissue culture therapy and eventually qualified for the foundation vineyard. Syrah 01 underwent microshoot tip tissue culture therapy in 1997. After successful completion of disease testing, the Pont-de-la-Maye material finally qualified for the California R&C Program in 2001 as Syrah 10.

Use of the name "Syrah noir" in connection with UC Davis Syrah selections caused some confusion around 2000. Many inquired of FPMS as to which Syrah selection was the "Syrah noir" clone. One Department of Viticulture vineyard map from 1982

shows a "Syrah Noir" accession at location N6 v13-23 of the Tyree vineyard in Hopkins Tract; no source information was given.[83]

One nursery and an old UC Davis viticulture record associated the name "Syrah noir" with the 1974 import from Pont-de-la-Maye, France. The French consider "Syrah N." (N.= noir) to be the correct variety name for all Syrah clones. FPMS reported in the 2001 newsletter that associating the name "Syrah noir" exclusively with a single clone would be misleading.[84]

"Generic" French Syrah clones at FPS

Selections that were "reported to be" specifically numbered French Syrah clones were donated to the public grapevine collection at FPMS in the late 1990's. Those donations preceded the initiation of the ENTAV-INRA® trademark program for official French clonal material. FPMS references the source of the pre-trademark clones as "reported to be" certain French clones, indicating that the authenticity of the selection could not be guaranteed by FPMS.

Syrah FPS 04 and 05 (Reported to be clones 300 and 174, Drôme, 1995)

Two "reported to be" French clones were imported to FPMS from France in 1995 for the grapevine nursery Vinifera, Inc. Syrah 04 is reported to be French clone 300 (origin Drôme, 1973). Syrah 05 is reported to be French clone 174 (origin Drôme, 1972).

Both selections underwent microshoot tip tissue culture therapy at FPMS in 1996. They qualified for the California Grapevine R&C Program in 2000. The selections were donated to the FPMS public grapevine collection in 2002 (FPS 04) and 2006 (FPS 05).

Syrah 04 vines in the Classic Foundation Vineyard are on hold for Syrah decline genetics. Syrah 05 vines were removed from the Classic Foundation Vineyard in 2016 and 2019.

Syrah FPS 06 (Reported to be clone 100, 1998)

This Syrah clone was donated to the FPS public grapevine collection in 1998 by a California nurseryman. The material is reported to be French clone 100.

The original material for Syrah 06 tested positive for *Rupestris* stem pitting, which did not disqualify it for planting in the Classic Foundation Vineyard in 2000. In 2009, it

was discovered that the untreated Syrah 06 vines suffered from virus. Backup vines created by microshoot tip tissue culture had been created for Syrah 06 in 1998. The backup vines qualified for the Russell Ranch Foundation Vineyard in 2011 as Syrah 06.1.

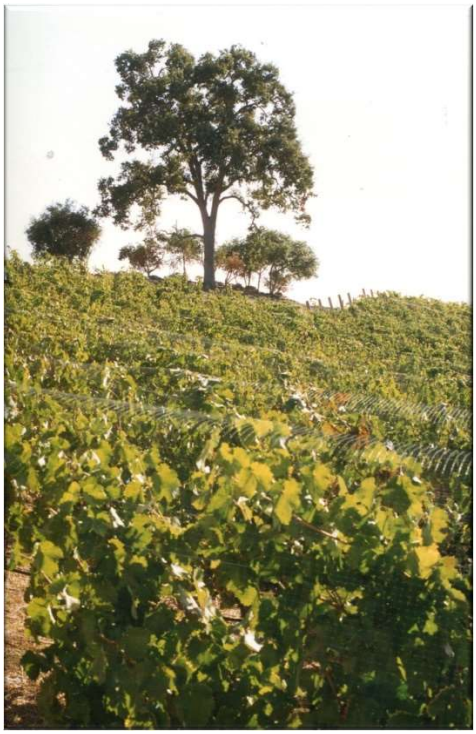
Syrah FPS 07 (Reported to be clone 877, 1998)

Syrah 07 was donated to the public grapevine collection at Foundation Plant Services in 1998 by a California nurseryman. The material is reported to be French clone 877 (origin Tarn-et-Garonne, 1986).

The original material for the selection tested positive for *Rupestris* stem pitting virus, which did not disqualify it for planting in the FPMS Classic Foundation Vineyard in 2000 as Syrah 07. Syrah 07 has a hold due to Syrah decline genetics.

Syrah FPS 12 (Reported to be clone 99, 1999)

Syrah 12 was donated to the FPMS public grapevine collection in 1999 by Euro Nursery & Vineyard in Ontario, Canada. The material is reported to be French clone 99 (origin Drôme, 1971), a productive clone in France that exhibits large clusters and weakly structured wines. The original material for the selection qualified for the FPMS foundation vineyard in 2005.



Syrah and Grenache noir vines netted for harvest at Tablas Creek Vineyards, 1996

Syrah FPS 23, 24, 25, 34.1, and 35.1 (Tablas Creek Syrah selections)
Five Syrah selections were donated to the FPS foundation grapevine collection in 2010 by Tablas Creek Vineyards of Paso Robles, California. The original mother material for the selections came to the United States through the quarantine program in Geneva, New York, in the 1980's.

Syrah 23, Syrah 24, Syrah 25, Syrah 34.1 and Syrah 35.1 were collected from a vineyard in southern France. When the selections ultimately came to FPS in 2010, they underwent microshoot tip tissue culture therapy.

Syrah 23, 24 and 25 still exist in the Classic Foundation Vineyard as of 2020. The three selections all have "holds" on them for "Syrah decline genetics".

SYRAH DECLINE

Many of the Syrah selections that came to the FPS public grapevine collection from France are "on hold" in the Classic Foundation Vineyard based upon a finding of "Syrah decline genetics". Those holds arose after decline in Syrah vines was observed in both France and California. The condition presented a complex problem that challenged researchers for years. Biotic and abiotic factors, as well as host genetics, have been investigated over the years as the causation of Syrah decline.

In the late 1990's, growers and viticulturists began to observe the decline of Syrah vines in their respective regions. The observed symptoms in developed vines included swollen graft unions, leaf reddening and scorching, superficial cracking and pitting of woody tissue, necrosis and eventual death of the vine. Those symptoms were most often associated with genetic incompatibility, environmental interactions, cultural practices and/or virus or crown gall infections. The sick vines would die within 1-2 years.[85]

Syrah is an important grape variety in southern France and the decline affecting the vines appeared worse in France than in California. ENTAV established a formal

program in France in 2001 to research the cause of what they called "Syrah Decline".[86]

Syrah Decline in France

In California, FPMS and UC Cooperative Extension researchers conducted surveys of 77 Syrah vineyards in ten counties and tested the vines for viruses in 2002 and 2003. The California researchers named the collection of symptoms "Syrah Disorder". They discovered problems that they believed resulted from environmental stress and poor cultural practices (excessive vine water stress) in coastal vineyards, particularly in the Central Coast. The researchers concluded in 2004 that the vines in the California vineyards were suffering from something other than the Syrah Decline experienced in France.[87]

Sales and planting of the Syrah variety in California were negatively affected by 2010 once the Syrah decline became obvious in much of the recently introduced plant material from France. ENTAV withdrew some of its official French clones from distribution in the United States.[88]

In 2009, then-FPS post-doctoral researcher Dr. Maher Al Rwahnih introduced a scientific tool to FPS to unlock the etiology of the Syrah decline disease. He applied

the capacities of High Through-put Sequencing (HTS) to FPS Syrah vines to determine all the viruses that the selections may have had. Al Rwahnih chose two Syrah selections from the FPS foundation vineyard for comparison: Syrah 06 (reported to be French clone 100) which showed severe decline and Syrah 08 (the Durrell clone from Sonoma, California) which was asymptomatic. The declining vine Syrah 06 showed viral hits one hundred-fold greater than Syrah 08. Syrah 06 suffered from multiple viruses, including a novel virus Al Rawhnih called Grapevine Syrah virus-1 (GSyV-1).[89]

Although Syrah 06 tested positive for several viruses, FPS was able to discount viral infection as the likely cause of Syrah Decline. The original material (mother vines) for Syrah 06 had undergone microshoot tip virus elimination therapy at FPS in 1998. The treated selection was named Syrah 06.1 to distinguish it from the original material. The Syrah 06.1 vines exhibited symptoms of possible Syrah Decline. In 2017, HTS was performed twice on multiple field planted vines of Syrah 06.1 and repeated on the original material Syrah 06. HTS confirmed the presence of the viruses in Syrah 06 and revealed the absence of viruses and viroids in Syrah 06.1. The testing provided a strong inference that Syrah Decline is unlikely the consequence of viral infection.

Symptomatic Syrah 06 and 06.1 vines in the FPS vineyards were further subjected to simple sequence repeat (SSR) genetic screening for Syrah Decline. Genetic markers had been developed to segregate asymptomatic from moderate and severely symptomatic French Syrah selections. Both Syrah 06 and Syrah 06.1 scored as positive for the atypical third allele associated with Syrah Decline.

A survey of all field planted FPS Syrah and Shiraz selections (including original material and tissue culture subclones created from that material) was conducted to record possible Syrah Decline symptom expression. Virus and genetic testing was conducted on all the selections in multiple FPS vineyards. In all but one case (Syrah FPS 09) where field vines were 6 years established, red leaf symptoms corresponded with the SSR genetic screening results. In all but one case (Syrah FPS 04) field vines were planted on their own roots, refuting the hypothesis that Syrah Decline symptoms are due to graft incompatibility. Symptom expression was uniform in selections planted in multiple locations and consistent between mother vines (original material) and tissue culture treated vines.

The FPS research led to a conclusion that Syrah Decline is a non-infectious genetic syndrome in several Syrah selections and is not caused by a virus. A research paper was developed by FPS scientists outlining their findings on the cause of Syrah Decline. The paper was reported to the ICVG Meeting at Santiago, Chile, in April,

2018 (International Council for the Study of Viruses and Virus-like Diseases of the Grapevine).[90]

2018 ICVG Paper on Syrah Decline (click here)

The following selections at FPS have tested positive for the genetic marker that is associated with Syrah Decline and holds have been placed on their distribution: Syrah 04 and 04.1 (French 300); Syrah 05.1 (French 174); Syrah 06.1 (French 100); Syrah 07 and 07.1 (French 877); Syrah 09 (l'Espiguette); Syrah 11 (Hyde); Syrah 12 (French 99); Syrah 22 and 22.1 (Espiguette); Syrah 23 and 23.1 (Tablas Creek); Syrah 24 and 24.1 (Tablas Creek); Syrah 25 and 25.1 (Tablas Creek); Syrah 34.1 (Tablas Creek); and Shiraz 10 and 10.1 (Boehm, Portugal).

Syrah 07 in FPS Vineyard

PROPRIETARY FRENCH SYRAH CLONES

ENTAV-INRA official French clones

The Institut Français de la Vigne et du Vin (IFV), formerly known as ENTAV, manages the distribution of French grapevine material pursuant to the trademark program for official French clones.

There are four authorized French Syrah clones in the FPS foundation vineyard in 2020. Those clones are distributed by ENTAV licensees in the United States. The clones are Syrah ENTAV-INRA® 470 (Tarn-et-Garonne, a part of the Languedoc-Roussillon-Midi-Pyrénées region in southern France), Syrah 471 (Drôme, a department in southeastern France named after the Drôme River), Syrah 524 (Drôme), and Syrah 747 (Tarn-et-Garonne).

IFV in the past has imported five other official French Syrah clones to the United States but those official clones are no longer available for distribution in the United States. IFV withdrew those clones from the California Grapevine Registration & Certification Program due to susceptibility to Syrah Decline. The official French clones that were withdrawn were: Syrah ENTAV-INRA® 99, 100, 300, 525, and 877.

Pepiniere Guillaume Nursery

Syrah 19 is a proprietary clone imported to Foundation Plant Services, UC Davis, in 2007 by Pepinière Guillaume Nursery in Knights Landing, California. The material is distributed by Guillaume and its licensees.

Italian Syrah Selection

Syrah FPS 13 and 38 (Milan, Italy)

This Italian Syrah clone came to Davis in 1949 from Luigi Pirovano of the Viticultural and Horticultural Establishment in Milan, Lombardy, Italy (USDA Plant Introduction no. 173295). The material was originally established at the National Clonal Germplasm Repository in Davis, CA (accession DVIT 1053). The original material came to FPS twice, once in 1999 (Syrah 13) and again in 2000 (Syrah 38.1). The original material qualified for the Classic Foundation Vineyard in 2006 as Syrah 13. Tissue culture versions of the selection qualified for the Russell Ranch Foundation Vineyard as Syrah 13.1 and 38.1.

SYRAH CLONES FROM CALIFORNIA VINEYARDS AT FPS

The FPS foundation grapevine collection contains notable Syrah clones from California vineyards.

Syrah FPS 08 (The Durell clone)

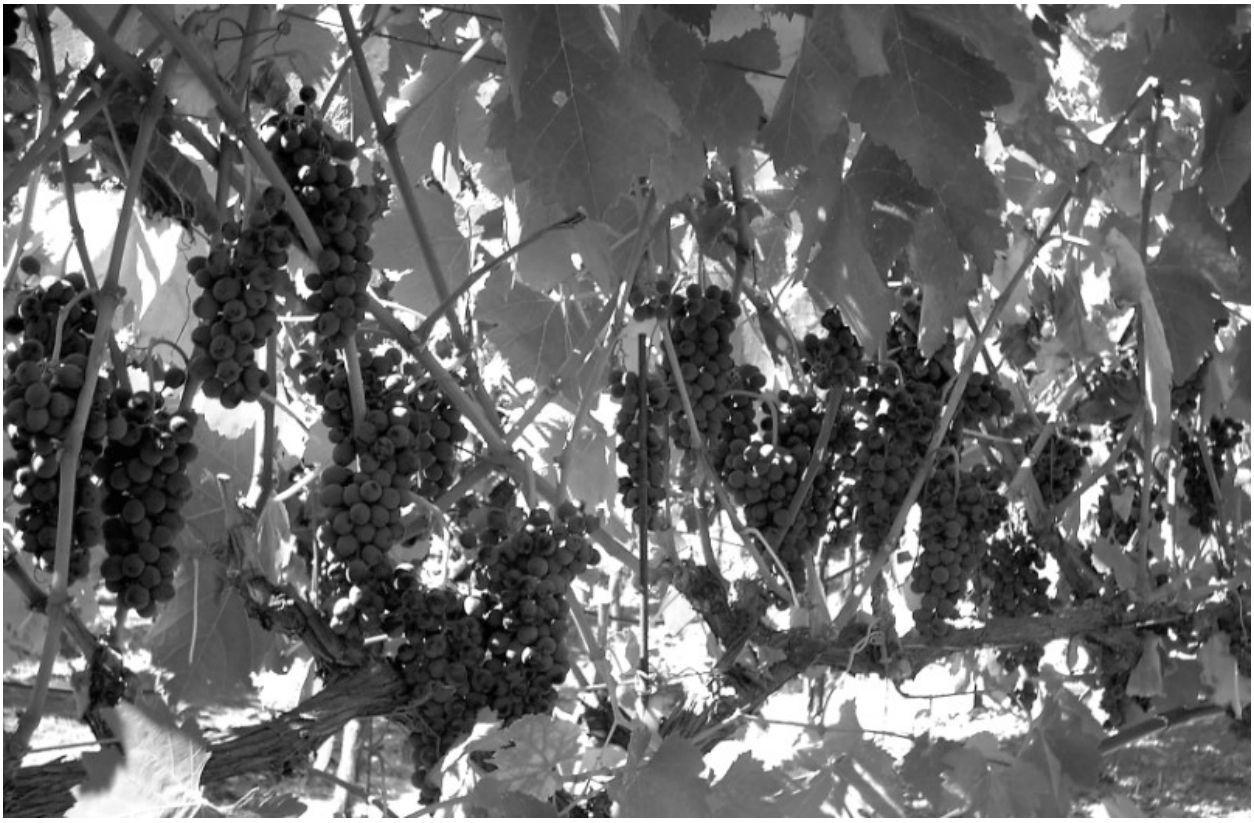
The "Durell Syrah" clone has been a popular selection with California grape growers and winemakers for more than 35 years. The clone became a part of the FPS foundation grapevine collection in 2001 when it was registered as Syrah 08.

Rhonda Smith, UC Cooperative Extension Viticulture Specialist for Sonoma County, detailed the history of the Durell Syrah clone in the *FPS Grape Program Newsletter* for October 2004. She reported that the source of the Durell Syrah was probably a single vine of Shiraz FPS 01 (Australia) installed in the old FPS foundation vineyard in 1973.[91] The following text is excerpted in part from her article in the newsletter.

Syrah in the Durell Vineyard, Sonoma County

The Durell Ranch is in Sonoma County and includes Los Carneros and Sonoma Valley appellations. When Ed Durell bought the property in 1977 it was a cattle ranch. Steve Hill began to develop vineyards on the property in 1980.

In 1980, Steve field budded six acres of AXR#1 rootings planted in the Sonoma Valley AVA (American Viticultural Area) with budwood obtained from Linda Vista Nursery in Napa. The nursery and the records of the purchase have disappeared. Steve recalled that the nursery owner, Bill Guiremand, told him that the source of the Syrah budwood was "Shiraz 1" from UC Davis. Frank Lopez of Linda Vista told Rhonda Smith that "Steve Hill was about their only customer for the Shiraz".



Durell clone. Photograph reprinted from FPS Grape Program Newsletter, October 2004

As stated earlier in this chapter, the only "Syrah" registered at FPMS in the 1970's was the Shiraz clone imported from Australia in 1970. That single vine source was developed at FPMS into seven subclones, distinguished by different periods of heat treatment imposed on the original material. Shiraz 01 was planted in 1973 in the FPMS old foundation vineyard at location L2 v4. In 1998, Dr. Carole Meredith confirmed that the FPMS Shiraz selections and Syrah shared the same DNA profile.

Order records on file at FPS show that Shiraz 01 cuttings from location L2 v4 were sold to Bill Guiremand at Linda Vista Nursery in 1977 and again in 1978. CDFA records also show the sales. No other Shiraz or Syrah selection was sold to Linda Vista Nursery by FPMS.

Syrah grapes grown at the Durell Vineyard were sold to both Kendall-Jackson and Edmunds St. John Winery for several years. Durell was a vineyard designate for two Syrah wines produced by those wineries starting in 1987 and 1990, respectively.

In the late 1980's, growers began to purchase budsticks from the 6-acre block that was by then known as the "Durell Syrah". Vineyard manager Steve Hill always

informed growers that the wood was reported to have been Shiraz 01 from UC Davis. Shortly thereafter, Steve began to sell budsticks each winter to Sonoma Grapevines Nursery in Santa Rosa. Sonoma Grapevines sold the scion wood and bench grafts produced from them as "Durell Syrah". Orders for the budwood stopped around 1993.

By the late 1980's the original 6-acre block of Durell Syrah was showing signs of decline, primarily due to eutypa and phylloxera. At the Durell Vineyard, Steve planted several small blocks (6-7 acres total) of Syrah beginning in 1990. In 1994, 5 additional acres were planted at the adjacent Parmelee-Hill Vineyard owned and farmed by the Hill family. All those acres were planted with dormant bench grafts propagated primarily by Sonoma Grapevines. The clones used were Shiraz FPS 01 and occasionally the Durell Syrah. In 1997, budsticks were taken from the original 6-acre Durell Syrah block for the last time and used to field bud a 1.5-acre block of SO4 rootstock at Parmelee-Hill Vineyard.

In 1994, about 70 vineyard acres of the Durell Ranch were sold to Kendall-Jackson, including the original 6-acre block of Syrah. Grapes were sourced from the 1980 Syrah planting until the block was pulled after the 1999 harvest.

Durell clone returns to FPS

FPS obtained the clone known as the "Durell Syrah" in 1998 from a single vine located in a UC Cooperative Extension Mediterranean winegrape variety trial at the UC Hopland Research and Extension Center in Mendocino County. The trial had been planted in 1994 with bench grafts donated by Sonoma Grapevines and labeled as "Syrah, Durell clone". FPS accepted the selection for the foundation collection because numerous growers around the state had requested the "Durell Syrah". At the time, the connection to Shiraz FPS 01 had not been formally documented.

The original material qualified for the FPS Classic Foundation Vineyard in 2002 and was planted as Syrah 08. Although Shiraz FPS in the FPS vineyard is negative for RSP virus, the mother vine for Syrah 08 is positive for the RSP virus. That difference could be explained by the years the Durell clone existed in vineyards outside the isolation required of the FPS foundation vineyard.

Syrah FPS 16 (The Phelps clone)

There was considerable interest in Syrah in the 1970's. Napa winegrower Joseph Phelps was one of the first to develop commercial plantings of the "true French

Syrah" in California in the post-Prohibition era. His love of Rhône wines was inspired in 1966 by a memorable tasting of a Syrah wine from Côtie-Rôtie.

Phelps sought Syrah clones for evaluation and winemaking. His winemaker Walter Schug struggled with identification of an appropriate source. Harold Olmo directed him to the Christian Brothers planting of the Montpellier clone (Olmo, 1936) in St. Helena. When Christian Brothers opted in 1973 not to pursue winemaking with the Montpellier Syrah clone, they offered the material to their Napa neighbors at Joseph Phelps Vineyards.[92]

Phelps developed a Syrah vineyard on a slope below the winery in 1974. The Montpellier clone vines were virused and difficult to grow, but Phelps eventually bottled the "first varietal Syrah" in the twentieth century in California. Wine writer Gerald Asher spoke with Craig Williams, winemaker at Joseph Phelps, who indicated that the 1976 and 1979 wines made from the Montpellier clones were the "only ones that gave any satisfaction". The Montpellier clone was eventually removed from the Phelps Vineyards.[93]

In the meantime, Joseph Phelps requested that his team acquire additional Syrah clones for a project to develop a Northern Rhône style wine. Syrah cuttings were acquired from FPS (the selections from l'Espiguette and Pont-de-la-Maye and Australian Shiraz) - and from other vineyards in California (Estrella).[94]
Although Phelps agreed to keep the clones separate and clearly marked in the vineyard plantings, that result did not occur due to the speed with which the vines were planted for the trials. The team continued to plant new Syrah plots for years, but each of the clones had its problems. Phelps continued to experiment with all of them. The plantings were eventually moved south to cooler areas in California.[95]

Syrah 16 was donated to the FPS public grapevine collection in 2002 by Larry Hyde of Hyde Vineyards in the Carneros region of Napa County, California. It is known to Hyde as the "Joseph Phelps Syrah clone". The original source of the clone in the Phelps vineyard is not known, since there were many separate sources of Syrah planted in those Phelps vineyards.

Syrah FPS 11 (Larry Hyde, Carneros)

Larry Hyde also donated his own Syrah clone to the FPS foundation collection. He donated what would become Syrah 11 to FPS in 2002. Syrah 11 is on hold for Syrah decline genetics.

Syrah FPS 27.2 (The Estrella clone)

Future Rhône Ranger Gary Eberle received training and education in winemaking through a graduate degree at UC Davis in the 1970's. During the time at Davis, Eberle and his classmates made regular visits to Corti Brothers, a specialty food and wine market in Sacramento. Owner Darrell Corti accumulated a broad and unique selection of wines from all over the world. He introduced Eberle to the wines of the Rhône, which at the time had not yet achieved the popularity in California held by the wines of Bordeaux. Corti regularly stocked Syrah wines that he offered for wine tastings.[96]

After graduation, Eberle started Estrella River Winery in Paso Robles, California. Viticulture on the Estrella Creek (or River) in San Luis Obispo County dated from around 1880.[97] Eberle considered working with Syrah, which at the time had almost no plantings in California vineyards. Phelps had yet to plant his Syrah vineyards in Napa.

Eberle sought advice from Darrell Corti as well as Harold Olmo, Austin Goheen and Curtis Alley at UCD. Their enthusiasm was unanimous in support of Eberle's decision to experiment with Syrah. The next issue was where to obtain a Syrah clone for the Estrella River vineyard. The UCD viticulturists advised Eberle to avoid the virus-infected Montpellier clone planted at Christian Brothers in Napa, as well as the Shiraz clone at FPS which was still undergoing virus testing.

For many decades after planting the Estrella River vineyard in the 1970's, Eberle maintained that he obtained the Syrah planting from a bundle of Syrah wood given to him at the Chapoutier hillside vineyard at Tain-l'Hermitage in the Rhône region in France. However, scientists and staff at UCD had known or heard over the years that the Syrah material planted at Estrella River had instead been collected from a vineyard on the UC Davis campus with the tacit approval of Olmo and Alley. Eberle would later reveal that to be the truth.

Patrick Comiskey revealed the story in his book *AMERICAN RHÔNE,* in which he characterized Eberle as "Syrah's Proud Father". Eberle stated that, when he initially created Estrella River, he told FPMS Manager Curtis Alley of his difficulties in finding a clean Syrah source. Alley then drove him over to the old Armstrong vineyard that had once housed the original Block A of the initial FPMS foundation vineyard as well as the Department of Viticulture collection and trials. That old vineyard abutted the

then-new Highway 80. Alley showed Eberle Syrah vines "in a corner of the of the vineyard" and allowed Eberle to take budwood.[98]

Although Eberle indicated that Curtis Alley gave him the material, rumors on campus also suggested that Olmo knew about the gift and turned a blind eye. Eberle waited thirty years to tell the real story to protect the reputation of Davis faculty members who he considered friends.

