# Mendoza Terroir Characteristics

## Location
- **Viticultural area**: 32° 43’ | 34° 58’ SOUTH LATITUDE | 67° 33’ | 69° 15’ WEST LONGITUDE

## Temp.
- **Annual Average**: 15/19° C | 59/66° F

## Rainfall
- **Annual Average**: Mendoza 220 mm/year
  - Melbourne 656
  - Bordeaux 851
  - Napa 599

## Cultivated Surface
- **Ha**: 150,763 | 75% of the country
- **Ac**: 372,550,4 | 79% of the region

## Altitude
- **of the vineyards**: 430 - 1,610 masl | 1,411 - 5,282 fasl

## Highlights
- **The most important wine province and one of the main producing centres in the world.**
- **The presence of the Andes shape the climate generating ideal conditions for the cultivation of vines.**
- **It is divided into five large sub-regions: Valle de Uco; Primera Zona; Northern oasis; the East and the South.**

*Source: National Viticulture Institute - Annual Surface Report (12/31/2018 database).*
MENDOZA
Main varieties

DISTRIBUTION by colour*

Red grapes | 61.2%
White grapes | 15.8%
Rosé Grapes | 23%

MAIN GRAPE VARIETIES
Most planted*

Malbec
Bonarda
Cabernet Sauvignon
Syrah
Tempranillo

Hectares | Acres | %

| MENDOZA | 150,763.0 | 372,550.45 |

Reds for vinification:

Malbec | 36,585.5 | 90,406.43 | 39.65
Bonarda | 15,414.6 | 38,091.02 | 16.71
Cabernet Sauvignon | 11,180.3 | 27,627.64 | 12.12
Syrah | 8,514.3 | 21,039.69 | 9.23
Tempranillo | 5,416.6 | 13,384.96 | 5.87
Merlot | 4,070.5 | 10,058.61 | 4.41
Pinot Noir | 1,495.2 | 3,694.79 | 1.62
Cabernet Franc | 882.3 | 2,180.25 | 0.96
Petit Verdot | 467.8 | 1,155.98 | 0.51
Tannat | 353.2 | 872.79 | 0.38
Other red varieties | 7,881.8 | 19,476.72 | 8.54

Whites for vinification:

Chardonnay | 4,972.0 | 12,286.31 | 20.87
Torrontés Riojano | 3,529.2 | 8,721.01 | 14.82
Chenin | 1,598.1 | 3,949.06 | 6.71
Sauvignon Blanc | 1,546.4 | 3,821.31 | 6.49
Semillón | 605.1 | 1,495.26 | 2.54
Viognier | 476.7 | 1,177.97 | 2.00
Torrontés Mendocino | 174.4 | 430.96 | 0.73
Torrontés Sanjuanino | 153.8 | 380.06 | 0.65
Riesling | 50.3 | 124.30 | 0.21
Other white varieties | 10,714.6 | 26,476.85 | 44.98

Rosé grapes for vinif.: | 34,680.3 | 85,698.49 |

Vinegrowing valleys
MENDOZA

Uco Valley
860 - 1610 m
2,800 - 5,282 ft

Primera Zona
615 - 1300 m
2,000 - 4,300 ft

North Mendoza
575 - 710 m
1,900 - 2,300 ft

East Mendoza
500 - 690 m
1,600 - 2,300 ft

South Mendoza
430 - 885 m
1,411 - 2,900 ft

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PRIMERA ZONA
Mendoza
PRIMERA ZONA
Location

Luján de Cuyo
Maipú

CULTIVATED SURFACE for vinification*

| Ha: 27.115,6 | 13.5% of the country |
| Ac: 67.005,36 | 18% of the province |
17th and 18th century: 1st vineyards in Mendoza. Family own and handcraft viticulture of ‘criollas’ grapes.

1850’s: beginning of industrial viticulture. European varieties planted.

1880: Railway arrives to Mendoza bringing European immigration, also helping to develop the wine consumption market in Buenos Aires.

70’s: Maximum historical consumption per capita: 90 lts.

80’s: Changes in consumer habits. Viticultural crisis.

