NUTRIENT ADDITIONS

NOTE: ***ADD "STARTUP"™ TO YEAST REHYDRATION WATER FOR A STRONG START!***

• STAGE 1: Add 1/3 of "Superfood™ – Plus"

At yeast inoculation. Growing yeasts need a wealth of nutrients including nitrogen, minerals, vitamins, and survival factors. If nitrogen is limited during growth, fewer cells will be produced.

• STAGE 2: Add 1/3 of "Superfood™ – Plus"

Fermentation is now fully underway (actively bubbling, raised cap) **and Brix has dropped around 3 to 4 degrees**. At this point the yeasts will have taken up most of the nitrogen present in the juice, especially ammonia nitrogen.

This is also the time to add your Malo-Lactic bugs, when doing "co-inoculation".

• STAGE 3: Add 1/3 of "Superfood™ – Plus"

Mid-fermentation, around 10 Brix. Yeast growth has stopped, but alcohol is low enough that yeast can still take up nitrogen. Nitrogen at this point helps replenish the supply in existing cells without producing more cells.

PLEASE NOTE: By adding nutrients in stages, you can **SLOW DOWN or REDUCE** the additions if the fermentation is going too fast. Adding nutrients all at once, or using sustained-release preparations, does not allow real-time response to different fermentation kinetics. Add nutrients in portions during the first half of fermentation, **NOT** all at once!

"Superfood – Plus": We have added a little extra DAP and Super-Vit for the extra Nitrogen, Vitamins, and Minerals needed for California's warmer, nutrient deficient growing conditions.

Recommended levels for YAN
(JUICE YAN PLUS ADDED YAN)
YAN (ppm) = Ammonia N + Alpha-amino N

21 Brix or less: 200 - 250 ppm YAN

23 Brix: 250 - 300 ppm YAN

25 Brix: 300 - 350 ppm YAN

VERY IMPORTANT: GRAPES > 25 BRIX / HANDLING HIGH-SUGAR GRAPES

Warm-climate, dry-summer grapes often become too sweet before their phenolics have matured. As hangtime increases, especially with water stress, dehydration compounds the effect. In addition, with longer hang-time, amino acids may form small peptides that are not useful to yeast, reducing available nitrogen. **THESE MUSTS ARE EXTREMELY LIKELY TO STICK!**

"Rehydrate" (add water to) must that is > 25-26 Brix before adding yeast, after soaking overnight on skins (this is legal even in CA now)

Bring down to 24-25 Brix. The sugar often rises up again after rehydration, so **RECHECK BRIX AFTER SOAKING AGAIN** several hours to overnight; rehydrate again if the Brix has risen again to 25+ Brix. Use risk assessment for 25+ Brix even after rehydration.

High Sugar Must Rehydration Calculation

1. Multiply the Brix in the must by the number of gallons of juice you have
2. Divide by the Brix you want to have (recommend not > 25)
3. Subtract the number of gallons you have.
4. This number is how many gallons of water to add. Add ¾ of that amount, mix very thoroughly.
5. Measure Brix; add more water if needed to reach target Brix.
6. Do NOT add yeast yet. Measure Brix again after soaking overnight and rehydrate again if 25+Brix.

Brix (start) x Gal (start) - Gal (start) = Gal water to add Brix (wanted)

PROBLEM FERMENTATIONS

STUCK & SLUGGISH FERMENTATIONS

DO NOT ADD NITROGEN DIRECTLY TO STUCK WINE

Adding nitrogen to already sluggish or stuck musts does not help, and can actually hurt the wine. Sometime after mid-fermentation, alcohol inhibits the ability of yeasts to bring nitrogen into the cell.

If nitrogenous nutrients are added too late, the leftover nitrogen stimulates spoilage microbes later on (Brettanomyces, Lactobacillus, Pediococcus).

If DAP itself is left over because it was added too late, it has a very unpleasant taste and raises pH significantly.

It is important to add Yeast Hulls (Nutrex 370) directly to stuck fermentations because they do not add appreciable nitrogen, and they adsorb toxins produced by yeast.

Nitrogenous nutrients are needed only in reinoculation starters for stuck wine.

Prepare Starter Juice	Rehydrate the yeast	Acclimatising the yeast	Feeding the starter	Adding the starter
•If the original brix of the stuck wine was >25, test alcohol and residual sugar of stuck wine. • Calculate the estimated final alcohol and if possible add H_2O to bring estimated final alc. to approx 14.5-15% (No more than 1:1 Juice/H_2O) • Add 1g/L (starter) Superfood and 0.25 g/L (volume stuck wine) of DAP to the starter juice • Warm to 21-25°C • Aerate juice vigorously	• Ensure rehydration water is at 38-40°C, this is CRITICAL to viability • Add Startup to water at 25-100 g per 500 gram pack of yeast (50-100g/kg yeast) • Sprinkle yeast into rehydration water, do not stir immediately as yeast are very fragile at this point. Allow the yeast to slowly absorb water and after a couple of minutes GENTLY work out the lumps • Allow to stand 15-20 minutes	• If the yeast mixture is >5°C (10°F) warmer than the starter juice, add juice incrementally in temperature steps of no greater than 5°C(10°F) until the yeast mixture is no more than 5°C off of the juice temperature • When active fermenation is visible (may only take a few minutes) double the volume of the starter by adding stuck wine warmed to 18-22°C. • Add Superfood and DAP to starter - 0.1g for each liter of stuck wine added to starter	• Continue adding stuck wine at 18-22°C as soon as visible fermentation acitivity has resumed after previous addition. • For strong fermentation activity double the starter volume with each addition of stuck wine and if acitivity slows, reduce the next addition by half. • Add Superfood and DAP to starter - 0.1g/L of each for each liter of stuck wine added until the starter reaches 5 Brix. Do NOT add more nutrients after 5 Brix. • Maintain temperature 17-24°C • Where possible aerate starter continuously using a MicroX or sparger unit (unless it would oxidize the wine) • Keep the starter mixing as often as possible to avoid settlement of yeast cells • Wait until starter has resumed acitivity before adding more wine	• When the starter volume is 50% of the volume of the stuck wine, add it to the stuck wine volume. • If at any point the starter activity becomes weakened and does not recover, let it finish fermenting without adding more stuck wine. A new starter should be prepared for the balance of the stuck wine.

https://bsgcraft.com/resources/Wine%20Resource%20Guide%20Vol5-WEB.pdf