

## Sherry

- Fortified wine from Jerez DO in Andalusia region Spain.

### History

- One of the oldest wine producing regions in Spain dating back to the Phoenicians.
- Period of Moorish rule 8<sup>th</sup> to 13<sup>th</sup> C, production continued.
- Jerez de la Frontera was on the boundary between warring Christians and Moors.
- Christian rule 13<sup>th</sup> C onwards, domestic consumption grew, English, Irish and Flemish traders shipped wines.
- After Columbus sherry shipped to the Americas.
- Phylloxera & Peninsula wars devastated industry.
- Grew again in popularity late 19<sup>th</sup> & early 20<sup>th</sup> C lots of poor quality imitation 'sherry', Germany, Australia, SA
- 1933 **Consejo Regulador** 1<sup>st</sup> of its kind.
- Ruiz Mateos (Rumsa) 1944 signed a contract to supply Harvey's of Bristol sherry for their Cream. Rumsa established a large empire buying up Bodegas & the industry & drive prices down.
- 1983 Rumsa empire near collapse was nationalised by Government & sold Bodegas.
- Peak consumption in 1970s has halved since then. Younger gen moved away.
- Large quantity of inexpensive wines, many Brands changed ownership, consolidation.
- Consejo Regulador has worked to bring plantings, stock & sales levels back into balance since then.

### Growing Environment

#### Geography and climate

- Southern Spain low latitude 36 degrees. Low altitude, 0-90m altitude.
- Hot Mediterranean climate, dry summers, mild rainy winters.
- Moderated by Atlantic Ocean, cool damp wind called **poniente**.
- But **levante** wind from N Africa can make dry & arid causing higher transpiration & concentration of grapes. Too much sugar undesirable as wine needs to be fermented to dry for flor yeast to develop.
- High sunlight hours, due to cloud free days allows full ripening but risks sunburn.
- Delimited area of 7000 ha Zona de Produccion. **DO Jerez-Xeres-Sherry** or **DO Manzanilla – Sanlúcar de Barrameda**.
- PX can be grown around Montilla & included which is outside the Zona.

- Two parts: Jerez Superior 90% - albariza soils & Jerez Zona 10%.
- Subdivisions called **pagos**, diff characters from aspect, location, soil etc.

### Soils

- Albariza** mixture of limestone, silica & clay. Effective in retaining & gradually releasing water from rainfall in arid conditions. Forms a crust which reduces evaporation. Allows vineyard to support higher density planting av' 70 hL/ha yields. Light colour reflects light to canopy - aids ripening.
- High yields are OK as flavours come from maturation rather than fruit concentration.
- Barros**: has greater clay content, fuller courser wines higher yields.
- Arenas**: sandy soils, poorer quality wines double the yield.

### Grape Varieties

- Palomino**: Mid to late ripening, suited to dry sunny conditions, high yielding. Loses acidity quickly, so picked just ripe. Neutral character not adding primary aromas. 97% of plantings.
- Moscatel (Muscat of Alexandria)**: Late ripening, draught & heat tolerant. Aromatic (grape & blossom). Mainly grown around Chipiona coastal town on sandy soils. Fortified wines of same name.
- Pedro Ximenez (PX)**: Small, thin skinned grapes, high levels of sugar. Neutral variety but dried in sun giving flavours & concentrating sugars. Only 1% of production in Jerez, however grapes or young wine brought in from Montilla district in Cordoba. Used as a sweetening agent.

### Grape Growing

- Traditionally replacement cane pruning called **vara y pulgar**.
- To allow mechanisation cordon trained & spur pruned with VSP to keep canopy open. Some shading of bunches required.
- Tight in row spacing of 1m but inter row to allow tractor access.
- Max yields 80 hL/ha normally only 60 – 70 achieved.
- Albariza vineyards on gentle 10-15% slopes.
- Asperpia**: System of troughs created along each row of vines, catch winter rain & allow to percolate into the soil, avoiding loss through run off.
- Root stocks resistant to chlorosis (lime in Albariza) & draught, with good yields required. **V. vinifera & V Berlandieri hybrids: 333EM & 13-5 EVEX**
- Dry conditions mean little disease risk, mildew in spring warm weather after rain. Canopy management for air circ & Fungicide sprays used.

- Atlantic influence prevents frost.
- European grapevine moth a problem managed with pheromone traps.
- Harvest start of August warmer inland work back to cooler coastal in Sept.
- Pick before risk of botrytis or rots, undesirable & inhibits Flor.
- Pick at 12% pot alc, total acidity 5 g/L pH 3.3-3.5.
- PX & Moscatel harvested later with higher sugar concentration shortens drying process.
- 60% machine harvested at night to reduce oxidation or micro biological spoilage.

