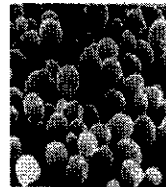




Propagation of Yeast from Slants and Plates



Why would you want to propagate your own yeast?

●Pros:

- fresher yeast
- you know where your yeast has been
- more control
- able to use strains unavailable elsewhere
- cheaper
- fun!

●Cons:

- more time-consuming
- more susceptible to contamination
- requires more equipment

- Propagating yeast from a single loop requires starting with a small volume (<100mL)
- 10-20 mL is a good amount to start with especially if the wort is NOT sterile
- One loop is added to the starter culture, incubated for 2-4 days, then increased in size
- General propagation regime to which initial culture is added:

Wort SG (plato)	Starter Size	Estimated # of cells (pitching rate/5 gal.)
<1.060 (<14.7)	2-3 cups (480-720 mL) @ 1.040 for 3-4 days @ 75-80°F	100-200 billion (5-10 million/ mL)
1.060-1.070 (14.7-17.1)	3-4 cups (720-960 mL) @ 1.040 for 3-4 days @ 75-80°F	200-300 billion (10-15 million/ mL)
1.070-1.090 (17.1-21.6)	2 cups (480 mL) @ 1.040 for 3 days +4 cups @ 1.065 for 2-3 days	300-400 billion (15-20 million/ mL)
1.090+ (21.6+)	same as above+ 2-3 quarts (1920 mL) @ 1.065 for 2-3 days	400+ billion (20+ million/ mL)

Assumptions:

- 1) Using a stir plate for all stages of propagation (stir plates add 10-15-fold increase in cell number)
- 2) Starter wort should be at 1.040SG for beers <1.070SG and 1.065 for beers with higher gravity
- 3) Yeast nutrients are highly recommended (DAP/amino acid-based) at the rate of ¼ tsp/quart (beneficial to yeast health)
- 4) The recommended pitching rates for medium gravity ales is 6-10 million cells/mL, lagers 10-15 million cells/mL, and high-gravity beers 15-20 million cells/mL
- 5) Pitching rates and # of cells are just estimates since the exact numbers cannot be known without a microscope and hemaecytometer; numbers can also vary with yeast strain, wort composition and temperature

Starter Wort Formulation:

Volume	SG	
	1.040 (amount of DME)	1.065
2 cups (480 mL)	6.5T(52g)	10.6T(85g)
3 cups (720mL)	9.75T(78g)	15.8T(126g)
4 cups (960mL)	13T(104g)	21.1T(169g)
2 quarts (1920mL)	26T(208g)	42.2T(338g)

*DME used is Muntons Extra Light
 *a hop pellet or two can be added to the starter if desired (during boiling) for some antiseptic properties

●The method outlined here is only a guideline and not the only way to propagate yeast. There are many ways to accomplish the same yeast increase. Like many techniques in brewing, yeast propagation is an art, so be creative.

●Another way to propagate yeast is to start with a small volume and then add new wort every 3-4 days as to double the volume of the starter until the desired volume/cell number is reached. This is the method Colin Westcott uses and it can be equally effective.

●If you don't want to pitch the entire starter, but just the yeast, you can refrigerate the starter for 24-48 hours then decant the liquid. The yeast can be pitched as is or a small amount of wort can be added to re-activate it. Generally if you are using less than a quart of starter then pitching the entire culture is not a problem. Otherwise it may be a good idea to avoid any off-flavors that may occur.