

A black and white microscopic image showing numerous yeast cells, which are oval-shaped with a distinct circular nucleus or vacuole, densely packed together.

Yeast Harvesting with Hop Products

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**HOP &
BREW
SCHOOL**

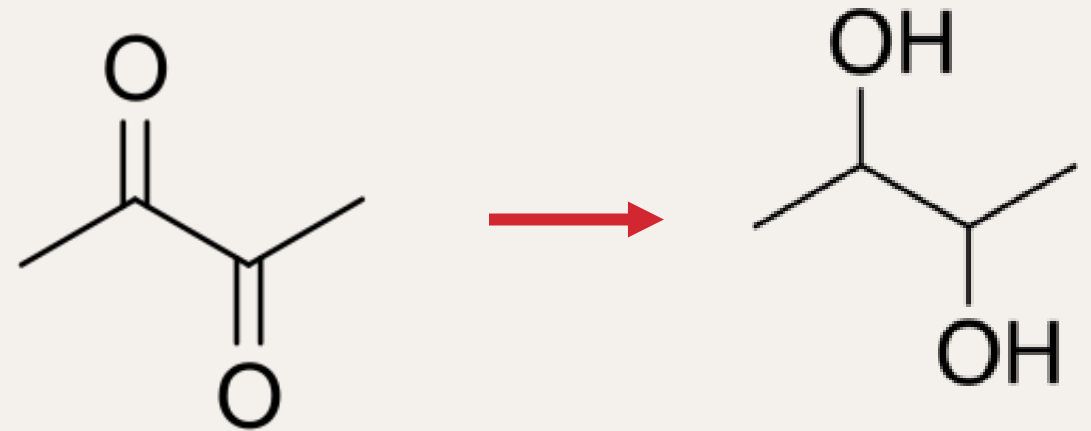
Brewers have been dry hopping since at least the late 1800s!

- Increased beer aroma ('The freshening power of hops')
- Long diacetyl rest times
- Potential introduction of oxygen
- Higher terpene solubility



Mid-fermentation dry hopping has many benefits

- Shorter diacetyl rest times
- Less oxygen concerns
- Some volatilization of terpenes
- Better fermenter mixing



...but dosing earlier may provide more benefits

- Even shorter diacetyl rest times
- No oxygen concerns
- Maximum volatilization of terpenes
- Biotransformation

Pellet hops and yeast harvesting don't blend mix

- Conventional wisdom says that yeast should not be harvested once it's been mixed with hops
- Viability degradation
- Potential flavor carryover



...but what about oil products like HyperBoost?

- Easy to dose
- Minimal alpha
- No leaf material



Lab-scale brewing trials - objectives

- Does viability get affected with the addition of HyperBoost?
- Do aromatic hop compounds get carried over into future batches by yeast?
- Can we confirm that traditional hop products negatively affect yeast harvesting?

Lab-scale brewing trials - design

- 1 liter fermentations
- Wort composition – DME + CO₂ Extract (1.060, 35 IBU)
- 15g/L equivalent (0.15g/L actual) HyperBoost dose at pitch
- WLP001 (Chico) yeast
- Parallel experiments



