

# Preparing Your Lab For Vintage

Eric Wilkes

Foster's



# Realisation

- You arrive back in the lab post Christmas
- Feeling fat from all the food and still slightly hung over from new year.
- Not a creature is stirring in the lab, not even a mouse.
  - (the cellar stole it for their computer while you were away)
- **And there, lurking on the bench, is the first bunch of grapes for maturity testing.**



**PANIC!!!!**



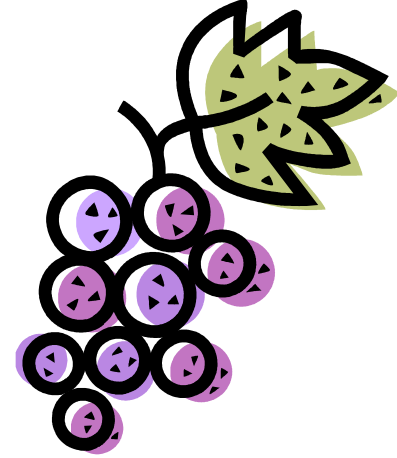
# The panic sets in!

- They are going to start picking when!!!!!!
- Can you find the hydrometers, are there batteries in the density meter?
- How out of date are the buffers and reagents for the pH electrode and TA titration.
- Where are the result sheets from last year?

# Be a boy scout (girl guide) !

- Start getting ready now.
- Make a list of all the things that need to be done for vintage
- Timeline how long it will take compared to when required.
- Next, double the time to get a realistic estimate.
- Following are some major points to check.

# On the first week of vintage



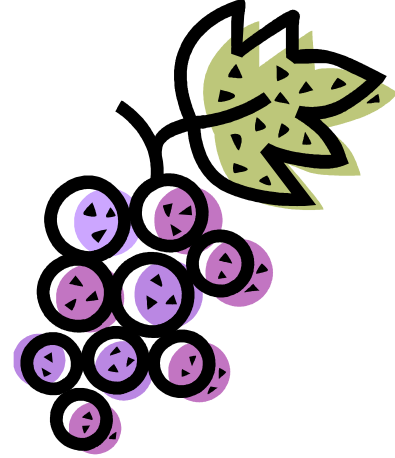
- The vintage casual rings to say he has fallen in love and is moving to Siberia.
- Sorry for the inconvenience.



# Reagents and Consumables

- Everyone will be ordering in the new year.
- Scientific supply companies often run out of high use items during vintage (enzymes, glassware, buffers).
- Important to get in and order reagents and spares early, as they may take quite a while to come in.

# On the second week of vintage



- The winemakers decide that they need to add a brand new test to determine the aardvark concentration in grapes.
- A two day test using equipment you don't have!
- Won't be a problem will it?

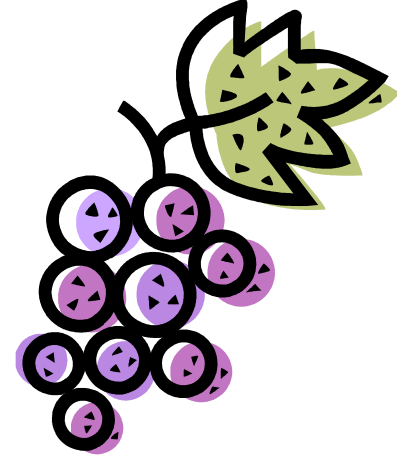




# Equipment

- Don't just assume you know where it is, go and find it and make sure all the parts are there (and working).
- Check the use by date of all consumables and order more if necessary.
- Look at last years vintage and order any spare or critical items that may be needed (you can guarantee that they will be out of stock if you wait till they break).
- Good example is SO<sub>2</sub> flasks.

# On the third week of vintage



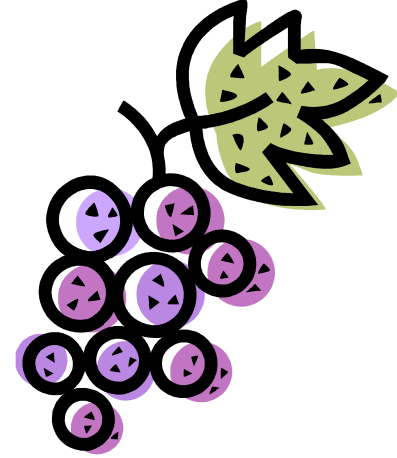
- The pH electrode starts occasionally giving values of 0 for juice samples.
- Must be a high acid year?
- All the other results will be OK won't they?