## Wine Making

- Press off skins on arrival, avoid skin contact for biologically aged wines as phenolics inhibit growth of flor yeast.
- Max juice yield 70L/100 kg.
- Free run juice (60-70% of juice) & lightest pressings **prima yema** for biologically aged wines.
- Later press wines made into oxidatively aged Oloroso but may use free run too.
- Final press for other products.
- Must clarified by cold settling, centrifugation or flotation. Dust from Albariza soil needs removing.
- Must from different sites fermented separately to be blended later.
- If Palamino acidity has dropped low – acidification.
- Cultured yeasts used to reliably ferment to dryness a neutral base wine.
- Temperature 22 – 26 °C. Usually in SS some in old Oak. Relatively warm so quick – 2 weeks.
- Malo avoided by chilling must, avoiding buttery character and further loss of acidity. SO<sub>2</sub> avoided as inhibits flor yeast.
- **First classification:** of base wines either for biological maturation or oxidative aging.
- Fortification with 95% ABV neutral grape spirit.
- Fortification up to 15-15.5% for biological as flor cannot live at higher levels.
- Fortification up to 17% ABV for oxidative.
- **Sobretablas** stage: wines stored after fortification for a number of months.
- **Second classification:** wines with a full level of flor remaining fresh – potential Fino or Manzanilla. Less delicate – potential Amontillado, full bodied and intense – potential Palo Cortado.

## Maturation

- DO Jerez-Xerez-Sherry must be matured in one of 3 municipalities: **Jerez de la Frontera, el Puerto de Santa Maria & Sanlucar de Barrameda.**
- Except Moscatel – **Chipiona & Chiclana de Frontera.**
- DO Manzanilla only in **Sanlucar de Barrameda.**

- Old wooden vessels varying in size, mostly 600L, American oak but old.
- Traditional bodegas designed to keep stable low temperature and high humidity. Thick walls, tall roofs, high openings towards cooling sea breezes, diffuse light, earth floor kept wet.
- Cooler temperatures and sufficient humidity needed to promote and sustain growth of flor yeast.

## Biological Aging

- Practice of maturing wine under flor.
- **Flor:** 4 strains of **Saccharomyces cerevisiae**. Present on grape skins and in sherry bodegas.
- Conditions for flor to naturally form: 15.5% ABV max, no SO<sub>2</sub>, oxygen (barrel head space fill 500 of 600L), 16-20 °C, humidity over 65%, nutrients.
- Effects of flor:
  - protects from oxidation (remains pale & lemon colour),
  - consumes alcohol (level decreases) & releases **acetaldehyde** (aromas of apple, bruised apple, hay, chamomile, bitter taste),
  - consumes glycerol lightening body & makes drier,
  - reduces acetic acid.
  - Yeast dies & drops to bottom of barrel, autolysis adds *savoury, nutty flavours* & enhances texture of wine.
- Nature of flor, make up of yeast strains varies in different regions & bodegas resulting in different levels of alcohol & acetaldehydes.
- To keep a thick layer of Flor alive nutrients (alcohol, glycerol & acetic acid) are refreshed by adding young wines into the solera system frequently throughout the year.

## Solera System

- Solera a fractional blending system for Sherry as a NV product.
- Maintains consistency & sustains flor.
- Barrels arranged into **Criaderas** by age, oldest called the **solera**, next oldest **1<sup>st</sup> criadera**, then **2<sup>nd</sup> criadera** etc. most recent harvest is the **sobretablas**.
- Running the scales:
  1. Up to 40% of each barrel of the solera (oldest) is taken, blended and bottled.
  2. Same proportion is taken from 1<sup>st</sup> criadera barrels, blended and then used to top up the solera barrels.
  3. Likewise repeated for each criadera.
  4. Youngest criadera topped up with sobretablas wine.
- In practice wine can be taken from any level of criadera and bottled. E.g. younger inexpensive

wines removed early to reach a price point & reduce storage costs. Small quantities of wines from 1<sup>st</sup> & 2<sup>nd</sup> criadera may be blended into add complexity, or vice versa wine from younger criadera blended into older wines for freshness.

- Wines from different solera can be blended. Wines can start in a fino solera & move to final maturation in an amontillado solera.

## Oxidative Aging

- Colour of wines change: lemon – gold – amber then brown.
- Water is lost quicker than ethanol through barrel, alcohol increases.
- Volume decreases 3-5% PA, other components concentrate: glycerol (fuller rounder, slippery body), aroma compounds.
- Aromas & flavours evolve from primary to tertiary & oxidative character: *caramel & nuts*.
- Acetic acid & ethyl acetate increase – VA.

## Finishing

- Tartrate stabilisation (contact process) fined & filtered to remove in particular any flor yeast.
- Bottled with cork, cork stopper or screw cap.
- Must be packaged & sealed in one of 3 sherry towns.

