

Chapter 8

White and Sweet Winemaking

Important Options in White Winemaking

Skin contact

- As little time in contact - to **reduce oxidation**
- Grapes crushed, free run juice separated off, remaining mass sent to press
- Some WM will crush whole bunches -> gentle -> reduces oxidation/pure, delicate
- **Aromatic varieties** - contact with skin for flavour, intensity, texture (short period) - cool temp ferm.

Clarity of the juice

- Grape juice has cells/small fragments left over from skin/pulp - *these must be **clarified before ferm*** (stop unpleasant aromas/interrupted fermentation)
- Same techniques used to clarify wine before bottling (**settling - centrifugation - fining - filtration**).
- Some WM keep cells/fragments - less chance of oxidation and rich texture (off-flavours likely, however).

Fermentation temperature and vessel

- **12-22 degrees celsius**
- If too low - creation of pear drop aromas, fail to capture varietal fruit characteristics
- If too high - more complex, non fruit aromas, risk fruit characteristics being lost
- Stainless steel fermentation - temperature controls installed
- Barrel fermentation - small barrels/cellar (cool) - difficult to keep control, higher end of temperature spectrum

Post fermentation and winemaking options

- MLF/oak vs. inert vessels/lees contact/etc

Blending

- If **aromatic** - blended to show consistent fruit style
- If **less aromatic** - blend (or oak/MLF) for more complex style
- Blending **improves consistency/enhances balance**

Clarification and Stabilisation

- Most whites - fining and/or filtration (as haze apparent in pale colour)



- Wine with residual sugar at risk of microbiological infection - WM choose to sterile filter to remove yeast/bacteria.

Producing high-volume, inexpensive white wines

- Easy drinking - can be labelled 'dry white'/'fruity white'
- Often **chardonnay**/pinot grigio used in high-vol = easy to ripen in warm climate. Acidity can be added through winemaking.
 - **Chardonnay** (oaked or unoaked) - **melon/peach (and) vanilla/toast**
 - **Pinot Grigio** - pear drops, light body, medium acid
 - **Sauvignon blanc** - popular, high yields - not as cheap

Winemaking choices (inexpensive/high vol)

- **SO₂ monitored** throughout - juice/wine protected
- Hot regions = **acidification** common adjustment (esp. **Chardonnay**)
- *Clarified before fermentation* to ensure fruit flavour intact. **Centrifuge/filter** to speed up process (gravity too slow).
- **Stainless steel** - cool temp to preserve fruit flavours
- **MLF prevented by chilling wine/adding SO₂**
- **Racked off - stored in inert vessel**
- Oak too expensive - stave/chips (alternative, if used)
- **Chardonnay** - has some residual sugar - fermented dry then sugar added through unfermented grape juice/RCGM (rectified concentrated grape must)
- Consumers want clear wines/no sediments - wines stabilised, fined and sterile filtered.
- Shelf life = short
- SO₂ added to minimise oxidation

Producing premium white wines

Aromatic

Sauvignon Blanc

- Aromatic, high acidity
- **Early ripening** - suited to cool climate (retain fruit)
- Sancerre/Pouilly-Fume - elegant/restrained - green apple/asparagus/wet pebbles
- Marlborough - cool/lots of sunshine - vibrant flavours - gooseberry/elderflower/grapefruit/passion fruit (herbaceous)
- Margaret River - blended with Semillon for body



- Different examples - **Pessac-Leognan - SB fermented and matured in oak** - rounder body/toast notes - also blended with Semillon
- Same SB also oak matured in NZ+USA

Riesling

- Cool climate - **buds late** - to avoid spring frost
- Cool climate (green fruit/floral)/ warm (richer/stone fruit/less delicate)
- **Mid-late ripening - accumulate sugar without losing acidity**
- Good aging- honey/toast/petrol
- Germany/Austria/Alsace - premium Rieslings
- Australia - Clare/Eden Valley - high acid/lime/petrol
- Washington State - dry
- New Zealand/Finger Lakes AVA (NY) - fruity/off-dry

Winemaking choices (aromatic)

- Grape/juice handled carefully
- **SO₂ monitored** throughout
- **Crushed fruit or whole bunches loaded into press** - immediately or after skin contact
- Juice must be clean - **gentle clarification process (settling)**
- **Inert vessels** - temp controls - **New Zealand Sauvignon Blanc/ Riesling**
- **Old oaks vessels - foudres** - used for **Alsace Riesling** (adds texture)
- Sweet Rieslings = stop fermentation by chilling/adding SO₂
- **Little/no post-fermentation winemaking - SO₂ added to avoid MLF**
- Riesling - (maybe) lees aging for texture
- Usually bottled immediately after fermentation
- Sometimes ages up to a year in old oak for Alsace + German Riesling

Other styles of Sauvignon Blanc:

- Fume Blanc (california) + Pessac Leognan - creamy/spicy flavour - **barrel fermentation**
- **Ambient yeasts** - greater complexity
- Lees aging + MLF
- New oak for portion of the wine

