

# 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.

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## Producing high-volume, inexpensive white wines

- Easy drinking - can be labeled '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

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## 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 SO<sub>2</sub>. 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

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## Sweet Winemaking

## Stopping fermentation

- **Fortification** (addition of grape spirit) - kills yeast, stops fermentation, changes structural balance of wine
- **Also stopped by adding SO<sub>2</sub>/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 SO<sub>2</sub>)
  - 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
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## Multiple Choice Practice Questions

- 1) What is the term for the process of stopping fermentation early to produce a sweet wine?
  - a) Racking
  - b) Chaptalization
  - c) Fortification
  - d) Fining
- 2) Which winemaking technique involves fermenting grape juice with its skins to extract flavour and texture, and is less common in white winemaking?
  - a) Skin contact
  - b) Cold stabilization
  - c) Lees stirring
  - d) Fining
- 3) Which of the following is a common practice to retain the primary fruit aromas in white winemaking?
  - a) Fermenting at high temperatures
  - b) Fermenting at low temperatures
  - c) Aging in new oak barrels
  - d) Extended maceration
- 4) Which of the following best describes a common characteristic of botrytized sweet wines?
  - a) High acidity and low sugar content
  - b) Strong oak influence
  - c) High tannin levels
  - d) Distinctive honey and apricot flavours
- 5) If producing an inexpensive white wine, what might the alternative to using a traditional oak barrel be?
  - a) Oak chips/staves
  - b) Oak flavour extract
  - c) New French barrels
  - d) Oak sculptures

## Answers

**1. c) Fortification**

**2. a) Skin contact**

**3. b) Fermenting at low temperatures**

**4. d) Distinctive honey and apricot flavours**

**5. a) Oak chips/staves**