

September 2002

Froth

Froth is the publication of the Brewers of Central Kentucky (B.O.C.K.): a non-profit organization dedicated to homebrewing.

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THE SECRET OF SUCCESS: PROPER HANDLING OF ACTIVE DRIED YEAST *(courtesy of the Lallemand web site- thks Mark)*

"Kilgore Trout once wrote a short story which was a dialogue between two pieces of yeast. They were discussing the possible purposes of life as they ate sugar and suffocated in their own excrement. Because of their limited intelligence, they never came close to guessing that they were making champagne."

- Kurt Vonnegut, Breakfast of Champions

Fermentation is the process by which a microorganism (yeast) converts sugar into alcohol and carbon dioxide gas. All winemakers know that yeast is not an ingredient like sugar, tannin or SO₂, but is a living organism whose role is so critical that without it, no wine, beer or spirit is possible.

Proper rehydration is perhaps the most critical phase in using dried yeast. When we produce Lalvin wine yeast and Danstar beer yeast, we grow it to permit efficient drying with minimal loss of living cells. The drying stage removes not only extracellular water, but most of the water within the cell and are bound to the cell's organelles. In the dryer, the yeast cells shrink and desiccate, and essentially go into a deep sleep.

To be functional again, the dried yeast cells must reabsorb all their water. When the dried yeast comes in contact with water (or any other liquid) the cells literally act like dried sponges and suck up the needed water in seconds (water uptake). Not only will yeast cells not disperse very well if not properly rehydrated, they can lose a large amount of cytoplasm, reducing the efficiency of oxygen and nutrient transfer to the cells. This impedes growth and activity (sluggish or stuck fermentations). Proper rehydration can ensure healthy yeast cells and good fermentation characteristics.

THREE EASY STEPS

1. For best results, rehydrate active dried wine (or beer) yeast by opening the 5 gram sachet and pouring contents into 50 mL (1/3 cup)

Next Meeting Wednesday September 11th Located at Festival Market on Main Street Lexington

Ashville trip: For those of you who missed the first Nashville Beer Festville a few of us are

planning to go down to try the Ashville Beer Festival on Sept 14th. You are on your own for expenses but anyone interested let us know at the next meeting and we can arrange to share transport etc!

SAWYER'S
DOWNTOWN

clean 40°C (104°F) water.

2. Stir lightly and allow the yeast suspension to stand for at least 15 minutes but no longer than 30 minutes, then stir again.

3. Then pour the yeast suspension (inoculation) into the juice or must (or wort, if brewing beer) to start the fermentation.

Q&A from the same website

All the packages of (Danstar) yeast contain instructions for rehydration yet they all ferment just fine without it. I have to believe that such a procedure may be theoretically beneficial, however it would seem to be marginally useful at least on a homebrew scale. I own a home brew shop and a very common phone call is the "My beer is not fermenting." problem. I go through the list of potential causes (plastic bucket lid leaks, too cold, etc.) About twice a week the caller will indicate that he rehydrated the yeast. This is a strong signal that the yeast has been damaged and will need to be replaced. I have come to the conclusion that, since rehydration is not necessary to ferment beer properly and there is a strong chance that the yeast will be damaged in a botched rehydration, it is not desirable to recommend such a procedure. Just how important is rehydration and is it worth the risk?

Response from Dr. Clayton Cone:

Let me give you some facts regarding rehydration and you can decide for yourself where you want to compromise. Every strain of yeast has its own optimum rehydration temperature. All of them range between 95°F to 105°F. Most of them closer to 105°F. The dried yeast cell wall is fragile and it is the first few minutes (possibly seconds) of rehydration that the warm temperature is critical while it is reconstituting its cell wall structure.

As you drop the initial temperature of the water from 95° to 85° or 75° or 65°F the yeast leached out more and more of its insides damaging the each cell. The yeast viability also drops proportionally. At 95 - 105° F, there is 100% recovery of the viable dry yeast. At 60F, there can be as much as 60% dead cells.

The water should be tap water with the normal amount of hardness present. The hardness is essential for good recovery. 250 -500 ppm hardness is ideal. This means that deionized or distilled water should not be used. Ideally, the warm rehydration water should contain about 0.5 - 1.0% yeast extract

For the initial few minutes (perhaps seconds) of rehydration, the yeast cell wall cannot differentiate what passes through the wall. Toxic materials like sprays, hops, SO₂ and sugars in high levels, that the yeast normally can selectively keep from passing through its cell wall rush right in and seriously damage the cells. The moment that the cell wall is properly reconstituted, the yeast can then regulate what goes in and out of the cell. That is why we hesitate to recommend rehydration in wort or must. Very dilute wort seems to be OK.

