Spain – Fortified wines

**DO, Montilla-Moriles**  Is located to the northeast of Jerez, Pedro Ximénez (PX) is the zone’s principal grape. Jerez has received dispensation to import PX must from Montilla-Moriles to compensate for its own declining acreage of the grape.

Wines in the style of sherry fino, oloroso, and amontillado are produced in both fortified and unfortified versions. But Sherry terms may not be used  The PX grape ripens well in Montilla-Moriles’ climate, the wines can naturally ferment to 15.5% alcohol, the ideal strength for flor to survive Thus, typically only olorosos and dessert styles are fortified.

Fermentation is carried out in stainless steel  and the young wines are transferred to open earthenware jars (Tinajas) where flor develops.

Classification of the young wines follows the system used in Sherry production. Sweeter styles are fortified to prevent flor growth and aged in cask through 4 criaderas and a shipping solera.

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**DO Málaga**  Lies south of Montilla-Moriles. Moscatel and PX grapes are the region’s principal grapes.

Classically, the grapes are dried for a period of up to 20 days prior to fermentation. (soleo process)  The wines of Málaga are either naturally sweet wines, produced either from soleo or overripe grapes, or fortified sweet wines. The fortified wines either retain natural sweetness, or the winemaker adds it with arrope. The fortified wines undergo solera aging in oak casks

Five age categories exist for Málaga:

- **Málaga Pálido** (max 6 months of aging in oak),
- **Málaga** (6 to 24 months ageing),
- **Málaga Noble** (2 to 3 years ageing),
- **Málaga Añejo** (3 to 5 years ageing),
- **Málaga Transañejo** (minimum 5 years ageing).

Ageing must be carried out within the City of Malaga

Table wines from the region are released under the **DO. Sierras de Málaga**
DO Jerez - Xérès-Sherry is located within the coastal province of Cádiz in Andalucia.

There are two DO zones sharing the same vineyards and Consejo Regulador: DO Jerez-Xérès-Sherry and DO Manzanilla-Sanlúcar de Barrameda. The two DOs share an identical production zone and similar production techniques, but Manzanilla must be aged in Sanlúcar de Barrameda. The two towns Jerez de la Frontera, Sanlúcar de Barrameda, Puerto de Santa Maria form the “Sherry triangle”. All sherry must be shipped from one of the three towns.

**Varietals**

The authorized grapes are, Palomino, Pedro Ximénez and Moscatel. (Muscat of Alexandria)

Palomino, (Listán) is the preferred variety for dry sherry. It is a neutral grape that usually produces low-acid table wines, but constitutes approximately 95% of the vineyard acreage in Jerez. Two sub-varieties, Palomino Fino and Palomino de Jerez, are planted, but the Fino is prized for its higher yields and disease resistance. Moscatel and Pedro Ximénez are predominantly used for sweetening Sherry. Moscatel is mainly planted in the arenas soils near Chipiona. Plantings of Pedro Ximénez have diminished so that the Consejo Regulador has granted special dispensation allowing producers to import Pedro Ximénez must from the nearby Montilla-Moriles DO. Both varietals generally undergo the soleo process for a period of one to three weeks, in which grape bunches are dried prior to pressing. Palomino may also be “sunned”, but rarely for longer than 24 hours and often not at all.

**Soils**

Albariza is a chalky, limestone-rich soil with moisture-retentive properties, the soil structure allows vine roots to penetrate deeply in a search of moisture beneath its baked crust. Albariza soils are concentrated on the slopes of Jerez Superior, a sub-region between Sanlúcar de Barrameda and the Guadalete River, 80% of the appellation’s vines are located in Jerez Superior, and most pagos (vineyards) are located within the area of Jerez de la Frontera, including Macharnudo, Añina, and Carrascal.

Macharnudo, at over 2000 acres, is the largest pago in Jerez.

The lower-lying vineyards usually contain more barros (clay), and coastal vineyards are characterized by sandy soils called arenas, and are suitable for Moscatel grapes.
On the coast, the cool Atlantic breezes alleviate the heat of the region, but the effect quickly dissipates as one moves inland: summer average temperatures may be nearly 20° F higher in Jerez de la Frontera than in Sanlúcar de Barrameda.

**Towns of Sherry production (9)**

- Jerez de la Frontera (Cádiz)
- El Puerto de Santa María (Cádiz)
- Sanlúcar de Barrameda (Cádiz)
- Chiclana de Frontera (Cádiz)
- Puerto Real (Cádiz)
- Rota (Cádiz)
- Chipiona (Cádiz)
- Trebujena (Cádiz)
- Lebrija (Seville)

The harvest occurs in early September. Around 85% of Jerez is harvested by hand. Maximum yields are set at 80 hl/ha in Jerez Superior and 100 hl/ha elsewhere in the region.

