FRUIT WINE PRODUCTION

Advanced winemaking & Overcoming Technical Difficulties to Produce World-Class Wines!

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FROM A ‘GOOD’ WINE TO ‘GREAT’ WINE

• Making a drinkable wine – not a big deal
• Making a GREAT wine – more to it
• Similar principles to raising a child
• Be ready to: Encourage, Protect, Correct, Sometimes Punish, Inspire and Direct.
• Goal is to prevent faults, enhance what you have and turn your fruit into the very best it can be.
Issues that can happen in wine, how to prevent them (ideal) or overcome them when they do appear.
COLOR DROPPING – COLOUR STABILITY

Improper enzyme use
Fermenting too warm
Improper KMS use
Use inactivated yeast extraction

Improper fining use
Oxidation of delicate fruit
Use tannins!
Use frozen fruit – better
Proper cleaning and sanitation

- Proper FSO2 levels – aim for a 0.8ml/L Molecular SO2 level
- Sorbate Levels – two schools of thought, aim for 180-220ppm
- Proper sterile filtration techniques
- Don’t bottle in same room while other wines are actively fermenting
- Pasteurization - PU units – too little, no effect, too much, degradation of flavors.
- Velcorin – can be useful in lower alcoholic, sweeter wines. Effective but an expensive set up – could forgo sterile filtration if used
Free SO2 Dependence on Wine pH (to Achieve 0.8 mg/L Molecular SO2)
STABILITY – HAZES

**Colored Haze** – caused by use of certain metals vessels and instruments – citric acid

**Darkening juice** – caused by oxidation or enzymic action – stabilize with SO2 and start the fermentation asap

**Pectin Haze** – Most common – test with pure alcohol – treat with pectic enzyme

**Lactic Haze** – Caused by MLF – silky sheen to wine. Treat with So2 and filter.

**Starch Haze** – Caused by boiling/heating fruit or too hard pressing. Test with iodine (5 drops in 8oz = indigo blue) Treat with amylase
HARD TO START FERMENTS – STUCK FERMENTS

Caused by:

- Lack of nutrients (improper YAN level)
- Very low pH level
- Dramatic change in temperature disagreeable to the yeast.

Prone to hard to start or stuck ferments:

- Blueberry wine – low pH and low TA
- High gravity juices – cryo-extracted juices

Use the right yeast strain! Don’t skimp on nutrient!
OXALIC & ELLAGIC ACID DEPOSITS

These are common fruit wine instabilities:

**Oxalic Acid Deposits** – Crystalline filaments common in raspberry/blackberry wine, rhubarb wines. Some soils are more prone to producing fruits with this issue than others. Add 0.33g/L citric acid to help prevent. Don’t bottle too quickly.

**Ellagic Acid Deposit** – Often for oak ageing/wood treatment. Fruit wines from strawberries and loganberry can show ellagic acid instability even without wood treatment. These fruits have a naturally high content of ellagitannins, which will hydrolyse in the finished fruit wine giving an ellagic acid deposit. Don’t bottle too quickly! Wait at least 4 weeks after final filtration before bottling.
HIGH VA IN CRYO-EXTRACTED WINES

- The bane of ice wines and cryo-extracted fruit wines
- Very high sugar can be toxic to some yeasts
- Fermentation of very high brix juices often exceeds legal VA levels

Use:
- Yeast that work well in high brix environments (R2, EC1118, etc)
- Use yeast with low VA production potential
- Adequate level of rehydration aid such as Go-Ferm Protect
- Follow proper YAN level protocols, limit yeast stress as much as possible
Many fruit wines are prone to H2S issues due to many factors, including juices and wines with heavy solid levels.

Distinctive rotten egg/burnt-rubber aroma can develop quickly in some juices and wines such as strawberry, blueberry, haskap berry and elderberry.

Causes:
- Too much sulfites
- Lack of proper nutrients
- Bacterial contamination
- Leaving juice on sediment too long, not racking at proper time

Treatment: Do it before H2S turns worst to marcaptans!
- Splash racking
- Start the ferment ASAP
- Copper Sulphate (0.5ppm MAX!)
Some fruits are notorious for being hard to adjust because of the initial acid balance.

- Cranberry and black currant wines: low pH/high TA – balance of acid/flavour dilution and potassium carbonate use.
- Blueberry has very low pH and low TA – hard to adjust for initial ferment – adjust the pH, start the ferment and adjust the TA post ferment.
- Passion Fruit wine – an extreme example! Lingering metallic acid finish which is hard to remove.
Way Too Quick Ferments

Not having a good control of the ferments can cause burning off fruit of flavors on high pH fruit.

It can render apple, pear, pear wines flavorless and berry wines insipid and boring

- Temperature control – use a glycol chiller!
- If not available, use a slower ferment speed yeasts (71B)
- If possible, avoid the use of DAP – like giving candy to a child, use inactive yeast instead for nutrient.
YEASTS TO USE IN FRUIT WINE

- **Lallemand 71B** – a great all around yeast for most off dry fruit wines. Really helps bring out the fresh fruitiness in most berry and some tree fruit wines.

- **Lallemand BA11** – excellent on tree fruit and tropical fruit wines. Really helps the aroma and can increase “mouth feel”.

- **Lallemand EC1118** – good all around yeast to use, especially with wines with low pH or starting the ferment at low temperatures. If you need the fruit wine to ferment to a very dry level, or to make a sparkling wine, this is the yeast to use.

- **Lallemand K1** – Great at bringing out freshness in tree fruit wines such as apple, peach or peach. Will ferment well, no matter what the pH or temperature of the must is. I use this strain the most.