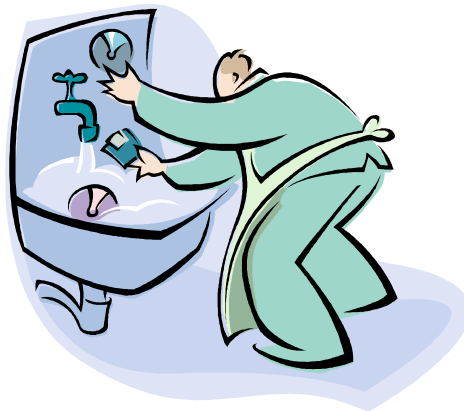
# Information Management

- A big term for making sure that you have pens and paper ready.
- Organise all results sheets and results books now.
- Don't rely on loose note books.
- Print up heaps of copies as there is no time when the heat is on.
- Talk through the information trail with your customers (winemakers, viticulturalist) to ensure a smooth flow of info.

# On the forth week of vintage



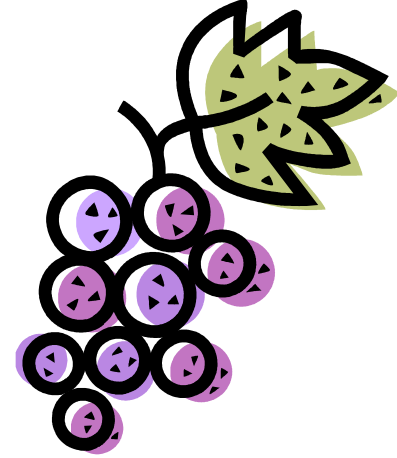
- A lab tech tells you he found a way to clean the pH electrode!
- With steel wool!
- It does not seem to work now!



# Training

- Has every one had appropriate safety training / induction?
- Does everyone know how it all works?
- Including what tests are done on what samples.
- Remember that you may have vintage casuals who even if they are experienced may not know your sites procedures.
- Have good SOP's for everything including sample management and information transfer.
- Remember you may not be around come vintage.
- (You could have eaten yourself to death over Christmas.)

# On the fifth week of vintage



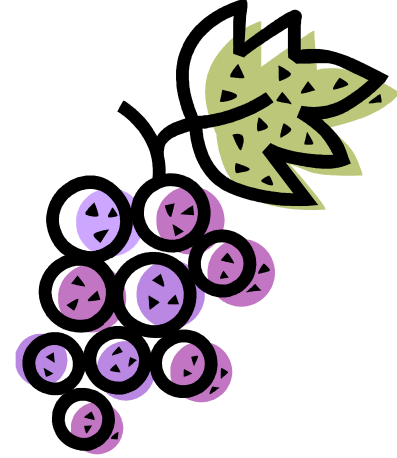
- You go looking for the results book only to be told the head winemaker has it.
- He has just got on a plane to Chile!



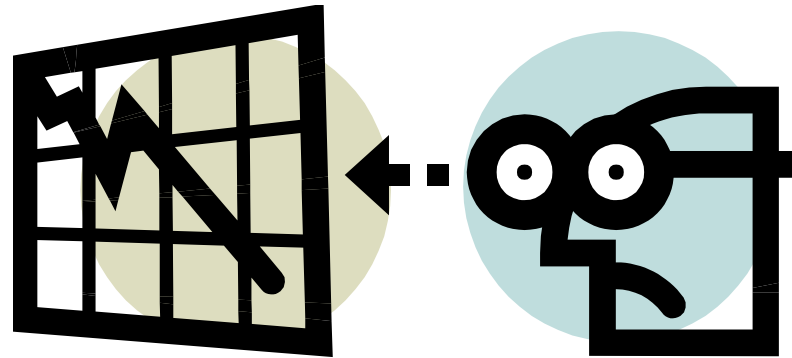
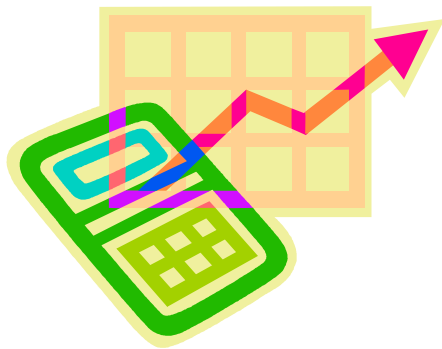
# Baume's

- Make sure all the equipment is working and calibrated.
- Ensure everyone is reading and degassing the same way!
- Organise an agreed cleaning regime for hydrometers, refractometers and density meters.
- Organise solutions to check calibrations during vintage (they can be frozen).

