



# Plastic Fermenter Temperature: Static and Dynamic Accuracy

Nick Jones<sup>1</sup>, Daniel McCormick<sup>2,3</sup>

1) Malt Mechanics, Devonport, NZ, hello@maltmechanics.com, 2) Auckland Bioengineering Institute, Private Bag 92019, Auckland 1142, 3) Automaton Brewing, the shed out the back, Daniel's house.

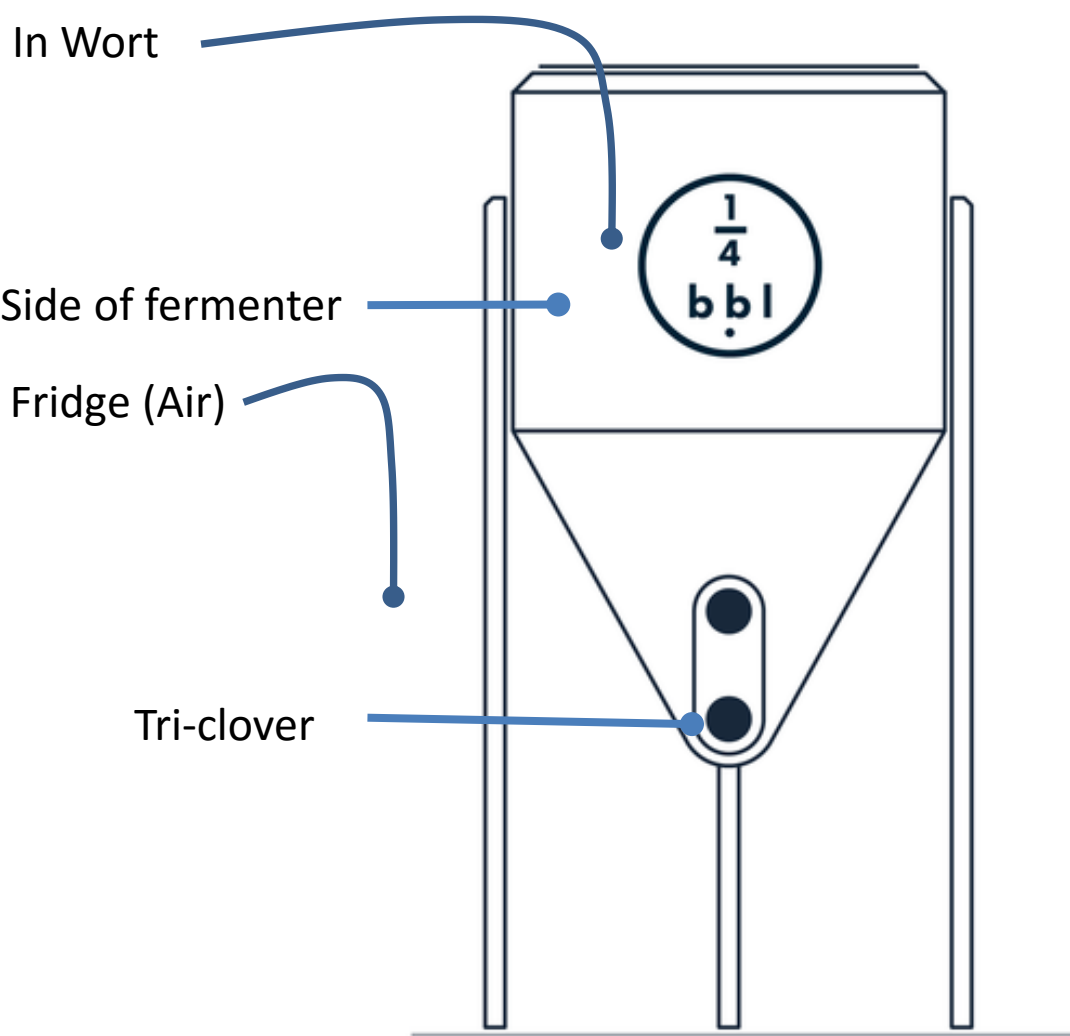
## Purpose

To evaluate how well temperatures measured at different locations on a plastic conical fermenter agree over the course of a normal fermentation. Additionally, can the temperature be recorded and controlled on a metal liquid contacting external part (dump tri-clamp)?