There is no record identifying the Syrah clone that Eberle got in Spring, 1973, from the old UC Davis vineyard near Highway 80. Eberle believed that the plants from which the Syrah cuttings were collected in the old Department vineyard at UC Davis had been "in the system" for at least 10 years prior to the collection, perhaps since the 1950's or 1960's. Ally reportedly told him the Syrah clone was from Chapoutier in Tain l'Hermitage. Eberle recalled that he received the Syrah cuttings from the old vineyard in the Spring of 1973 and took them to December Pacific Nursery for propagation. That was confirmed by Doug Meador, who expanded the material for Estrella River using mist propagation.[99]

There were two possible sources for the Syrah material Eberle received in 1973 from the Department of Viticulture vineyard at Davis. Alley reportedly told Eberle that the Syrah he took was from France. The only known Syrah clone in the Department vineyard at that time from France was the Montpellier clone that Olmo imported to Davis in 1936.

Olmo imported the Montpellier Syrah clone in 1936 and eventually planted it in the UC Viticulture Department Wine Grape Variety Collection at Armstrong Vineyard at blocks D12 v 5-8 (1938) and C85 v5 (1944) on the Davis campus. The clone was also planted (1961) at Block I, row 71: 11-12, and Block X (X27: 7-8) in the Department vineyard. Block X was a vineyard west of Goheen's screenhouse in the Armstrong block that contained the Department vineyard. FPMS did not receive that material until decades later.

In July of 1974, Michel Courtial, director of the coop winery in Tain l'Hermitage, visited UC Davis and brought Olmo photos and leaf specimens of the "typical [French] Syrah". Courtial confirmed the identity of the Syrah material at Davis and indicated that the clone was a "very good one". There was no mention of virus or other disease inflicting the Montpellier clone that Courtial observed on the Davis

campus.[100] His visit happened relatively soon after the Syrah material had been given to Eberle.

The Montpellier clone given to Christian Brothers and later Phelps had become severely virused in Napa by the 1970's. However, nothing suggests that the Montpellier vines in the vineyards at Davis suffered similar severe virus.[101]

The second Syrah clone that could have been the source of the Estrella clone was obtained by Olmo from Italy in 1949 (USDA Plant Identification number 173295). The selection was described above as Syrah FPS 13 and 38. The material was also contained in the USDA grape collection at the Repository in Davis as DVIT 1053 after Olmo donated to the USDA germplasm collection in 1949.

Although the Italian selection did not come to FPS from the Repository until 1999 (where it later became Syrah 13), Olmo's records on winegrape evaluations show a Syrah selection planted at X43: 1-2 in the Department vineyard on the Davis campus. That same record shows that the origin was USDA Plant ID no. 173295 (from Pirovano in Italy). The Olmo winegrape cards were not dated, and Olmo didn't discuss the Italian clone in his papers on Syrah. However, the Italian Syrah was in Davis after 1949, at the USDA Repository and at one time in the Department of Viticulture vineyard. Since Curtis Alley told Eberle that the Syrah that Eberle got was from France, it is not likely that the Italian Syrah was the one that Eberle took.

The other French Syrah clones imported to Davis in the early 1970's were probably not the source of the material given to Eberle, if his statement that he received the material in Spring, 1973, is accurate. USDA importation documents show that the Syrah clone from l'Espiguette arrived in the United States in October, 1973, six months after Eberle got his cuttings. The Pont-de-la-Maye clone arrived at FPS even later in March, 1974. Austin Goheen had control of the Shiraz clones (Australia, 1970) at FPMS at the time, where they were being heat-treated, tested and planted in June, 1973. Goheen was opposed to distribution of material in the fashion that Eberle received the "Estrella clone". If there were other "true Syrah" clones planted in the Department of Viticulture vineyard in Spring of 1973, there is no record of them in Harold Olmo's papers describing Syrah at UC Davis.[102]

Upon receipt of the Syrah budwood, Eberle gave the wood to Doug Meador at December Pacific Nursery in 1973 for propagation. Eberle began planting the Estrella River vineyard in 1974 or 1975, around the time Joseph Phelps planted his

Syrah vineyard in Napa. Many vineyards were established in the early to late 1980's using wood from the Estrella River vineyard. The material became known as the "Estrella clone" or "Estrella River clone" and became quite popular in California.[103]

The Estrella clone in the FPS Classic Foundation Vineyard, September 2020

Material reported to be the "Syrah Estrella" clone was donated to the public collection at FPS in 2009 by Duarte Grapevine Nursery in Hughson, California. The original material underwent microshoot tip tissue culture therapy and qualified for the foundation vineyard in 2013 as Syrah 27.2.

Syrah FPS 15 (St. Helena Library)

Three interplanted black varieties (Durif, Péloursin, and Syrah) were collected in 2001 from an old vineyard located in the town of St. Helena, California, next to the library. The first permanent library building for the St. Helena Public Library was constructed in 1908 with money donated by Andrew Carnegie. The vineyard located adjacent to the library was planted before 1920 and contained many grape varieties.[104] The Napa Valley Wine Library Collection has been housed in the library since 1961. A new facility was completed in 1979.

In the summer of 2000, French ampelographer Dr. Jean-Michel Boursiquot accompanied UC Viticulture & Enology experts Jim Wolpert, Andy Walker and Mike Anderson to the St. Helena Library for a project to collect "old vine" selections for a "Petite Sirah" planting at the nearby UC Oakville Field Station. Boursiquot identified 17 varieties in the vineyard adjacent to the library.

Durif, Péloursin and Syrah had frequently been intermixed and confused in early California plantings under the name "Petite Sirah". Wolpert, UC Davis Cooperative Extension Viticulture specialist, said: "It was not a systematic look for old selections of the three kinds of Petite. The fact that the three types of Petite [Durif, Péloursin, Syrah] were in this vineyard, suggested to me that they were part of the black variety 'field blend' that was used at the time. That block also contained Alicante Bouschet, Carignan, Mourvèdre and Grenache".[105]

The original material for all three selections was infected with virus. New selections were created for each one using microshoot tip tissue culture therapy. Those selections qualified at FPS in 2006 as Syrah 15, Durif 04 and Péloursin 01.

Syrah FPS 21 (Morisoli Heritage clone, 2002)

Syrah 21 was one of nine selections donated to the FPS public grapevine collection in 2002 from the Morisoli Heritage Vineyard in Napa, California.

Niebaum-Coppola winemaker Scott McLeod was familiar with an old heritage vineyard adjacent to the Inglenook Vineyards in Napa. FPS Director Deborah Golino recalls that McLeod and she were standing on a hill above Inglenook Winery when he pointed out the old Morisoli vines and family ranch house. He recommended the vineyard as a source for heritage clones for FPS and introduced her to the Morisoli family.

The Morisoli Vineyard near Inglenook Vineyards in Napa was an old California mixed planting with table grapes and many wine grapes, thought to have been originally planted in the late 1800's. Gary Morisoli's grandfather (born 1902) said that he started replacing some of the old vines as they died when he was a teenager. Gary Morisoli suspected that some of the original vines remained in the 1 ¼ acre parcel.

In fall 2001, ENTAV Director and ampelographer Jean Michel-Boursiquot walked the vineyard and identified over nine varieties in it, including Alicante Bouschet,

Carignane, Durif, Grand noir de la Calmette, Muscat Hamburg, Negrette, Syrah, Valdiguié and Zinfandel. Boursiquot marked the vines with the correct variety names. In December of 2001, Golino collected wood from the vines, including Syrah 21, which eventually qualified for the California R&C Program in 2011.

One of the other varieties donated by Morisoli from the heritage collection was a Durif that eventually became Durif 10. The original Durif material suffered from virus and was released in 2014 as Durif 10.1 after undergoing disease therapy.

Syrah FPS 36 and 37 ("Syrah Alban")

Rhône Ranger and winemaker John Alban studied viticulture at Fresno State University and later created his own 250-acre vineyard in the Edna Valley near San Luis Obispo, California. In the 1980's he travelled to the Rhône and Provence regions in France and brought back multiple selections of Rhône varieties including Syrah and Viognier.[106]

There are two Syrah clones in the FPS foundation vineyard from Alban Vineyards, Inc. Syrah 36 is "Syrah Alban 1", referenced as "Syrah Côtie-Rôtie". Syrah 37 is "Syrah Alban 2", referenced as "Syrah Hermitage". Both clones are proprietary to Alban Vineyards, Inc.

Syrah FPS 41 (Bedrock Vineyard clone)

Morgan Twain-Peterson of Bedrock Wine Co. serves on the board of the Historic Vineyard Society dedicated to the preservation of heritage clones in California. He donated a collection of heritage clones to FPS in 2017, including a Syrah clone that is now Syrah 41.

The material was collected from an old vineyard block that existed in 1888 at Bedrock Vineyard near Glen Ellen in Sonoma County. The 1888 block was planted by Senator George Hearst, father of William Randolph Hearst, and was farmed by a succession of owners since that time, including the California Wine Association (before Prohibition) and the Domenici and Parducci families after 1934.

The vineyard was split in 1953 and the Domenicis took 152 acres that became Madrone Ranch. The Deininger/Peterson family purchased Madrone Ranch in 2005 and renamed it Bedrock as a "nod to its soil", the Tuscan Red Hill series.

DURIF (PETITE SIRAH)

The name Petite Sirah has been used in France for several different grape varieties, including a smaller ("petite") form of true Syrah in eastern France, as well as for the varieties Durif and Péloursin.[107] Péloursin is an old variety native to the Isère, a tributary of the Rhône River, but is not considered to be a "Rhône variety".

The variety Durif was discovered in an experimental vineyard in eastern France in the 1860's by grape breeder François Durif. In his papers, he called the new variety a "seedling or selection of [the variety] Peloursin". Dr. Carole Meredith indicated that Durif probably would have mentioned the pollen parent if he had made the cross intentionally; the fact that he did not name the pollen parent suggests he did not make the cross.

The grape variety Durif looks morphologically similar to its female parent, Péloursin. The close resemblance to both parents is assigned as a partial cause of the confusion about Durif in early California plantings.

Durif aka Petite Sirah. Photo by Jack Kelly Clark, © University of California

Mission San José's Charles McIver imported "Duriff" to California in 1884 and called it "Petite Syrah", perhaps because of its smaller berries. The name eventually attached

to the variety in California. Napa's H.W. Crabb was concerned that the grape should be correctly identified, since the true Syrah was also known as Petit Sirah in California.

The name "Petite Sirah" has been ambiguous relative to grape varieties in California since the 1880's. Early mixed plantings of black grapes in California included the "true Syrah" and several other imported French varieties (Durif, Péloursin, Carignane, Mondeuse and Béclan). Those mixed plantings were often referred to as a group by the name Petite Sirah.[108]

"Duriff" caught on as a blending grape in Napa red Burgundy in the 1880's. The variety impressed with its coloring qualities and heavy yield. By the 1890's, "the Duriff" was favored by many producers in Napa, particularly Inglenook. When the replanting of the Napa Valley took place around the turn of the 20th century, the Duriff (Petite Sirah) was still a popular blender while almost all the original plantings of the "true Syrah" had been destroyed by phylloxera.[109]

The problem of multiple varieties possibly sharing a common name was noted by UC Viticulture Chair Bioletti in 1929. He had observed that the "Petite Sirah" variety selected in California vineyards in the late 19th century was a "productive look alike" for the original "Petite Syrah" (Syrah) that initially was brought to California. Bioletti concluded the lookalike was in fact the French variety Durif, which he felt was the best of the red wine grapes grown extensively in California and successful in most regions.[110]

Amerine and Winkler

After repeal of Prohibition in 1933, there were 7,500 acres of "Petite Sirah" (sometimes spelled "Petite Syrah") in California, much of it in the Napa Valley. Both Harold Olmo (1954) and French ampelographer Galet (1970's) had observed that "Petite Sirah" vines in California included the variety Durif.[111]

The "Petite Sirah" samples tested in Post-Prohibition wine varietal studies at UC Davis by Amerine and Winkler beginning in 1935 were most likely predominantly Durif and not "true" Syrah.[112] The UC experts acknowledged that "Petite Sirah (California)" had been tested by 1963 in all the regions of California over a long period of time. They concluded that the variety was a moderately good producer (5.3 tons at Oakville) and resulted in wine with good, red color. They recommended Petite Sirah for standard quality wine production in regions II (coastal California, Santa Clara, Napa), III and sometimes IV (Central Valley).[113]

The variety now known also as Durif was popular in the Central Valley of California during the planting boom of the 1970's mainly to add color and tannin to generic wines.[114]

Petite Sirah (Durif) was only gradually accepted into the Rhône Rangers blends. The Rhône Rangers eventually adopted Petite Sirah (Durif) due to its extensive interplanting with traditional Rhône varietals in California.[115]

Identity and parentage of "California's Petite Sirah"

Scientists at UC Davis sought to provide more clarity on the issue of the identity of the grapevines in California using genetic (DNA) analysis beginning in 1992-93.

Historically vineyard plantings in California under the name "Petite Sirah" had been mostly Durif but also included Péloursin and the true Syrah (which Olmo called French Syrah). Professor Carole Meredith's lab at UC Davis sought to sort out the confusion in the 1990's.[116]

Dr. Carole Meredith in Petite Sirah vineyard in 1999

Meredith and her colleagues compared the DNA profiles of accessions of Petite Sirah (Durif) held in collections in Davis and samples from commercial Petite Sirah vineyards in California to those of authenticated reference varieties obtained from the INRA variety collection in Montpellier, France. The California "Petite Sirah" accessions matched the Durif reference vines from France.

The discovery of Durif's parentage was also revealed in 1999. Péloursin was the female parent. Syrah was the pollen parent and was most likely opportunistic "stray pollen" in a natural cross pollination. The parentage explains why Durif so closely resembles both Syrah and Péloursin.[117]

P.S. I Love You (P.S.I.L.Y.)

For years, the grape variety Durif has had an avid following of wine producers in the state, including Jim and John Concannon, Louis Foppiano, Patty Bogle and the Bogle family, Robert Brittan, and many others. Those followers prefer the name Petite Sirah for the variety. After the first Petite Sirah Symposium held in 2002, 65 producers joined in an association to promote their Petite Sirah wine. They named the group P.S. – I Love You (P.S.I.L.Y.).

Producers of "Petite Sirah (Durif)" wine lobbied starting in 1992 to convince the Bureau of Alcohol, Tobacco and Firearms (now Tobacco, Tax and Trade Bureau, aka TTB) to accept the names "Durif" and "Petite Sirah" as synonym names on wine labels for American wines. At first, the BATF accepted Carole Meredith's input that there was not enough evidence to show that Durif and Petite Sirah were different names for the same grape variety. The issue was not without controversy early on.

Once Meredith and her colleagues established through DNA testing that California "Petite Sirah" vines and French Durif shared identical DNA, P.S.I.L.Y. approached the TTB for synonym approval by petition filed in 2009. Support was engendered from Foundation Plant Services, UC Davis, and the California Wine Institute. In 2011, the TTB granted the petition allowing the names Durif and Petite Sirah to be used interchangeably on wine labels in the United States.

In 2019, the CDFA Grape Acreage Report showed 12,169 total acres of Petite Sirah (the name by which the variety is planted) in California. There was no entry under the name Durif, and Durif does not appear on the synonym table.[118]

DURIF/PETITE SIRAH AT FPS

The Goheen indexing binder at Foundation Plant Services shows that at least 20 "Petite Sirah" and "Durif" selections from commercial vineyards throughout California were evaluated and subjected to heat treatment at FPMS beginning in the early 1960's. Two of the selections were indexed under the name Durif. The remainder appeared on the Petite Sirah pages with the notation "Durif, according to Truel".

Petite Sirah was first planted in the old FPMS foundation vineyard on Hopkins Road in 1961. In 1962, the Larkmead selection was the first "Petite Sirah" to appear on the list of registered vines in the California R&C Program. At the time, no Syrah or Sérine selections appeared on the registered list.

Austin Goheen's then-novel heat-treated clones were released to FPMS customers in 1971. Those selections were believed to be healthier than non-treated material due to the possible effect of heat treatment therapy on eliminating viruses. FPMS Manager Curtis Alley designated some of the best heat-treated clones as "superclones" for marketing purposes. Two of the Petite Sirah selections on the superclone list were: Petite Sirah 03 (Kunde) as superclone #111 and Petite Sirah 05 (UCD J58v19) as superclone #112.

When the selections first arrived at FPS in the early 1960's, they were assigned the variety name "Petite Sirah". It later became apparent that the name Petite Sirah was confusing as it was historically identified with multiple grape varieties in California. FPS customers continually asked if selections with the name "Petite Sirah" were Durif or another variety such as Péloursin. After the scientists at UC Davis clarified the identity of FPS selections in 1999, FPS renamed the Petite Sirah selections with the name Durif (2005).

The following explanation appeared in the *FPS Grape Program Newsletter* for 2005 regarding the naming convention for Petite Sirah and Durif: "At FPS, when more than one name is correct but one name is more informative, the more informative name is used. For instance, we use 'Durif (Petite Sirah) FPS 03' to identify a registered FPS selection that was originally called Petite Sirah in California. DNA evidence has shown that the name Petite Sirah is associated with three completely different varieties (Durif, Petite Sirah, and Peloursin) so it is not an exact name designation. We therefore use Durif as the prime name and show Petite Sirah as a synonym". The University of California ANR publication 'Wine Grape Varieties in California' also references Petite Sirah under the Durif variety".[119]

Durif FPS 01 (Larkmead, 1959)

UCD Professor Harold Olmo began his clonal selection work on winegrapes in the 1930's. He managed a project using Petite Sirah clones on the UC Davis campus in 1937, the clones for which were from the Italian Swiss Colony vineyard in Asti, California. The Asti clone was one of the many Petite Sirah clones from private vineyards tested at FPMS in 1960; it was positive for virus.

Olmo developed other clonal trials in commercial vineyards in that time period such as that for Cabernet Sauvignon at the Larkmead Vineyards in Napa. One of the "Petite Sirah" (Durif) clones that eventually made its way to the FPS foundation vineyard collection was from the Larkmead Vineyards.

Durif 01 originated from a location at 2v19 at Larkmead Vineyards in Napa. The material came to FPMS in 1959 and was planted as Petit Sirah 01 in 1961 in the foundation vineyard off Hopkins Road. The Meredith lab confirmed the identity of Petite Sirah 01 as Durif using DNA analysis in the 1990's.

Petite Sirah 01 underwent microshoot tip tissue culture therapy at FPS in 1999 and released as Petite Sirah 06. The name was changed to Durif 01 in 2005 to reflect the correct French name for the variety.

"Durif" FPS 02 (Concannon, 1969)

Concannon Vineyards in Livermore, California, was an early proponent of the grape variety they called Durif. They initially used the variety in their Burgundy blend.

Concannon eventually became best known for their single-variety Petite Sirah wine. The Concannons had bottled a few hundred cases of their 1961 Petite Sirah (Durif) vintage at the suggestion of a friend who was a wine merchant. The wine was a "hit" and inspired Concannon to do a larger release in 1964. It was the first varietally-labelled Petite Sirah wine in America. The Petite Sirah became Concannon's flagship wine.[120]

A "Petite Sirah" clone came to FPMS in 1969 from the Concannon vineyards in Livermore, California. The source vine was given as Concannon29 v16. Austin Goheen logged the index testing and treatment information for the material in the FPMS indexing binders on the page for "Durif (Petite Sirah)". He noted there that the selection had been assigned the number "clone 02" by FPMS.

The material underwent heat treatment therapy for 101 days in 1970 and was planted in the old Hopkins foundation vineyard in June of 1973, probably as Durif 02. The selection name Durif is assumed because Concannon used that name and the selection appeared on the Durif page in the Goheen binder. Neither "Petite Sirah 02" nor "Durif 02" appears in the FPMS database, although both names appear in paper indexing records and vineyard maps of the time and are referenced in research reports by University faculty. The Durif 02 vines were removed from the foundation vineyard in 1978.

The Concannon "Petite Sirah clone 2" material was propagated into the Department of Viticulture & Enology's Tyree Vineyard in Hopkins Tract in 1977 at block N5 v13-23. It was part of a wine variety test of L.A. Lider and Austin Goheen. The variety name was given on the Tyree vineyard map as "Petite Sirah Concannon", clone 2.

Meredith and her colleagues included Petite Sirah 02 (Tyree) and Durif 02 (FPMS) in the DNA analysis of Petite Sirah vines conducted at UC Davis beginning in 1992-1993. They observed that both accessions traced their origin back to the same source vine, Concannon29 v16. The researchers ultimately concluded in 1999 that both accessions shared a DNA profile with the French variety Péloursin.[121]

Durif FPS 03 (Kunde, 1959)

Durif 03 came to FPS in 1959 as "Petite Syrah" from the Kunde Vineyards in Sonoma County, California. After undergoing heat treatment therapy for 64 days, the selection was planted in the Hopkins Foundation Vineyard in 1965 as Petite Sirah 03. Petite Sirah 03 was marketed by FPS as "superclone #111" in the 1970's.

In 1999, the identity of the selection as Durif was confirmed through DNA analysis by the scientists at UC Davis. The name of the selection was changed to Durif 03 in 2005.

"Petite Sirah" FPS 04 (Former UC Foothill Experiment Station, 1963)

In 1963, Austin Goheen rediscovered the old vineyard at UC's abandoned Foothill Experiment Station at Jackson in Amador County. He collected material from the "Serine" vine at location D18v7 and brought it back to Davis for testing. Sérine was a synonym name for Syrah in the 19th century. The vine at the Foothill Station had been propagated from the old vineyard on the UC Berkeley campus in the 1880's.

The material was indexed at FPMS as "Petite Sirah" and was ultimately planted in the Hopkins foundation vineyard in 1966 as Petite Sirah 04. The Jackson "Petite Sirah (Serine)" appeared on the maps of the foundation vineyard at location F12: 11-12 until the vines were removed in 1977 and repropagated in the Department of Viticulture's Tyree "MO" vineyard. The selection appears on Harold Olmo's index cards for Petite Sirah variety evaluations as the "Jackson selection D18v7 (Serine)".

In 1999, the UCD scientists published their results of the DNA analysis on the "Petite Sirah" vines in California. Petite Sirah 04 (Jackson D18: 7, Serine) was revealed to be Pinot noir.

Durif FPS 04 (St. Helena Library, Oakville, 2001)

Durif 04 was collected in 2001 as part of the project to collect old vine Petite Sirah selections in a vineyard adjacent to the St. Helena Public Library. It was collected for the same project as Syrah 15 (*see Syrah discussion above*). The material was part of an old mixed black field blend planting a long time ago in Napa.

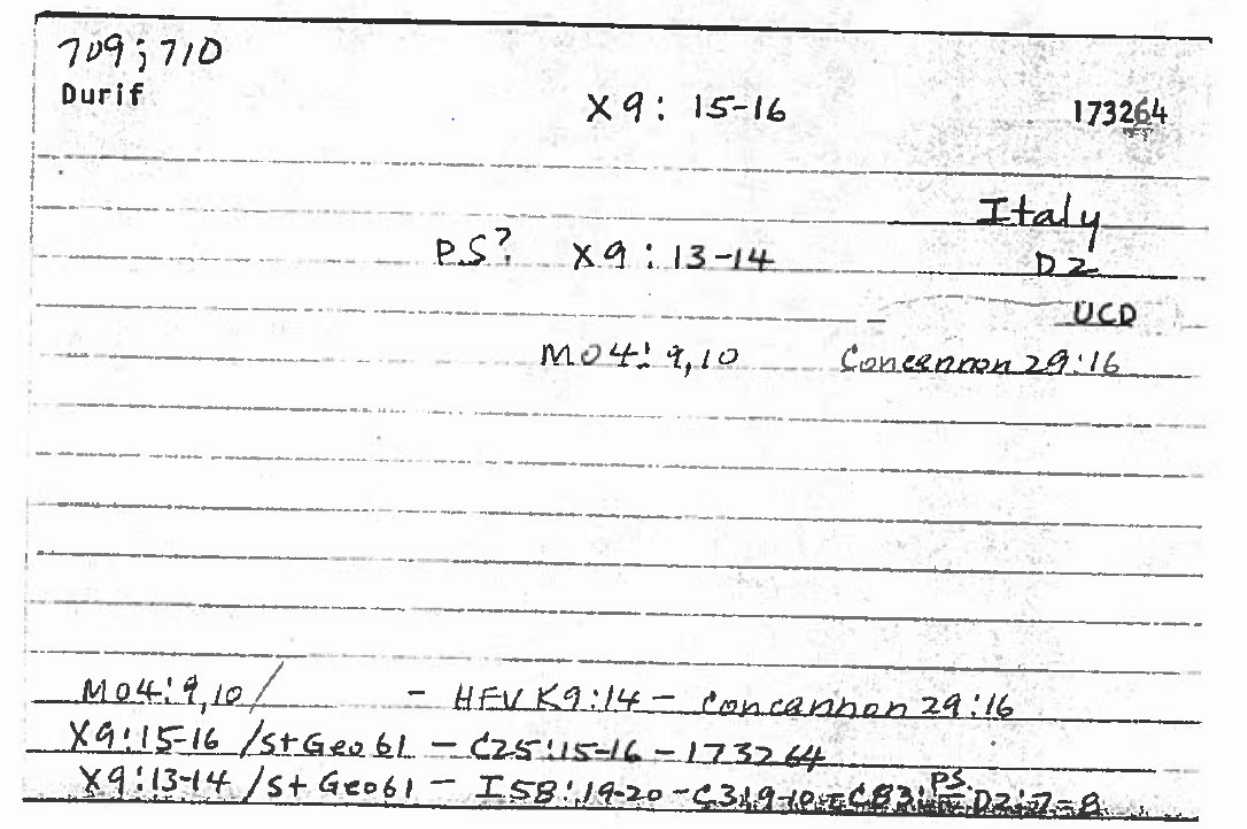
Durif 04 qualified for the California R&C Program in 2006. DNA testing at FPS in 2017 confirmed the identity of the selection as Durif.