90’s: Commercial opening to the world. International advisors. Wine reconversion.
Large scale irrigation network using water from Mendoza River.

Primera Zona holds 40% of Argentina’s wineries (881 in total)

1990: D.O.C. Luján de Cuyo

Some GI’s:
- Agrelo
- Las Compuertas
- Lunlunta
- Barrancas

City advancement over vineyard areas.
Located to the south of Mendoza City, on the pre-cordillera.

It is composed of 14 districts, some of them are GIs:

- Agrelo
- Perdriel
- Las Compuertas
PRIMERA ZONA
LUJÁN DE CUYO
Gls

LUJÁN DE CUYO > AGRELO
AGRELO

WINKLER ZONE
I  II  III  IV  V

ALTITUDE
1100 to 930 m

GRADIENT
0.15%
West - East

CLIMATE
ARID

RAINFALL
200 mm

STATUS
Approved

TOTAL SURFACE
14,200 ha

PLANTED SURFACE
5,300 ha

LUJÁN DE CUYO > LAS COMPUERTAS
LAS COMPUERTAS

WINKLER ZONE
I  II  III  IV  V

ALTITUDE
1080 to 950 m

GRADIENT
2.6%
Southwest - Northeast

CLIMATE
ARID

RAINFALL
200 mm

STATUS
Approved

TOTAL SURFACE
1,780 ha

PLANTED SURFACE
426 ha

LUJÁN DE CUYO > PERDRIEL
PERDRIEL

WINKLER ZONE
I  II  III  IV  V

ALTITUDE
980 to 910 m

GRADIENT
1%
West - East

CLIMATE
ARID

RAINFALL
200 mm

STATUS
Not approved

TOTAL SURFACE
1,900 ha

PLANTED SURFACE
900 ha
Located in Mendoza city’s southeast boundary, between Luján de Cuyo and the eastern departments of Mendoza. It is composed of 12 districts, some of them are GIs:

- Barrancas
- Cruz de Piedra
- Lunlunta

### CULTIVATED SURFACE for vinification

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<th>Ha: 11.601,2</th>
<th>5,77% of the country</th>
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<td>Ac: 28.677,23</td>
<td>7,7% of the province</td>
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**MALBEC**

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<th>Ha: 4.000</th>
<th>28.677,23</th>
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<td>Ac: 9.884,4</td>
<td>7,7%</td>
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**of the province**
MAIPÚ > LAS BARRANCAS

LAS BARRANCAS

WINKLER ZONE

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ALTIMETRY

840 to 680 m

GRADIENT

1%
Northwest - Southeast

CLIMATE

ARID

RAINFALL

200 mm

STATUS

Approved

TOTAL SURFACE

7000 ha

PLANTED SURFACE

2923 ha

MAIPÚ > LUNLUNTA

LUNLUNTA

WINKLER ZONE

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ALTIMETRY

930 to 880 m

GRADIENT

1.6%
Southwest - Northeast

CLIMATE

ARID

RAINFALL

200 mm

STATUS

Approved

TOTAL SURFACE

1600 ha

PLANTED SURFACE

600 ha
Valley formed by the graben of the Tunuyán River, a tectonic depression.

Crossed by several rivers and streams -Tunuyán being the largest- all converge on The Zampal, like a fan, where they run towards the plain.

Rivers, winds and volcanic eruptions generated sedimentary plains where vines are planted, among other crops.
Vinegrowing valleys

UCO VALLEY
16th Century, Jesuits missionaries were the first colonizers that planted vines.

During the twentieth century Uco Valley specialized in the cultivation of fruit and vegetables, with some key places for vines: La Consulta, Eugenio Bustos, Vista Flores.

A book of 1922, written by oenologist Leopoldo Suárez, reported 16 wineries in San Carlos Department.

Also a book of the same author, reported in 1911 the potential of calcareous soils for Semillon and other grapes, like Malbec.
New plantations raised the need to characterise the terroir of the Uco Valley.