Palomino Fino, is pressed quickly after picking as it is prone to oxidation. A maximum 72.5 litres of juice may be pressed from 100 kg of grapes; any additional amount is used in the production of non-classified wines or distilled.

The pressed must (mosto de yema) is divided into three stages of quality: primera yema, segunda yema, and mosto presna. Only the first pressing is used in Sherry production.

Before fermentation commences, the must is usually acidified and sulphured, then allowed to settle. Traditionally, producers added Gypsum (yeso) to the grapes prior to pressing, which aided clarification and produced tartaric acid. (A process known as plastering)

Today, most producers add tartaric acid directly and utilise a system of racking (desfangado) to clarify the must before fermentation begins.

Classically, Sherry underwent alcoholic fermentation in new American oak butts of 600 litres,. But nowadays fermentation is carried out in temperature-controlled stainless steel tanks of 50,000 litres.

The fermentation is divided into two stages: the initial fermentation, lasting up to a week, and the lenta, or slow fermentation, in which any remaining sugar in the wine is converted to alcohol over a period of weeks. The wine of 11-12.5% abv is then racked.

At the end of fermentation, the wine is classified: each tank is either classified as palo and marked with a vertical slash, or as gordura, marked with a circle.

Wines marked as palo are fortified to 15-15.5% abv and are destined to become the more delicate Fino or Manzanilla styles.

Wines marked as gordura are fortified to 17-18% a level of alcohol that will not permit the growth of flor and will become Oloroso Sherries.

Neither wine is fortified directly with spirit. A mixture of grape spirit and mature Sherry, mitad y mitad, is used to avoid shocking the young wine. Wines are transferred to neutral Sherry butts. Fino and Manzanilla styles undergo aging under a protective blanket of Flor whereas Oloroso Sherry undergoes oxidative aging.
The principle agent in the aging process of Fino & Manzanilla Sherries is the yeast known as Flor, (a specialized yeast species which acts to metabolise glycerines, alcohol, and volatile acids in the wine.) The key conditions to promote this growth are: a moderate temperature between 15 -20°C, the absence of fermentable sugars, and a level of alcohol, No more than 15-15.5% abv. flor requires contact with oxygen, so casks are left on ullage. It then forms a film on the surface of the wine that will protect it from oxidation.

Flor grows vigorously in the spring and autumn forming a thick white veil over the surface. In the summer and winter it thins and turns a grey colour. Wines destined to undergo Flor aging are sourced from grapes grown in the finer albariza soils, and are produced from the primera yema, whereas those destined for the oxidative aging path of the Oloroso are more often sourced from barros soils.

**Classification.**

Wines that develop under flor will enter an intermediary stage, the Sobretablas, for a period of six months to a year, during which the course of the wines’ development may be reassessed. The wines, are now kept in seasoned 600 litre oak butts, and will be monitored and may be classified for a second time. The classifications are as follows:

- **Palma**: Fine, delicate Sherry in which the flor has flourished, protecting the wine from oxidation. Such wines will generally develop as Fino’s.
- **Palma Cortada**: A more robust Fino, which may eventually emerge as Amontillado.
- **Palo Cortado**: A rarity. Although flor is still present, the wine’s richness leads the cellar master to redirect the wine toward an oxidative aging path. The wine will be fortified after Sobretablas to at least 17% abv, destroying the flor that protects it from oxidation.
- **Raya**: Despite initial, flor growth the protective yeast is thin or has died completely. The wine is fortified to 17-18%, and the wine emerges from Sobretablas as an Oloroso.
- **Dos Rayas**: The wine’s flor has disappeared, but its character is rough and coarse. Characterized by high levels of volatile acidity, these wines are either blended and sweetened for lower quality Sherry or removed from the Sherry-making process.

Solera system.
After the second classification, the wines begin the long aging process. DO regulations require a minimum three years of aging prior to release. Rarely are Sherry wines marketed as vintage wines; most enter a system of fractional blending known as the **solera**, wherein new añada (vintage) wines enter an upper scale, or tier, of butts known as a criadera. Several descending criadera scales separate the young wines from the shipping solera, the tier of butts from which wine is drawn and bottled. There may be as few as three to four criaderas, or as many as fourteen. For every litre of wine drawn from the solera, three must remain; therefore the solera butts are only partially emptied, and refreshed with wines from the first criadera in movements of wine known as trasiegos. The first criadera is refreshed with wines from the second criadera, and so forth. In this way a solera will continue to have some small portion of its original wine, regardless of its age.