We recommend that the rehydrated yeast be added to the wort within 30 minutes. We have built into each cell a large amount of glycogen and trehalose that give the yeast a burst of energy to kick off the growth cycle when it is in the wort. It is quickly used up if the yeast is rehydrated for more than 30 minutes. There is no damage done here if it is not immediately add to the wort. You just do not get the added benefit of that sudden burst of energy. We also recommend that you attemperate the rehydrated yeast to with in 15°F of the wort before adding to the wort. Warm yeast into a cold wort will cause many of the yeast to produce petite mutants that will never grow or ferment properly and will cause them to produce H₂S. The attemperation can take place over a very brief period by adding, in increments, a small amount of the cooler wort to the rehydrated yeast.

Many times we find that warm water is added to a very cold container that drops the rehydrating water below the desired temperature.

Sometimes refrigerated, very cold, dry yeast is added directly to the warm water with out giving it time to come to room temperature. The initial water entering the cell is then cool.

How do many beer and wine makers have successful fermentations when they ignore all the above? I

believe that it is just a numbers game. Each gram of Active Dry Yeast contains about 20 billion live yeast cells. If you slightly damage the cells, they have a remarkable ability to recover in the rich wort. If you kill 60% of the cell you still have 8 billion cells per gram that can go on to do the job at a slower rate.

The manufacturer of Active Dry Beer Yeast would be remiss if they offered rehydration instructions that were less than the very best that their data indicated.

One very important factor that the distributor and beer maker should keep in mind is that Active Dry Yeast is dormant or inactive and not inert, so keep refrigerated at all times. Do not store in a tin roofed warehouse that becomes an oven or on a window sill that gets equally hot.

Active Dry Yeast loses about 20% of its activity in a year when it is stored at 75° F and only 4% when refrigerated.

The above overview of rehydration should tell you that there is a very best way to rehydrate. It should also tell you where you are safe in adapting the rehydration procedure to fit your style.

Beer goggles

Study proves drinking makes members of opposite sex look more attractive
AUG 19, 2002 - Scientists in Scotland have found proof of the so-called "beer goggles" effect. They discovered that men and women who have consumed a moderate amount of alcohol find the faces of the opposite sex 25% more attractive than their sober counterparts.

And the study revealed that there was no difference in the beer goggles effect between men and women.

Students at Glasgow University were shown color photographs of 120 male and female St. Andrews University students aged 18 to 26. Participants were asked to rate their aesthetic properties on a scale of between one -- highly unattractive -- to seven -- highly attractive.

Half of the students had drunk up to four units of alcohol, equivalent to two pints of beer or two-and-a-half glasses of wine. The 40 who had been drinking rated the people in the photographs as broadly more attractive than those not drinking.

"Everyone's heard of the beer goggles effect but we wanted to measure once and for all whether a moderate amount of alcohol increases the judgment of facial attractiveness," said Prof. Barry Jones of Glasgow University psychology department.

"The increase in perceived attractiveness appeared to be the same for the ugly people as the pretty people, he said. "Attractiveness provides a very important signal of mate quality, it shows you have good genes and a healthy body."

The beer goggles phenomenon is caused by alcohol stimulating the part of the human brain which is used to determine facial attractiveness, the nucleus accumbens, he said.



On Investment:

- > If you had invested \$1,000.00 in Nortel one year ago, you would now have
- > \$49.00 left.
- > If you had put \$1,000.00 into Enron, you would now have \$16.50 left.
- > If you had put \$1,000.00 into Worldcom, you would now have \$5.00.
- > If you had bought \$1,000.00 dollars worth of beer and collected the 10 cent fee for the cans or bottles, you would have \$214.00.
- > The best investment advice seems to be to drink heavily and recycle.

**PUT
YOUR
MONEY
WHERE
YOUR
MOUTH IS!**



Beer good for sex life

Czech doctor says two beers a day may fight impotence

JULY 22, 2002 - A Czech doctor says that by drinking beer every day men may keep their sex lives active.

"If men drink two beers a day they can stave off impotence," says Dr. Pavel Zemek of the Czech Center of Gerontology in Prague.

Zemek says his research shows beer can have a "powerful effect" to stop the arteries becoming blocked. "On the basis of clinical tests we can say moderate amounts of beer lessens arterial sclerosis, one of the causes of erectile dysfunction," he told a local newspaper.

As others do when discussing beer and health, he warns against excessive drinking. "Drink too much beer in one go and the positive effects are negated," he says, "but, as the saying goes, a little bit of what you fancy does you good."

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