- **Lallemand R2** – A very good, strong strain, ideal for very sweet fruit wines, cryo-extracted wines and wines that need to ferment at low temperatures to retain the aromatic qualities. I use this yeast in “iced” fruit wines with a lot of success.

- **Lallemand VIN13** – Use this yeast in wines that need higher alcohol without fortification as it can ferment to almost 17% without any help. It gives me good tropical notes and relatively clear flavors and can ferment under cooler temperatures.

- **Bio Springer CKS 102** – Use to make aromatic berry wines such as raspberry or delicate strawberry wines to really “shine”. Also works great on tropical wines such as lychee, pineapple and passion fruit. In fruit wines, we want as “clean” a ferment as possible and this strain does a good job at it.

- **Oenoferm Freddo** – Brings out fresh fruit aroma.
WORKING WITH FROZEN FRUIT

- Do NOT try pressing fruit that is still partially frozen!
- Can’t get proper enzyme extraction until the fruit reaches room temperature
- Frozen fruit in insulated bins takes FOREVER to thaw
- Freeze in 5 gallon pails if possible. More efficient and easier to handle.
- With a very slow thaw, fibrous structure of fruit breaks down and is harder to press. Use pressing aids (rice hauls).

Getting proper enzyme extraction before pressing at the right temperature is critical. Needs extra planning on the process when using frozen fruit.
CRUSHING/PRESSING ISSUES

Getting the perfect equipment for each fruit is often not possible.
Most lower cost presses are designed for grapes.
Specific fruit presses are designed for large production – unaffordable for most.

Get the best between cost/variety of fruit to process and yield.

- Depitting stone fruits before pressing – peaches, cherries
- Pressing low fibrous fruit like strawberries/raspberries – use pressing aids!

My favorite fruit press = a screw press!
Some fruits are more prone to oxidation than others due to low tannic content and higher pH. Needs special attention.

**Prone:**
Apple, strawberry, pear, peach

**Keep in mind:**
- Add tannins to fruit wines – provides structure and lowers oxidation potential
- Don’t be afraid of SO2 – use it pre and post ferment at the proper level
- Use of N2 in tanks with is air space exists in tanks
- Start the ferments as soon as possible.
- Use of ascorbic acid can be helpful
DEALING WITH SEEDS/PITS AND UNWANTED BITTERNESS

- Peaches – wait until ripe to remove pit
- Not depitting is playing with fire
- Alcohol breaks down pits and causes off flavors and unwanted bitterness – more serious in blueberry and strawberry
- Pressing fruit with pits can release harsh bitterness. Low yields.
- If some pits get through and there is bitterness from them, lower it with gelatine fining.
Most berry wines need to be diluted to balance flavor intensity and acid.

Finding that sweet spot for the style you are aiming for is the key. The dilution ratio is directly correlated to the wine style and the fruit used.

- Cranberry: 30% ratio (rest can be water or low acid apple juice)
- Currants/Raspberry: 25-50% depending on style
- Haskap/Sour Cherry: 40% ratio
- Apricot: 60-90% ratio
- Apple, pear, peach: Single strength juice
Fruit wines can be more difficult to filter than other wines if:

- Not enzyemed properly – especially apricot
- Pressing did not go as planned – heavy solids/puree
- Trapped gases in the wine prior to filtration – rack
- Improper rates of finings used

Keep in mind:

- Chill down wine during fining stage
- Don’t filter unless well fined – conduct fining trials first
- Start with a DE filter or rough pads (T1500)
Using slightly under ripe fruit can create wines that need extra help. Some wines can be improved by increasing structure, complexity and mouthfeel.

- Use tannins pre ferment and post ferment
- Post ferment enzymes such as “BG” increase fruit aroma
- Adding Arabic gum prior to bottling increases mouthfeel
- Adding glycerine to increase mouthfeel (3-5ml/L)
- Some blending can also help
FRUIT WINE BLENDS

- Blending is where a “good” wine can help make a “great” wine if blended in the right proportion and with the right “partner”.
- Two clashing personalities do not always make a great relationship; the same can be said with wine.
- Like a partnership, need two compatible people to make a great couple. The ideal scenario of compatibility is when one’s strength complements the other’s weakness and vice versa. Blend a low acid wine with a high acid wine, or a strongly flavored wine with a more neutral wine.
- Used to tweak, soften, acidify, tone down, build up, etc
- Have blending wine available!

What works:
- Cranberry – Apple
- Saskatoon – Strawberry
- Strawberry – Rhubarb
- Raspberry – Pear
- Passion Fruit – Apple
Important: What wine judges are looking for in your wines

Way More Important: What wine consumers are looking for in your wine
WHAT WINE JUDGES ARE LOOKING FOR

Are you making a fruit wine or a “Wannabe” grape wine?

- Appearance – vibrant and clear?
- Nose – most important factor in determining wine quality
- Taste – complex, mouthfeel, true to the fruit
- Finish – long and lingering or short? Off-flavors? After Taste?
- Overall impression and how it compares to the wines made by your peers.
WHAT WINE CONSUMERS ARE LOOKING FOR

- **Balance is key!**
- Is the wine an enhanced and clear expression of the fruit stated on the label?
- Does the wine look brilliant, clear and healthy?
- Does the wine have a clean, vibrant and natural aroma?
- Does the wine provide the drinker an enhanced experience?
- Is the wine so good that the drinker will want to buy this wine again and tell their friends about it?

Have the above in mind when planning production.
QUESTIONS?

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