Durif FPS 05 (UCD Department of Viticulture & Enology J58 v19, 1964)

The original material for Durif 05 (formerly Petite Sirah 05) came to FPS around 1964 from the vineyard of the Department of Viticulture & Enology at UC Davis.
Although Harold Olmo had done clonal evaluations on Petite Sirah from the Asti vineyards in Sonoma in the 1930's and 1940's, there is no indication in his records or in those of FPS that Asti was the source of Durif 05.

The identification of the source vine for this selection is given on the Durif page of the Goheen index binder (used for the FPMS database) as "J58v19". Other records maintained by Olmo show a Durif vine in the Department of Viticulture Wine Grape Collection (1961) at location I (eye) 58: 19-20 and on an index card for Olmo's winegrape evaluations at that same location in block I (eye).[122]
There were no Durif vines shown with a block J location on Olmo's card. However, at the time the selection came to FPMS, rows 53-60 in blocks I and J were assigned as student blocks in the Department of Viticulture vineyard. *Olmo collection D-280, box 65: 16*.

A winegrape evaluation record maintained by Harold Olmo shows that the selection at I (eye) 58 v19 could be traced back to a vine at location D2: 7-8 in an old vineyard on the UC Davis campus *(see depiction below)*. The records are not complete but some entries on old vineyard maps suggest that Block D was active in the 1920's (as Vit. vineyard VIIIB) and 1930's (renumbered as Block D).



Olmo evaluation card shows I 58: 19-20 <C3: 9-10 <C83: PS < D2: 7-8

After undergoing heat treatment therapy for 108 days in 1964-65, Petite Sirah 05 was planted in the Hopkins foundation vineyard in August of 1967. The selection was also released by FPS as one of the heat-treated superclones (superclone #112) in 1971.

Petite Sirah 05 was dropped from the California R&C Program in 1982 because it tested positive for leafroll virus. The selection underwent microshoot tip tissue culture therapy in 1999. The treated material was released in 2006 as Durif 05.

Durif FPS 06, 07 and 08 (Robert Brittan, Stags' Leap Winery, 2004)

The vineyard for Stags' Leap Winery near Yountville in Napa was first planted in the 1880's. Stags' Leap was purchased in 1971 by Carl Doumani, who modernized the winery beginning in the 1970's and hired Robert Brittan in 1988. Brittan was the Winemaker and Estate Manager for Stags' Leap for 16 years. The signature product of the winery was its Petite Sirah.[123]

In 2004, Brittan donated cuttings from three separate vine sources at Stags' Leap Winery to the public grapevine collection at FPS. The three selections underwent testing and qualified for the FPS Classic Foundation Vineyard in 2008 as Durif 06, Durif 07 and Durif 08. DNA analysis on the three selections confirmed that they are correctly identified as Durif.

Durif FPS 09 (Rutherglen clone, Australia, 2009)

Durif 09 was donated to the FPS public grapevine collection by Smart Viticulture in 2009 as part of a varietal exchange from Australia. The material originated from Campbell's Rutherglen Wines in Australia and is to be the "Rutherglen clone". The original material successfully completed testing for the California Grapevine R&C Program in 2012 and was planted in the FPS Classic Foundation Vineyard in 2013.

Durif FPS 11.1 (Old Patch Block, Whitton Ranch, Alexander Valley, 2014)

This California heritage clone came to the public grapevine collection at FPS in 2014 from well-respected viticulturist David Gates, Vice President, Vineyard Operations, Ridge Vineyards, in Sonoma County, California.

Durif 11.1, Grenache noir 09.1 and Mourvèdre 07.1 were collected from the "Old Patch" block at Whitton Ranch in the Alexander Valley in Sonoma County. The vineyards at Whitton Ranch were planted in 1882 (Old Patch) and 1891 (Old Carignane) by A. Boutin, an orchardist and colleague of Luther Burbank. Boutin named his estate Heart's Desire.

Gates indicates that the surviving vines in the old vineyards are a field blend of Carignane (35%), Zinfandel (26%), Alicante Bouschet/Petite Bouschet/Grand noir (19%), Mataró (9%), Syrah/Petit Sirah (7%), and others, including Grenache, Négrette/Pinot St. George, Béclan noir, Listán, Olivette noir/Cornichon, Mourtaou and St. Macaire (4%). Ridge has made wines from these grapes since 1966. Gates is of the opinion that the clones could have value for the wine industry.

Durif 11.1 underwent microshoot tip tissue culture therapy at FPS and qualified for the foundation vineyard in 2017.

Heritage Petite Sirah vineyards in Sonoma County. Photo courtesy of Ridge Vineyards.

PÉLOURSIN

Péloursin is an old black variety from near Grenoble in the Isère River valley in eastern France. Although the Rhône River crosses the Alpes near the Isère River Valley, Péloursin was mostly cultivated in the latter valley and is not technically a "Rhône" grape variety in the sense of French Rhône Valley Appellations. Péloursin is relevant to this chapter because Péloursin is the female parent of Petite Sirah/Durif and was frequently confused with Syrah and Durif in California vineyards.

Pierre Galet made a statement in his *Grape Varieties* book that the vine variety Syrah is "sometimes" Péloursin in California.[124] That assertion was confirmed by DNA analysis performed at UC Davis on California vines with the name "Petite Sirah".[125] Some "Petite Sirah" vines in the UC Davis collection as well as from commercial vineyards in Sonoma and Mendocino Counties were revealed to be Péloursin.

Péloursin 04.1 in FPS Foundation Vineyard

Péloursin FPS 01 (St. Helena Library, 2001)

The plant material for this selection originated from property of the St. Helena Public Library near Oakville, California. This selection was discovered in 2001 as part of a project to collect old vine selections for a Petite Sirah planting at the Oakville Field Station. Three types of purported "Petite Sirah" vines (Durif, Péloursin, and Syrah) were found in the vineyard, suggesting that they might once have been blended into wine from a black variety mixed field planting that was used a long time ago in the Napa area.

Péloursin FPS 02, 03 and 04 (Stags' Leap Winery, 2004)

Budwood from three separate Péloursin vines were donated to the FPS public collection in 2004 by Robert Brittan, Stags' Leap Winery, in Napa, California. Those three selections are now Péloursin 02, 03 and 04. The three selections initially tested positive for viruses and underwent microshoot tip tissue culture disease elimination therapy. The treated plant material for Péloursin 02 and 03 successfully completed testing for the California R&C Program and were released to the Classic Foundation Vineyard in 2011. Péloursin 04 was released in 2012.

Péloursin FPS 05 (Foppiano, Bob Dempel, 2003)

This proprietary selection came to Foundation Plant Services in 2003 from Louis Foppiano Ranches in Healdsburg, California. The selection was initially processed through FPS as Petite Sirah. The original material was first released as Petite Sirah 08. In 2012, DNA testing at FPS revealed that the plant material is Péloursin. The name was changed to Péloursin 05 in 2012.

Syrah/Petite Sirah Summary

Syrah experienced a revival in California beginning in the 1970's, along with several other grape varieties typical of those in the Rhône River Valley in France. The true Syrah variety was the mainstay and impetus for the Rhône Rangers movement in California. University scientists and commercial viticulturists sought new and unique varieties and wine styles.

One of the "new and unique varieties" from the Rhône region was a white variety unlike those that California winemakers had seen. Comiskey commented in his book: "Syrah may have established the [Rhône Rangers] movement, but Viognier put it over the top"….[126]

VIOGNIER

Viognier has been a success story associated with Rhône wines but did not arrive in California until much later than most of the traditional choices for wines from southern France.

Viognier is a white grape associated closely with the northern Rhône Valley in the Condrieu and Château-Grillet districts. The vines are cultivated on the terraces overlooking the right bank of the Rhône River. Viognier wine exhibits a distinct flavor with floral and fruity aromas when the yellow/amber grapes are fully ripe at harvest. Viognier is sometimes blended with Syrah (up to 20%) to give AOC Côte-Rôtie wines more fragrance and elegance.[127]

Viognier. Photo by Jack Kelly Clark © University of California

The exact origin of Viognier is not known. DNA parentage analysis has revealed a parent-offspring relationship between Viognier and Mondeuse blanche, one of the parents of Syrah. The relationship could be either half-sibling or grandparent.[128]

The Viognier variety experienced near extinction in France in the late 1960's due to coulure and low yields. The reputation of the distinct aromatic variety later spread outside the Rhône region, and growers from southern France (Languedoc), California and other parts of the world began to experiment with the wines in the 1980's. Viognier is often blended with Grenache blanc, Marsanne and/or Roussanne in southern France.[129]

Unlike the other major "grapes of the Rhône", Viognier did not have a presence in California until the latter half of the 20th century. Charles Wetmore knew of the

existence of the variety in 1884 and mentioned the Viognier name in connection with blends of which he was aware in the Côte-Rotie wines in southern France.[130] However, the variety was not grown in the UC Experiment Station system in the 19th century, was not planted in the variety collection of the first UC vineyard planted at Davis in 1913, and was not mentioned by Amerine and Winkler in their studies of winegrapes recommended for California in the 1930's through the 1960's.

Viognier FPS 01 (Montpellier, 1977)

The first Viognier in the FPS foundation collection was imported to California in 1976. Correspondence on file at FPS shows that FPMS and UC Davis were actively involved in the initial importation.

Josh Jensen, Mt. Harlan Vineyard and Calera Wine Company of Hollister, California, approached Leon Corey, then-Manager of Foundation Plant Materials Service, in August of 1974 with a request. He asked that FPMS import the grape variety Viognier, "grown in the towns of Condrieu and Verin in the Rhône River Valley of France".

FPMS in turn made the request of the USDA in Beltsville, Maryland, the following month of September. In the request letter to the USDA, Corey informed them that Dr. A.C. Goheen proposed Dr. Max Rives as a contact in France. Rives was Chief of the Genetics Department at INRA (Institut National de la Recherche Agronomique), La Grande Ferrade, Pont de la Maye (Gironde), France.

Rives referred the request to Paul Truel, INRA, Marseillan-Plage, near Montpellier. Truel acknowledged the request for the Viognier cuttings in February, 1975. Handwritten notes on correspondence in the FPS files indicate that the cuttings were "received from Truel in 1976". Harold Olmo, who oversaw the importation, was quoted as reporting that the Viognier had been brought from Condrieu to Montpellier by Truel.[131]

The FPS database ADAPT reflects that the Viognier cuttings sent from Dr. Truel, INRA, Domain de Vassal, Marseillan-Plage, France (USDA Plant Introduction no. 422377) were "introduced at FPMS" on February 14, 1977.

Goheen disease indexing records at FPMS show that the original Viognier material repeatedly underwent heat treatment and testing by Goheen for years. The records illustrate separate incidents of heat treatment therapy followed by index testing in

1977, 1980 and 1981. FPMS correspondence shows that Jensen experienced frustration with the delay. He stated that every year Goheen "would find some virus in the material" and would continue to put the material through therapy and testing again and again.

Finally, the selection successfully completed virus testing and was installed as Viognier FPS 01 in the then-new Brooks South section of the FPMS foundation vineyard. Ten vines were planted at BKS H8 v1-10 in April of 1985. Viognier 01 appeared for the first time on the list of registered vines for the California Grapevine Registration & Certification Program in 1989.

Order records at FPS show that Josh Jensen of Calera Wine Company received his first group of Viognier cuttings in February, 1988. Rich Kunde at Sonoma Grapevines Nursery was one of the first growers that had Viognier. He and many other California growers had expressed interest to FPS for the highly sought-after variety.

Growth of the Viognier variety exploded in the United States beginning in the mid 1990's. Viognier became "fashionable in California" for the perfumed fruitiness of its dry table wines.[132] There had been 25 acres of Viognier planted in California in 1982. By 2010, the acreage had increased to 2,993 acres, much of which was planted on the North and Central Coasts.[133] The *California Grape Acreage Report for 2019* shows 2,600 acres of Viognier in the state in that year.[134]

A curious incident at the FPMS foundation vineyard illustrates just how popular the Viognier material was in the 1990's. FPMS Office Manager Carole Lamb remembered that the incident occurred around 1991. Production Manager Mike Cunningham did not recall the exact date of the incident but placed it as "a few years after the ten new vines of Viognier were planted in the Brooks South vineyard". "Someone who knew what material he was after" entered the foundation vineyard one weekend during "collection season" and stole all the Viognier cuttings from the ten vines. There was no fence around the foundation vineyard at that time. The culprit was never apprehended.

Viognier 01 was the only selection of that variety in the FPMS foundation collection until after the year 2000.

Confusion with Roussanne

Viognier and another scented white grape from the northern Rhône region were the victims of misidentification and controversy in California in the 1990's.[135]

Viognier vines misidentified as Roussanne were the subject of a lawsuit in the mid-1990's by Caymus Vineyards against Sonoma Grapevines Nursery. Caymus received Viognier vines instead of the Roussanne that they had ordered. The nursery, who originally received the material from Bonny Doon Vineyards, countersued Bonny Doon in that lawsuit. In another case, Richard "Tim" Spencer (St. Amant Vineyard, Amador County) received an award at the State Fair in 1999 for his "Roussanne" wine, which was later revealed to be Viognier.[136]

Three selections were submitted to FPS in 1999 and 2000 with the variety name Roussanne – two from Lodi and one from Mendocino. French ampelographer Jean-Michel Boursiquot examined the FPS foundation vineyard while on sabbatical in Davis in 2000. He discovered that the three Roussanne selections had been misidentified and were in fact Viognier. DNA analysis later confirmed Boursiquot's opinion.

Viognier FPS 02 and 03 (Richard Ripkin, Lodi, 1999)

Viognier 02 and Viognier 03 came to FPS in 1999 from a vineyard in Lodi, California, owned by Richard Ripkin. When they were given to FPS, the selections were identified as Roussanne, and FPS initially attached that name to each selection. After Boursiquot noted the identity error, the identity of the selections was validated by DNA analyses and the names were changed to Viognier.

Ripkin had originally obtained the material that became Viognier 02 from Randall Graham, one of the Rhône Rangers who owned Bonny Doon Winery in Santa Cruz County. Graham had provided Ripkin the material with the name Roussanne.[137] When the identity issue was presented, FPS opted to keep the selection in the foundation vineyard collection and rename it Viognier.

Viognier 02 in FPS vineyard.

UC Extension Viticulture specialist Glenn McGourty was conducting trials on the Rhône varieties in Mendocino at the time and opined that the material that became Viognier 02 had a very (good) and different flavor than Viognier FPS 01, particularly when blended with Marsanne. He recommended FPS keep the originally-misidentified Viognier as a selection in the FPS collection. Once it completed testing, the selection was ultimately named Viognier 02.

Ripkin received what became Viognier 03 from a different source vineyard than Bonny Doon (John Alban, Central Coast) and donated it to FPS as "Roussanne". After completion of testing at FPS, the selection was released in 2001 and later renamed Viognier 03.

Viognier FPS 04 (Mendocino, 2000)

Viognier 04 came to FPS in 2000 from a vineyard in Mendocino County with the name Roussanne. Boursiquot opined that the selection had been misidentified and was actually Viognier. After DNA analysis confirmed that opinion, the selection was renamed Viognier 04 in 2002.

Viognier FPS 08 (Phelps heritage clone, 2016)

Well-respected viticulturist Larry Hyde of Carneros, Napa, donated a heritage Viognier selection to the FPS public grapevine collection in 2016. Viognier 08

originated from a single vine at Hyde Vineyards. Hyde designated the selection as the Phelps clone. He obtained the clonal material from the Joseph Phelps Vineyards in the 1950's when he worked there and Bumaro Montez was vineyard manager.[138]

French Viognier clones at FPS

Viognier 05 came to FPS in 1999 from France via Euro Nursery in Ontario, Canada. The selection is "reported to be French clone 642". The original material qualified for the foundation vineyard in 2006.

Viognier 06 and 07 are proprietary French clones imported to FPS in 2007 for Pepiniere Guillaume Nursery in Knights Landing, California. They are distributed by Guillaume Nursery.

There are several official (proprietary) French Viognier clones in the FPS foundation vineyard. IFV (Insitut Français de la Vigne et du Vin) imported Viognier ENTAV-INRA® 642 (Condrieu, Rhône, certified 1979), Viognier 1042 (Ardéche, 2002), and Viognier 1051 (Loire, 2003) to the United States in 1997, 2007, and 2012, respectively. A conservatory of sixty clones of Viognier was established in vineyards in Condrieu south of Lyon on the right bank of the Rhône River in 2002.[139]

MARSANNE and ROUSSANNE

White grape varieties Roussanne and Marsanne have both been in California for a long time. They are sister varieties from the Rhône region and have almost identical histories in California. They were favored by the Rhône Rangers. In 2020, both varieties have a small footprint in California grape acreage.

ROUSSANNE

Roussanne is thought to have originated from the Rhône Valley and Isère Valley regions of France. Roussanne is a traditional variety of the northern Rhône region and is second to Viognier in quality white wine production of Rhône varieties.

Roussanne is often blended with Marsanne. The two varieties have been grown together in France for a long time. Roussanne is more aromatic than Marsanne. Wine writer Charles Sullivan noted that Roussanne differs from Marsanne in that it is more difficult to grow but has a "more enticing flavor".[140] Marsanne vines began to replace Roussanne when virus decimated the Roussanne in the mid-20th century.

Roussanne is a permitted variety for Châteauneuf-du-Pape wines in the Southern Rhône. Marsanne is not a permitted variety for that AOC.

In the 1880's, Napa's best success in producing Burgundy style blends came from use of grapes from southern France. H.W. Crabb and John Drummond used Marsanne and Roussanne to blend with their Syrah under the belief that aromatic white grapes could soften the tannins and intensity.[141]

Roussanne was later favored by some of the Rhône Rangers on the Central Coast of California, such as John Alban and Robert Haas. They often blended it with Marsanne.[142] A few California wineries (Cline Cellars and Bonny Doon Vineyard) have produced a varietal Roussanne.[143]

The two varieties Roussanne and Marsanne are planted mostly in the Central and North Coast districts in California. In 2019, there were a total of 323 acres of Roussanne planted in those districts.[144]

As discussed above in the section on Viognier, the variety Roussanne had a rocky start in the FPS public grapevine collection. Several selections that came to FPS with the name Roussanne were determined later to be Viognier.[145]

The FPS public grapevine collection contains four Roussanne selections in 2020.

Roussanne FPS 02 (Sonoma Grapevines Nursery, 2000)
Roussanne 02 was donated to FPS in 2000 by Sonoma Grapevines Nursery. The donor nursery had previously experienced an issue with selling misidentified "Roussanne" vines (which turned out to be Viognier) in the late 1990's, which the nursery said they had obtained from Randall Graham.[146]

DNA testing was performed in 2006 at FPS on the Roussanne selection donated by the Sonoma Grapevines. The identity was confirmed as Roussanne. There is no indication in FPS files as to where Sonoma Grapevines had obtained the budwood donated in 2000. Roussanne 02 completed testing and was released in 2002.

Roussanne FPS 03 (UCD Department of Viticulture & Enology Tyree Vyd, 2000)

This selection came to FPS in 2000 from location I (eye)11 v9 of the Tyree vineyard on the University of California, Davis, campus. The Tyree vineyard was originally developed by the UC Davis Department of Viticulture & Enology. Roussanne 03 was planted in the FPS Classic Foundation Vineyard in 2003.

Roussanne FPS 04 and 05 (Tablas Creek Vineyards, 2010)

Tablas Creek Vineyards donated two Roussanne clones to the FPS foundation grapevine collection in 2010 as part of a cooperative effort to bring varieties of the Rhône region and Châteauneuf-du-Pape wines to the United States. Roussanne 04 and 05 are reported to be from unique vine sources at Château de Beaucastel in France. The original mother plants for both selections came to the United States through the quarantine program in Geneva, New York, in the 1980's. The two selections qualified for the FPS foundation vineyard in 2012.

Jancis Robinson reports in *WINE GRAPES (2012)* that a "particularly fine example of varietal Roussanne is produced by Château de Beaucastel in Châteauneuf-du-Pape, who have demonstrated that the fruit of their old vines has great affinity with oak and the capacity to age."[147]

Roussanne ENTAV-INRA® 468

IFV imported official French clone Roussanne 468 to the United States in 1997 from France. Clone 468 originated from the Savoie and was previously known in France as ENTAV 9. It was certified in 1976. Roussanne ENTAV-INRA® 468 qualified for the FPS Classic Foundation Vineyard in 1999.

MARSANNE

The origin of Marsanne is likely in the mid-Rhône Valley. Marsanne is important for use in wines in the Northern Rhône and is associated with Hermitage wines of that region. The white variety is one of six principal varieties permitted in white Côtes du Rhône.[148]

Marsanne has been in California since the early days of the industry. Hilgard found insufficient acid for production of table wines with the variety in all districts.

Marsanne was not used much commercially in California in those days. He did recommend Marsanne for sherry production in the interior valleys of California.[149]

Amerine and Winkler did not recommend Marsanne for planting in California and found it to be "an undistinguished variety" (1944) that produced wine of average quality (1963). They reported the variety to be a heavy producer but lacking in distinctiveness, low in acidity, and high in pH of the musts. They noted that the wine had been tested only in region IV where it never produced a high-quality wine. They suggested future testing in cooler areas because of the low acidity and high pH.[150]

In 2019, there were 125 acres of Marsanne planted in coastal California, from Paso Robles to Sonoma.[151]

Marsanne is valued for its weight and texture. The variety has been used by the Rhône Rangers for light table wines in cool to warm districts mostly in blends with Roussanne, Grenache blanc and Viognier. Marsanne has produced unfavorable results in hot regions.[152]

There are four Marsanne selections in the FPS foundation grapevine collection as of 2020.

Marsanne FPS 01 (Department of Viticulture & Enology, early 1980's)
Marsanne 01 came to FPS in the early 1980's from the UC Davis Department of Viticulture & Enology vineyard, location X19 v 13-14. Harold Olmo's index card for winegrape trials on Marsanne hints that the selection came to campus from Guasti, California, in the Pomona Valley. The selection underwent heat treatment for 60 days (1981-1983) and microshoot tip tissue culture therapy (1996) at FPS. The material was eventually released in 2000 as Marsanne 01.

Marsanne FPS 03 (Hopland Research & Extension Center, Mendocino, 2000)
Marsanne 03 was donated to the FPS public grapevine collection by UC Extension Viticulture Specialist Glenn McGourty in 2000. The material originated from the U.C. Hopland Research & Extension Center in Mendocino County, California.

Marsanne FPS 04 (Sonoma Grapevines Nursery, 2000)
Sonoma Grapevines Nursery donated Marsanne 04 to the FPS public grapevine collection in 2000. The selection underwent microshoot tip tissue culture therapy at FPS and was released in 2006.

Marsanne ENTAV-INRA® 574 (IFV, 1997)
IFV imported authorized French clone Marsanne 574 to FPS in 1997 for distribution to customers in the United States. The material is a proprietary clone from the official French clonal development program. The clone was released in 1978 but the source of the material is not available.

The four Rhône varieties profiled above (Syrah, Viognier, Roussanne and Marsanne) are also used for wines in the Southern Rhône region in France. Syrah and Roussanne are allowed in the quality wines of the Châteauneuf-du-Pape AOC. FPS has acquired the varieties permitted in that AOC by generous donation of Tablas Creek Vineyards.

GRAPE VARIETIES FROM THE SOUTHERN RHÔNE REGION

Robert Haas of Paso Robles, California, was a pioneer Rhône Ranger. He and French partners Jean-Pierre and François Perrin of Château de Beaucastel in France brought what Comiskey characterized in *American Rhône* as "order" and "an authoritative presence" to the prior efforts with Rhône varieties in California.[153] Haas and the Perrin family of the southern Rhône region imported a large group of new winegrape varieties and clones to FPS in California under the Tablas Creek Vineyards label.

Those Rhône varieties were sourced from a respected vineyard in France that dated back to the 16th century. The importations included improved clones for Rhône varieties already in California as well as a unique group of varieties that did not at the time have a presence in the state. The Tablas Creek varieties significantly increased the diversity and depth of the Rhône offerings at FPS.