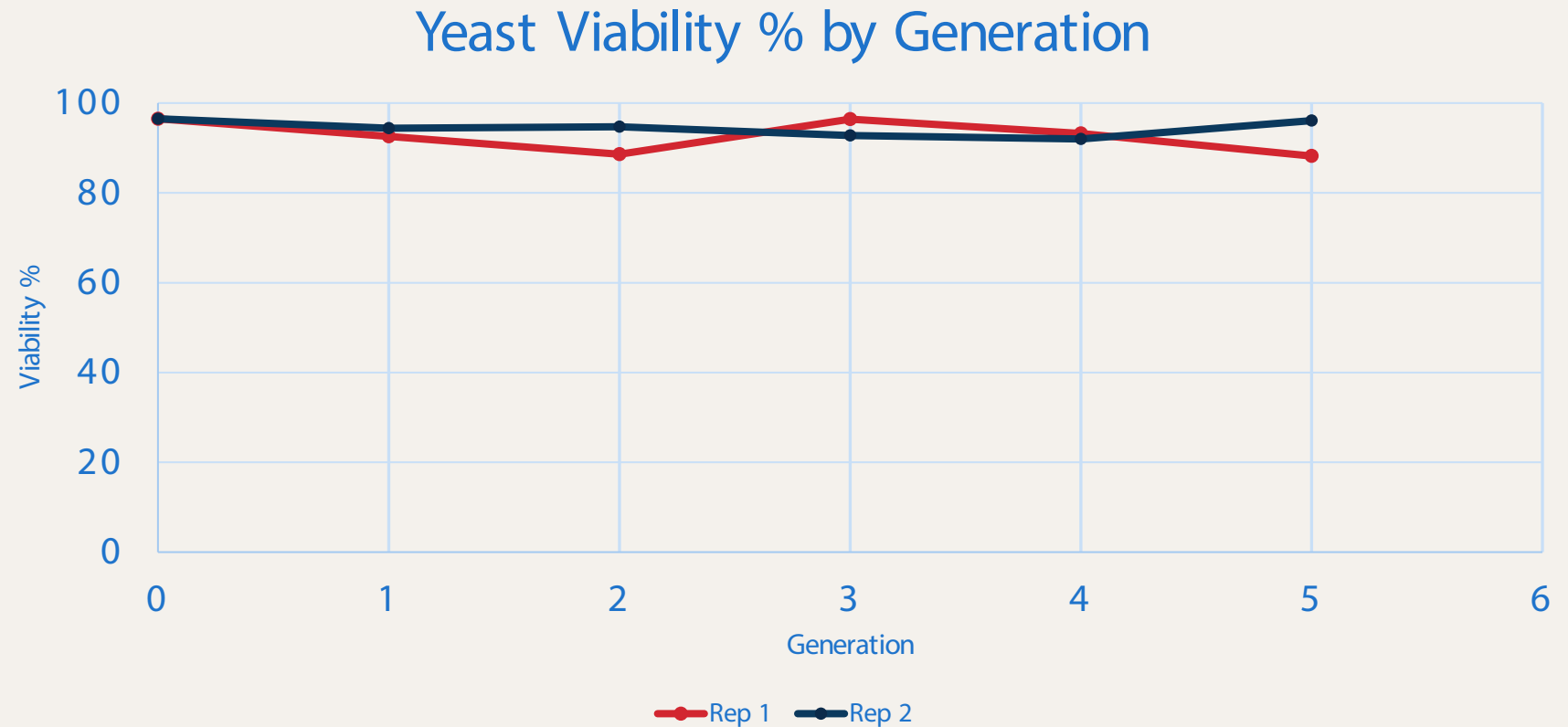
Lab-scale brewing trials - design

- 5 consecutive fermentations with HyperBoost dose, one without
- Repeated experiments with 10g/L of T-90 and Spent Pellets
 - Is the pellet material, alpha, or both to blame?