# On the sixth week of vintage



- The winemakers come to ask you why for the last two days all the ferments have gone up in Baume?
- You find droplets of juice inside the hydrometer!



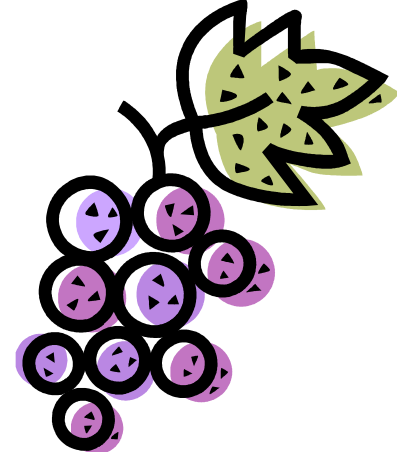


# Calibration Solutions

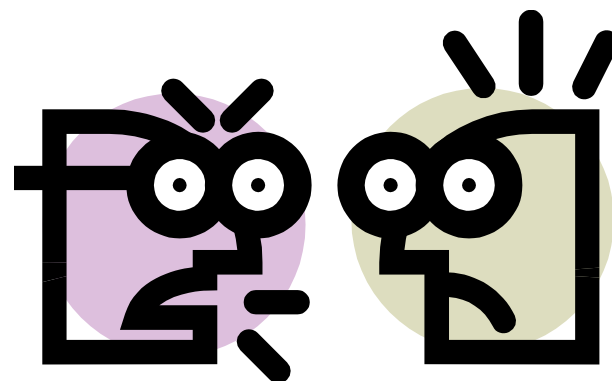
- Make up sugar / water solution by mass.
- Use more than one standard.
- They work for hydrometers, density meters and refractometers.
- Straight from Patrick Iland's book.

<b>Brix</b>	<b>Baume</b>	<b>Grams sugar</b>	<b>Grams water</b>
<b>10</b>	<b>5.56</b>	<b>50</b>	<b>450</b>
<b>20</b>	<b>11.10</b>	<b>100</b>	<b>400</b>
<b>30</b>	<b>16.67</b>	<b>150</b>	<b>350</b>

# On the seventh week of vintage



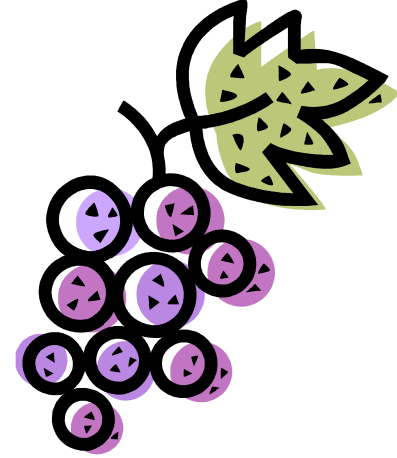
- You spend 2 days reviewing results and 4 hours explaining to irate growers that your tank Baume results are more accurate than the refractometer results they got from a single berry.
- They don't believe you.



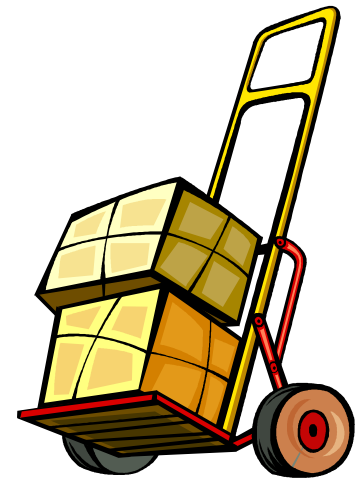
# pH/TA

- Check the use by date on buffers and reagents.
- Make sure you have enough of both.
- Clean and maintain your electrode (try to have a spare).
- Have all the appropriate cleaning solutions and a set schedule to use them.
- Don't let QA slip just because it is vintage. This is the most important time to do it right.