CHÂTEAUNEUF-DU-PAPE VARIETIES

The Châteauneuf-du-Pape appellation is located in southern France from the eastern bank of the Rhône near Orange to Sorgues near Avignon in the southeast. In fact, the name Châteauneuf-du-Pape means "The Pope's new castle" in English, alluding to the relocated papacy to Avignon in the 14th century. Châteauneuf-du-Pape suffered wine fraud in the early 20th century, and the Appellation Contrôlée drew strict rules for the wine's production in 1936.

Châteauneuf-du-Pape traditionally allowed only thirteen grape varieties in the wine. The traditional varieties are: Bourboulenc, Cinsaut (Black Malvoisie), Clairette,

Counoise, Grenache, Mourvèdre (Mataró), Muscardin, Picardan, Piquepoul (Picpoul), Roussanne, Syrah, Terret noir, and Vaccarèse (Brun Argenté). Since 2009, the following varieties have been specified as separate (allowable) varieties: Grenache blanc, Grenache gris, Clairette rose, Piquepoul gris, and Piquepoul noir.

Most Châteauneuf-du-Pape wines are red blends dominated by Grenache, followed by Syrah and Mourvèdre. Château de Beaucastel is one of the few to cultivate all permitted varieties.[154]

Château de Beaucastel is an estate winery in the southern part of the Rhône Valley in France, mostly in the Châteauneuf-du-Pape appellation. The estate got its name from the Beaucastel family, who lived in the area in the 16th century when the property was used for agricultural purposes. After phylloxera devastated the region in the 19th century, the vineyards were rebuilt under new ownership by Pierre Tramier and his son-in-law Pierre Perrin. The holdings were expanded significantly. The property has been in the Perrin family since that time.

Château de Beaucastel

François Perrin spoke at an event at UC Davis in 2006, "Variety Focus: Grapes of the Rhône". The UC Davis Extension course presented multiple speakers accompanied by wine tastings. Perrin explained that his family has owned Château de Beaucastel for

five generations. The land is noted for its large stones laid down centuries earlier by the Rhône River as well as for the historical diversity of the vines as they evolved to local conditions. He spoke of the Châteauneuf-du-Pape varieties and how they could be categorized for the properties they bring to the wines.[155]

Robert Haas started in the wine business in 1950. He developed an interest in wines of the Rhône region of France while doing research for his business. Haas became a successful wine importer in New York and developed his own business, Vineyard Brands, in 1973. He met Jacques Perrin in the 1970's on a research trip to Châteauneuf-du-Pape. Perrin educated him on quality wines and eventually retained Haas as his exclusive American importer.[156]

Winery at Tablas Creek Vineyards

Tablas Creek Vineyards

In his *AMERICAN RHÔNE,* Patrick Comiskey detailed the story of the Haas family eventually partnering with the Perrins in the Tablas Creek Vineyards venture in California. Jacques Perrin (until 1977), sons Jean-Jacques and François Perrin and Robert Haas made trips around California in the 1970's and 1980's, exploring the wines and the available grapevine material in the state.

The future partners saw the need for better clones of the Rhône varieties in California, especially for Grenache and Mourvèdre. They ultimately focused their interest on the Central Coast and in 1989 purchased property in Paso Robles with the limestone (high pH) soil they favored.[157] They aimed to select sites in California with soils similar to Château de Beaucastel.[158]

In 1990, Jean-Pierre and François Perrin joined with Robert Haas as General Partners of Tablas Creek Vineyards in Paso Robles, California. The goal was to provide healthy, quality clones of the Rhône winegrape varieties for American grape growers and winemakers. Clones from the Perrin estate in France were readied for export to the United States.

Jean-Pierre Perrin, François Perrin and Robert Haas

François Perrin and Robert Haas (both photos)

All Photos courtesy of Richard Hoenisch

1980's shipment from France

The Tablas Creek project encountered an initial roadblock by the fact that USDA plant pathologist Austin Goheen had retired in 1989 from overseeing the grapevine importation and quarantine program at FPMS. The USDA had put a hold on grape importation through FPMS until a successor to Goheen could be put in place.

Dr. Deborah Golino was a USDA scientist who was hired at UC Davis as his replacement. At the outset, she was reluctant to apply for an importation permit until the inadequate quarantine facilities at FPMS could be upgraded to an acceptable level to process the grapevine material. Golino recommended to Perrin and Haas that they use the quarantine facility at the USDA experiment station at Geneva, New York (associated with Cornell University) for the importation of the Rhône varieties in the 1980's.

The cuttings in the 1980's shipment of varieties from the Perrin estate to the United States arrived at Tablas Creek Vineyards in California (via Geneva, New York)

beginning in 1993. The Tablas Creek "nursery" facility at Paso Robles had been developed under the supervision of Richard Hoenisch, who applied for the position while he was a graduate student in Plant Pathology at UC Davis. Hoenisch oversaw construction of greenhouses and other infrastructure, planted vineyards and managed the propagation of the mother plant material as it came from New York.

Mother vines in TCV nursery in 1993. Photo courtesy of Richard Hoenisch.

Tablas Creek Settlement, May 1993. Photo courtesy of Richard Hoenish.

Standing in truck: Neil Collins (winemaker) and César Perrin
In front: Robert Haas, son Jason Haas and François Perrin

Distribution of the popular Tablas Creek grapevines was accomplished by them serving as their own grapevine nursery until 1999. At that time, Tablas Creek Vineyards entered into a contract with Novavine Grapevine Nursery in Sonoma to distribute the Rhône varieties to the public. The clones that were imported to the United States through Geneva, New York, in the 1980's eventually made their way into the FPS public grapevine collection in 2010 when Novavine Grapevine Nursery submitted them for testing and treatment.

The clones sent from the Perrin estate via Geneva, New York, in the late 1980's included grape varieties most of which were familiar to customers in the United States. Most had been in California since the 19th century and were known by winemakers. Those varieties included: **Counoise, Grenache blanc, Grenache noir**, **Gros Manseng, Marsanne, Mourvèdre**, **Petit Manseng, Piquepoul blanc, Roussanne, Syrah** and **Tannat**. Beaucastel is most famous for its Grenache, Mourvèdre and Roussanne.[159]

Richard Hoenisch, Robert Haas, César Perrin in France, June 2012

2004 shipment from France

Tablas Creek shipped a second group of Rhône varieties directly to FPS from France in 2004. The shipment contained some of the lesser-known Rhône varieties that were described by Robert Haas in an article in the *FPS Grape Program Newsletter, November 2005*.

The cuttings were collected from the "best performing vines" growing in "sélection massale" vineyards of Château de Beaucastel. The shipment ensured that the FPS public grapevine collection contained all of the AOC-approved winegrape varieties allowed in Châteauneuf-du-Pape wines. The 2004 donation marked the first time all Châteauneuf-du-Pape AOC-approved varieties were available in the United States as virus-tested selections screened through authorized U.S. grape quarantine programs.[160]

In the 2005 *FPS Grape Newsletter* article, Robert Haas described the possibilities for those lesser known varieties as follows:

"Many of these less-known varieties were widely grown in France in times before phylloxera. When vineyards were replaced after the scourge, many varieties were abandoned for ones that were more productive and easier to graft. To be sure, it is not possible to predict the quality and style of wines that will come from the less-known varieties of Châteauneuf-du-Pape when planted here. However, some that are hard to fully ripen in France because they tend toward low sugars and high acid will be interesting to plant in our warmer viticultural areas where the opposite problems (high sugar and low acid) are more common."

"More specifically, **Muscardin, Terret Noir, Cinsault** and **Vaccarèse** are possible sources for floral character, freshness and acid to blend with wines from varieties that tend toward high alcohol levels, such as Grenache noir, Syrah and Petite Sirah**. Bourboulenc** and **Picardin** could do the same for **Viognier, Roussanne, Grenache blanc,** and other white Rhône varieties that tend toward high sugars. **Clairette** may have some possibilities for making sweet wines or good, fresh dry wines in very cool growing areas."[161] [Haas noted that Petite Sirah and Viognier were not Chateauneuf-du-Pape grapes but were popular Rhône varieties in California].

CHÂTEAUNEUF-DU-PAPE GRAPE VARIETIES IN THE FPS COLLECTION

The varieties permitted in Châteauneuf-du-Pape wines are: Bourboulenc, Brun Argenté (Vaccarèse), Cinsaut (Black Malvoisie), Clairette (blanc, gris, rose), Counoise, Grenache (noir, blanc, gris), Mourvèdre (Mataro), Muscardin, Picardin,

Picquepoul/Picpoul (noir, blanc, gris), Roussanne, Syrah, and Terret noir. Marsanne and Viognier are important in wines of the North Rhône region and are permitted in some appellations in the Southern Rhone regions but are not permitted in Châteauneuf-du Pape-wines.

The Tablas Creek Vineyards partnership donated to FPS the Châteauneuf-du-Pape varieties mentioned by Robert Haas in his article in the *FPS Grape Program Newsletter*. Some of those varieties had a long presence in California since the 19th century and were already represented in the FPS foundation vineyard by California heritage selections and other clones. The lesser known Châteauneuf-du-Pape clones were often the only representative of the variety in the FPS collection.

The stories of Syrah and Roussanne were told above. The remaining Châteauneuf-du-Pape varieties are profiled below. The dominant red grape of the southern Rhône region is by far Grenache noir (Garnacha tinta). That variety also has a long history in California.

GRENACHE NOIR (GARNACHA TINTA)

Garnacha/Grenache is one of the most widely planted winegrape varieties in the world. The variety probably originated in Spain (the Province of Aragon) and moved into the southern Rhône Valley in France by the 19th century. It was noted for its vigorous growth and productiveness. The variety is known as Garnacha in Spain and Grenache in France.

Grenache became dominant in wines of the southern Rhône region. The variety is generally blended with Syrah and other varieties to produce common red table wines. Grenache is the primary red grape in the highly regarded Châteauneuf- du-Pape wines of the southern Rhône region.[162]

Grenache in California

Grenache was probably introduced into California around 1857 by Charles Lefranc, a prominent Santa Clara County winegrower. The variety was popular in the planting boom of the late 1800's due its versatility and ability to give more fruitiness to heavier colored varieties.[163]

Charles Wetmore commented in 1884 that "the Grenache vine" was so vigorous, fertile and so well adapted to dry warm regions that there was a danger it could be overplanted in California. He opined that the chief value of Grenache was to add "finesse and delicacy to the Mataro [Mourvèdre]" and also as a sweet red wine. He thought Grenache would play an important role in California where the variety would find "its true place" in arid parts of the interior and southern part of the state.[164]

UC wine researchers first discussed their evaluation of the variety for California in the Experiment Station Report published in 1892. They evaluated "characteristics of Southern French type" varieties from around the state and noted that Grenache was "pretty well known in the state" by 1892, having been for some time quite extensively cultivated in the Santa Clara Valley and to some extent in Napa.[165]

They observed high saccharine strength (with a "burnt sugar flavor") and low acidity in Garnacha grapes from hot climates and the reverse in those from the cooler climate of Santa Clara Valley. Hilgard did not recommend the variety for red wine production in the final station report of 1896. The early conclusion was that Garnacha (Grenache) made poor dry red wine throughout the state.[166]

Hilgard and Bioletti did acknowledge that the Grenache had value for white wines when grapes were picked early and for sweet fortified (port type) wines. In a report published in 1907, Bioletti recommended Garnacha/Grenache for Sweet Wine Production.[167] In 1929 (rev. 1934), Bioletti commented that Grenache was higher quality than Carignane, especially for sweet wine.[168]

In their reports of 1944 and 1963, UC Davis Professors Amerine and Winkler "disagreed with Hilgard" and put Grenache on their list of recommended red wine varieties for table wines of moderate color, including rosé, in the cooler regions. They did agree with white dessert wines in the warmer regions.[169]

Grenache acreage grew steadily in California after Prohibition, especially in the Central Valley, where the variety was used mostly for blending and production of varietal rosé and blush table wines. In the cooler regions on the coast, Grenache was also blended with Syrah, Mourvèdre or other varieties for production of Rhône style wines.[170]

Harold Olmo reported to the ASEV (American Society for Enology & Viticulture) in 1954 on the "Principal Wine Grape Varieties" in California. He indicated that Grenache had shown a rapid rise in acreage by 1952 to 9,068 acres (from 3,507 in 1942). He attributed the increase to "belated recognition of one of the best all-around wine varieties" and the trend toward lighter and fresher wines. Olmo mentioned Grenache's dual value as both a sweet wine and table wine type of good quality.[171]

The California Grape Acreage Report for 2019 showed acreage for Grenache (noir) to be 4,271 total acres.[172]

GRENACHE SELECTIONS FROM CALIFORNIA VINEYARDS AT FPS

Grenache-1

California grape and wine industry members were eager for production of healthy selections of popular varieties when the California Grapevine Registration & Certification Program was established in 1956. An indication of the significance of the Grenache variety to California viticulture was selection of Grenache by UC Davis viticulture experts for inclusion in the first foundation vineyard for the R&C Program.

The selection planted in Block A of the foundation vineyard in 1956 was given the name Grenache-1. The origin of Grenache-1 was block I(eye)61v20 in the Department of Viticulture & Enology vineyard on the UC Davis campus.

Winegrape evaluation cards maintained by Harold Olmo show that the selection at I61v20 could be traced to a vine at location D2: 17-18 in an old vineyard on the UC Davis campus. The entry on the Olmo card was: *I 61: 19-20 < C 13: 5-6 < D 2: 17-18*.

The vine location at block D2: 17-18 references an old vineyard that the Department maintained when it was moving their research vineyards and variety collection around the Davis campus and on occasion renumbering them. The old Department records are not complete but some entries on old vineyard maps suggest that Block D was once active in the 1920's (as Vit. vineyard VIIIB) and 1930's (renumbered as Block D).[173]

Grenache-1 was repeatedly tested but appeared by 1960 to be irreparably suffering from grapevine leafroll virus. Grenache-1 was not moved over to the new Hopkins Road foundation vineyard in the 1960's.

Several selections that came to FPS long ago from California vineyards do still survive in the FPS foundation vineyard in 2020. The oldest surviving Grenache noir selection at FPS is Grenache noir FPS 01A.

Grenache noir FPS 01A (Livingston, California, 1959)

Grenache 01A was donated to FPS around 1959 by E&J Gallo Winery from a vineyard near Livingston, California. Julio Gallo selected the material based on its productivity and quality.[174] Notations in FPS records suggest that Gallo obtained the selection from a vineyard associated with the name Crowe. The lists of registered grapevines from the California Grapevine R&C Program for both 1961 and 1962 give the source of the material as "Crowe R3v30".[175]

After basic index testing, Grenache 01A was planted in the old Hopkins Road foundation vineyard in 1961. The "A" suffix was attached to the selection number to distinguish the selection from the separate selection named Grenache-1 that had been released in 1956 (and later discontinued). Grenache 01A remains in the FPS foundation grapevine collection in 2020.

In 2002, ampelographers Jean-Michel Boursiquot and Andy Walker recommended that FPS change the name of the black Grenache selections to Grenache noir to distinguish them from the grey and white fruited forms of Grenache. The name of Grenache 01A was changed in 2002 from Grenache to Grenache noir 01A.

Grenache noir 01A has been described by university experts as a "field selection from California with fruitful, smaller berries and less propensity for bunch rot".[176]

Grenache noir FPS 02 (Grenache noir 01A)

There once was a selection in the foundation vineyard named Grenache-2 (also written Grenache 02). Grenache-2/02 was also known in some FPS vineyard maps and indexing records as Grenache 02A (see California Grapevine R&C Program registered list in 1966).

It is clear from the records that Grenache-2 was created at FPMS in 1964 from Grenache 01A using heat treatment therapy for 62 days. When the treated selection completed testing, it was installed in 1965 in the Hopkins foundation vineyard as Grenache-2 (location F7 v 1, 2). Grenache 2/02/02A was moved into the new foundation vineyard at Brooks Tract (now known as the FPS Classic Foundation Vineyard) when the foundation vineyard was moved in the early 1980's. Grenache 02 proved to suffer from leafroll virus and was permanently removed from the FPS foundation grapevine collection in the mid-1990s.

Grenache noir FPS 03 (Foothill Experiment Station, Jackson, 1963)

This selection came to FPS in 1963 from the former University of California Foothill Experiment Station at Jackson in Amador County, California, as a result of Austin Goheen's exploratory trip mentioned above in connection with the misidentified "Petite Sirah" 04.

The material was collected from vine D17v7 in the Jackson Station vineyard. The Grenache accession planted in Block D at that location had been planted in 1889 with cuttings obtained from the vineyard maintained at the former University station on the Berkeley campus.

After basic index testing at FPS, the original material was released in 1966 as Grenache 03 (location FV F11 v 15,16). The name was changed in 2002 from Grenache to Grenache noir.

University experts noted that Grenache noir 03 produced larger yields, larger berries and clusters. The selection was not ultimately recommended by the University because of a propensity to rot and delayed fruit maturation.[177]

Grenache noir FPS 09.1 (Old Patch Block, Whitton Ranch, Ridge Vineyards)

FPS has been the beneficiary over the years of donations of heritage grape material by many viticulturists dedicated to the preservation of those old clones for the public benefit. Two participants in the Historic Vineyard Society in California have

generously donated to FPS separate heritage Grenache selections collected from old vineyards around the state.

The Historic Vineyard Society is a nonprofit organization established in 2011 and dedicated to preserving California's oldest vines. Much of the work is performed as a volunteer effort by winemakers and viticulturists who have a special interest in those old vines. The vineyards must be currently producing California wine. One third of the vines producing wines must be traceable to an original planting date of at least 50 years ago. David Gates of Ridge Vineyards and Morgan Twain-Peterson of Bedrock Wine Company are two of those dedicated team members.

Grenache noir 09 is a California heritage clone donated to the FPS public grapevine collection in 2014 by David Gates, Vice President of Vineyard Operations for Ridge Vineyards, in Sonoma California. The original material was collected from the "Old Patch Block" at Whitton Ranch in the Alexander Valley. Old Patch at Whitten Ranch was planted in 1882. Grenache noir 09.1 (and Mourvèdre 07.1, *below*) were part of a field blend of mostly Rhône and French varieties that have survived since the 19th century.

Whitton Ranch Vineyards. Photo courtesy of Ridge Vineyards.

Morgan Twain-Peterson donated a heritage Grenache selection from Glen Ellen, California. See Grenache FPS 18, *text below*.

Grenache noir FPS 10 (Alban Vineyards)

Grenache noir 10 is a proprietary selection owned by John Alban of Alban Vineyards, Inc. Alban obtained material from the northern Rhone in the 1980's and planted it at Paso Robles and Edna Valley. His Grenache clone was known for its deep color and low yield.[178]

Grenache noir FPS 11, 12, 15, 16 and 17 (Duarte Nursery)

Grenache noir 11, 12, 15 and 16 were donated to the FPS public grapevine collection by Duarte Nursery of Hughson, California. The material originated from vineyards in Georgetown, California (Grenache 11 and 12) and Paso Robles, California (Grenache 15 and 16). The four selections are reportedly different clonal material.

Grenache noir 17 was donated to the FPS public grapevine collection by Duarte Nursery and was collected in a vineyard in Paso Robles, California.

Grenache noir FPS 18 (Old Hill Ranch, Glen Ellen, Bedrock Wine Company)

Grenache noir 18 is heritage clonal material donated to FPS by Morgan Twain-Peterson of Bedrock Wine Company for the Historic Vineyard Society. The selection originated from an 1880's block at Old Hill Ranch in Glen Ellen, California.

Grenache noir FPS 19 (Larner clone)

Grenache noir 19 is known as the "Larner clone" from Larner Vineyard in Solvang, California. The selection was donated to the FPS public grapevine collection by Larner Winery & Vineyard, who specialize in growing Rhône varieties at their location in Ballard Canyon Road in the Santa Yñez Valley.

GRENACHE SELECTIONS FROM EUROPE

The diversity of Grenache noir planting stock in California increased around 1998 with importations from European sources.

Tablas Creek Vineyards clones from southern France

The Tablas Creek Vineyards partnership donated five Grenache noir selections to the public grapevine collection at FPS in 2010. The original mother plants for those selections were imported through the Geneva, New York, quarantine program in the 1980's.

The five Tablas Creek selections are **Grenache noir FPS 06, 07, 08, 13 and 14**. The material was reportedly collected from unique vine sources at Château de Beaucastel in southern France. The selections have been used by the Perrin family for making Châteauneuf-du-Pape wines.

Grenache noir 07 in the FPS Classic Foundation Vineyard, September 2020

PROPRIETARY FRENCH GRENACHE NOIR CLONES

ENTAV-INRA® clones

The Institut Français de la Vigne et du Vin (IFV) manages the program for official French clonal material and has caused several Grenache noir clones to be imported to the United States. ENTAV-INRA is the entity that manages distribution of those

clones pursuant to the ENTAV-INRA® trademark program for official French clones.

Four of the French clones that were imported through FPS originated in the departement of Vaucluse in southeastern France: **Grenache noir ENTAV-INRA® 224 (issued 1973), 287 (1973), 362 (1975) and 1212 (2014). Grenache noir 1212** remains in the pipeline at FPS as of 2020.

Vaucluse is in the French region of Provence-Alpes-Côte d'Azur, which also includes departements Ardèche and the Drôme. The western border of Vaucluse is the Rhône River. AOCs in the region include Châteauneuf-du-Pape and Côtes du Rhône.

Grenache noir ENTAV-INRA® 515 originated from the Ardèche (1976) departement. **Grenache noir ENTAV-INRA® 513** was released in 1976 but its origin was not specified.

All of the ENTAV-INRA clones are proprietary and are distributed through licensees in the United States.

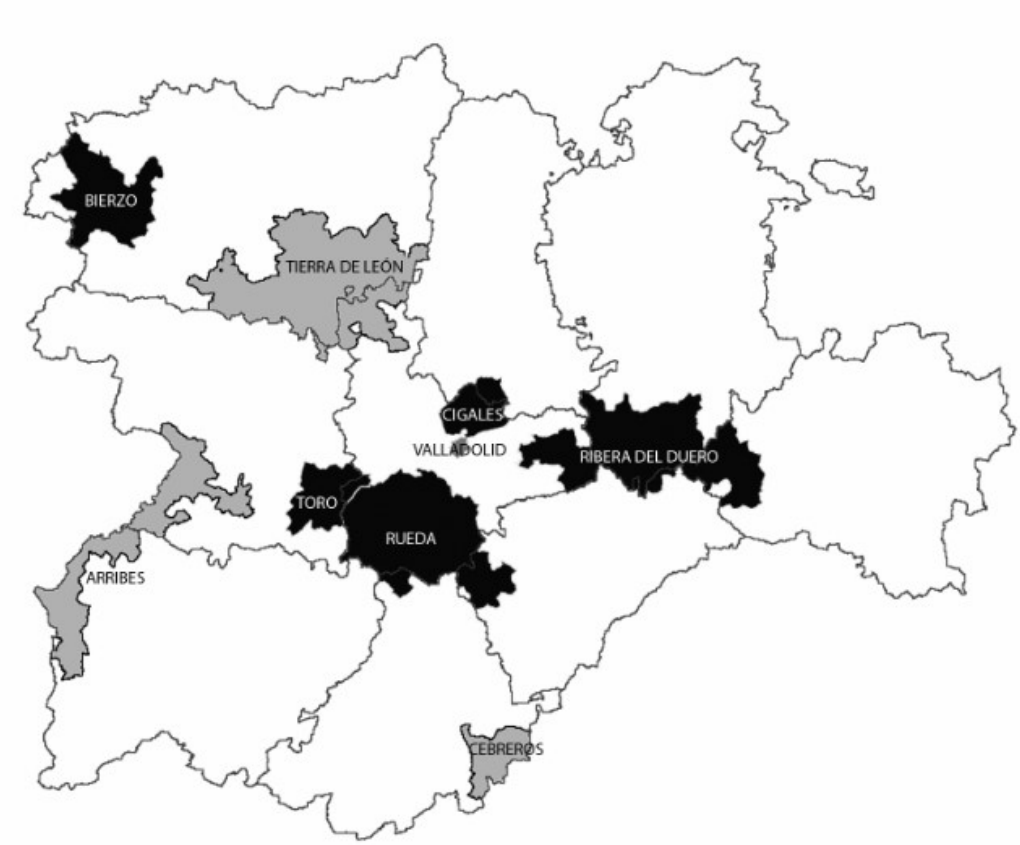
Grenache noir FPS 04 (VCR 3, Italy)

This proprietary selection was imported to FPS in 1998 from Rauscedo Nursery in Italy. The material is VCR clone 3. The selection was released as Grenache 04 after successful completion of testing in 2000.

GARNACHA SELECTIONS FROM SPAIN

Garnacha tinta is the primary Spanish name for the variety known in France as Grenache noir. FPS has received clones from Spain with the name Garnacha tinta. The variety is thought to have originated in Spain although it is an important variety in both France and Spain.

Garnacha tinta is a popular black grape that is planted extensively throughout Spain. The variety is made into strong, sweet red wines and some successful rosés.[179]



Castilla y Léon viticultural areas for Spanish program. Photo from Jesús Yuste.