![Solera System](image)

Solera wines are often marked with the year the solera was started. The solera system is integral to the promotion of flor which requires certain nutrients and oxygen to survive. The movement of wine from one butt to another provides oxygen; the addition of añada wines provides a constant source of nutrients. While not necessary for oxidative aging, Oloroso wines are aged in their own solera systems.

**Fino** is a light, delicate, almond-toned style characterized by a high concentration of acetaldehydes, a salty tang, and a final alcohol content of 15-18%. As Fino matures, the flor may disappear. The Fino then begins to age oxidise, taking on a hazelnut character and a deeper tawny colour. It may initially evolve into a Fino-Amontillado, finally becoming an Amontillado as its flavour, and colour deepen. The final alcohol content of Amontillado must be between 16% and 22%. The production of true Amontillado is a labour intensive process, and soleras devoted to the wine are expensive to maintain.

**Oloroso** wines, develop darker walnut colours through the effects of oxidation. Oloroso must range from 17% to 22% abv.
Palo Cortado combines the rich body and colour of an Oloroso with the delicate bouquet of an Amontillado.

These styles—Fino, Amontillado, Oloroso, and Palo Cortado are generoso wines, totally dry in flavour.

Sanlúcar de Barrameda has its own classifications for generoso wines:
**Manzanilla Fina, Manzanilla Pasada, Manzanilla Olorosa.**

Manzanilla Fina is similar in style to Fino, The wines are fortified to a lower degree. In addition, Manzanilla wines are moved through the solera more quickly than a standard Fino. Manzanilla Pasada, like Fino-Amontillado wines, lose the protection of flor and begin to show some oxidative characteristics.

**Generoso Sherry Styles**
- Fino
- Amontillado
- Oloroso
- Palo Cortado
- Manzanilla Fina
- Manzanilla Pasada
- Manzanilla Olorosa

Although Sherry may be bottled as a dry generoso wine directly from the solera, it is often sweetened and blended before sale. The final blend is assembled on a small scale then applied proportionally to the wine. This process is known as the cabeceo.

Base wines entered into the cabeceo must have a minimum abv of 17.5%. Several sweetening agents may be used: dulce pasa, dulce de almíbar, and mistela produced from the must of “sun dried” Moscatel or Pedro Ximénez grapes.

Pedro Ximénez is preferred, but expensive. Dulce pasa is a mistela produced from “sunned” Palomino and is the most common sweetening agent. Dulce de almíbar is a blend of sugar syrup and Fino (rarely used).

A Sherry house may also adjust the colour of the final wine with vino de color, a non-alcoholic product produced by a combination of boiled, reduced syrup and fresh must. When which reduced to one-third of its original volume, is called sancocho; Reduced to one-fifth, the syrup is called arrope. Vino de color, also adds a level of sweetness to the wines.

Generoso Liqueur wines produced by this process include Pale Cream, a lighter, fresher style blended from Fino wines;

Cream, - a darker, product of blended Oloroso;

Like the partidistas in Madeira, Almacenistas would purchase young wines, age them, and sell the wines to shippers at maturity. The role of almacenistas today is minor.

Moscatel and Pedro Ximénez are occasionally sold as Vino Dulce Natural, or “naturally sweet wine”. The wines are fortified after a partial fermentation. Sugar content for both wines ranges from 180 to 500 grams per litre.
In 2000, the Consejo Regulador for Jerez created two new categories for Sherry Wines of Certified Age: VOS and VORS.

**VOS Vinum Optimum Signatum**, or “Very Old Sherry”—may be applied to solera wines with an average age of over 20 years. For every litre of VOS Sherry drawn from the solera, at least 20 litres must remain.

**VORS—Vinum Optimum Rare Signatum**, or “Very Old Rare Sherry”—may be applied to solera wines with an average age of over 30 years. 30 litres must remain in the solera for every litre withdrawn. A tasting panel certifies all VOS and VORS wines, and only Amontillado, Oloroso, Palo Cortado, and Pedro Ximénez wines are authorised. Approval to use either label only applies to an individual lot of drawn wine, not the entire solera.

The Consejo Regulador may certify an indication of age of either 12 or 15 years for use on a label; in such cases the certification applies to the entire solera, not just a particular lot of wine.