# On the eight week of vintage



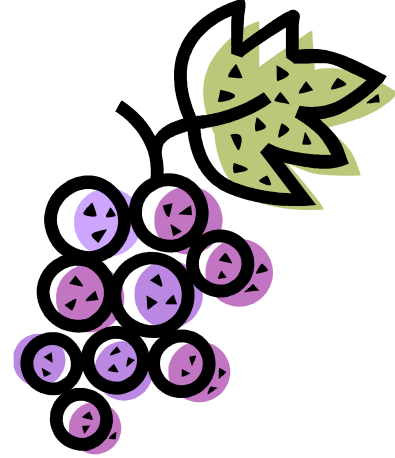
- You get a call from the chemical company to tell you that while they ordered enough enzymes supplies for the year they were shipped to the new Siberian address of your ex-labby.
- Sorry for the inconvenience.



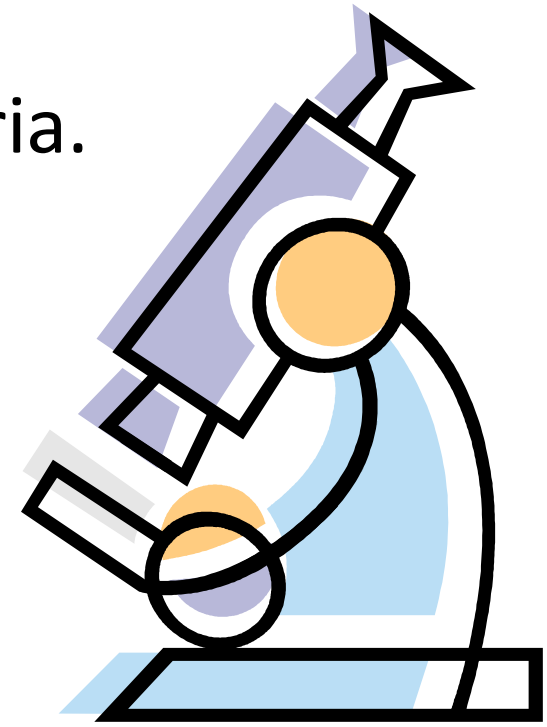
# Cell Counts

- Can you find the haemocytometer?
  - (And the cover slips.)
- Check it is still legible and in good condition.
- Can you actually see through the microscope?
- Do you have an appropriate viability solution?
  - Does it have things growing in it?
- Run a few trial runs so everyone is agreed on counting method (draw diagrams and cheat sheets).

# On the ninth week of vintage



- The bulb in the microscope lamp blows and you find that the last time they made one of that type was in 1956.
- There may be some stock in Siberia.

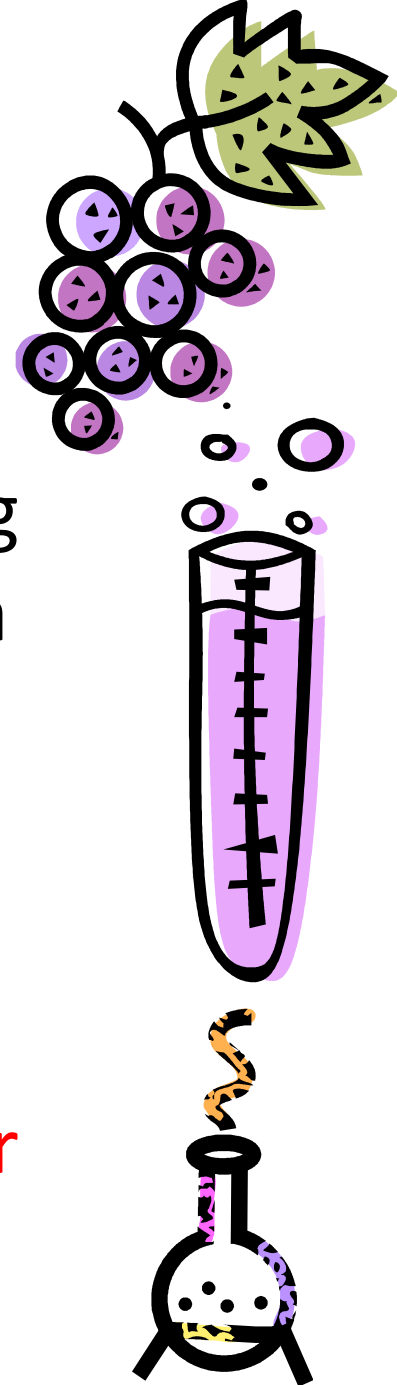


# Sugars

- Have you got all the solutions and ingredients for them (including activated carbon and filter papers).
- Does everyone know how to make them up and what the use by dates are.
- Run some workshops so everyone uses the same endpoint and timing.
- Do a couple of calibration curves (really, you will be surprised).
- Make sure you have daily QA checks.