The Instituto Tecnológico Agrario de Castilla y León (ITACyl), Valladolid, Spain, started a Sanitary and Clonal Selection Program for native grapevine varieties in Castilla y León in 1990. Castilla y León is one of the quality wine-producing regions in Spain. The goal is to select virus-free clones that are true to variety and produce high quality wines.

In 2000, ITACyL sent a group of several varieties to FPS to test and treat if necessary. FPS and ITACyL entered an agreement of collaboration in 2005 allowing FPS to distribute the ITACyL clones.[180]

The FPS public grapevine collection contains three Garnacha clones from the Spanish national grape collection – two black (tinta) and one red (gris). The selections were given the Spanish name because of the co-equal nature of the origin of the variety.

Garnacha tinta FPS 01

Garnacha tinta 01 is from the Spanish production district Cebreros and D.O. Cigales. The source material for this selection was CL-52, which stands for "Castilla y León 52". The selection is known for high production, good maturation, optimum acidity and body.

Garnacha tinta CL-52. Photo courtesy of Jesús Yuste.

Garnacha tinta FPS 03

Garnacha tinta 03 came to FPS from ITACyL in 2006. The clone is CL-55 from the clonal selection program in Valladolid, Spain.

Garnacha tinta FPS 03 in FPS foundation vineyard

Garnacha (roja) gris FPS 01

Garnacha roja (Grenache gris) is the pink-skinned mutation of Garnacha/Grenache.[181]

Garnacha gris FPS 01 was one of the group of ITACyL clones that came to FPS in 2000 from the program at Valladolid, Spain. The source material for this selection was CL-33, which stands for "Castilla y León 33", from the Cigales district. The clone is known for a high grape yield, medium maturity, good acidity and freshness.[182]

GRENACHE BLANC (GARNACHA BLANCA)

Grenache blanc is one of the specific varieties named in the 2009 clarification of the permitted varieties for Châteauneuf-du-Pape wines. The variety produces full-bodied white wines and is more often used in blends than as a varietal wine in southern France.[183]

There were a total of 636 acres of Grenache blanc in California in 2019, primarily in the San Joaquin Valley and San Luis Obispo County.[184]

Grenache blanc has reportedly thrived in California "with a different profile than it has in southern France". Vintners have observed an "admirable level of acidity" which it supplies to other Rhône white varieties such as Viognier and Marsanne.[185]

Grenache blanc FPS 01.1 (Tablas Creek Vineyards, 2010)
Tablas Creek Vineyards donated a Grenache blanc selection to FPS in 2010 from the vineyards at Château de Beaucastel. The material underwent microshoot tip tissue culture therapy and qualified for the Russell Ranch Foundation Vineyard in 2017.

Grenache blanc ENTAV-INRA® 141
IFV imported official French clone Grenache blanc 141 to the United States in 2013. Clone 141 originated from the département of Aude in the Languedoc region of south-central France. The selection underwent tissue culture therapy at FPS and qualified for the foundation vineyard in 2018.

BOURBOULENC

Bourboulenc is a minor white variety used in Châteauneuf du Pape wine.
Bourboulenc is listed in the 2019 California Grape Acreage Report in the category of "other white wines".[186]

Tablas Creek Vineyards donated to FPS the only Bourboulenc in the FPS foundation vineyard collection. This grape cultivar was one of a series of Châteauneuf-du-Pape varieties donated to the FPS public grapevine collection in 2004. Bourboulenc FPS 01.1 is unique clonal material that originated from the vineyards at Château de Beaucastel in France. The original plant material underwent treatment at FPS and was released in 2012 as Bourboulenc 01.1.

In his newsletter article about the lesser-known varieties of the appellation, Tablas Creek Vineyards General Partner Robert Haas suggested that Bourboulenc might be used as a source for floral character, freshness and acid in Rhône wine blends.

VACCARÈSE (BRUN ARGENTÉ)

Vaccarèse is a minor black grape that is one of the 13 traditional varieties allowed in Châteauneuf-du-Pape wine. The variety name Vaccarèse is specific to the area of Châteauneuf-du-Pape and is a synonym name for Brun Argenté, the more widespread prime name for the variety. Robert Haas suggested that Vaccarèse is a possible source for floral character, freshness and acid to blend with varieties that tend toward high alcohol levels. FPS has two selections for this variety.

Vaccarèse FPS 01.2 (Tablas Creek Vineyards, 2004)

Vaccarèse 01.2 was donated to the FPS public grapevine collection by Tablas Creek Vineyards in 2004. It originated from Château de Beaucastel. The mother material underwent microshoot tip tissue culture therapy at FPS and is available from the Classic Foundation Vineyard.

Vaccarèse FPS 02 (Saitone Ranch, Sonoma, Bedrock Wine Co.)

Vaccarèse 02 came to FPS in 2017 from Morgan Twain-Peterson of Bedrock Wine Co. as part of the Historic Vineyard Society Program. The material was collected from the heritage vineyard at Saitone Ranch in the Russian River Valley and came to FPS with the synonym name Brun Argenté.

CINSAUT/BLACK MALVOISIE

The variety Cinsaut is one of the lesser-known black varieties allowed in traditional

Châteauneuf-du-Pape wine. The variety has been in California since the early days of the wine industry and has also been known in the state as Black Malvoisie. It is used for softness in blends of quality red table wines.[187]

Jancis Robinson and her colleagues in the book *WINE GRAPES* (2012) were confident in assigning the origin of the Cinsaut variety to southern France (possibly Languedoc-Roussillon) based on extensive DNA analysis.[188] Cinsaut is suited to the warm dry soils of southern France to produce fruity rosé wines.

Cinsaut was imported into California in the 1860's. It became a popular blending grape for clarets in the 1870's and was often blended with Zinfandel.[189]

Cinsaut/Black Malvoisie was evaluated by Hilgard and the other UC researchers in the 19th century. They observed that the variety was a heavy and regular bearer and performed better in the warm to hot interior valleys of the state. They concluded that Cinsaut made a better white than red wine and was much improved by blending with other varieties.[190]

In 1944, Amerine and Winkler opined that "Black Malvoisie" failed to produce a wholly satisfactory table wine anywhere in the state. They stated that the variety was not recommended for planting anywhere in California for wine-making purposes.[191]

Harold Olmo concluded in the 1970's that Black Malvoisie was used in California principally for blending with other varieties to make dessert wines. There were only 800 acres in the state at the time, mostly in the Central Valley. Olmo noted that the grapes tended to have low acidity and color and attained a high sugar content.[192]

Cinsaut was rediscovered when the Rhône Rangers experimented with Rhône varieties in the 1980's. However, only about 100 acres of Cinsaut remained in California plantings by 2019.

The FPS foundation grapevine collection has included Cinsaut selections since the 1960's. The selections started out with the selection name Black Malvoisie. The names of all the Black Malvoisie selections were changed to Cinsaut in 2004 because it was more recognizable internationally and was the TTB-approved prime name.

Cinsaut FPS 02 (California vineyard, 1959)

The first Cinsaut selection came to FPS in 1959 from a California vineyard named "Wright" (Wright10v13). The original material underwent heat treatment therapy for 64 days and was released in 1964 as Black Malvoisie 02. The selection became Cinsaut 02 in 2004.

Cinsaut 02 at FPS

Cinsaut FPS 03 (Foothill Experiment Station, Jackson, CA, 1963)

Austin Goheen discovered two selections of this variety in the former Foothill Experiment Station at Jackson in Amador County in 1963. The first selection was planted at the station in March 1889 with the name "California Black Malvoisie" at location E5 v4. The vine material was from JT Doyle's Cupertino Experiment Station. The selection completed testing at FPMS in 1966 and was released as Black Malvoisie 03. The name was changed to Cinsaut 03 in 2004. The selection remains available in the FPS Classic Foundation Vineyard.

A second accession of this variety from the Foothill Station was indexed at FPMS in the 1960's. The material had been planted as Cinsaut at the Foothill Station location D7 v13. The material originated from UC's Berkeley Experiment Station in 1889. After completion of testing, the Cinsaut selection was released with the name Black Malvoisie 04 in May 1966. It was removed from the foundation vineyard in in 1978 and was never replanted.

Cinsaut FPS 04.1 (Tablas Creek Vineyards, 2004)

Tablas Creek Vineyards imported Cinsaut 04 to FPS in 2004 pursuant to the cooperative effort to bring all Châteauneuf-du-Pape varieties to the United States from Château de Beaucastel. The original Cinsaut plant material underwent treatment at FPS in 2007 and was released in 2012 as Cinsaut 04.1. The selection is available at FPS from the Classic Foundation Vineyard.

Cinsaut FPS 05 (Oakley, CA, Cline Cellars, 2014)

One of the heritage clones donated to the FPS public collection by Matt Cline of Cline Cellars in 2014 was Cinsaut 05. The plant material was rescued from the Spinelli Vineyard in Oakley, California, which was reportedly originally planted around 1885. The selection successfully completed testing in 2015 to qualify for the California Registration & Certification Program. (*See also*, Carignane 12, 13, 14 and 15 and Mourvèdre 08 for other Cline selections).

Cinsaut ENTAV-INRA® 92

The IFV has imported a Cinsaut clone from France for distribution in the United States. Official French clone Cinsaut 92 originated in Gard in southern France and was developed in the Languedoc region.

CLAIRETTE BLANCHE

Clairette blanche is a white Rhône variety that has been in California since the early days of the wine industry in the state. Charles Wetmore acknowledged in his 1884 *Ampelography* that experiments were underway at the time with Clairette and that the variety showed promise as a blender to assist with fermenting and improving red wines of late ripening varieties such as Mataró, Grenache and Carignan.[193]

Hilgard evaluated Clairette blanche at UC and observed that the grape was suitable as a late table grape and also produced a high class, delicately flavored wine. The variety

was extremely long lived but the wine was not a good keeper. The best wine results were in the warmer regions of Tulare and Amador.[194]

Frederic Bioletti agreed in 1929 (rev. 1934) that Clairette "bears well and gives excellent white wine in warm regions". He found the variety suitable for the Central Valley and warmer parts of the North Coast region. Both Hilgard and Bioletti found that the bearing was irregular in the cooler regions.

Amerine and Winkler gave conflicted reports on Clairette. In 1944, they indicated the variety was not recommended because it did not mature normally in some regions and the wines were unsatisfactory (not enough acid) in other regions.[195] They noted in 1963 that the variety had been tested for many years in California but had not received much recognition. They concluded the wine was "above average quality wine of no general interest for California conditions". In the end, having said all that, Clairette was included in the "Recommended or Acceptable Varieties" section of the report.[196]

Clairette does not yet have its own listing in the annual *California Grape Acreage Report* and is listed with "other white wines" in the 2019 Report.

Clairette blanche FPS 01 (Foothill Experiment Station, Jackson, CA, 1963)
At one time, Clairette blanche 01 was part of the FPS foundation vineyard collection. That selection was collected from location L13 in the vineyard of the former UC Foothill Experiment Station in Jackson, Amador County. It was in the foundation vineyard at FPS from 1966 to 2002. The selection was finally removed for disease and was never treated or replaced.

"Clairette blanche" FPS 03 (UCD Department of Viticulture & Enology)
Clairette blanche 03 was acquired from the vineyard of the Department of Viticulture & Enology (location I57 v21) on the UC Davis campus. The selection was maintained in the FPS foundation vineyard from 1968 until 2005, when DNA testing indicated that Clairette blanche 03 had been misidentified and was really Tinta Santarém. The selection was removed from the collection.

Clairette blanche FPS 04 (Tablas Creek Vineyards, 2004)
Clairette blanche 04 was donated to the FPS public grapevine collection by the Tablas Creek Vineyards partnership in 2004. The plant material was collected from a vine at

Château de Beaucastel in southern France. Clairette blanche 04 completed testing at FPS in 2009 and was thereafter released.

Clairette blanche FPS 05 (Sonoma, Bedrock Wine Co., 2017)
Morgan Twain-Peterson of Bedrock Wine Co. donated a heritage clone of Clairette blanche to the FPS public foundation collection in 2017. The material was collected at Carlisle Vineyards in Sonoma. Carlisle Winery & Vineyards specializes in the production of old vine Zinfandel and Rhône varietals.

Clairette blanche ENTAV-INRA® 208
IFV imported an official French clone of Clairette blanche to the United States in 2006. Clairette blanche 208 originated from Gard and was certified in 1973. Gard is a département in southern France located in the Occitanie region.

Clairette rose
FPS does not have a Clairette rose selection.

COUNOISE

Counoise is a very old black variety from southern France, cultivated mainly in the southern Rhône area.[197]

The Tablas Creek Vineyard website explains that Counoise is somewhat of an obscure variety that is a component of many Châteauneuf-du-Pape wines, as well as about 10% of the "Beaucastel rouge". At Château de Beauscastel, the Perrins have been increasing their plantings of Counoise in recent years with the belief that Counoise's later ripening (than Syrah) produces "wines with intense spice and bright acidity" to complement Grenache and Mourvèdre.[198]

In 2019, there were reportedly 60 acres of Counoise planted in California.

Counoise FPS 01 (UC Department of Viticulture & Enology)
This selection came to FPS in 2000 from the Tyree Vineyard, block D, row 5 vine 28. The Tyree vineyard was located on the campus of the University of California, Davis, and was managed by the Department of Viticulture & Enology. The selection was released in 2002 as Counoise 01.

Counoise FPS 02.1 (Tablas Creek Vineyards, 2010)

This selection is part of the cooperative effort by Tablas Creek Vineyards to bring all traditional varieties allowed in Châteauneuf-du-Pape wines to the United States. The original material came to the United States from France in the 1980's with a group of cultivars that were processed through the former quarantine program in Geneva, New York.

Counoise 02 was donated to the FPS grapevine collection in 2010 by Tablas Creek Vineyards. The material underwent therapy at FPS in 2011 and was released in 2015 as Counoise 02.1.

Planting Counoise at Tablas Creek Vineyards in 1995. Photo courtesy of Richard Hoenisch.

Counoise ENTAV-INRA® 508

IFV has imported official French clone Counoise 508 for distribution in the United States through ENTAV licensees. Clone 508 originated from the Vaucluse department in 1976.

MOURVÈDRE (MONASTRELL, MATARÓ)

The origin of this variety is thought to be Spain. The red wine grape known by the names Monastrell and Mataró (Spain) and Mourvèdre (France) is of ancient origin, perhaps introduced to the Barcelona area of Spain by the Phoenicians in 500 B.C.[199]

The preferred name of the variety in Spain is Monastrell, suggesting its association with monks or monasteries.[200] Monastrell is the preferred prime name for the variety in Europe according to the *Vitis International Variety Catalogue (VIVC)*, www.vivc.de.

Photo by Jack Kelly Clark. © University of California

The variety has been more familiarly known in France and California by the names Mataró and Mourvèdre. Both of those names are derived from locations in Spain. The Spanish synonym name Mataró comes from the town of Mataró in Catalonia on the Spanish Mediterranean coast.[201]

Mourvèdre is the name used for the variety in France. The grape variety Mourvèdre was brought to France after the 16th century. The name Mourvèdre is derived from town of Murviedro in the Camp de Morvedre region of Valencia in eastern Spain.

California

The variety came to California in the 1860's. Historian Thomas Pinney noted that the grape was "anciently known in California as Mataro".[202] Wine writer Charles Sullivan

quipped that the Spanish name Mataró "stuck to the grape in California until the 1980's".[203]

Mataró probably arrived in the 1860's in the Pellier collection, a consignment of stock from France to the Santa Clara Valley by Louis and Pierre Pellier. Mataró was popular in the Santa Clara Valley in 1870's and planted all over northern California in the planting boom of the 1870's and 1880's. The variety was used as a blending grape in clarets and burgundies. Mataró became fairly common in Napa vineyards under the Spanish name and by 1900 was included in field blends of Zinfandel on the North Coast.[204]

Charles Wetmore thought so highly of the variety that he stated in 1884: "although [Mataro] is not as extensively cultivated now as other varieties for red wine, yet its present popularity demands for it a place next to Zinfandel".[205] He noted that the French authorities were united in placing Mataró (Mourvèdre) as the finest red wine grape of the southern regions in France, in part due its adaptability in multiple climates and uses. The defect of the variety appeared to them to be the "roughness of the wine when young", which inspired the nickname *Etrangle-chien* (dog strangler).[206] Wine from the variety gave an intensely colored wine with good keeping quality.

Mourvèdre needs moisture and thrives when planted near the ocean. Vineyards planted in the 19th century in Contra Costa County where the Sacramento River met the San Francisco Bay were still in production in recent years.[207]

Hilgard evaluated Mataró and noted that the productive variety had been extensively planted in California principally in the cooler parts of the coast valleys, for which he believed the variety was not suited – resulting in harsh common wine. Wine produced in the warmer localities of the Santa Clara Valley and Livermore made a "sound, solid, somewhat coarse wine good for blending in ordinary wines". In 1892, the UC researchers thought that the variety should be propagated more than it had been so far and recommended it as a blender with Grenache and Carignane.[208]

In 1907, Frederic Bioletti recommended not planting Mataró anywhere in California on the theory that it made poor wine.[209] He moderated that opinion a bit by 1929 when he clarified that Mataró wine made in cooler regions is poor because the fruit lacks quality. He indicated that the variety required a warmer climate like the South Coast region.[210]

Amerine and Winkler did not recommend Mataró for planting in California in their 1963 report. They stated: "the variety has been tested in many parts of California and the deficiencies are well known", citing the lack of color and rather neutral flavor.[211]

The name Mataró did stick to the variety in University collections through most of the 20th century. Mataró was planted in University vineyards in the 19th century. The variety was included in the UC Experiment Station vineyards such as the Foothill Station in Jackson in the 1890's, where it was known as Mataró. Mataró was included in the UC Viticulture Department Variety Collection of Vinifera in Block D (D15 v9-12) at the University Farm in Davis in 1910. The variety was still known as Mataró in the Department of Viticulture vineyards (I65, N151) at Armstrong Tract in the 1950s. In 1961, the variety was included in the FPMS Hopkins Foundation Vineyard, Block D1 v 5-6, as Mataro-1, the first year it appeared on the list of registered vines.

Mataró plantings in California vineyards after Prohibition increased from 7,000 acres in 1932 to a high for the variety of 8,143 acres in 1939.[212] Notwithstanding increased interest in the variety on the part of the Rhône Rangers movement, the acreage had declined by 2019 to close to 1,200 acres planted in the state under the name Mourvèdre.[213]

Mataró/Mourvèdre was rediscovered by the Rhône Rangers who were most likely responsible for the switch of the favored name in the state to Mourvèdre. Old plantings in Contra Costa County received more attention. Cline Cellars of Contra Costa county pioneered a varietal, which is today usually named Mourvèdre.[214]

The names Monastrell, Mataró and Mourvèdre have been approved by the TTB as synonym names for this variety on labels for wine produced in the United States.[215]

Mourvèdre is suitable for fruity rosés and dark red wines with strong tannic structure. The variety gives structure to wines, that age well. Mourvèdre is often used for blending with wines more prone to oxidation like Grenache (Châteauneuf-du Pape style wines).[216]

MATARÓ/MOURVÈDRE SELECTIONS AT FPS

Mourvèdre FPS 02 (Reported to be French clone 249, 2000)

Mourvèdre 02 was donated to the FPS public grapevine collection in 2000 from a vineyard in Mendocino County. It is reported to be French clone 249. The plant material came to the United States prior to initiation of the official French trademark program, which is the only authentication method for French clones. Therefore, the generic description ("reported to be") of the clone is used here regarding clonal identity. The clone is reported to be clone 249 but its authenticity cannot be guaranteed.

Mourvèdre FPS 03 and 04 (formerly Mataró 01, Acampo, California)

Mourvèdre FPS 03 and 04 originated from the same plant material.

Mataró 01 came to FPMS around 1959 from a vineyard near Lodi, California. The Goheen indexing binder at FPS indicates that the source vineyard was "Furuoka R24v14" in Acampo. Bill and Irene Furuoka conducted a family grape farming business in the area at that time and were the likely owners of the source vineyard. Mataró 01 did not undergo treatment and was planted in the foundation vineyard (FV D1 v 5,6) in 1961.

In 1964, Mataró 01 underwent heat treatment for 133 days and the new selection was planted in the foundation vineyard as Mataró 03 (FV F6v15) in 1965.

In 2003, the name of both FPS Mataró selections was changed to Mourvèdre after DNA analysis confirmed matches to an authentic French sample of Mourvèdre. The name Mourvèdre is more recognizable internationally. Mataró 01 was renamed to Mourvèdre 04 and Mataró 03 was changed to Mourvèdre 03. Both variety names are recognized by the TTB for use on wine labels in the United States.[217]

Mourvèdre 03 at FPS

Mourvèdre FPS 09 (Markus Bokisch, 2001)

Mourvèdre 09 was donated to the FPS grapevine collection in 2001 by viticulturist and winemaker Markus Bokisch from a vineyard in Oakley, California. The selection is currently unavailable from FPS because it is planted at Russell Ranch.

Mourvèdre FPS 05, 06, 10 and 11 (Tablas Creek Vineyards, 2010)

Tablas Creek Vineyards donated four Mourvèdre selections to the FPS public grapevine collection in 2010 as part of the partnership project between Robert Haas and the Perrin family in France. The Perrin family at Château de Beaucastel is known for using a high proportion of Mourvèdre in their red wines, including the Châteauneuf- du-Pape.[218]

The four selections that were donated are Mourvèdre 05, 06, 10 and 11. They are reported to be from southern France. The original mother plants for the Mourvèdre selections came to the United States through the quarantine program in Geneva, New York, in the 1980's. They entered the disease testing process at FPS in 2010. Selections 05, 06 and 10 are currently available in the FPS Classic Foundation Vineyard.

CALIFORNIA HERITAGE MOURVÈDRE CLONES AT FPS

Several participants in the Historic Vineyard Society project have generously donated heritage grape clones from vineyards around California to the FPS public grapevine collection. Many of those selections are varieties used in wines from the Rhône region and southern France.

The Historic Vineyard Society is a nonprofit organization established in 2011 and dedicated to preserving California's oldest vines. Much of the work is performed as a volunteer effort by winemakers and viticulturists who have a special interest in those old vines. The vineyards must be currently producing California wine. One third of the vines producing wines must be traceable to an original planting date of at least 50 years ago. David Gates of Ridge Vineyards and Morgan Twain-Peterson of Bedrock Wine Company are two of those dedicated team members.

Twain-Peterson was mentioned (above) in connection with donations to FPS of Grenache noir 18 (Old Hill Ranch, Glen Ellen, 1880's), Clairette blanche 05, and Syrah 41 and *(below*) Petit Bouschet 05 and Vaccarèse 02.

Mourvèdre FPS 07 (Ridge Vineyards, Whitton Ranch, 2014)

David Gates, Vice President of Vineyard Operations, Ridge Vineyards, in Sonoma County is a well-respected viticulturist who has donated many heritage clones to the FPS collection over the years. Mourvèdre 07.1 was collected from the "Old Patch" block at Whitton Ranch in the Alexander Valley in Sonoma County.

Whitton Ranch. Photo courtesy of Ridge Vineyards

The vineyards at Whitton Ranch were planted in 1882 (Old Patch) and 1891 (Old Carignane) by A. Boutin, an orchardist and colleague of Luther Burbank. Boutin named his estate Heart's Desire. Gates indicates that the surviving vines in the old vineyards are a field blend of Carignane (35%), Zinfandel (26%), Alicante Bouschet/Petite Bouschet/Grand noir (19%), Mataró (9%), Syrah/Petit Sirah (7%), and others, including Grenache, Négrette/Pinot St. George, Béclan noir, Listán, Olivette noir/Cornichon, Mourtaou and St. Macaire (4%).

Ridge has made wines from the Whitton Ranch grapes since 1966. Gates is of the opinion that the clones could have value for the wine industry. Ridge has donated many of the clones from those old vineyards to FPS, including Durif 11.1, Grenache noir 09.1, Saint Macaire 04, Béclan 01, Mourtaou 01 and 02, Alicante Bouschet 05 and Petit Bouschet 04. The Béclan was evaluated by Hilgard in 1896 who found that Beclan makes a wine of smoother and more neutral character, often excellent for softening the intense character of harsher grapes.[219]

Gates and Ridge Vineyards have also donated heritage Zinfandel and Cabernet Sauvignon from the Santa Cruz Mountains and Sonoma to the FPS collection.

Mourvèdre 07.1 underwent treatment and was released in 2017.

Mourvèdre FPS 08 (Oakley, CA, Cline Cellars, 2014)

Matt Cline is another of the dedicated viticulturists seeking to preserve heritage grapevine material from California vineyards. His family winery, Cline Cellars in Oakley, Contra Costa County, pioneered Mourvèdre (Mataró) as a premium varietal wine in the 1980's.[220]

Commercial grapevine plantings in the former Spinelli Vineyard and Emerson Ranch Vineyard in Oakley date from the early days of the California grape industry. Old Mataró vines were planted in the "sandy San Joaquin Delta flats of Oakley and Antioch" in those days.[221] Those vineyard properties were ultimately purchased by the State for wetlands restoration in the early 2000's.