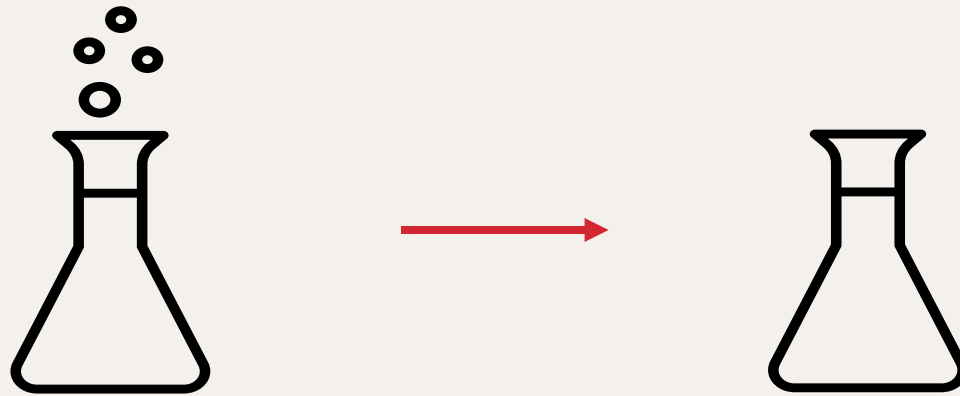


HyperBoost doesn't decrease yeast viability

- No linear change in viability

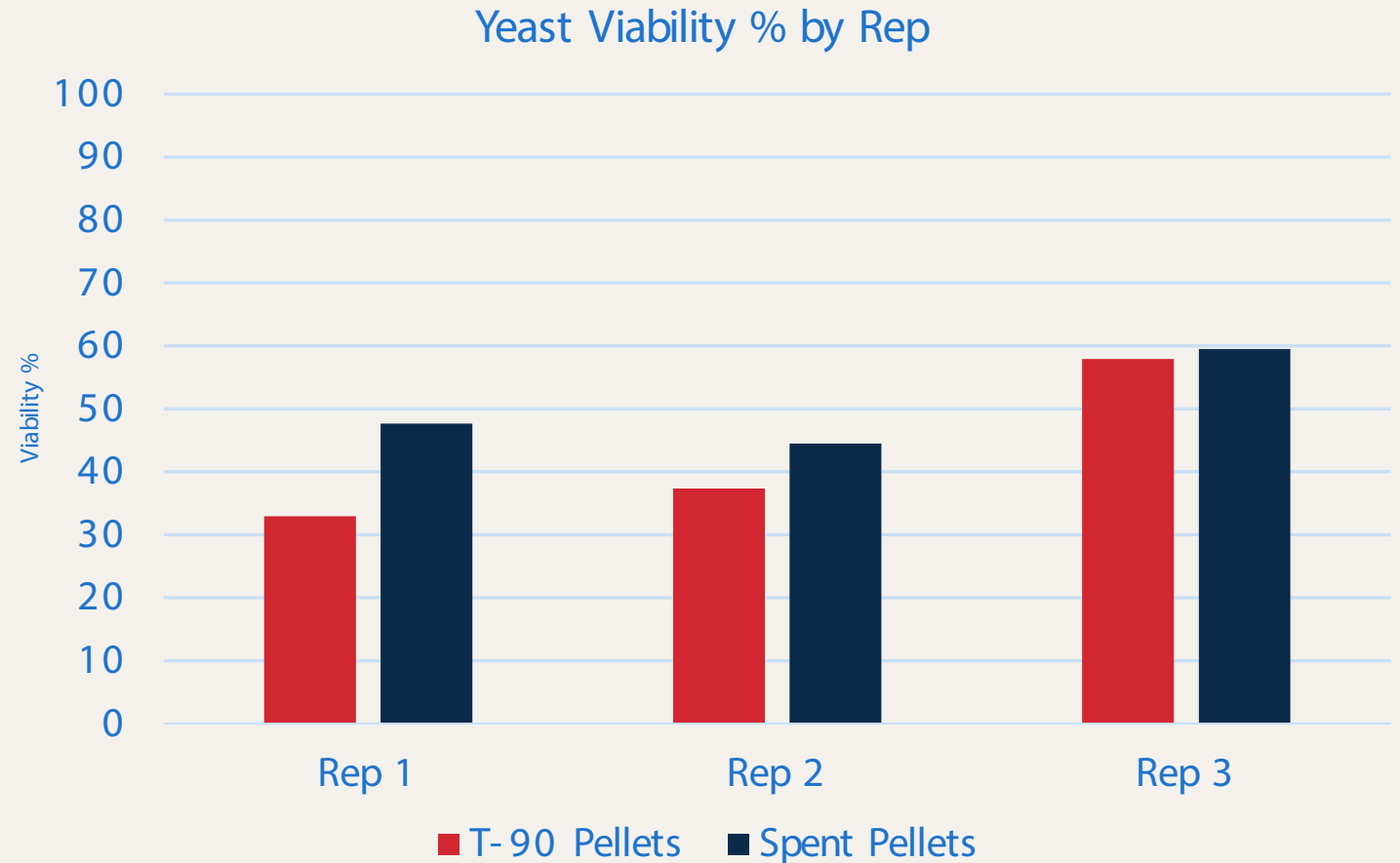


Hop aromatics were not carried over by the yeast



Pellet material likely causes viability concerns

- Equally poor viability between T-90 and Spent Pellets
- Could fungicides be to blame?



What does this mean to the brewer?

- Dosing at pitch is a good way to use HyperBoost
- Yeast harvesting will not be affected by HyperBoost



Questions?



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