# On the tenth week of vintage

- Some inconsistent results were coming from reducing sugar tests, you spend a day going over records and testing solutions.
- Two days later one lab tech mentions how impressive it is that he can do titrations when he is profoundly colour blind.

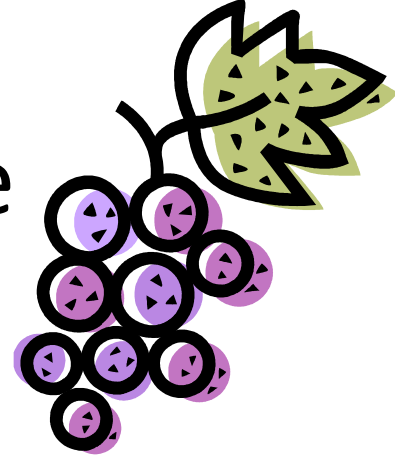




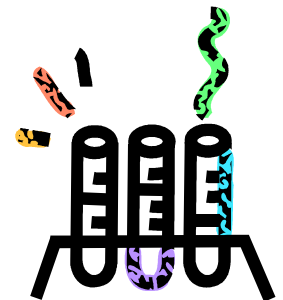
# SO<sub>2</sub>'s

- Clean all the rigs.
- Then run a check solution, (on all the rigs) eg 50ppm free SO<sub>2</sub> (see Patrick Iland's book).
- Also check for sample carry over and VA interference.
- Make sure you have plenty of spares for the rigs and that solutions are fresh with enough for the whole of vintage.
- Come up with a reliable quick and dirty no SO<sub>2</sub> method.
- Once again workshop it with all the staff to ensure that everyone is doing it the same way

# On the eleventh week of vintage



- You spend 2 hours explaining to winemakers that above 3 grams they have to expect a bit of variation in the malic results.
- Only to discover that the enzymes were actually out of date and half the tanks are already dry.



# Enzymatics

- Malics, G/F and Nitrogen
- Make sure you have a guaranteed supply for vintage.
- Check the use by date for any enzymes you already have.
- Agree on the dilution points for various sugar/malic levels.
- Run some calibration series through your spec/plate reader.
  - Only use ranges that have a linear response (don't use ranges that give pronounced curves).
- Check supplies of cuvettes / well plates.

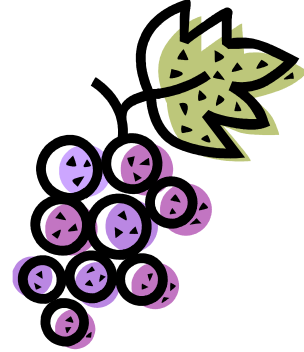
# Alcohols

- If using NIR get it serviced and cleaned.
- If using hydrometer get it checked.
- Run check samples to ensure accuracy (a comparative sample from a NATA lab is one method).
- Decide on sample pre-treatment and stick to it.
- Train everybody in cleaning procedures and schedules.

# Fining Trials

- Have pre-prepared instruction sheets and request forms.
- Have good SOP's available. Be consistent!!!!!!
- Make sure there is enough glassware to carry out the number of trials likely to be needed.
- Agree with winemaking the procedure for organising and timing trials.

# On the twelfth week of vintage



- The couriers deliver instead of your chemical order
  - Twelve drummers drumming (the natives are restless),
  - Eleven pipers piping (can't hear them for the drums),
  - Ten lords a-leaping (clearly on drugs, where can you get them),
  - Nine ladies dancing (must be more of those foreign exchange cellar staff),
  - Eight maids a-milking (well the vineyard did use to be a dairy farm),
  - Seven swans a-swimming ( should add interest to the waste water pond),
  - Six geese a-laying (fresh eggs would be nice),
  - Five golden rings (the cellar has already stolen them),
  - Four calling birds (even noiser than the drums!),
  - Three French hens (what is wrong with the local ones?),
  - Two turtle doves (they don't even have a shell!),
  - And a partridge (Where am I going to find a pear tree)
- You resign and move to Siberia to raise aardvarks!

# Now You Can Relax

- Done it all?
- Get someone else to go through it or do a mock vintage day. You will be surprised with what you have missed.
- Then most importantly;
- Forget about it all and
- **Have a blinder of a Christmas and New Year.**