Less aromatic

Chardonnay

- Grow in all climates
- **Early budding** - can suffer from spring frosts in cool climate

- Cool (green fruits/citrus), warm (white peach/melon), hot (banana/pineapple) - timely harvest important
- Subtle aromas - blank canvas for WM techniques
- Range of styles across Burgundy. MLF/lees aging. Toast/nuts/mushroom - aging flavours.
- Premium new world Chardonnay - moving away from lots of new oak use.
- Russian River Valley/Los Carneros (USA), Adelaide Hill/Geelong/Mornington Peninsula (Aus), Gisbourne/Marlborough (NZ), Casablanca Valley (Chile) - premium Chardonnay areas

Pinot Grigio/Pinot Gris

- Pinot Gris (French style)/Pinot Grigio (Italian style)
- **Early budding and early ripening**
 - Warm climate - Pinot Grigio on vine too long = high sugar, lose acidity
- Alsace (Pinot Gris) - dry/off-dry - oily/tropical/ginger/honey (golden colour)
- NZ/Tasmania/Aus/Oregon - also rich, medium acid, dry style
- Pinot Grigio - Alto Adige/Trentino/Friuli-Venezia Giulia (premium areas)
 - **Choice of clone influential** - same clone as Germany/France in NE Italy premium areas - smaller berries/capable of flavour. Clone for high-vol is pale skin/high pulp.

Winemaking choices (less aromatic)

- **Grapes crushed or loaded into press in whole bunches** (common with Chardonnay)
- Some **controlled exposure to oxygen** for aging ability
- **Clarification** - gentle method (settling)
- WM may choose to leave solid matter/particles for complexity/texture
- Fermentation:
 - Stainless steel/concrete - retain fresh fruit flavours (Chablis/ PG - Italy/ PG - NZ)
 - Large, old oak - (PG - Alsace)
 - Small, new oak barrels - toasty flavours - (Chardonnay - Côte D'Or)
- Temperature/yeast choice - varies
- Some residual sugar - PG from NZ may stop fermentation by chilling/adding SO₂. Alsace - high residual sugar - fermentation stops naturally.
- After fermentation:
 - **Barrel maturation**; new oak barriques - toasty flavours (Cote D'Or/ New World Chardonnay) vs. old/larger barrels (Chablis/PG) - less flavour, gentle oxidation for complexity.
 - **MLF** - creamy mouthfeel - Burgundy (incl. Chablis)
 - **Lees aging/stirring**

Sweet winemaking

Stopping fermentation

- **Fortification** (addition of grape spirit) - kills yeast, stops fermentation, changes structural balance of wine
- **Also stopped by adding SO₂/chilling** - then wine filtered to remove yeast - results in low alcohol
- Used: Kabinett/Spatlese/Asti

Adding a sweet component

- **Add unfermented grape juice** (ie, **Sussreserve** - made by filtering juice before fermentation starts and adding SO₂)
 - Sussreserve added to dry wines when they are ready to be bottled
- **RCGM (rectified concentrated grape must)** - same effect - used in inexpensive, high-volume wines.

Concentrating grape sugars

- **Noble rot**
 - Caused by *Botrytis Cinerea*
 - Used: Sauternes/Tokaji/Beerenauslese/Trockenbeerenauslese
 - To happen (1) grapes must be fully ripened (2) damp, misty mornings and dry, warm, sunny afternoons
 - Fungus punctures grapes - water evaporates - acid/flavour/sugars concentrate
 - Flavours - honey, apricot, citrus zest, dried fruit
 - Non-uniform grape spread - hand harvested (labour intensive/expensive)
 - Sauternes - not always right conditions for BC
 - BC - same as Grey Rot - if too damp, fungus develops, grapes split and infections develop
- **Drying grapes on the vine ('passerillage')**
 - Full sugar ripeness - dehydrate and raisin on the vine (increasing sugar concentration)
 - Needs warm, dry autumn to avoid Grey Rot
 - Overripe flavours - dried fruit, tropical, rich mouthfeel
 - Labelled as 'late harvest'
- **Drying grapes after picking**
 - Healthy harvested grapes to dehydrate - raisin quality
 - Warm/dry conditions needed



- All rotten grapes removed to stop spread
- 'Passito' wines of Italy - ie, Recioto della Valpolicella DOCG
- **Freezing grapes on the vine**
 - Healthy grapes - freeze on the vine (pulp is iced)
 - Grapes picked and pressed - ice remains in press + sugar content increased
 - Used: Eiswein/Icewine
 - Pure varietal character
 - Artificially done by freezing picked grapes in winery
- ❖ When made by sugar concentration, **alcoholic fermentation stops naturally** when yeast converts as much sugar as possible.
- ❖ Low alcohol, ie 7% abv - yeast cannot survive in lots of sugar
- ❖ Trockenbeerenauslese - example