**UCO VALLEY**

Today's figures

<table>
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<tr>
<th>CULTIVATED SURFACE for vinification*</th>
<th>14% of the country</th>
<th>18,7% of the province</th>
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<tr>
<td>Ha: <strong>28.216,9</strong></td>
<td>87% Red varieties</td>
<td>52% Malbec</td>
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<td>Ac: <strong>69.762,78</strong></td>
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* The figures for 2018.
Tunuyán River

Las Tunas River

Tupungato

CULTIVATED SURFACE for vinification*

Ha: 10,044,4
Ac: 24,820,72

5% of the country
6.7% of the province

UCO VALLEY
TUPUNGATO GI
Location
It’s been part of a Jesuit *encomienda* since 17th Century.

The valley has been farmed with orchards, vineyards and horticultural crops since the beginning of 20th Century.

Flood irrigation was common until mid 90's. Since then, drip irrigation has become more popular mainly on slopes and difficult topographies.

The personality and uniqueness of the wines has attracted the attention of wine critics and consumers worldwide.

**Tupungato is the only approved Gi.**

Gualtallary is a Gi in process of approval.

Main grape varieties: Malbec. Chardonnay, Cabernet Sauvignon, Pinot Noir & Cabernet Franc are also very important grapes in the Gi based on the quality of the wines made out of these varietals.
Gualtallary boundaries:

- **West:** The Andes range, the border with Chile;
- **East:** Route 89
- **North:** El Peral district
- **South:** Las Tunas River
Gualtallary has already been requested as a GI by grape growers & a winery consortium.

There are over 20,000 ha of agricultural land. Only 2,200 ha are planted to date.

There is limited access to water trough wells or surface water rights from Las Tunas dam.

Gualtallary is one of the most exciting wine regions of South America due to the combination of its most diverse climates and soils.
The GI goes from 1.080 mts (3.500 ft) to 2.200 mts (7.200 east-west).

There is a difference of 6°C from the base to the top of the GI, as the average temperature drops 1°C every 150 meters.
ALLUVIAL DEPOSITS FROM LAS TUNAS RIVER
The alluvial cone of the river delimits three terraces; 2 and 3 are plantation areas. They have similar compositions, pebbles, sand (75/80%), silt (15/20%) and clay (2/5%).

COLLUVIAL DEPOSITS FROM THE FRONTAL MOUNTAIN RANGE
They occupy small areas around the mountain range. They are not relevant nowadays from the point of view of new plantings...

WIND BLOWN DEPOSITS
They form an extensive area in the heart of the GI, between Las Huayquerías and Las Tunas stream. Formed by loess with variable depth.

SUPERFICIAL BEDROCK
Extremely rare plantings over calcium carbonate coated stones & stone encrusted calcareous mother rock.
CALCAREOUS SOILS

These are desert soils with the typical small bush vegetation in which the leaching of the calcium carbonates by the alluviums takes place, moving the mineral to deeper horizons.

There, the calcium builds up and solidifies forming a hard coarse rock called caliche as well as coating the stones with a white patina of chalk.

This type of soil is the most frequent in Gualtallary.
### LA CARRERA & EL PERAL

- La Carrera: highest area under new plantings in the Valley.
- Altitude ranges from 1300m (4200 ft) to 1900m (6200 ft).
- There are small and scattered vineyards in the area.
- Alluvial soil.
- There are four rivers flooding the plain: La Carrera and Santa Clara are the most important, linked by Anchayuyo River.
- They form an extensive area in the heart of the GI, between Las Huayquerías and Santa Clara creek.

### SAN JOSÉ & VILLA BASTÍAS

- Old vineyards developed in the early 20th Century.
- Altitude ranges from 1.050 m (3500 feet) to 1.200 m (4000 ft).
- This area is mostly planted with cherry, walnuts and vineyards.
- Predominantly small grapegrowers.
- Chardonnay is widely planted.
- Alluvial and colluvial soils.
- Both banks in the Anchayuyo River are planted over alluvial soils.
- The eastern bank is colluvial with wind blown topsoils.
UCO VALLEY
TUNUYÁN GI
Location

**CULTIVATED SURFACE for vinification**

| Ha: 9,574 | 4,76% of the country |
| Ac: 23,658,31 | 6,35% of the province |
17th Century: First settlers arrived in Tunuyán. Before that, it was a land of Huarpes, indigenous people living in Cuyo, whose chief (‘Cacique’) was called ‘Cuco’.

