Yeast Storage and Handling

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Yeast reuse in brewing

- Yeast is an ingredient that lends itself to reuse
- During fermentation yeast population grows by 2-4x and even more
- Yeast reuse is standard practice in many commercial breweries -> for economical reasons.
- Home brewers don't necissarily reuse yeast
  - Variety requires different yeast stains
  - Irregular brewing cycle
  - Risk of contamination

Yeast reuse in home brewing

- But home brewers can also benefit from yeast reuse.
- Aforementioned challenges need to be overcome
- Home brewing yeast handling can be divided into short and long term storage

Short term yeast storage

- Pitchable amounts of yeast are stored and (most often) used without further propagation
- Yeast is harvested from primary fermentation -> healthier yeast
- Yeast may or may not be washed
- Stored in cold environment under sanitary water or beer (32 – 36 F)
- Cold temperatures slow yeast metabolism and keep yeast healthy longer
- The colder the better -> BUT don't risk freezing the yeast
- The shorter the storage, the better. Fermentation performance difference can be seen even with a few days of storage

Yeast washing

- Boil 2 qt to 1 gal of water and let cool (do this 1 day before you rack your beer from the primary)
- Rack beer from primary
- Add water to primary and swirl to resuspend the yeast.
- Let heavy solids settle until there is a distinct sediment layer with cloudy water on top.

Source: homebrewtalk.com

Yeast washing (cont.)

- Pour milky water into sanitized Mason jars.
- Try to leave as much of the trub behind
- Store the mason jars in fridge. The yeast will settle within a day.
- To use the yeast pour off the water and resuspend yeast with wort
- If the yeast is older than 1-2 weeks make a starter.
- Each gram of dense yeast sediment is about 4-5 Billion cells
- Yeast washing works better with some strains than others.

Source: homebrewtalk.com

Yeast slurry storage limits

- Yeast ages and looses viability -> cells consume glycogen reserves and eventually die
- Even if still alive, weak yeast leads to slow fermentation start
- Dying yeast provides nutrients for contaminants
- Repeated yeast reuse increases infection risk
- After 1-2 weeks yeast propagation from small sample (1/2 tsp) can be useful

Long term yeast storage

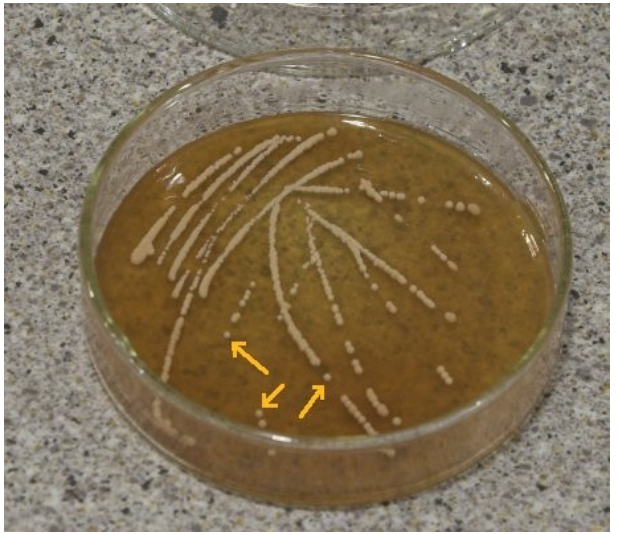
- Employs sterile techniques to keep yeast free of contaminants
- Pitchable amounts are always propagated from small samples - > no dead or weak yeast problem
- Small culture sizes simplify sterile procedures

Options for long term storage

- Yeast culture on solidified wort (agar):
  - Most commonly slants are used
  - Storage close to freezing at 32-34 F
  - Reculturing after 5-10 months necessary
  - Yeast propagation can start with a small sample scraped off the agar
- Frozen yeast culture
  - Uses glycerin to keep ice crystals from destroying yeast cells
  - In home frezer (-15 F) yeast can be stores for years
  - In laboratory freezers (-100 F) storage for 10s of years is possible

Yeast propagation

- **Step 1**: small yeast sample in ~ 10ml sterile wort
- **Step 2**: 2-3 oz sterile wort
- **Step 3**: 200-300 ml wort on stir plate
- **Final step**: 1000-2000 ml wort on stir plate.
  - Amount needed depends on desired final yeast amount.
  - Each point*gal grows about 13-16 Billion cells on stir plate or half that when only shaken.



Gear for sterile yeast lab

- Pressure canner (capable of 15 psi)
- Alcohol lamp, bunsen burner or blow-torch
- Innoculation loop
- Autoclavable glass vials (for storage and initial propagation step)
- Small mason or baby food jars for 2nd propagation step
- Masking or electrical tape
- agar

Links

- Braukaiser.com
- BYO - Yeast Ranching: Advanced Homebrewing
- Home Brew Talk – Yeast Washing