Matt Cline (Cline Vineyards and MAC Wines) rescued clonal material reportedly planted in the 1880's in those old vineyards and donated several varieties to the FPS collection in 2014. Five selections were released in 2016 to be planted in the FPS Classic Foundation Vineyard: Carignane 12, 14 and 15 and Cinsaut 05 and Mourvèdre 08. The Mourvèdre was collected from the Spinelli Vineyard in Oakley. Additional detail is provided below in the section on Carignane.

Proprietary Mourvèdre/Mataró at FPS

ENTAV-INRA® Mourvèdre clones

The IFV in France has imported several authenticated Mourvèdre clones for distribution in the United States, including Mourvèdre ENTAV-INRA® 247 (from the Languedoc department of the Aude, 1973), 369 (Spain, 1975), 450 (unspecific origin, 1976) and 1069 (Spain, 2003).

Mataro FPS 05

Mataro 05 is a proprietary clone imported by Vintage Nurseries (Wonderful Nurseries LLC) from South Australia in 2011.

MUSCARDIN

Muscardin is one of the black grapes allowed in Châteauneuf-du-Pape wines and is not often found in France outside the Rhône region. Robert Haas suggested that Muscardin is a possible source for floral character, freshness and acid to blend with wines from varieties that tend toward high alcohol levels.

FPS' only Muscardin selection was donated to the public grapevine collection by Tablas Creek Vineyards in 2004. The plant material was collected at Château de Beaucastel in France. The mother vine Muscardin underwent treatment at FPS and qualified for the foundation vineyard in 2015 as **Muscardin 01.1.**

PICARDIN

Picardan is a white Rhône variety that can add acidity to Châteauneuf-du-Pape wines. Château de Beaucastel uses Picardan in some of their red wines.[222]

Picardan 01 was collected from the vineyard at Château de Beaucastel and donated to the FPS foundation collection in 2004 by the Tablas Creek Vineyards partnership. The material underwent treatment at FPS and qualified for the California Grapevine R&C Program in 2010. The selection is available from the FPS Classic Foundation Vineyard.

PIQUEPOUL BLANC/PICPOUL BLANC

The Piquepoul variety has three berry-color iterations (noir, gris and blanc). All three are specifically permitted for Châteauneuf-du-Pape wines. The traditional color mutation is Piquepoul blanc/Picpoul blanc, which has been in California for a long time. FPS has only the white berry color variety in its collection.

There was a "Picpoule blanc" in the UC Department Variety collection at the Davis Farm in the early 19-teens. Frederic Bioletti ordered a Picpoule blanc from Richter Nurseries in France in 1911. That accession never became part of the FPS foundation vineyard collection.

Only 53 acres of Piquepoul blanc were planted in California in 2019, mostly in Monterey and San Luis Obispo Counties.[223]

Piquepoul blanc produces wine with high acidity. The book *WINE GRAPES* notes that Tablas Creek Vineyards produces a varietal Picpoul blanc with more tropical fruit flavors than its counterpart in southern France.[224]

Picpoul blanc FPS 01 and 02 (Tablas Creek Vineyards)
Tablas Creek Vineyards donated two Picpoul blanc selections to FPS from the vineyards of Château de Beaucastel in southern France.

Picpoul blanc 01 was imported directly to FPS in 2004 from France. The original material underwent microshoot tip tissue culture therapy at FPS and was released in 2010.

Picpoul blanc 02 came to the United States originally in the 1980's through the quarantine program in Geneva, NY, and was donated to FPS in 2010. The selection was released in 2012 after completion of testing.

Both selections are available from the FPS Classic Foundation Vineyard.

Picquepoul blanc ENTAV-INRA® 463
This selection was imported to FPS in 2010 from IFV in France for the ENTAV-INRA® clonal trademark program. The material is the authorized French clone Piquepoul blanc clone 463, which originated from Hérault, France.

TERRET NOIR

Terret is an ancient variety with three color mutations (noir, gris, and blanc). The variety is associated with the Languedoc region.[225] Terret noir has only a minor presence in Châteauneuf-du-Pape. The wine from the variety is valued for its spiciness, pale color and moderate alcohol level.

There is only one selection of Terret noir (the black grape) in the FPS public grapevine collection in 2020. The material was donated by Tablas Creek Vineyards as "part of [their] quest to get all 13 traditional Châteauneuf-du-Pape varieties" for United States winemakers.[226] The mother vine material was collected at Château de Beaucastel and imported in 2004. **Terret noir 01** is available from FPS' Classic Foundation Vineyard.

Terret noir 01 in FPS Classic Foundation Vineyard

OTHER GRAPE VARIETIES AT FPS FROM THE SOUTHERN RHÔNE REGION

In addition to the varieties from the North Rhône region and those used in Châteauneuf-du-Pape wines, several other varieties important to winemaking in the Rhône region and southern France made their way to California and into the FPS foundation grapevine collection. Those varieties include among others Carignane (Mazuelo, Carignan), Mondeuse, Tannat, and Ugni blanc (Trebbiano Toscano, St. Émilion).

MAZUELO/CARIGNANE/CARIGNAN

The variety known in California as Carignane is a very old black variety from northeastern Spain in the province of Aragon, near the town of Cariñena. Jancis Robinson and her colleagues have reported on extensive DNA analyses on winegrape varieties and have assigned the origin of the variety as Spain.

The variety is known in Spain by the prime name Mazuelo and shares a DNA profile with another winegrape, Bovale di Spagna. The scientists note the origin of Bovale di Spagna is revealed in the name. Mazuelo is also known in Spain by the synonym names Cariñena and Mazuela.[227]

France has also claimed Carignan (Mazuelo). The *Vitis International Variety Catalogue (VIVC)* shows France as the country of origin for "Carignan noir". The variety has been known in France since the mid-12th century where it was originally planted in the Pyrenees Orientales. It spread from there to the Midi and was used for common red table wine. Known as Monestel and Carignan noir, it is the most cultivated grape variety in southern France.[228]
As is the case for many winegrape varieties from the region straddling the border between Spain and France, both countries have formed a strong association with the variety going back centuries.

Carignane in California
Carignane was planted extensively in northern California in the 1880's in mixed black-grape vineyard plantings. The variety was used in particular around St. Helena in Napa to give fruitiness to heavier colored varieties.[229]

UC researchers in the 19th century observed that Carignane had been "given a large place in California vineyards" and found considerable acceptance in the state as a useful blender with Zinfandel. They assessed the Carignane wine as higher quality than that given by Mataró (Mourvèdre) if produced in a few "specially suitable localities", such as the well-drained soils in the Santa Clara Valley and upper Russian River Valley. They also concluded the Carignane wine was poor, lacking in color and tannins, if produced on rich, low soils. They believed Carignane was suitable for wine in the Central Valley only for port.[230]

Charles Wetmore disagreed with the UC researchers and others who "were inclined to give [Carignan] a higher rank than it had in Europe". He felt that they placed too much value on the agreeability of the new (young) wines. He found "Carignan" to be a valuable vine used in blends with Mataró and Grenache, since the Carignan had more acid than the latter two varieties.[231]

Frederic Bioletti, who succeeded Hilgard as UC Viticulture Chair, agreed with the former UC assessment. In a bulletin produced in 1929 (rev.1934), Bioletti opined that

Carignane was equal in quality to Zinfandel and had a little deeper color. He believed it was the best of California bulk wine grapes.[232]

In 1954, Harold Olmo concluded that Carignane was the second most important wine grape variety in California after Zinfandel. The Carignane was a favorite for bulk wine production in the state.[233] Olmo's colleagues at UC Davis, Maynard Amerine and Albert Winkler, found Carignane positive for vigor and productivity but concluded the variety produced only standard quality wines. They recommended Carignane only for regions II, III (Napa) and IV (parts of the San Joaquin Valley).[234]

The Carignane acreage in the state of California has decreased drastically since Olmo made his assessment in 1954, from a total acreage of 32,308 (1952) to 2,300 acres in 2019. The vast majority of Carignane acreage in California remains in the Central (Fresno, Madera) and San Joaquin (San Joaquin) Valleys.[235]

There was a small rise in demand for the then-1,400 acres of California vines in the coastal valleys in the 1980's when the Rhône Rangers were emerging. In the coastal regions of California, Carignane has been used in varietal wines or in Rhône-style blends. Ridge Vineyards has made Carignane varietal wine since the 1970's.[236]

Carignane is mainly used for making standard red table or blending wines which are of medium acidity, moderate to good color and significant tannin. They usually lack a pronounced varietal characteristic (flavor).[237] In the San Joaquin Valley, the variety is used for standard red wines or for production of rosé or blush wines.[238]

Early Carignane Clones in the FPS Program

Carignane had a long history in California viticulture by the time UC Davis agreed to maintain the foundation vineyard for the new California Grapevine Registration & Certification Program in the early 1950's. Growers and winemakers were eager for healthier grapevine material for the popular varieties.

Carignane-1 (UC Department of Viticulture I 56 v19, 1956)

Carignane and Grenache were the only two varieties of "the Rhône" included in the first FPMS foundation vineyard in 1956, reflecting their value to the industry at the time. The Goheen indexing binder at FPS shows that FPMS considered one convenient source option for the selection in that initial 1956 vineyard block (Block A at Armstrong Tract). That option was a vine in the Department of Viticulture collection on the Davis campus.

Carignane-1 was collected from vine I(eye)56 v19 in the vineyard of the Department of Viticulture on the UC Davis campus in the mid-1950's. Grenache-1 and several other early FPMS selections were also collected from vines in that vineyard. Entries on index cards for winegrape trials made by Harold Olmo noted the history of both selections in a similar fashion. The history of Carignane-1 was:
I 56: 19 < C8: 17-18 < D1: 11-12
The vine in Block I(56) went back to several prior Department vineyards on the Davis campus, perhaps as early as the 1920's.

As noted already several times in this chapter, the vine location in Block D (D1v11-12) references an old vineyard that the Department maintained when it was moving their research vineyards and variety collection around the Davis campus and on occasion renumbering them. The records are not complete but some entries on old vineyard maps suggest that Block D was active in the 1920's (as Vit. vineyard VIIIB) and 1930's (renumbered as Block D).

Carignane-1 underwent index testing at FPMS and was planted in Block A at location D9 v5-8 in 1956. Carignane-1 was reindexed in the 1960's and moved to the new Hopkins Road foundation vineyard in 1964 to location D9 v9-12, possibly as Carignane 01A for a time.

FPS chose to use the Americanized version of Carignane (with an "e" at the end) for the name of the selection. The French spelling for the variety does not use the "e" at the end.

Carignane FPS 02 and 03 (Carignane-1)

Heat-treated subclones of Carignane-1 were developed in the mid-1960's. The mother vine material (Carignane-1) underwent heat treatment therapy at FPMS for various periods of time. Carignane 02 (HT 95 days) and Carignane 03 (102 days) successfully completed testing in 1965 and qualified for the foundation vineyard. Carignane 02 and Carignane 03 remain available from the Classic Foundation Vineyard as of 2020.

Other heat-treated subclones Carignane 04 and 06 were removed from the FPS foundation collection in 1993 and 2002 and were never replaced.

Carignane 02 in the FPS Classic Foundation Vineyard (3077 ADAPT)

Carignane FPS 05 and 10 (Former UC Foothill Experiment Station, Jackson, 1963)

FPMS made an extensive search for additional Carignane selections for the foundation vineyard in the 1960's. Dozens of Carignane samples from commercial vineyards throughout California were indexed and heat treated at FPMS. However, the second Carignane in the FPMS collection would again be sourced from a University vineyard.

Carignane 05 came to FPMS around 1963 from the former University of California Foothill Experiment Station in Jackson, Amador County, California. The vine at location D9v13 originated from the University station at Berkeley in 1889. After successful completion of testing at FPMS, Carignane 05 was released in 1966.

Carignane 05 suffered from virus and underwent microshoot tip tissue culture therapy at FPS in 2000. The treated material qualified for the Classic Foundation Vineyard in 2006 where it remains available as Carignane 10.

Carignane FPS 11 (Morisoli Heritage clone, 2002)

Carignane 11 was one of the several heritage clones selected (R1v3) by Gary Morisoli and Deborah Golino from the Morisoli Heritage Vineyard in Napa in 2002.
The Morisoli Vineyard was an old California mixed field planting from the 1880's; many of the vines in 2002 remained from that original planting. Gary Morisoli donated to FPS nine varieties from that vineyard, including Alicante Bouschet, Carignane, Durif, Syrah and Zinfandel.

The Carignane selection underwent microshoot tip tissue culture therapy at FPS in 2007 and qualified for the foundation vineyard in 2011 as Carignane 11.

Carignane FPS 12, 13, 14 and 15 (Oakley, California, Matt Cline, 2014)

Matt Cline of Cline Vineyards has donated a number of heritage clones to the FPS public grapevine collection, including Carignane, Cinsaut and Mourvèdre.

Cline donated four Carignane clones to FPS in 2014. The material was collected from former commercial plantings in Oakley and Antioch, California, an area where Carignane vines thrived close to the ocean and bay climate. Information that accompanied the selections to FPS informed that a "14-acre ancient vine Carignane vineyard was located on a natural upland habitat on the west end of the Dutch Slough Salt Marsh Restoration Project". The vineyard was likely planted in the 1880's, as were many of the remaining old vines in and around the nearby towns of Oakley and Antioch. The "ancient vineyard" is rare and unique due to its age and isolated vineyard location.

The Carignane selections at FPS were collected from the Spinelli Vineyard off of Highway 04 and Live Oak Avenue in Oakley (planted around 1885) and a vineyard near Antioch that was planted around 1890 and acquired by Emerson Ranch Vineyards in the 1950's. Both vineyards were purchased by the State of California for wetlands restoration in the early 2000's. Cline rescued the heritage vine material and sought to preserve it by donating some of it to FPS.

Carignane 12 was collected from the Spinelli Vineyard in Oakley. Carignane 13, 14 and 15 were collected from three different source vines at the Emerson Ranch

Vineyard near Antioch. Carignane 12, 14 and 15 are available from the FPS Classic Foundation Vineyard as of 2020.

Carignane FPS 16 (Copperopolis, CA, Duarte Grapevine Nursery, 2012)
This Carignane selection was donated to the public grapevine collection at FPS in 2012 by Duarte Nursery, in Hughson, California. The material was collected from a vineyard in Copperopolis, California. The selection underwent tissue culture therapy at FPS and qualified for the foundation vineyard in 2017.

Mazuela FPS 01
Mazuela is the synonym name used for Mazuelo and Carignane in the Rioja region of Spain. This selection was donated to FPS in 2005 and was reportedly clone 206.1 from an anonymous nursery in Spain.

MONDEUSE

Mondeuse is an old variety from the Dauphiné, a region in eastern France that included the Isère, the Drôme and the Hautes Alpes departments. Mondeuse is a black grape that produces aromatic, tannic and deeply colored wines.[239]

Although not strictly a variety from the Rhône River region in France, Mondeuse was included in early mixed "Petite Sirah" (black grape) plantings in California in the 19th century. Vintner Hiram Crabb of Oakville included the variety in his wine trials and rated it highly, recognizing it as a good bearer.[240]

Wetmore referred to Mondeuse as an important variety undergoing research and experiments in 1884. He noted research then promising well for hot climates. Mondeuse showed to be a good bearer with much tannin and color.[241]

Vines with the variety name Mondeuse were planted in UC Experiment Station vineyards in the 1890's. The variety was recommended for planting in the coastal counties in California (Napa and Sonoma) due its high acidity and color.[242]

Hilgard evaluated Mondeuse (also known as Grosse Sirah). He observed that the wine was considered good with excellent keeping qualities but matured slowly with a fine marked bouquet and delicate taste. He advised blending with Syrah and other dry and hardy varieties but not with smooth varieties such as Carignane and Grenache.[243]

Dr. Carole Meredith, former Professor of Viticulture & Enology at UC Davis, has grown the true Mondeuse in her Syrah vineyard overlooking the Napa Valley. Meredith indicated that the Mondeuse vines produced wine that is darker and spicier than Syrah.[244]

The varieties Mondeuse and Refosco were frequently confused in California. UC Davis Professors Amerine and Winkler recognized that selections with both names had been tested by Hilgard and Bioletti and could possibly have been the same variety, which Amerine and Winkler discussed in their 1963 report under the name "Refosco".[245] The names for the two separate varieties were considered synonyms in California as late as 2008.[246]

Refosco 01A > Mondeuse FPS 02 (UCD Department of Viticulture, 1956)
Mondeuse was included in Block A in the initial FPMS foundation grapevine vineyard in 1956 under the name Refosco. The source of Refosco-1 was Department of Viticulture I(eye) 73 v 15. Refosco-1 underwent heat treatment at FPMS for 64 days and was renamed Refosco 01A when planted in the new Hopkins foundation vineyard in 1965. The name of the selection was changed to Mondeuse 02 in 2005. Refosco 01A/Mondeuse 02 is no longer a part of the FPS foundation grapevine collection.

Mondeuse FPS 01 (Former UC Foothill Experiment Station, 1963)
Austin Goheen collected what eventually became Mondeuse 01 from location D13v10 at the former UC Foothill Experiment Station in Jackson, Amador County prior to 1965. Goheen's notes from the planting records indicate that the vine at Jackson was named Mondeuse. The Amador Station vines had been planted in 1889 with cuttings collected from J.T. Doyle's UC Station in Cupertino. Hilgard noted in 1896 that the Mondeuse vines did not bear well at the Amador station and were subject to coulure. He attributed that result to the climate being unsuitable for the variety.[247]

Goheen indexed the Amador Station selection at FPMS under the name Refosco. The material was ultimately released in 1966 as Refosco 02.

In the 1990s French ampelographer Jean-Michel Boursiquot and Italian ampelographer Anna Schneider both opined that FPMS' Refosco 02 looked like Mondeuse. When an authenticated Refosco selection was planted at FPS in 2001 (Refosco 03, VCR 5), FPS DNA expert Gerald Dangl used marker analysis and discovered that the DNA from Refosco 02 differed from Refosco 03. He then

matched Refosco 02 to a Mondeuse reference profile from Montpellier, France. In 2005, the name of the selection Refosco 02 was changed at FPS to Mondeuse 01.[248]

MUSCAT BLANC (à Petits Grains)

Muscat blanc à Petit Grains ("small berries") is the most widely planted Muscat in France. It is cultivated extensively in southern France in the area of the Rhône and is used for sweet, light and sparkling wines.[249]

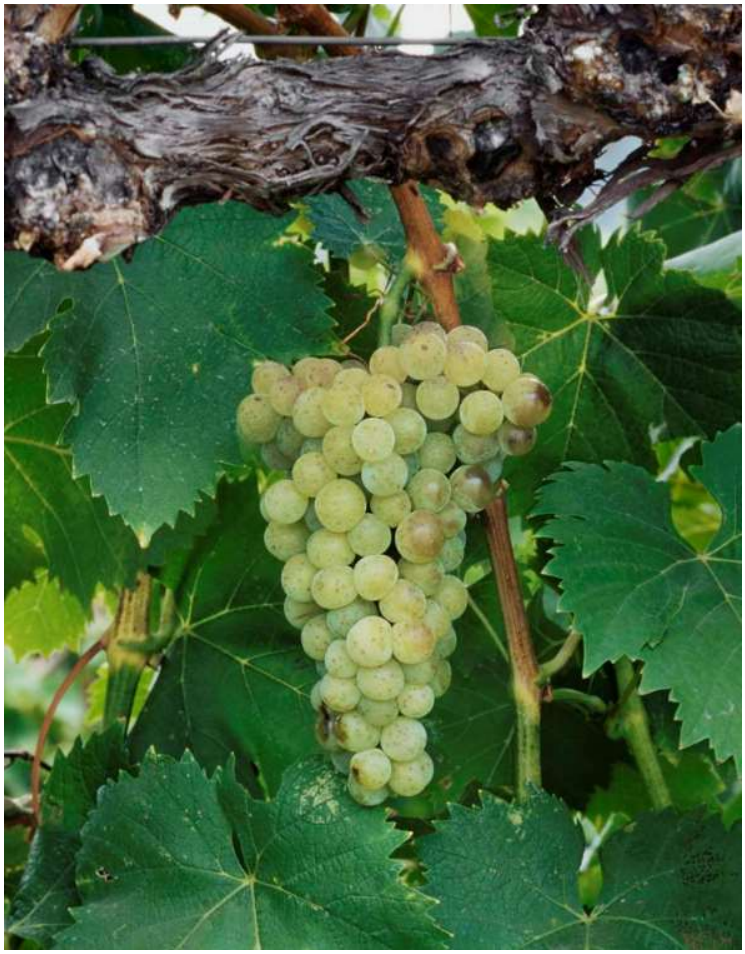


Photo by Jack Kelly Clark. © University of California

Muscat blanc 01 came to FPMS from the Department of Viticulture vineyard at UC Davis (location I(eye) 68 v5) in the mid 1960's. It remained in the FPS foundation grapevine collection until 1999, when the selection was pulled from the collection at the direction of UC Viticulture specialist Pete Christensen due to low production and high rot.

Muscat blanc 03 came to FPS in 1962 from Milan, Italy (USDA Plant Introduction no. 279063-B-1). It remained in the Hopkins Foundation Vineyard (location H4v4) from 1967 to 1999, when it was pulled out and not moved into the new Classic Foundation Vineyard.

Muscat blanc 04 was also imported to FPS in 1962 from the Istituto di Patologia Vegetale della Universita in Milan, Italy, in the same shipment as Muscat blanc 03 (USDA Plant Introduction no. 279063-A-1). The selection qualified for the Hopkins Foundation Vineyard in 1968 as Muscat 04 (location I(eye) 1 v 10). Muscat blanc 04 was moved to the Classic Foundation Vineyard in 2000 and remains available.

A tissue culture (treated) version of Muscat blanc 04 has also been available in the Classic Foundation Vineyard since 2003. The treated selection is **Muscat blanc 06**.

Muscat blanc 05 is a proprietary Muscat selection imported to FPS in 1998 from Vivai Cooperativi Rauscedo in Italy. The material is VCR 3.

Muscat à petits grains blanc ENTAV-INRA® 453

This selection was imported to the United States in 1997 from France by ENTAV-INRA, which manages the trademarked French clonal material. The selection is official French clone 453. The clone originated from Drôme (Diois) and was previously known in France as ENTAV 779. It was certified in 1976. The cultivar is known in France as Muscat à petits grains blanc. Muscat blanc ENTAV-INRA® 453 qualified for the FPS Classic Foundation Vineyard in 1999.

TANNAT

Tannat is not a grape from the Rhône region of France. Its origin is southwest France in the Hautes-Pyrénees.

Charles Wetmore introduced "the Tannat" from the Hautes-Pyrénées to California in the 19th century. He wrote of his own experience that the variety was "proving to be a treasure for the wine cellar". Tannat produced wine of the claret type with good tannin properties and a clean and neutral taste. Wetmore found that the variety could be used for blends of fine wines without danger to quality.[250]

Amerine and Winkler noted in 1963 that Tannat had been in California for many years and had been extensively tested by many growers as well as by the University.

They wrote the variety is high in natural total acidity and relatively low in pH. The fruit ripened well in good alcohol content and the aroma was very fruity. The negatives included high tannin levels (astringency) and slowness to age. The wines were of excellent color. The two researchers reluctantly concluded that they could not recommend Tannat for further planting or trials in California. Their reasoning was that, while the variety would be useful for blending in the San Joaquin Valley, Tannat would not be useful as a wine for coastal plantings.[251]

There were 633 acres of Tannat planted in California in 2019. The variety is used in California in cool to warm regions for quality red table wines (mostly in blends for color, acidity and tannin).[252]

Tablas Creek Vineyards in Paso Robles has been one of the pioneers of this variety in recent years.

Tannat vine in FPS foundation vineyard

There are several Tannat selections in the FPS foundation vineyard collection.

Tannat FPS 01 and 03 (UCD Department of Viticulture vineyard, early 1960's)
Tannat 01 came to FPS in the mid-1960's from the vineyard of the Department of Viticulture at UC Davis (location I (eye) 76 v5), as did many of the early selections to FPS. It quite probably had been on the UC Davis campus in one of the vineyards since the 1920's. The original material underwent heat treatment for 146 days and was given the name Tannat 01.

Tannat 01 underwent tissue culture therapy at FPS in 2007 after testing positive for leafroll virus. A treated selection of Tannat 01 is available in the FPS Classic Foundation Vineyard as Tannat 03.

Tannat FPS 04 (Tablas Creek Vineyards, 2010)
This selection was donated to the FPS public collection in 2010 by Tablas Creek Vineyards in Paso Robles, California. The plant material is reported to be from a unique vine source in France. The original mother plants for this selection came to the United States through the quarantine program in Geneva, New York, in the 1980's. Tannat 04 successfully completed disease testing in 2012.

Tannat ENTAV-INRA® 474, 717, and 794
IFV has imported three official French Tannat clones to be distributed in the United States. Tannat 474 originated from Landes (Nouvelle-Aquitaine) and was certified in 1976. Tannat 717 originated from the Pyrénées-Atlantiques and was certified in 1979. Tannat 794 originated from Landes and was certified in 1981.

