



CATENA INSTITUTE *of Wine*

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CHARACTERIZATION OF MALBEC – A CHALLENGE FOR ARGENTINA



In this article, the author explains that the soil is not just an inert medium that supports the vine, but a rich environment filled with abundant microflora. In addition, he points out that sunlight intensity in high altitude vineyards plays a vital role in the vineyard's development.

By **Fernando Buscema**, *Executive Director, Catena Institute of Wine*

All of us working with the Catena family are obsessed with the challenge of producing world class wines that can rival the best from the world,

like Chateau Lafite or Domaine de la Romanée Conti. In order to do this, we have put science at the service of quality, studying the unique

characteristics of Argentine Malbec and the climatic and soil conditions of our regions.

Malbec vines are NOT all the same

Argentina's signature grape was introduced in Mendoza by French expert Michel Pouget in the mid 1850s. However, even though the Malbec vines brought into our country were very similar, they were not identical. Therefore we can say that it is a verified fact that Malbec wines are not all the same.

In fact, certain clones can produce twenty times more grapes than other Malbec clones, in spite of sharing the same training and pruning systems. This marvelous variability and diversity of Malbec disappeared from its birthplace (Cahors, France), when the phylloxera pest devastated the majority of European vineyards by the end of the XIX Century,

Currently, our team, in conjunction with researchers from IBAM (Mendozan Agricultural Biology Institute) and UC Davis, have characterized – genetically and phenotypically - more than 130 individual selections of Malbec.

In fact, this project was so precious to us that it led Laura Catena to found our team in 1995. But why is malbec diversity so important? Because it can allow us to find certain clones that adapt better to certain regions, enabling us to offer the consumer different flavor profiles, while respecting the true character of the variety.

Our soils are alive

For years we have listened to foreign consultants - and local experts too – who said that because Mendoza has an average rainfall of 150-350 mm depending on the region, the soil was merely an inert medium that supports the vine, and therefore played no vital role in the definition of

quality regions, such as Bordeaux or Burgundy.

In France, soils with high water retention properties are associated with low quality wines, since the grapes are more prone to rot, or simply because plants prioritize vegetative growth over quality of cluster development.

We were very intrigued by this “inert medium” theory. Especially since grape production in Mendoza uses only a small fraction of pesticides and fungicides (due to scarce rainfall) compared to other countries with more rainfall, which would allow for the development of living organisms in our soil.

In a joint study carried out by our team in conjunction with CONICET, we found out that the soil in our Adrianna Vineyard, located in Gualtallary, is not an inert medium but a very rich medium packed with abundant microflora.

We are particularly interested in a group of bacteria, which might cause Malbec plants to use less water without affecting their production or quality. This is indeed an amazing discovery for sustainable viticulture.

Altitude, a distinctive aspect of our region

Three decades ago, a French consultant expressed that our Cabernet Sauvignon wines reminded him of the wines from Languedoc, in southern France. What appeared to be a compliment, was actually a negative comment. He was trying to say that our wines were a long way from resembling the wines from Bordeaux, since they were sourced from a warm region.

This negative remark motivated Nicolás Catena, third generation vintner, to explore the high altitude region of Gualtallary, in Tupungato. This region not only began to produce excellent results with early ripening varieties like Chardonnay and

Pinot Noir, but it also produced outstanding Malbec and Cabernet Sauvignon.

At almost 5,000 ft elevation, cooler temperatures allow the grapes to retain more natural acidity and to develop moderate alcohol levels. Also, at such altitude, red wines develop intensely rich colors, greater density and wonderful aging potential.

Temperature, however, was not the only beneficial factor obtained with high altitude. After 10 years of studying the Adrianna Vineyard in Gualtallary, we began to understand the important role sunlight intensity played as well.

With increasing altitude, the atmosphere becomes thinner and thinner, and at 5,000 ft elevation, plants receive a sunlight intensity (UV-B radiation) that is 30% higher than sunlight received in regions below 3,333 ft. elevation.

In high altitude regions like Gualtallary, all mothers would apply sunscreen to their children. Plants, however, in order to protect their seeds, produce phenolic compounds that “tan” (darken) the grapes’ skins, preventing harmful UV-B from reaching the seeds.

Fortunately, these phenolic compounds contribute to improving the quality of red wines, increasing their color and aging potential.

Mendozan Malbec is unique

In spite of the fact that we had made important progress toward understanding each aspect of terroir (plant, soil and climate), we still wondered if our Malbec wines were really different from other Malbec wines in the world.

In order to find an answer to this question, we decided to carry out a project in conjunction with two top experts at UC Davis: Doctor Roger Boulton and Doctor Hildegard Heymann. We compared vineyards and wines from Mendoza and California, US. What seemed to be a small project, ended up

being the most comprehensive Malbec study in the world.

Results showed a clear difference between Malbec from California and Malbec from Mendoza, with far more complex aromas and flavors in the latter.

The Catena Institute of Wine

When we reached our 18 th anniversary, in 2013, we decided it was important to share the knowledge we had acquired at Catena with the rest of the Argentine winemaking industry. We made two decisions: first, we decided to name our research department “The Catena Institute of Wine”, in English, since this is the most prevalent language in the scientific world, therefore an English name allows us to interact better with researchers and consumers from all over the world. Secondly, we decided to promote a culture of publishing and expanding research. In other words, we decided to communicate our findings in international science publications to bring credibility to the results we have achieved by receiving validation from the science experts of the world.

Since 1902 the Catena family has been a pioneer of the Argentinian winemaking industry. Innovation is in our DNA and we have decided to share our research in order to accomplish our major goal: “To advance our region to the First World of Wine”.

Our goal is clear: to understand every single square meter of our wine regions so that we can produce a world class Malbec that can compete with the French first growths, and to discover which grape varieties can produce high quality wines in the winemaking regions of Argentina.