

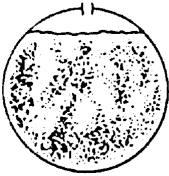
Aging *Sur Lie*

Adequate aging of wine, *sur lie*, is needed to develop roundness in the body, increase complexity and retain the wine freshness. During the secondary fermentation in the *Méthode Champenoise* process of sparkling wine production, there is an accumulation of amino acids from the *cuvée* into the yeast cells. When the sugar is depleted, the fermentation ends. The yeast will then restore the amino acids back to the wine. This is a free exchange and not autolysis. After this excretion of amino acids at the end of the secondary fermentation, the amino acid concentration in the wine remains unchanged for several months. Yeast autolysis then begins and the amino acid concentration in the wine slowly rises. The amino acid concentration during yeast contact does not vary significantly between the 3rd and 12th month of contact. The amino acid concentration does increase between the 12th and 43rd month *sur lie*. After 6 months, the sparkling wine contains 12% greater amino acid content than the *cuvée*; after 12 months, 24.5% greater and in 4 years the wine contained 25% greater amino acid content than the *cuvée* base wine. The greatest activity took place between 9 and 12 months. Autolysis is dependent upon such parameters as pH, alcohol content and temperature. Elevated pH significantly increases the rate of autolysis. This gives advantage to wines completing Malolactic fermentation before starting *sur lie* aging. It is known that aging wine at elevated temperature accelerates the autolysis, but can reduce bubble retention and sensory attributes in sparkling wine.

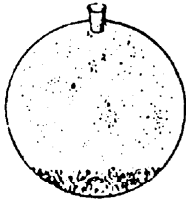
The Grand Cru chateau of the Côte d' Or all use *sur lie* aging of their Chardonnay, e.g. two of the greatest chateau, Domaine Coche-Dury gives 10 months and Domaine Étienne Sauzet 12 months of *sur lie*. At Louis Latour's Chateau Corton Grancey in Aloxé-Corton, their Pinot noir is drained and pressed from the fermenting tank while still not dry. The wine is placed in barrels and the fermentation proceeds. Upon dryness, the barrels are topped and the wine remains *sur lie* until removal for bottling in 18 to 24 months.

SUR LIE AGING

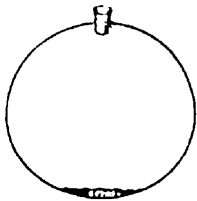
The grapes are crushed and pressed and the juice is put into 130 gallon French Oak Puncheons. Yeast is added to the juice.



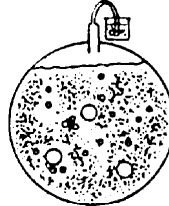
The Puncheons with dry wine are topped. Bungs are put in to seal them. The latent yeast cells continue to settle.



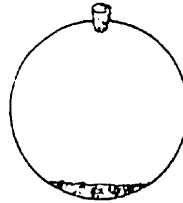
The yeast cells have settled again. The autolysis continues. The amino acids are transformed into higher aromatic alcohols. Other elements also increasing in concentration; esters, ethers, fatty acids and alcohols.



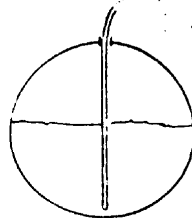
The yeast population will grow to approximately five trillion cells per gallon and the fermentation will start.



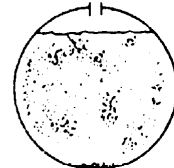
The yeast lees have settled. Two to three months after dryness, the latent yeast cells start to autolyze. Intracellular proteolytic enzymes hydrolyze proteins with the consequent release of amino acids into the wine.



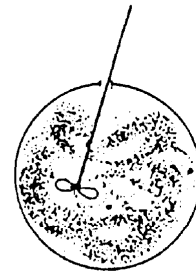
After about six months, the "sur lie" is completed. The wines have developed complexity; they have an aromatic "vinous" aroma, the middle body of the wine has increased and the wines give an impression of a more pungent youthfulness.



The wine goes dry and the fermentation finishes. The CO₂ no longer is being formed. The yeast cells start to settle.



Twice a month, stir up all lees in the bottom of the Puncheons to increase the mixing of the wine with the yeast



The wines are racked from the lees, filtered and bottled.