UGNI BLANC (TREBBIANO TOSCANO)

Trebbiano Toscano is an Italian (Tuscan) grape that is known by the name Ugni blanc in southern France. The variety was given the name Ugni blanc when it was exported to France in the 14th century. Ugni blanc is the most widely planted white wine variety in France, where it is used for cognac. Its high acidity makes it suitable to production of wine for distillation into brandy. The variety has high yields and produces light, crisp and neutral wine.

FPS has two Trebbiano Toscano selections in the public grapevine collection, both from Rauscedo in Italy. Trebbiano Toscano 01 is Rauscedo clone 4. Trebbiano Toscano 02 is Rauscedo clone 9.

Trebbiano Toscano 03 is a proprietary VCR clone that came to FPS in 1998 from Vivai Cooperativi Rauscedo. It is VCR 8.

TANGENTIAL VARIETIES THAT ARE ASSOCIATED WITH GRAPES OF THE RHÔNE AND SOUTHERN FRANCE

Four other varieties have been associated with the grapes of southern France and have a history in California beside the grapes of the Rhône region. The four varieties are from the southwest area of France.

GROS and PETIT MANSENG

Gros and Petit Manseng are two related varieties from the Jurançon region of southwest France.

Gros Manseng at FPS

Gros Manseng is the main variety for dry white wines of the Jurancon.[253]

Tablas Creek Vineyards donated **Gros Manseng 02** to the FPS public grapevine collection in 2010. The material was collected from a unique vine source in southern France.

There are two proprietary clones of Gros Manseng in the FPS grapevine collection. Gros Manseng 01 is a proprietary clone from Pepiniere Guillaume in Charcenne, France.

Gros Manseng ENTAV-INRA® 397 is the official French clone 397 from IFV. That ENTAV clone originated in the Pyrénées-Atlantiques region of France. The ENTAV catalogue indicates that the clone yields dry and sweet wines that are typical and fine.

Petit Manseng at FPS

Petit Manseng plays more of a role in sweet white wines in the region and produces high quality and aromatic wines.[254]

Petit Manseng 01 was donated to FPS by Tablas Creek Vineyards and came in the same shipment as Gros Manseng 02. It is also from a unique source in France.

Petit Manseng 02 came to FPS in 2007 from the National Clonal Germplasm Repository in Davis (DVIT 2331). The selection was originally collected in France and

donated to the NCGR in 1989 by Bruce Reisch, Cornell University. The selection qualified for the foundation vineyard in 2015.

IFV in France imported the official French clone Petit Manseng ENTAV-INRA® 573 to the United States in 2004. Clone 573 originated in the Pyrénées-Atlantiques and was certified in 1978.

ALICANTE BOUSCHET and PETIT BOUSCHET

The "Bouschets" have teinturier ancestry and are deeply colored grapes used to add color to blends. Louis Bouschet obtained the *Vitis vinifera* cross Petit Bouschet (Aramon x Teinturier) in 1824 in Hérault in southern France. His son, Henri Bouschet, crossed Petit Bouschet with Grenache, resulting in Alicante Bouschet (Alicante Henri Bouschet).[255]

Both varieties have been in California since the early days of the wine industry and were in Wetmore's Livermore vineyard in 1884. Wetmore had obtained his cuttings from the college at Montpellier, France.[256]

Hilgard evaluated both varieties at the University. He found (1892) Alicante Bouschet to be much superior to Petit Bouschet. The wine of Alicante Bouschet showed remarkably strong red color, good alcoholic strength and an agreeable flavor. The wine from young vines was not a good keeper.[257]

The University researchers concluded in 1896 that Alicante Bouschet was one of the "most solid" wines yet tested. The wine had a good amount of sugar, and high acid, tannin and body. They found that the wine was clean tasting but too heavy to be made up alone. They thought it would be "hard to excel" as a blender for thin wines.[258]

Alicante Bouschet was mostly planted in the Central Valley in California during Prohibition. It proved to be a good shipping grape.[259]

Hilgard also evaluated Petit Bouschet (1892). The variety was an exceedingly heavy bearer. Sugars were higher than Alicante Bouschet, and the wine was more astringent. Petit was much more deeply colored than Alicante Bouschet. The wine of Petit Bouschet was rated as coarse in flavor, "only of fair quality" and a poor keeper.[260]

By 1896, the UC researchers reported that Petit Bouschet had "not been an unqualified success to that time in the state". They noted that Petit Bouschet was surpassed by other grapes of higher quality as a coloring grape except for perhaps blending with Béclan. When not needed as a coloring grape, the wine was not high enough quality to be worth growing itself.[261]

Amerine and Winkler did not recommend Alicante Bouschet for California because of "low quality and unstable coloring matter" (precipitation).[262] Petit Bouschet was not recommended anywhere even for blending of color.[263]

HERITAGE BOUSCHET CLONES AT FPS

FPMS and University viticulture experts searched the state of California in the 1950's and 1960's for candidates for the newly created FPMS foundation vineyard. Many vineyards throughout the state offered cuttings from their collections to the new program. Some of the FPS Bouschet selections fall into that category. The Bouschet offerings at FPS are all heritage clonal materials.

Alicante Bouschet FPS 01 (Cribari Vineyards, California, 1960)

The Cribari family owned vineyards near San Jose, California in the Santa Clara Valley from 1902. They survived Prohibition by making wine for legal purposes such as sacramental and medicinal wines.[264]

FPMS obtained Alicante Bouschet cuttings around 1960 from a California vineyard with the name "Cribari". The source vine was listed in FPMS indexing records as Cribari R4v1. The original material underwent disease testing and was planted in the Hopkins Foundation Vineyard in 1964 (location C1 v3-5) as Alicante Bouschet 01 (possibly 01A).

A letter from A.C. Goheen to the California Department of Agriculture in February, 1966, requested addition of Alicante Bouschet 01A (Cribari) and Alicante Bouschet 02A (Skinner) to the list of registered vines in the R&C Program. In that letter, Goheen stated that they expected demand for the variety to be "rather heavy".[265]

The Cribari selection first appeared on the published list of registered vines in 1967 as Alicante Bouschet 01 (Cribari 4v1).

Alicante Bouschet FPS 02; Petit Bouschet FPS 01 (Skinner Vineyards, California, 1960)

Two "Bouschet" selections were obtained from the "Skinner" vineyard.

James Skinner created Skinner Ranch in Rescue, California in El Dorado County, and planted vineyards beginning in the 1860's. He developed commercial vineyards and a winery. Skinner included in that collection grape varieties from southern France such as Grenache, Carignane and Petit Bouschet (the "Skinner clone").[266]

Petit Bouschet 01 came to FPMS in the early 1960's from a California vineyard with the name "Skinner". The original material was tested and planted in the old Hopkins Foundation Vineyard in 1961. The source of Petit Bouschet-1 is shown on the 1961 list of registered vines for the California R&C Program as "R8v4 Skinner". There is still one vine of the mother vine material remaining in the FPS Classic Foundation Vineyard in 2020.

FPS received an Alicante Bouschet from the Skinner vineyard at the same time as the Petit Bouschet. The Alicante Bouschet selection was collected from "Skinner R5v3" and began index testing at FPMS in 1959. The original plant material underwent heat treatment therapy for 119 days at FPMS in 1961 and was eventually planted in the Hopkins Foundation Vineyard in 1964 (location C1 v6) as Alicante Bouschet 02 (perhaps 02A). A treated version of Alicante Bouschet 02 (tissue culture therapy) is also available in the Classic Foundation Vineyard as Alicante Bouschet 02.1.

A second heat treated subclone of Alicante Bouschet 02 from the Skinner vineyard was at one time planted in the old FPMS foundation vineyard with the selection name Alicante Bouschet 03. The vines were removed from the foundation vineyard permanently in 1994. Another selection (the Morisoli heritage clone) now has the selection name Alicante Bouschet 03.

Alicante Bouschet FPS 03 (Morisoli Heritage Vineyard, Napa, 2002)

The current Alicante Bouschet 03 was donated as part of the group of nine varieties given to FPS by Gary Morisoli in 2002. The heritage vineyard in Napa was thought to contain vines planted in the 1880's.

Alicante Bouschet FPS 05.1, Petit Bouschet FPS 04 (Whitton Ranch, Sonoma, Ridge Vineyards)

David Gates of Ridge Vineyards donated two heritage selections to FPS from the old vineyards at Whitton Ranch in Sonoma County (discussed above in the section on Mourvèdre and Carignane). Those vineyards date from the late 1800's.

Alicante Bouschet 05.1 was collected from the Old Patch block at Whitton Ranch. Petit Bouschet 04 was sourced from the vineyard containing the mixed black variety block at Whitton Ranch (Old Carignane block).

Petit Bouschet FPS 05 (Carlisle Vineyard, Sonoma, Bedrock Wine Co.)

Bedrock Wine Co. donated Petit Bouschet 05 to the FPS collection in 2017. The heritage material was collected from the Carlisle Vineyards in Sonoma County.

CONCLUSION

The collection of grape varieties of southern France and the Rhône Valley at FPS is large and diverse, thanks in large part to dedicated viticulturists who believe that conserving heritage material is important to the grape and wine industry in the United States. We wish to express our appreciation for the contribution of those varieties to the many donors who generously added quality and diversity to the FPS foundation collection.

REFERENCES

[1] Jancis Robinson, *The Oxford Companion to Wine,* 3rd ed., p. 572 (Oxford University Press, London, 2006).

[2] Robinson, 2006, *Oxford Companion to Wine*, *supra* at p. 574; Gerald Asher, "California Syrah", *The Pleasures of Wine – Selected Essays*, p.227 (Chronicle Books, San Francisco, 2002).

[3] Robinson, 2006, *Oxford Companion to Wine, supra* at p. 574.

[4] Robinson, 2006, *Oxford Companion to Wine, supra* at pp. 159-160.

[5] Charles L. Sullivan, "Rhone varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, , p. 284 (University of California Press, Berkeley and Los Angeles, California, 1998).

[6] Charles L. Sullivan, *NAPA WINE, A History*, p. 137 (The Wine Appreciation Guild, San Francisco, 2008)

[7] Charles L. Sullivan, "Rhone varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, p. 284 (University of California Press, Berkeley and Los Angeles, California, 1998); Charles L. Sullivan, *NAPA WINE, A History*, p. 137 (The Wine Appreciation Guild, San Francisco, 2008)

[8] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4, with three separate Appendices*, Part V. Ampelography, pp.103-151 (San Francisco, September 1, 1884) – hereinafter referred to as "Wetmore Ampelography".

[9] Wetmore did single out J.H. Drummond for a small lot Petite Syrah. Charles A. Wetmore, "Ampelography of California", *San Francisco Merchant,* January 4 and 11, 1884, pp.15, 39-40, Merchant Publishing Company, Front Street, San Francisco.

[10] Jancis Robinson, Julia Harding, José Vouillamoz, *WINE GRAPES*, pp. 398, 616, 646 (HarperCollins, New York, 2012).

[11] Eugene Hilgard, Louis Paparelli, and Frederic Bioletti, *Report of the Viticultural Work during the seasons 1887-89, with data regarding the Vintage of 1890*, Part I. Red-Wine Grapes, pp. 166-186 (Agricultural Experiment Station, College of Agriculture, University of California, Sacramento, 1892), hereinafter cited as **13th Report (1892)**.

E. W. Hilgard, Louis Paparelli, F.T. Bioletti, *Report of the Viticultural Work During the Seasons 1887-1893 with data Regarding the Vintages of 1894-95*, Part Ia. Red Wine Grapes (continued from Report of 1892), pp. 19-166, and Part Ib. White Wine Grapes, pp. 224-252, (Agricultural Experiment Station, College of Agriculture, University of California, Sacramento, 1896), hereinafter cited as **17th Report (1896)**.

[12] *13th Report, UC Agricultural Experiment Station,* 1892, *supra* at p. 166.

[13] *13th Report, UC Agricultural Experiment Station,* 1892, *supra* at p. 166.

[14] E. W. Hilgard, Louis Paparelli, F.T. Bioletti, *Report of the Viticultural Work During the Seasons 1887-1893 with data Regarding the Vintages of 1894-95,* Part Ia. Red Wine Grapes (continued from Report of 1892) and Part Ib. White Wine Grapes, pages 70-157, California Agricultural Experiment Station, 1896 (**17th Report**).

[15] *17th Report, UC Agricultural Experiment Station,* 1896, *supra* at p 70.

[16] *17th Report, UC Agricultural Experiment Station,* 1896*, supra* at p. 88.

[17] *17 Report, UC Agricultural Experiment Station,* 1896*, supra* at. p 224.

[18] C.J. Alley, C.S. Ough, and M.A. Amerine, "Grapes for Table Wines in California's Region IV and V", *Wines & Vines* magazine, pp. 20-22 (March 1971); Frederic T. Bioletti, *The Best Wine Grapes for California*, p. 142, Bulletin No. 193, (Agricultural Experiment Station, College of Agriculture, University of California, Berkeley, California, November, 1907); Frederic T. Bioletti, *Elements of Grape Growing in California*, pp. 33-34, Circular 30 (Agricultural Extension Service, College of Agriculture, University of California, Berkeley, March 1929, rev. April 1934).

[19] "Vines Growing at Davis in December, 1913", Harold Olmo collection D-280, boxes 2: 11 and 6: 16, Department of Special Collections, Shields Library, University of California Davis.

[20] Charles L. Sullivan, *Like Modern Edens, Winegrowing in the Santa Clara Valley and Santa Cruz Mountains 1798-1981*, pp. 124-125 (California History Center, Cupertino, California, 1982).

[21] M.A. Amerine and A.J. Winkler. 1944. "Composition and Quality of Musts and Wines of California Grapes", *Hilgardia* 15 (6) (February, 1944), hereinafter cited as ***Amerine & Winkler 1944***.

M.A. Amerine and A.J. Winkler. 1963. *California Wine Grapes: Composition and Quality of Their Musts and Wines*, Bulletin 794 (California Agricultural Experiment Station, Division of Agricultural Sciences, University of California, 1963), hereinafter cited as ***Amerine & Winkler 1963***.

[22] *Amerine & Winkler, 1944, supra* at p. 504.

[23] Charles L. Sullivan, Rhone varieties, *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, p. 284 (University of California Press, Berkeley and Los Angeles, California, 1998).

[24] Patrick J. Comiskey, *AMERICAN RHÔNE, How Maverick Winemakers Changed the Way Americans Drink* (University of California Press, Oakland, California, 2016).

[25] Jancis Robinson, 2006, *Oxford Companion to Wine, supra* at p. 575; Thomas Pinney, *A History of Wine in America, from Prohibition to the Present,* vol. 2, p. 343 (University of California Press, Berkeley, Los Angeles, London, 2005).

[26] Thomas Pinney, *A History of Wine in America, from Prohibition to the Present,* vol. 2, p. 343 (University of California Press, Berkeley, Los Angeles, London, 2005); Charles L. Sullivan, Rhone varieties, *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, p. 285 (University of California Press, Berkeley and Los Angeles, California, 1998); J. Robinson, 2006, *Oxford Companion to Wine, supra* at p. 575.

[27] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 15; Barry Bergman, R.H. Phillips Winery, "Future of Syrah in California", *Practical Winery and Vineyard*, p. 68 (January/February 2001).

[28] Comiskey, 2016, *AMERICAN RHÔNE*, *supra* at p. 202.

[29] Comiskey, 2016, *AMERICAN RHÔNE,* in the chapter entitled "Tablas Creek, the Validator", *supra* at pp. 167-176.

[30] Gerald Asher, "California Syrah", *The Pleasures of Wine – Selected Essays*, p. 230 (Chronicle Books, San Francisco, 2002).

[31] Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl. "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 236-237, 241 (1999).

[32] "An Enthusiastic Vigneron", *The San Francisco Merchant,* vol. 10, no. 1 San Francisco, April 13, 1883, p.1.

[33] Gerald Asher, "Legends of the Rhône Hermitage and Crozes-Hermitage", Wine Journal, p. 56, *GOURMET* magazine, March 1994; Jancis Robinson, Julia Harding, José Vouillamoz, *WINE GRAPES*, p. 1023 (HarperCollins, New York, 2012).

[34] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4*, with three separate Appendices, Part V. Ampelography, p.149 (San Francisco, September 1, 1884).

[35] Charles Sullivan, 1998, *Companion to California Wine, supra* at p 358; "An Enthusiastic Vigneron", *The San Francisco Merchant*, vol. 10, no. 1 San Francisco, April 13, 1883, p.1.

[36] Charles A. Wetmore, "Ampelography of California", *San Francisco Merchant,* January 4 and 11, 1884, page 15, Merchant Publishing Company, Front Street, San Francisco; *see also*, H. M. Butterfield, College of Agriculture, University of California, "The Builders of California's Grape and Raisin Industry", *The Blue Anchor,* volume XV, no. 2, page 4, February 1938, published by California Fruit Exchange (Shiraz variety displayed at Second Stockton District Fair in 1861).

[37] Charles L. Sullivan, 2008, *NAPA WINE, supra* at p. 138;
L. Peter Christensen, "Syrah", *Wine Grape Varieties in California*, p. 147 (Publication 3419, University of California, Division of Agriculture and Natural Resources, Oakland, California 2003)

[38] ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at pp. 177-186;
17th Report, UC Agricultural Experiment Station, 1896, *supra* at pp. 70-71.
[39] ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at pp. 177-178.

[40] ***17th Report,*** UC Agricultural Experiment Station, 1896, *supra* at pp. 70-71.

[41] Charles L. Sullivan, 2008, *NAPA WINE*, *supra* at p. 138;
L. Peter Christensen, "Syrah", *Wine Grape Varieties in California*, p. 147 (Publication 3419, University of California, Division of Agriculture and Natural Resources, Oakland, California 2003).

[42] Harold Olmo, SYRAH, p. 2, paper dated June 27, 1985, Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[43] Frederic T. Bioletti, *Elements of Grape Growing in California*, pp. 33-34, Circular 30, Agricultural Extension Service, College of Agriculture (University of California, Berkeley, March 1929, rev. April 1934);
Harold Olmo, SYRAH, p. 2, paper dated June 27, 1985, Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[44] Gerald Asher, "California Syrah", *The Pleasures of Wine-Selected Essays*, pp. 231-232 (Chronicle Books, San Francisco, 2002).

[45] Olmo Syrah notes in Harold Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[46] Pierre Galet, *Grape Varieties and Rootstock Varieties,* p. 128 (Oenoplurimédia sarl, Chaintré, France, 1998).

[47] H.P. Olmo, "Our Principal Wine Grape Varieties Present and Future", *Am.J.Enol.Vitic.*, vol. 5: 18-20 (January 1954);
Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl, "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 236-237 (1999).

[48] Jancis Robinson *et al.*, 2012, *WINE GRAPES, supra* at pp. 1023, 1027;
L. Peter Christensen, *Wine Grape Varieties in California*, "Syrah", p. 147, Publication 3419 (Agriculture and Natural Resources, University of California, Oakland, California, 2003); Pierre Galet, "Syrah" pp. 128-130, *Grape Varieties and Rootstock Varieties* (Oenoplurimédia sarl, Chaintré, France, 1998).
[49] Meredith, C.P., and Boursiquot, J-M. 2008. "Origins and importance of Syrah around the world", *International Syrah Symposium*, Lyon 12-14 May 2008, Oenoplurimédia, pp. 17-20.

[50] M.A. Amerine and A.J. Winkler, *California Wine Grapes: Composition and Quality of Their Musts and Wines*, California Agricultural Experiment Station, Bulletin 794, Division of Agricultural Sciences, University of California, March, 1963, pages 30-31

[51] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 15.

[52] Barry Bergman, R.H. Phillips Winery, "Future of Syrah in California", *Practical Winery & Vineyard,* p. 68 (January/February 2001).

[53] Gerald Asher, *Pleasures of Wine, supra* at p. 227

[54] Charles Sullivan, 1998, *Companion to California Wine, supra* at p. 285.

[55] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 1029; Charles Sullivan, 1998, *Companion to California Wine, supra* at p. 285.

[56] *California Grape Acreage Report,* 2019 Crop, United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, Red Wine Grapes, page 9.

[57] L. Peter Christensen, "Syrah", *Wine Grape Varieties in California*, p. 147 (Publication 3419, University of California, Division of Agriculture and Natural Resources, Oakland, California 2003).

[58] J. Robinson, 2006, *Oxford Companion to Wine, supra* at p. 575.

[59] Jim Concannon with Tim Patterson, *CONCANNON, The First One Hundred and Twenty-Five Years*, pp. 54, 57-62 (Andy Katz Photography, Healdsburg, California 2006).

[60] L. Peter Christensen, 2003, "Syrah", *Wine Grape Varieties in California, supra* at p. 149; Harold Olmo, SYRAH, p. 2, paper dated June 27, 1985, Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis; Harold P. Olmo message to Bob Summers, October 18, 1996, Olmo collection D-280, box 59: 82, Department of Special Collections, UC Davis; Robert Mayberry, *Wines of the Rhône Valley, A Guide to Origins*, p.14 (Rowman & Littlefield, Totowa, New Jersey, 1987)

[61] Interview with Dr. Carole Meredith, Napa, California, January 14, 2016.

[62] *Amerine & Winkler, 1963, supra* at p. 30

[63] Harold Olmo, SYRAH, paper dated June 27, 1985, Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[64] Handwritten notes ("Visited Davis, July 25-1974"), Harold Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[65] Harold Olmo, SYRAH, paper dated June 27, 1985, Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[66] Gerald Asher, "California Syrah", p. 232, *The Pleasures of Wine, Selected Essays* (Chronicle Books, San Francisco, 2002); Patrick J. Comiskey, *AMERICAN RHÔNE, How Maverick Winemakers Changed the Way Americans Drink*, pp. 73-74 (University of California Press, Oakland, CA, 2016).

[67] Gerald Asher, "California Syrah", *The Pleasures of Wine, Selected Essays*, p. 232 (Chronicle Books, San Francisco, 2002).

[68] Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl. "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 236-237 (1999).

[69] L. Peter Christensen, "Syrah", *Wine Grape Varieties in California*, p. 147 (Publication 3419 (University of California, Division of Agriculture and Natural Resources, Oakland, California, 2003).

[70] Pierre Galet, "Syrah", *Grape Varieties and Rootstock Varieties*, pp. 128-130 (Oenoplurimédia sarl, Chaintré, France, 1998).

[71] Jancis Robinson et al., 2012, *WINE GRAPES, supra* at p. 1030;
Gerald Asher, "California Syrah, Getting to the Bottom of the Warm-Hearted Reds", Wine Journal, *GOURMET magazine*, March 1997.

[72] Gerald Asher, "Legends of the Rhône Hermitage and Crozes-Hermitage", Wine Journal, p. 56, *GOURMET magazine*, March 1994.

[73] Robinson, 2006, *Oxford Companion to Wine, supra* at pp. 627-628;
Letter from C. Quirk, Research Officer, Australian Wine Board to W.H. Lanthrop in San Francisco, California, dated 27 March 1981, filed in Olmo collection D-280, box 59: 23, Department of Special Collections, Shields Library, UC Davis.

[74] L. Peter Christensen, "Syrah", *Wine Grape Varieties in California*, p. 147 (Publication 3419, University of California, Division of Agriculture and Natural Resources, Oakland, California 2003).

[75] Public Syrah/Shiraz Selections at FPMS, *FPMS Grape Program Newsletter*, Number 7, page 13, October 2001.

[76] Carole Meredith, "1998-99 DNA Testing of FPMS Vines", *FPMS Grape Program Newsletter*, October 1999, page 7.

[77] Matthew Fidelibus, email to author, March 28, 2012;
"Vineyard Impacts on Wine Flavor, Clonal Impacts: Syrah", *Wine Business Monthly*, August 2011.

[78] Wayne Farquhar, SAVII Shiraz Clonal Selection, *FPS Grape Program Newsletter*, November 2006, page 6.

[79] Public Syrah/Shiraz Selections at FPS, *FPMS Grape Program Newsletter*, Number 7, page 13, October 2001.

[80] ENTAV-INRA-ENSAM-ONIVINS, *Catalogue of Selected Wine Grape Varieties and Certified Clones Cultivated in France* (Ministry of Agriculture, Fisheries and Food (CTPS), 1995) (in English), pp. 191, 251.

[81] The l'Espiguette selection was also maintained in the Department of Viticulture's Tyree vineyard in block MO19 v 17-18. For years in the early 1990's, an error in the FPMS database associated the MO19 v 17-18 location with the Pont-de-la-Maye Syrah selection (Syrah FPMS 01 > Syrah FPMS 10). The error appeared on FPMS printouts of "All Grape Groups" in years 1991 and 1992. That error was ultimately corrected in the FPMS database for Syrah-1 (S1) (Pont-de-la-Maye) by deleting the following notation from the private source line:
"Heat treated selection of #1 at TYR [Tyree] MO 19 v 17, 18". The original Goheen indexing binders show that the l'Espiguette selection and not the Pont-de-la- Maye selection was planted at TYR block MO19 v 17-18.

[82] Gerald Asher, "California Syrah, Getting to the Bottom of the Warm-Hearted Reds", Wine Journal, *GOURMET magazine*, March 1997.

[83] Tyree Vineyard Hopkins Tract, Alphabetical List of Varieties, February 1982, page 32 (on file at FPS).

[84] Public Syrah/Shiraz Selections at FPMS, *FPMS Grape Program Newsletter*, October 2001, page 14.

