

PRACTICAL FERMENTATION TEMPERATURE CONTROL

1) The importance of temperature Control

Over the last few years we have often talked about the importance of fermenting at the correct temperature.

This is also stressed in a quote from the book called Yeast by Chris White (founder of White Labs) and Zamil Zainasheff.

One of the most critical things to take away from this book is the importance of fermentation temperature on the quality of the beer.

Now nearly all of us here are all grain brewers and probably would not make an extract beer but let me again draw your attention to another quote from the book Yeast.

The experienced extract brewer with temperature control and an excellent grasp of fermentation will almost always outshine the all grain brewer relying on luck for temperature control.

I would argue therefore that the case for good temperature control is proven.

2) Current practice

We did a questionnaire on temperature control in November 2013.

Everybody did at least make some effort to get the fermentation temperature right although practices varied widely.

a) About 33% picked the best place in the house for fermenting,(eg under the stairs, against a radiator, a warm room etc.

b) 44% used some form of direct heat such as a brew belt round the outside or an aquarium type heater in the wort itself.

c) Only 23% provided indirect heat such as a fridge with a heater in it or cabinet of some sort.

3) A solution

My argument is that indirect heat provides the best solution and a simple box fitted with a few gadgets is all that is necessary. This set up has a number of advantages as follows

a) Inexpensive

b) Provides a closed environment so no air flow and good insulation.

c) Gives good temperature control.

d) Avoids contamination. There is no need to put anything into the wort or even to open the FV unless some skimming is desired so opportunities for contamination are minimised.

e) Can be moved around the house to suit.

f) If used in conjunction with an ATC Ranco or similar and thermowell , constant temperature readings can be observed from outside the box.

g) Easy to build by the person who doesn't enjoy DIY.

The dimensions of the box are intended for a 23 litre brew. You can always make it a bit bigger for larger FVs. I will talk about a more sophisticated system later.

- 1) A box 20 inches or 500 mil square made out of $\frac{3}{4}$ or 18 mil ply. In effect 4 sides and screwed together. No need for base but a removable top is needed.
- 2) A piece of lino for the floor to sort any spillages.
- 3) Power to the box is provided by a short extension lead with the cable going through the box and the socket side of the extension lead screwed to the inside of the box.
- 4) A plug in thermostat (cost about £20) to control temperature.
- 5) A 300 mil tubular heater (cost about £10) screwed to inside of box and plugged into the thermostat.
- 6) A more advanced approach involves using an ATC or Ranco (cost about £30) with the probe going through the box into a thermowell (cost about £10) fitted to the FV.

The box can be sited anywhere as long as power is available, is not intrusive so can go underneath a kitchen table for instance, can be insulated if desired and comes into it's own in spring and autumn when relatively small temperature adjustments are needed. It is also useful for lager brewing in winter. However it is not suitable for the summer if ambient temperatures are very high. The box is portable and can be moved to suit.

A more sophisticated approach and larger version can be made as follows. It is useful for a garage or outhouse.

Using a strong pallet as the base (can be obtained from any builders or plumbers merchant) add some strong timbers for the corners (3x2 or whatever is available) and use ply or chipboard for the sides and top forming a double skin to accommodate some 50 or 75 mil Kingspan/Celotec or similar as insulation. In this case it will be necessary to make a door and the heater will have to be increased in size to 600 mil. If it is made strong enough by reinforcing the sides, a fridge can be placed on top.

This set up also allows for a cooling facility by stripping down a fridge.

If you really want to push the boat out two cabinets could be employed. The first for fermentation and a larger one for storage of beers at their optimum serving temperature of 12c.

There is not going to be sufficient time to explain this in more detail but if anyone is interested please ask me.