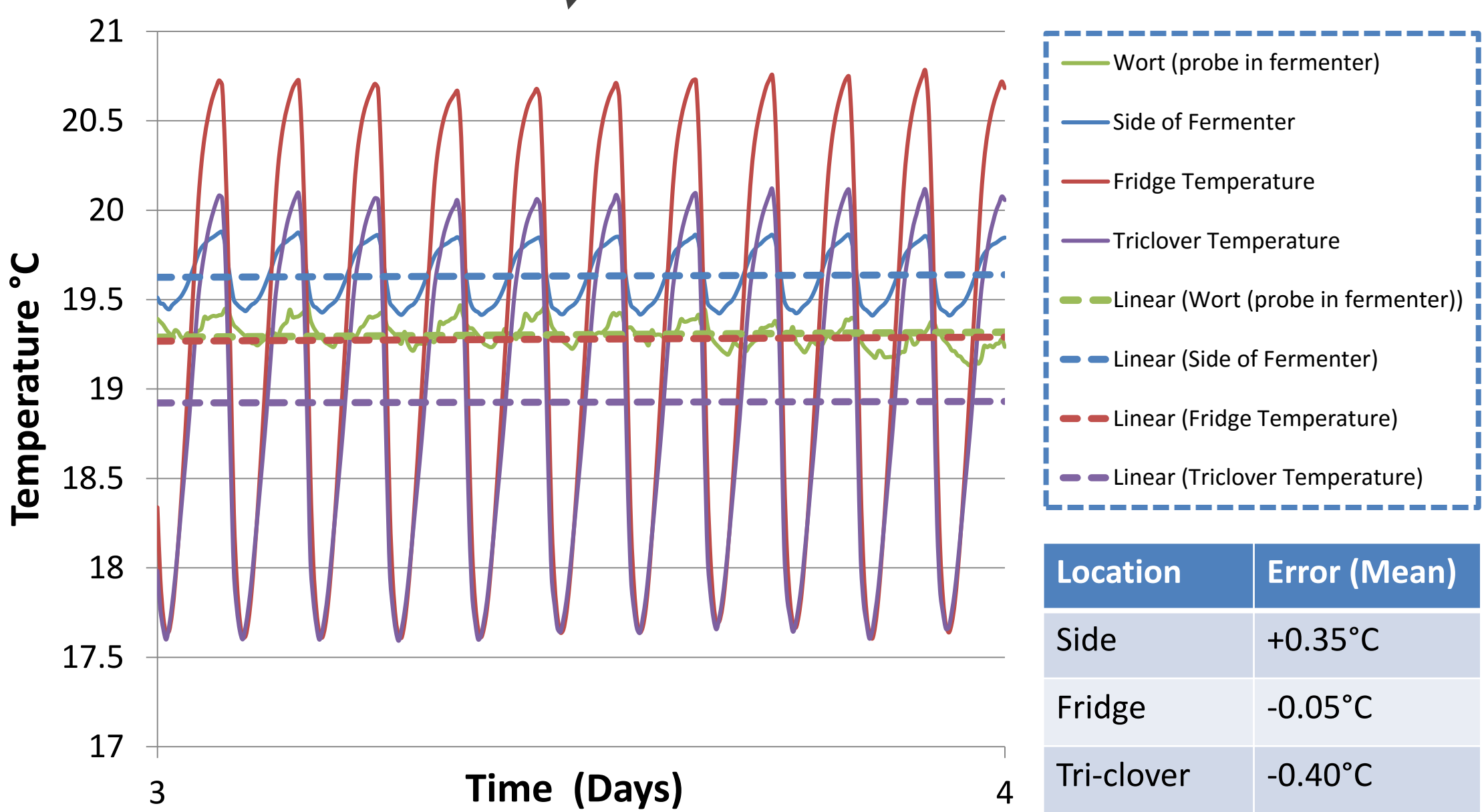
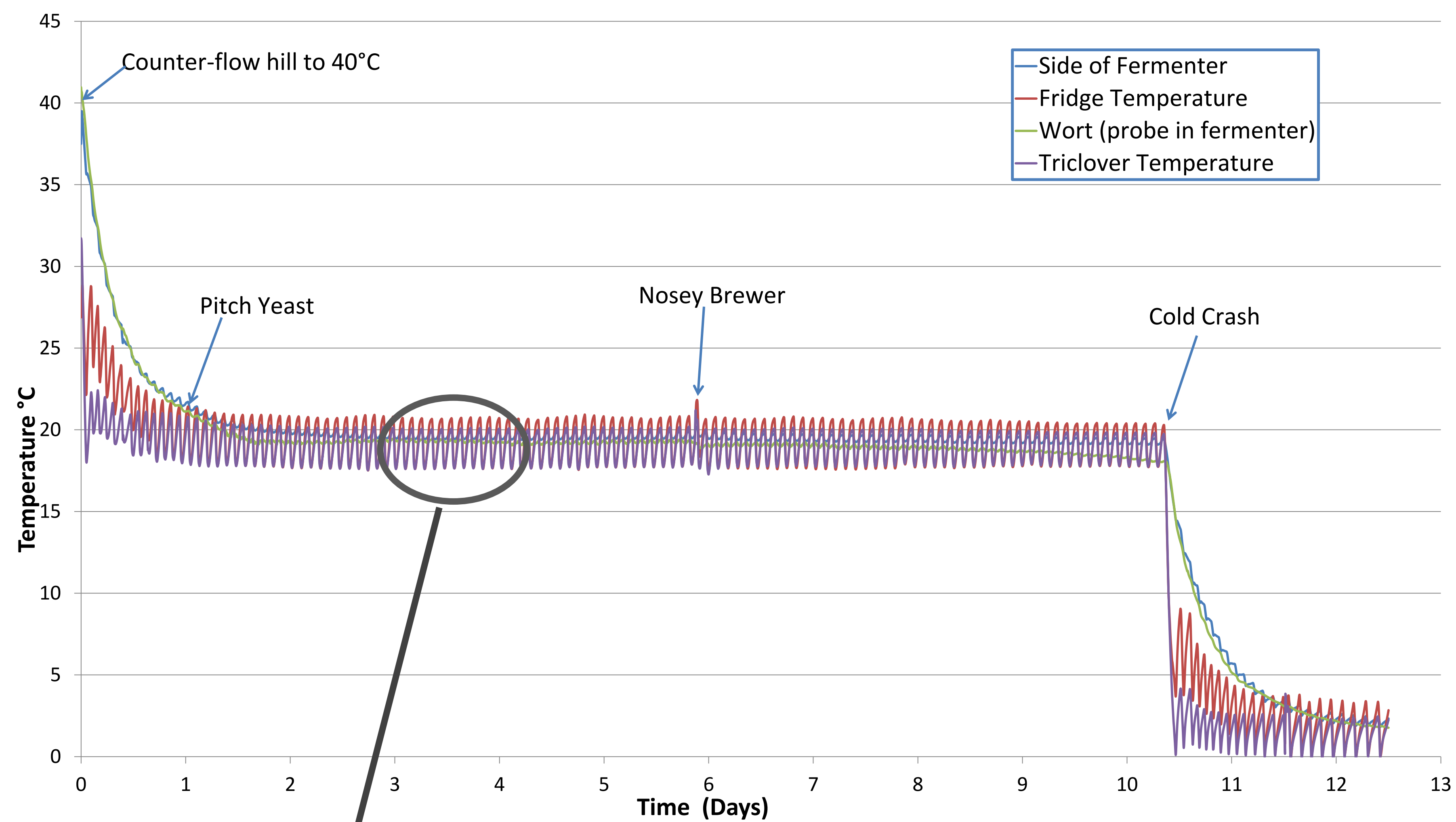
## Method

A standard blonde ale was brewed (23L, OG 1050) and counter flow chilled to 40°C. The wort was then transferred to a temperature controlled fridge (STC1000 controller – probe in air) and chilled to 22°C when yeast was pitched (US05).

Temperature was recorded using an Omega PT104 USB data recorder and DIN class B RTD probes (~0.25°C accuracy). The 4 probes were further calibrated to each other in 25°C water with the wort probe serving as a reference. They were then placed in and around the fermenter.



## Results



## Conclusions

- Eventually, all locations converge with good accuracy
- Dynamically things are very different
- Fridge temp was closest to wort temp under static conditions
- Side insulated location is most accurate considering temp crashing
- It takes a long time to chill wort when controlling air temp