During the last 200 years the lower land was used for grazing, fodder and fruit trees (apples and pears).

Since 1995 new, high-lands were developed for vines at the foot of the Andes, where pressurized irrigation has allowed new plantations.

New investors quickly arrived and increased vineyard areas. All new areas were planted above 1,000 meters (3,300ft).

Since 2010, when these vineyards matured, it was clear that high altitude vines in Tunuyán create a different wine style.

The need for better understanding of terroir pushed for new GI developments.

Approved GIs so far:
- Tunuyán
- San Pablo - It’s not fixed on political boundaries.
- Los Chacayes
- Vista Flores
San Pablo GI
Location and History

- Its name corresponds to Estancia San Pablo, a Jesuit mission established there towards the 17th Century.
- In 2000, vineyard cultivation began in the higher areas.
- In 2016 a group of wineries requested the delimitation of the GI on account of scientific criteria.
- San Pablo GI is pending of approval.
San Pablo GI
Terroir characteristics

UCO VALLEY | TUNUYAN

WINKLER ZONE

ALTITUDE
1175 to 1720 m

GRADIENT
4%
Northwest - Southeast

CLIMATE
ARID

RAINFALL
500 mm

STATUS
Pending approval

TOTAL SURFACE
5335 ha

PLANTED SURFACE
475 ha

LANDSCAPE MORPHOLOGY
Alluvial cone of River Las Tunas and Arroyo Villegas

SOIL TYPE
Young soils of deep alluvial origin, sandy loam (very coarse & medium coarse sand) with low calcareous content. Medium-sized stones

ALLUVIAL SOIL
Sandy loam
Sand and stone
Los Chacayes GI
Terroir characteristics

WINKLER ZONE

ALTITUDE
1500 to 1000 m

GRADIENT
4.1%
Northwest-Southeast

CLIMATE
ARID

RAINFALL
280 mm

STATUS
Approved

TOTAL SURFACE
20000 ha

PLANTED SURFACE
1000 ha

LANDSCAPE MORPHOLOGY
Foothill Plain with Arroyo Grande alluvial fan.

SOIL TYPE
Torriorthents soils with an abundance of stones in the upper part and some colluvial stretches, well attached to the mountain range. Sand is the central component, mainly in the area of the stream, with fine loess deposits.
Vista Flores GI
Terroir characteristics

TUNUYÁN > VISTA FLORES

VISTA FLORES

WINKLER ZONE

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ALTITUDE

1000 to 950 m

GRADIENT

0.5%
West - East

CLIMATE

ARID

RAINFALL

280 mm

STATUS

Approved

TOTAL SURFACE

4700 ha

PLANTED SURFACE

1500 ha

LANDSCAPE MORPHOLOGY

Alluvial plain

SOIL TYPE

Deep soils, predominantly sand and silt. An upwelling of natural waters, peat and isolated flooding.
Located in San Carlos, on the alluvial cone of the Tunuyán River.

Since 2000, it has experienced a marked growth in cultivated area.

The red grapes are renowned for their colour and acidity.
Planted in 1900. For the very first part of 20th Century it was considered a qualitative place.

As it was never a political district, it was a renowned place without clear boundaries. The name of Altamira was commonly used to point out an imprecise place in San Carlos.

Its name derives from the panoramic view it offers from the highest point.

Paraje Altamira GI was approved in 2013, then expanded in 2016.
**2009:** The need to separate it from La Consulta by soil type.

The **alluvial cone** of Tunuyán River was the physical factor for the delimitation.

**SOIL TYPE**
Alluvial and heterogeneous: sandy with big stones (up to 2m) to sandy with smaller rounded stones, rich in limestone deposits; variable depth.
Vinegrowing valleys
SOUTH MENDOZA

San Rafael
485 - 950 m
1,600 - 3,100 ft.

General Alvear
430 - 485 m
1,411 - 1,600 ft.

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