PROPAGATION PURPOSE
To produce biomass that is not stressed, that is highly viable (>95%), vital (active) and free of contamination. Oxygen is key since we are looking for cell division rather than alcohol production. Sanitation is primordial to make sure the culture remains pure.

If you don’t currently propagate: the economics of propagating yeast needs to be counterbalanced with the increased risk of contamination associated with the propagation step(s).

If you currently propagate: using dry yeast will save you the first few steps of propagation in the laboratory and lower your risk of contamination.

WHAT YOU NEED
- Packs of Diamond lager yeast 11g or 500g
- A sanitized vessel twice the size of the volume you want to propagate
- Go-Ferm rehydration nutrient
- Antifoam
- Sterile Aeration/oxygenation supply

PROCEDURE
- This procedure is based on a pitching rate for lager beer of 1.5 million cells per mL per Plato degree.
- The propagation yield is ~200 million cells per mL of propagation broth. A propagation volume of 5-10% of the intended brew volume is recommended to provide enough cells to pitch the beer.
  - For example, a 10hL brew requires a propagation of 50-100L.
  - At 200 million cells per mL, a 100L propagation yields 2 x 10¹³ total cells, which gives 20 million cells per mL when pitched into a 10hL brew.

<table>
<thead>
<tr>
<th>BREW VOLUME</th>
<th>10HL</th>
<th>100HL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OG</td>
<td>12°P</td>
<td>12°P</td>
</tr>
<tr>
<td>Ideal pitch rate</td>
<td>18 million cells per mL</td>
<td>18 million cells per mL</td>
</tr>
<tr>
<td>Propagation volume (5-10% of brew volume)</td>
<td>50-100L</td>
<td>500-1000L</td>
</tr>
<tr>
<td>Propagation pitch rate (1g/L)</td>
<td>50-100g Diamond (5-10 11g sachets)</td>
<td>500-1000g Diamond (1-2 packs of 500g)</td>
</tr>
<tr>
<td>Total yield from propagation</td>
<td>1.2 x 10¹³ viable cells (100-200 million cells per mL)</td>
<td>1.2 x 10¹³ viable cells (100-200 million cells per mL)</td>
</tr>
<tr>
<td>Pitch rate from propagation</td>
<td>10-20 million cells per mL</td>
<td>10-20 million cells per mL</td>
</tr>
</tbody>
</table>

HOW TO INOCULATE A 10HL BREW WITH 20 MILLION CELLS PER ML

YEAST REHYDRATION
Rehydrate according to instructions on the package or technical data sheet. For better results, add Go-Ferm* (30g/hL of propagation) to 20x its weight of sterile water at 43°C, stir well, let cool to 30-35°C and use this mixture to rehydrate the yeast.

YEAST INOCULATION
Add rehydrated yeast to 50-100L of wort at 12°P

YEAST PROPAGATION
24h at 18-20°C with aeration at 1-1.2LPM/L

DECANT
Decant the propagation media and resuspend in sterile water

QUALITY CONTROL
Perform a cell count to confirm the yield and viability. Normal results are 100-200 million cells per mL at >95% viability.

FERMENTATION
Inoculate in 10hL of wort to obtain an average concentration of 20 million cells per mL

* Yeast rehydrated with Go-Ferm produces yeast that is more vigorous and finishes fermentation 1-2 days earlier than beers inoculated with yeast non-rehydrated or rehydrated without nutrients.