

Staggered Nutrient Addition

Q: What is a Staggered Nutrient Addition, and why would I use it?

A: In **1998** I began reading about the timing of yeast nutrients and nitrogen additions as it related to commercial wine making. After analyzing this practice, it became clear to me that it should also benefit other brewing activities such as mead & cider making. However, I don't think that it will significantly improve the fermentation of beer wort as it contains higher percentages of complex sugars than does certain wine, mead, or cider musts. But, this is only my opinion...

After some testing, I developed (in 2001) the following **Nutrient Addition Schedule (NAS)** for mead musts, which I have been using for several years. The products used in the NAS are

1. **SuperFood** (Mfd by Red Star, sold by The Wine Lab), **OR**
2. **Fermaid-K** (Mfd by Scott Labs)
3. **Diammonium phosphate (DAP)**. Will another type of yeast nutrient work? Most likely, but for reasons that will become evident, the amounts to use will not likely be the same.

HighTest's Basic Mead, Cider, & Perry NAS (rev 2)

Sized for a 5 Gal Batch:

- **At inoculation** - 4.5g Superfood (or Fermaid-K) & 4.5g DAP
- **At Active Fermentation** - 2.8g Superfood (or Fermaid-K) & 2.8g DAP
- Just before **Fermentation Mid-point** - 1.8g Superfood (or Fermaid-K) & 1.8g DAP

Notes:

- 1) Active fermentation is defined when the Brix drops 2-3 degrees [This stage typically occurs within 8-24 hrs]
- 2) The fermentation mid-point can be determined by $(OG+TG)/2$
- 3) Depending upon which nutrient is used, this protocol adds 167 - 176 ppm of timed yeast available nitrogen (YAN) to whatever may be available from the must. YAN is also known as Free Amino Nitrogen (FAN).

For those of you who do not have digital scales:

- 1 tsp of SuperFood weighs ~ 2.4g
- 1 tsp of powdered DAP weighs ~3.9g
- 1 tsp of Fermaid-K weighs ~4.0g.

FOOTNOTE 1: I recommend mixing the nutrients into a small volume (~100ml) of the must, adding that back into the main volume, and then mixing well. **Be CAREFUL** when you add these nutrients as you can get quite a bit of foaming... This "aggressive mixing" has the added effect of degassing the must of CO₂, which is beneficial to yeast health - minimizes CO₂ Toxicity.

FOOTNOTE 2: I have been asked about using substitute nutrients for Superfood. Not knowing the composition of these commercial products I can only offer this comment from the Wine Lab for your consideration:

"Most nutrients have a higher DAP content than Superfood. When Lisa Van de Water formulated Superfood in the mid-1980s, her philosophy was to provide more of the complex ingredients yeasts need to balance inorganic nitrogen additions, and to allow wineries to add extra DAP as appropriate to supplement deficient musts." How much more DAP is anyone's guess...

Revised 01/11/06: The nutrient quantities were changed based on conversations with Dr. Clayton Cone wherein I learned that he recommended the **bulk of the nutrients be added before 30% sugar depletion** - the yeast are usually well into their stationary phase at 50% sugar depletion and cannot utilize the nutrients as well as they can before 30% depletion. As such, the NAS (second revision) now adds 85% of the nutrient nitrogen before 30% sugar depletion.