[85] Deborah Golino, "A Graft Disorder of Syrah", *FPMS Grape Program Newsletter*, October 2001, page 14.

[86] Anne-Sophie Renault-Spilmont and Jean-Michel Boursiquot, ENTAV, Le Grau du Roi, France, "Syrah Decline in French Vineyards", *FPMS Grape Program Newsletter*, October 2002, p. 22.

[87] Minutes, FPMS Grape Advisory Committee, November 13, 2002, p. 2; Mark Battany, Adib Rowhani, and Deborah Golino. 2004. "Syrah in California: Decline or Disorder?", *Practical Winery & Vineyard*, p. 1 (May/June 2004).

[88] Glenn McGourty, "Developing a New Vineyard, Part II", *Wines & Vines*, p. 144, January 2013.

[89] Maher Al Rwahnih. 2009. "Towards Understanding Syrah Decline Disease Using Next Generation Sequencing Technology", *FPS Grape Program Newsletter,* October 2009, page 18.

[90] Joshua M. Puckett, Gerald Dangl, Deborah Golino, and Maher Al Rwahnih. 2018. "O31: Evidence to support Syrah Decline is a non-infectious genetic syndrome in several Syrah selections", *Proceedings of the 19th Congress of ICVG*, Santiago, Chile, April 9-12, 2018, page 76.

[91] The article first appeared as: Rhonda Smith, "The Origin of the Durell Syrah", *FPS Grape Program Newsletter*, October 2004, page 10. The FPS historical newsletters may be accessed at the FPS website at: Fps.ucdavis.edu/About FPS/Publications/Grape/Historical Grape Newsletters.

[92] Charles L. Sullivan, 2008, *NAPA WINE, supra* at p. 309.

[93] Gerald Asher, "California Syrah", *The Pleasures of Wine – Selected Essays*, p. 232-233 (Chronicle Books, San Francisco, 2002); Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 74-79.

[94] Gerald Asher, "California Syrah, Getting to the Bottom of the Warm-Hearted Reds", Wine Journal, *GOURMET magazine*, March 1997.

[95] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 72-79.

[96] Patrick Comiskey, *AMERICAN RHÔNE, How Maverick Winemakers Changed the Way Americans Drink*, pp. 80-82 (University of California Press, Oakland, CA, 2016).

[97] Thomas Pinney, *A History of Wine in America, from the Beginnings to Prohibition*, vol. I, p. 316 (University of California Press, Berkeley and Los Angeles, 1989).

[98] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 82-83.

[99] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 83; Telephone interview of Doug Meador, by Susan Nelson-Kluk, Grape Program Manager at FPS, August 02, 2002.

[100] Handwritten notes ("Visited Davis, July 25-1974"), Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[101] Harold Olmo, SYRAH, paper dated June 27, 1985, Olmo collection D-280, box 55: 20, box 59: 82 and box 22, Department of Special Collections, Shields Library, UC Davis.

[102] Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, UC Davis.

[103] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 83; Gerald Asher, "California Syrah", *The Pleasures of Wine – Selected Essays*, p. 233 (Chronicle Books, San Francisco, 2002); Telephone interview of Doug Meador, by Susan Nelson-Kluk, Grape Program Manager at FPS, August 02, 2002.

[104] *turleywinecellars.com/library*.

[105] Susan Nelson-Kluk, "New Grape Varieties for the 2006-2007 Season", *FPS Grape Program Newsletter*, November 2006, p. 34.

[106] Patrick Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 149-150, 159.

[107] Jancis Robinson, Julia Harding, José Vouillamoz, *WINE GRAPES*, pp. 316-317 (HarperCollins, New York, 2012); Meredith, Carole P., John E. Bowers, Summaira Rias, Vanessa Handley, Elizabeth B. Bandman, and Gerald S. Dangl, "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J. Enol. Vitic.*, vol. 50(3): 236 (1999).

[108] Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl, "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 236-237 (1999);
Charles L. Sullivan, "Rhone varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, p. 284 (University of California Press, Berkeley and Los Angeles, California, 1998).

[109] Charles L. Sullivan, *NAPA WINE, A History*, pp. 137-138 (The Wine Appreciation Guild, San Francisco, 2008); Charles L. Sullivan, "Rhone varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present,* p. 284 (University of California Press, Berkeley and Los Angeles, California, 1998).

[110] Frederic T. Bioletti, *Elements of Grape Growing in California*, California Agricultural Extension Service, Circular 30, pages 33-34 (College of Agriculture, University of California, March, 1929, Revised April, 1934).

[111] Olmo, H.P. "Our principal wine grape varieties present and future", *Am.J.Enol.* 5: 18-20 (1954). Galet, *Grape Varieties and Rootstock Varieties*, 1998, *supra* at p. 128.

[112] H.P. Olmo, 1985, "SYRAH", Olmo collection D-280, box 59: 82, Department of Special Collections, Shields Library, University of California, Davis.

[113] Amerine and Winkler, *California Wine Grapes: Composition and Quality of Their Musts and Wine*, Bulletin 794, p. 29 (California Agricultural Experiment Station, University of California, 1963).

[114] Edward Weber, "Durif", *Wine Grape Varieties in California*, p. 59, Publication 3419 (University of California, Division of Agriculture and Natural Resources, Oakland, California 2003).

[115] Robinson, 2006, *Oxford Companion to Wine, supra* at p. 575; Jim Concannon with Tim Patterson, *CONCANNON, The First One Hundred and Twenty-Five Years*, pp. 54, 62 (Andy Katz Photography, Healdsburg, California 2006).

[116] L. Peter Christensen, "Syrah", *Wine Grape Varieties in California*, p. 147 (Agriculture and Natural Resources, University of California, Oakland, California, 2003).

[117] Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl, "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 236-237, 241 (1999).

[118] California Grape Acreage Report, 2019 Crop, California Department of Food and Agriculture in Cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, page 9.

[119] Assigning the Correct Grape Variety Name, *FPS Grape Program Newsletter*, November 2005, *fps.ucdavis.edu/About FPS/Publications/Historical Grape Newsletter.*

[120] Jim Concannon with Tim Patterson, *CONCANNON, The First One Hundred and Twenty-Five Years*, pp. 54, 57-62 (Andy Katz Photography, Healdsburg, CA 2006).

[121] Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl, "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 240 (1999).

[122] WINE GRAPE COLLECTION, *V. vinifera*, July 7, 1961, Olmo collection D-280, box 55: 20, Department of Special Collections, Shields Library, UC Davis.

[123] Charles L. Sullivan, *NAPA WINE, A History*, pp. 355-356 (The Wine Appreciation Guild, South San Francisco, 1994, 2008).

[124] Pierre Galet, "Syrah", *Grape Varieties and Rootstock Varieties*, p. 128 (Oenoplurimédia sarl, Chaintré, France, 1998).

[125] Carole P. Meredith, John E. Bowers, Summaira Riaz, Vanessa Handley, Elizabeth B. Bandman and Gerald S. Dangl, "The Identity and Parentage of the Variety Known in California as Petite Sirah", *Am. J.Enol.Vitic.* 50(3): 236-238 (1999).

[126] Patrick Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 27.

[127] Jancis Robinson, Julia Harding, and José Vouillamoz, *WINE GRAPES*, p. 1143 (Harper Collins Publishers, 2012); Glenn McGourty, "Viognier", *Wine Grape Varieties in California*, p. 159 (Publication 3419, University of California, Division of Agriculture and Natural Resources, Oakland, California 2003); Pierre Galet, *Grape Varieties and Rootstock Varieties*, pp. 137-138 (Oenoplurimédia sarl, Chaintré, France, 1998).

[128] Robinson *et al.*, 2012, *WINE GRAPES*, *supra* at p. 1143; Vouillamoz, J.F. 2008. "Mondeuse Noir et Viognier dans l'arbre généologique de la Syrah", *International Syrah Symposium*, Lyon, 13-14 May 2008, Oenoplurimédia, pp. 108-110.

[129] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 1144.

[130] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4,* with three separate Appendices, Part V. Ampelography, p.149 (San Francisco, September 1, 1884).

[131] David Harris, "Results of a Survey on Viognier", *Vineyard & Winery Management*, p. 46 (July, 1996).

[132] Charles L. Sullivan, "Rhone varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, p. 386 (University of California Press, Berkeley and Los Angeles, California, 1998).

[133] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 1145.

[134] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, White Wine Grapes, page 8.

[135] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 160-165. Robinson *et al.*, 2012, *WINE GRAPES, supra* at p 920.

[136] Mike Dunne, "Grape mystery clouds vintner's prize", *Sacramento Bee*, August 17, 2000, p. A17.

[137] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp.160-165.

[138] Email from Larry Hyde to author on December 21, 2015.

[139] Insitut Français de la Vigne et du Vin, *Catalogue officiel des variétés de vigne cultivés en France*, 2ème edition (INRA, Montpellier SupAgro, VINIFLHOR, 2006), p. 452.

[140] Charles L. Sullivan, "Rhone varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present*, p. 292 (University of California Press, Berkeley and Los Angeles, California, 1998).

[141] Glenn McGourty, "Roussanne", *Wine Grape Varieties in California,* p. 123 (Publication 3419, Agriculture and Natural Resources, Regents of the University of California, 2003); Charles L. Sullivan, *NAPA WINE, A History,* p. 138 (The Wine Appreciation Guild, San Francisco, 2008); Charles L. Sullivan, *A Companion to California Wine*, p. 201 (University of California Press, Berkeley, 1998); Comiskey, 2016, *AMERICAN RHÔNE, supra* at p.30.

[142] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p 921.

[143] Charles L. Sullivan, *A Companion to California Wine*, p. 292 (University of California Press, Berkeley, 1998).

[144] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, White Wine Grapes, pp. 8, 24-25.

[145] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 162-163.

[146] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 161-163.

[147] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p 921.

[148] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4*, with three separate Appendices, Part V. Ampelography**,** pp.141-142 (San Francisco, September 1, 1884).

[149] Charles L. Sullivan, 1998, *Companion to California Wine, supra* at p. 201; ***17th Report***, UC Experiment Station, 1896, *supra* at p. 224.

[150] Amerine & Winkler, 1963, *supra* at p.53; Amerine & Winkler, 1944, *Hilgardia, supra* at p. 619.

[151] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, White Wine Grapes, pp. 8, 22.

[152] Minor Wine Grape Varieties in California - White (Marsanne), *Wine Grapes of California,* p. 174 (Regents of the University of California, Division of Agriculture and Natural Resources, Oakland, California, 2003); Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 174.

[153] Comiskey, 2016, "Tablas Creek, the Validator", *AMERICAN RHÔNE, supra*, at pp. 167-176.

[154] Robinson, 2006, *Oxford Companion to Wine, supra* at pp. 159-160.

[155] Beverly Ferguson, "Variety Focus: Grapes of the Rhône" Course Offered Opinions and Wine Tastings, *FPS Grape Program Newsletter,* Foundation Plant Services, November 2006, p. 28.
[156] Patrick J. Comiskey, *AMERICAN RHÔNE, How Maverick Winemakers Changed the Way Americans Drink*, pp. 169-170 (University of California Press, Oakland, California, 2016).

[157] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp.171-173.

[158] Beverly Ferguson, "Variety Focus: Grapes of the Rhône" Course Offered Opinions and Wine Tastings, *FPS Grape Program Newsletter*, Foundation Plant Services, November 2006, p. 28.

[159] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 175.

[160] The approved varieties as of 2015 were: Bourboulenc, Cinsault, Clairette, Counoise, Grenache blanc, Grenache noir, Mourvèdre, Muscardin, Picardin, Picpoul blanc, Roussanne, Syrah, Terret noir, Vaccarèse.

[161] Robert Haas, "Less-known Varieties of Châteauneuf-du-Pape are Being Indexed by FPS", *FPS Grape Program Newsletter*, November 2005, Foundation Plant Services, pp. 4-5.

[162] Nick K. Dokoozlian, "Grenache", *Wine Grape Varieties in California*, p. 71 (University of California, Agriculture and Natural Resources, Oakland, California, 2003); Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 399.

[163] Charles L. Sullivan, 2008, *NAPA WINE, supra* at p. 137.

[164] Charles A. Wetmore, *Chief Executive Viticultural Officer, Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4,* with three separate Appendices, Part V. Ampelography, p. 128 (San Francisco, September 1, 1884).

[165] "Record of Culture and Vinification Experiments with Red Wine Grapes", PART II, pp. 29-229, *Report of the Viticultural Work,* prepared by L. Paparelli under the direction of Eugene Hilgard, Agricultural Experiment Station, College of Agriculture, University of California (Sacramento, 1892) -**13th Report.**

[166] C.J. Alley, C.S. Ough, and M.A. Amerine, "Grapes for Table Wines in California's Region IV and V", *Wines & Vines magazine,* pp. 20-22 (March 1971); "Descriptions of Types and Varieties of Grapes and Record of Work in the Viticultural Laboratory", PART I. RED-WINE GRAPES, pp. 19-166, and WHITE-WINE GRAPES, , pp 224-252, *Report of Viticultural Work,* prepared by Frederic Bioletti, Agricultural Experiment Station, College of Agriculture, University of California (Sacramento, 1896) - **17th Report.**

[167] Frederic T. Bioletti, "The Best Wine Grapes for California", *Bulletin No. 193* (Agricultural Experiment Station, College of Agriculture, University of California Berkeley, California, November 1907).

[168] Frederic T. Bioletti, *Elements of Grape Growing in California*, Circular 30, p. 31 (Agricultural Extension Service, College of Agriculture, University of California, Berkeley, March 1929, rev. April 1934).

[169] M.A. Amerine and A.J. Winkler. 1963. *California Wine Grapes: Composition and Quality of Their Musts and Wines*, pp. 21-22 (Bulletin 794, California Agricultural Experiment Station (Division of Agricultural Sciences, University of California, March 1963); M.A. Amerine and A.J. Winkler. 1944. "Composition and Quality of Musts and Wines of California Grapes", *Hilgardia* 15(6): 556-557 (February, 1944).

[170] Nick K. Dokoozlian, "Grenache", *Wine Grape Varieties in California,* pp. 71-73 (University of California, Agriculture and Natural Resources, Oakland, California, 2003).

[171] H.P. Olmo, "Our Principal Wine Grape Varieties Present and Future", *Am.J.Enol.Vitic.*, vol. 5: 18-20 (January 1954).

[172] California Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, *Grape Acreage Report, 2019 Crop*, California, April 24, 2020, page 9.

[173] Documents in Harold Olmo collection, D-280, boxes 66 and 77, Department of Special Collections, Shields Library, UC Davis.

[174] Email from Nick Dokoozlian to author on August 21, 2020.

[175] State of California, Department of Agriculture, Nursery Services, Application for Registration of Grape Foundation Stock, 1962, page 2, for Grenache, and Application for 1961, page 3, for Grenache-2, which was propagated from Grenache 01A.

[176] Nick K. Dokoozlian, "Grenache", *Wine Grape Varieties in California,* p. 71 (University of California, Agriculture and Natural Resources, Oakland, California, 2003).

[177] Nick K. Dokoozlian, "Grenache", *Wine Grape Varieties in California*, p. 71 (University of California, Agriculture and Natural Resources, Oakland, California, 2003).

[178] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 20, 159-160.

[179] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 398.

[180] Jesus Yuste, "Grapevine Clonal Selections from Castilla y León, Spain Now Available from FPS", *FPS Grape Program Newsletter*, November 2005, pp. 8-10.

[181] Robinson *et al.,* 2012, *WINE GRAPES, supra* at p 402.

[182] Jesus Yuste, "Grapevine Clonal Selections from Castilla y León, Spain Now Available from FPS", *FPS Grape Program Newsletter*, November 2005, pp. 8-10

[183] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 401.

[184] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, White Wine Grapes, page 22.

[185] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 174.

[186] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, White Wine Grapes, page 4.

[187] Minor Wine Grape Varieties in California – Black (Cinsaut), *Wine Grape Varieties in California*, p. 170 (University of California, Agriculture and Natural Resources, Oakland, California, 2003).

[188] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 246

[189] Charles L. Sullivan, "Rhone Varieties", *A Companion to California Wine, An Encyclopedia of Wine and Winemaking from the Mission Period to the Present,* p. 28 (University of California Press, Berkeley and Los Angeles, California, 1998).

[190] ***17th Report***, UC Agricultural Experiment Station, 1896, *supra* at pp. 88, 92; ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at pp. 212-220.

[191] Amerine & Winkler, 1944, *Hilgardia, supra* at p. 594.

[192] Harold Olmo, ~1975, "Wine Grapes in California", Varieties, p. 10, Olmo collection D-280, box 23: 62, Department of Special Collections, Shields Library, UC Davis.

[193] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4,* with three separate Appendices, Part V. Ampelography, pp.128, 141 (San Francisco, September 1, 1884).

[194] ***17th Report***, UC Agricultural Experiment Station, 1896, *supra* at p. 224.

[195] Amerine & Winkler, 1944, *Hilgardia, supra* at p. 606.

[196] Amerine & Winkler, 1963, *supra* at p. 16.

[197] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 275.

[198] https://tablascreek.com/story/vineyard_and_winemaking/grapes/counoise

[199] Glenn McGourty, "Mourvèdre", *Wine Grape Varieties in California*, pp. 91-93 (Regents of the University of California, Division of Agriculture and Natural Resources, Oakland, California, 2003).

[200] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 647.

[201] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p 647.

[202] Thomas Pinney, *A History of Wine in America, from Prohibition to the Present,* vol. 2, p. 343 (University of California Press, Berkeley, Los Angeles, London, 2005).

[203] Charles L. Sullivan,1998, *Companion to California Wine, supra* at p. 205

[204] Glenn McGourty, "Mourvèdre", *Wine Grape Varieties in California,* pp. 91-93 (Regents of the University of California, Division of Agriculture and Natural Resources, 2003); Charles L. Sullivan, *NAPA WINE, supra* at p. 137; Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4,* with three separate Appendices, Part V. Ampelography, pp.103-151 (San Francisco, September 1, 1884)

[205] Charles Wetmore, 1884, *Ampelography, supra* at p. 119.

[206] Charles Wetmore, 1884, *Ampelography, supra* at p. 119.

[207] Glenn McGourty, "Mourvèdre", *Wine Grape Varieties in California*, pp. 91-93 (Regents of the University of California, Division of Agriculture and Natural Resources, Oakland, California, 2003); Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp. 21-23; Charles L. Sullivan, 1998, *Companion to California Wine, supra* at p. 205.

[208] ***17th Report***, UC Agricultural Experiment Station, 1896, *supra* at p. 112; ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at p. 192.

[209] Frederic T. Bioletti, "The Best Wine Grapes for California", *Bulletin No. 193*, p. 142 (Agricultural Experiment Station, College of Agriculture, University of California (Berkeley, California, November 1907).

[210] Frederic T. Bioletti, *Elements of Grape Growing in California*, *Circular 30,* p. 31 (Agricultural Extension Service, College of Agriculture, University of California, Berkeley, March 1929, rev. April 1934).

[211] Amerine & Winkler, 1963, *supra* at p. 53.

[212] Charles L. Sullivan, 1998, *Companion to California Wine, supra*, at pp. 205-206.

[213] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, Red Wine Grapes, page 9 (Mourvedre, Mataro, Monastrell).

[214] Charles L. Sullivan, 1998, *Companion to California Wine, supra* at pp. 205-206.

[215] *Code of Federal Regulations,* Title 27: Alcohol, Tobacco Products and Firearms, Part 4 – Labelling and Advertising of Wine, section 4.91 (List of approved names).

[216] Glenn McGourty, "Mourvèdre", *Wine Grape Varieties in California,* pp. 91-93 (Regents of the University of California, Division of Agriculture and Natural Resources, Oakland, California, 2003).

[217] Dr. Carole Meredith, "1999-2000 DNA Testing of FPMS Vines", *FPMS Grape Program Newsletter*, Number 6, October 2000, page 4.

[218] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 648.

[219] ***17th Report***, UC Agricultural Experiment Station, 1896, *supra* at pp. 70, 88.

[220] Charles L. Sullivan, 1998, *Companion to California Wine, supra* at p. 206.

[221] Comiskey, 2016, *AMERICAN RHÔNE, supra* at p. 21.

[222] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 796.

[223] *California Grape Acreage Report, 2019 Crop,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, April 24, 2020, White Wine Grapes, pp. 8, 24.

[224] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 829.

[225] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 1051.

[226] https://tablascreek.com/story/vineyard_and_winemaking/grapes/terret

[227] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 616.

[228] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 616; Nick K. Dokoozlian, "Carignane", *Wine Grape Varieties in California*, p. 41 (University of California, Agriculture and Natural Resources, Oakland, California, 2003)

[229] Charles L. Sullivan, 2008, *NAPA WINE, supra* at p. 137.

[230] ***17th Report***, UC Agricultural Experiment Station, 1896, *supra* at pp. 88, 108; ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at p. 171.

[231] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4*, with three separate Appendices, Part V. Ampelography, p.127 (San Francisco, September 1, 1884).

[232] Frederic T. Bioletti, *Elements of Grape Growing in California, Circular 30,* p. 31, (Agricultural Extension Service, College of Agriculture, University of California, Berkeley, March 1929, rev. April 1934).

[233] H.P. Olmo, "Our Principal Wine Grape Varieties Present and Future", *Am.J.Enol.Vitic.,* vol. 5: 18-20 (January 1954).

[234] Amerine & Winkler, 1963, *supra* at p. 14.

[235] H.P. Olmo, "Our Principal Wine Grape Varieties Present and Future", *Am.J.Enol.Vitic.*, vol. 5: 18-20 (January 1954).

[236] Comiskey, 2016 *AMERICAN RHÔNE, supra* at p. 25.

[237] Harold Olmo, ~1975, "Wine Grapes in California", Varieties, p 9, Olmo collection D-280, box 23: 62, Department of Special Collections, Shields Library, UC Davis.

[238] Nick K. Dokoozlian, "Carignane", *Wine Grape Varieties in California,* p. 43 (University of California, Agriculture and Natural Resources, Oakland, California, 2003).

[239] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 650.

[240] Comiskey, 2016, *AMERICAN RHÔNE, supra* at pp 50, 53.

[241] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4*, with three separate Appendices, Part V. Ampelography, p.128, 141 (San Francisco, September 1, 1884).

[242] Frederic T. Bioletti, 1907, "The Best Wine Grapes for California", *Bulletin No. 193,* p. 142, (College of Agriculture, University of California, Berkeley, California, November 1907).

[243] ***17th Report***, UC Agricultural Experiment Station, 1896, *supra* at p. 76; ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at pp. 186-192.

[244] Robinson *et al.*, 2012, *WINE GRAPES, supra* at p. 651.

[245] Amerine & Winkler, 1963, *supra* at p. 35.

[246] *California Grape Acreage Report, 2008 Summary,* United States Department of Food & Agriculture in cooperation with USDA's National Agricultural Statistics Service, March 31, 2009, Red Wine Grapes, Grape Variety synonyms, p. 6.

[247] ***17th Report,*** UC Agricultural Experiment Station, 1896, *supra* at p. 76

[248] Susan Nelson-Kluk, *FPS Grape Program Newsletter*, November 2005, page 12.

[249] Robinson *et al.*, 2012, *WINE GRAPES, supra* at pp. 683-685.

[250] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners,*

for the Years 1882-3 and 1883-4, with three separate Appendices, Part V. Ampelography, p.141 (San Francisco, September 1, 1884).

[251] Amerine & Winkler, 1963, *supra* at p. 75.

[252] Minor Wine Grape Varieties in California – Black (Tannat), *Wine Grape Varieties in California*, p. 173 (University of California, Agriculture and Natural Resources, Oakland, California, 2003).

[253] Robinson *et al.,* 2012*, WINE GRAPES, supra* at pp. 446, 787.

[254] Robinson *et al.,* 2012*, WINE GRAPES, supra* at pp. 446, 787.

[255] Robinson *et al.,* 2012*, WINE GRAPES, supra* at pp. 32, 785.

[256] Charles A. Wetmore, Chief Executive Viticultural Officer, *Second Annual Report of the Chief Executive Viticultural Officer to the California Board of State Viticultural Commissioners, for the Years 1882-3 and 1883-4*, with three separate Appendices, Part V. Ampelography, pp.128-129 (San Francisco, September 1, 1884)

[257] ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at pp. 224-226.
[258] ***17th Report,*** UC Agricultural Experiment Station, 1896, *supra* at pp. 124-133.

[259] Amerine & Winkler, 1944, *Hilgardia, supra* at p. 625.

[260] ***13th Report***, UC Agricultural Experiment Station, 1892, *supra* at pp. 226-230.

[261] ***17th Report,*** UC Agricultural Experiment Station, 1896, *supra* at pp. 88, 121-124.

[262] Amerine & Winkler, 1944, *Hilgardia, supra* at p. 625.

[263] Amerine & Winkler, 1944, *Hilgardia, supra* at p. 648.

[264] Bulkwinery.com/cvi-wines/

[265] Letter A.C. Goheen, Plant Pathologist, to Mr. E.H. McEachern, California Department of Agriculture, Bureau of Nursery Services, 1220 N Street, Sacramento, CA, dated February 2, 1966.

[266] *Skinnervineyards.com*