## Wine Styles

- Attributes set by Consejo Regulador; level of RS, typical alcohol ABV, colour & other characteristics
- Dry sherries: max 5 g/L
- **Fino & Manzanilla**: entire aging under flor: Character depends on time in solera: *Pale lemon, dry, light – medium body, low acidity, low alcohol (15-15.5%). Acetaldehyde aromas: bread dough, almonds. Good – outstanding. Inexpensive to super premium.*
- **Manzanilla**: matured in Sanlucar de Barrameda. More maritime influence, higher humidity, thicker flor throughout year. Different flor strains. Result less acetaldehyde & so fresher wines than Finos.
- **Manzanilla Passada**: has short oxidative aging, bit older and become like amontillado.
- **Amontillado**: Has both biological & oxidative aging. Wines start in Fino solera and then are refortified to 17% killing flor. Further aging in solera system. Inexpensive are blends of young fino criadera into amontillado solera. Quality wines aged for longer. *Good to outstanding mid to premium priced.*
- **Palo Cortado**: Difficult to define. Aromas of amontillado but palate more like Oloroso. Extra oxidative aging beyond flor. Less than 5 g/L and 17 – 22% ABV. However no rules on how to make. Normally selection of fino barrels that are less

delicate, more concentrated & complex. Tend to have less acetaldehyde than amontillado & higher glycerol levels, therefore fuller & rounder. VG to *outstanding, medium priced.*

- **Oloroso**: Only oxidatively aged. Fortified to 17%. *Brown, dried fruit, raisin, prune, oxidative caramel & walnut. Inexpensive & acceptable* wines taken from younger criadera than fully matured examples: *VG to outstanding, premium prices.*
- **En Rama**: no legal definition. Presentation straight from barrel. Some without fining or filtration, in practice light fining & filtration. Can be any style. *More intense and complex & higher priced.*
- **Naturally sweet wines**. Grapes sun dried after harvest 2-3 weeks. High sugar levels naturally stops fermentation at 4-6%. Fortify to 15-16% mature oxidatively in solera system, evaporation concentrates further. *Good to outstanding, inexpensive to premium price.*
- Normally PX Min RS 212 g/L often 450 – 550. Full bodied, low acidity, pronounced aromas, *raisins, molasses, liquorice.*
- Moscatel, 100% rare, min 160 g/L, normally 325 – 375. Protected or oxidised style, both aromatic.
- Also used to blend and sweeten other sherries.
- **Sweetened wines**. Palomino fermented dry, fortified, aged then sweetening component added. Some inexpensive, sweetened & sold, others further aged in solera e.g. *Gonzalez Byass Matusalem VORS Cream Sherry*. Aged 15 yrs.
- **Pale Cream**: Biologically aged wines sweetened with RCGM. *Light flor character, medium -sweet to sweet. Inexpensive, acceptable to good.*
- **Medium**: Biological & oxidative aging, usually blended with PX to sweeten. *Off dry to sweet, acceptable to outstanding, inexpensive to premium.*
- **Cream** only oxidative aging, usually blended with PX to sweeten. *Sweet, acceptable to outstanding, inexpensive to premium.*
- **VOS & VORS**: Very Old Sherry or Very Old Rare Sherry. Average age 30 years. Assessed by tasting panel & lab. If a little astringent can blend in some PX. Small quantities *premium & super premium price.*
- **12-15 year old sherries**: slightly lower age also analysed.

## Wine Law changes:

- Aging allowed throughout Zona.
- Formal recognition of pagos.
- 6 original pre-phyloxera grape varieties added
- Jerez Superior not geographically restricted.
- Fortification not mandatory, e.g. 15% ABV wine can be left.

- Fino Viejo category created, Fino 7 years also Manzanilla Passada.
- En Rama defined: no clarification or cold stabilisation.
- Medium & cream do not require biological aging.

## Wine Law & Wine Business

- Average vineyard holdings 3 ha, coops own 47% and shippers 37%, independents 22%.
- Shippers with land e.g. Gonzalez Byass, Baradillo and Estevez Group still need to buy in grapes.
- **Bodegas de la Zona de Produccion**: production bodega, usually large coops. Can sell to ageing bodegas, can't sell as DO (at the mo?)
- **Bodegas de Crianza y Almacenado**: aging and storage. These **Almacenistas** bodegas store wines, must be located in the Zona de Crianza, sell to Shippers.
- **Bodegas de Crianza y Expedicion**: aging & shipping. These are the only ones able to export & sell DO to the market. They can mature wines from producers, or matured wines from almacenistas. They can blend bought in wines with their own brands or sell with the almacenista's name on the label e.g. **Lustau**.
- Almacenistas suffered when demand lowered & the Consejo Regulador lowered stock holding requirements to 500 hL to become a shipper. **El Maestro and Bodegas Tradicion** now sell wines.
- **Consejo Regulador**: Campaigned to protect term Sherry within EU. Role: holds register of vineyards, sets standards, max yield, min ABV etc. verifies authenticity of age dated sherries. Promotes Sherry via diff forms of marketing, events & educational courses.
- **Sales**: have declined for 4 decades. Down to 31 M L 2019 from 46 10 years earlier. All categories of sweet sherry, cream, medium & pale cream have halved in sales over a decade. Fino also down, Manzanilla less so as the favourite consumed domestically. Palo Cortado, PX and age indicated small but most profitable part.
- Spain 38% largest market, UK 26% biggest export, mostly sweetened sherries then Holland, Germany & USA. All declining.
- Sales of premium Sherries increasing e.g. UK, driven by hospitality, cocktails and younger drinkers.
- Diversification into unfortified wines hoped to attract new drinkers.