



## February 2008 Newsletter

**Next Club Meeting Sunday 9th March 2008 @ 12:30pm**

### THE PRESIDENTS REPORT



As John Lague has resigned as president to pursue opportunities in WA it has fallen on the editor to produce this epistle !

A relaxing weekend away was had by all who attended Beerfest 2008 at Mirboo North.

Congratulations to John Kingston for placing third with his American Pilsner in the Pale Lager category at Beerfest 2008.

As we move into Autumn we should all be starting to think about brewing for upcoming events such as the Stout Extravaganza, Pale Ale Mania and Vicbrew 2008 !

In this months edition I have lifted material from the wyeast website to help us improve our understanding of brewing processes and ultimately improve the quality of our beers !!!

Cheers ... Colin MacEwan

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THE NEXT MEETING WILL BE AT THE NAVAL ASSOCIATION  
HALL, BARRETT RESERVE, GRAHAM STREET, WEST  
FOOTSCRAY (OPPOSITE THE YMCA) MELWAY 41 J3

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Westgate Brewers is committed to encouraging responsible drinking

REMEMBER-If you Drink and Drive-You're a Bloody Idiot

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## **Club Meeting Diary**

**March 2008**

Medieval Brewing

**April 2008**

Brown Ale – English or American Comp

**May 2008**

Activity Tba

**June 2008**

Activity Tba

**July 2008**

Activity Tba

**August 2008**

Activity Tba

**October 2008**

Activity Tba

## **Coming Events**

**July**

**Westgate Brewers**

**Stout Extravaganza**

**Venue to be advised**

**August**

**Worthogs**

**Pale Ale Mania**

**Venue to be advised**

**October**

**VicBrew 2008**

**Venue to be advised**

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# *Beerfest 2008*



*Grand Ridge Brewery at Mirboo North*



*The Stewards*





## Fermentation- courtesy [www.wyeast.com](http://www.wyeast.com)

Fermentation is the heart of the brewing process. During fermentation, wort created from raw materials is converted to beer by yeast. Fermentation is usually divided into three stages: primary, secondary, and conditioning (or lagering). Fermentation is when yeast produce all of the alcohol and aroma and flavor compounds found in beer. Manipulation of temperature, oxygen levels, and pitch rate as well as yeast strain selection will all dramatically affect the production of aroma and flavor compounds produced during fermentation.

### Primary Fermentation

The primary stage of fermentation begins when the yeast is introduced into cooled, aerated wort. The yeast quickly utilize the available oxygen to produce sterols, a vital compound for culture expansion. When the oxygen is gone, the yeast switch to the anaerobic phase where the majority of wort sugars are reduced to ethanol and CO<sub>2</sub>. Yeast growth occurs during primary fermentation. The extent and rate of yeast growth is directly related to the production of aroma and flavor compounds.

#### Primary Fermentation Summary:

- Depletion of dissolved oxygen
- Acidification / reduction in pH
- Yeast growth or culture expansion
- Ethanol and CO<sub>2</sub> production
- Production of flavor compounds such as esters, diacetyl, sulfur containing compounds, etc.
- Consumption of most wort sugars

The temperature of the primary fermentation should be regulated according to the desired flavor and aroma profile. The following is a guideline:

#### Primary Fermentation Temperatures:

- Ales: 62°F – 75°F (17°C – 24°C)
- Lagers: 46°F – 58°F (8°C – 14°C) \*Note: Lager fermentations can be started warmer (~60°F, 15.5°C) until signs of fermentation (gravity drop, CO<sub>2</sub> production, head formation) are evident. Cool to desired fermentation temperature once signs of fermentation are observed.
- Wheat and Belgian styles: 62°F – 85°F (17°C – 29°C)

## Secondary Fermentation

The secondary stage of fermentation refers to the stage of fermentation after the majority of the wort sugars have been consumed and there is a sharp decrease in the rate of fermentation. During this period, most of the final sugars are depleted and some secondary metabolites are converted by the yeast. Yeast flocculation and settling begins to occur due to the increase in alcohol content and the depletion of sugar and nutrients. Diacetyl reduction takes place during secondary fermentation and during the diacetyl rest that some brewers incorporate into the secondary stage of fermentation.

### Secondary Fermentation Summary:

- Decreased rate of ethanol and CO<sub>2</sub> production
- Diacetyl Conversion
- Reduction of some flavor compounds by yeast metabolism or CO<sub>2</sub> scrubbing
- Terminal gravity is reached
- Yeast flocculation and settling begins

### Secondary Fermentation Temperatures:

- Ales: Same as primary fermentation (higher temperatures will increase diacetyl reduction rates)
- Lagers: 40°F - 60°F (4°C - 15°C). Some brewers allow the beer to increase in temperature to speed the diacetyl reduction. This increased temperature is usually only sustained for 24 to 48 hours.
- Wheat and Belgian Beers: Same as primary fermentation (higher temperatures will increase diacetyl reduction rates).

## Conditioning

The conditioning stage takes place when the terminal gravity has been reached and the tank is cooled to refrigeration temperatures (31°F - 38°F, 0°C - 3°C). During this time the yeast continues to flocculate and settle. The yeast also conditions the beer by reducing various undesirable flavor compounds. Ales do not benefit from long conditioning times like lagers do. The desirable flavors in ales will decrease with age and therefore it is recommended that conditioning be as short as possible before packaging. Exposure to oxygen at this stage is extremely detrimental to beer quality.

### Conditioning Summary:

- Most of the yeast is removed from beer
- Formation and precipitation of haze forming proteins
- Reduction and mellowing of harsh flavors
- Reduction of sulfur compounds, diacetyl, and acetaldehyde
- Flavor stabilization

## **Lager Brewing - courtesy [www.wyeast.com](http://www.wyeast.com)**

Brewing a true lager takes a little bit more work and specialized equipment than brewing an ale. The most important factors in brewing a good lager outside of recipe formulation are: yeast strain selection, pitch rate, and fermentation temperature.

### **Yeast Strain Selection:**

Once the recipe has been chosen, the next task that will have the biggest impact on the final beer is yeast strain choice. Home brewers have a wide selection of lager strains to choose from. The strain should be chosen based on the style of beer, the fermentation temperature, original gravity, and time available for conditioning or lagering.

### **Pitch Rate:**

Lagers typically have a reduced ester profile and are characterized as clean with discernable malt character. It is very important to recognize that pitch rate is directly related to ester production. Increasing the quantity of yeast pitched is the most effective method of reducing the ester profile in the finished beer. A minimum of 12 million cells per milliliter is recommended to keep esters at a minimum.

One Wyeast Activator pack will deliver about 6 million cells per milliliter to 5 gallons of wort. In order to increase this rate to 12 million cells per milliliter it is necessary to either pitch two Activators or to make a 0.5 gallon (2 liter) starter with an Activator. If a starter is made using a Propagator (50ml package) then the starter needs to be 1 gallon (3.78 liters) to achieve 12 million cells per ml.

### **Fermentation Temperature:**

One of the most common questions we field is, “should I start my lager warm or cold?” The answer depends on how much time you have for your primary fermentation and how clean you want your final beer. The best results will be achieved by pitching at least 12 million cells per milliliter into cold and well aerated wort (48 to 58°F, 9 to 15°C).

If a faster primary fermentation is desired or you are pitching less yeast, then it is best to start a little bit warmer and then cool to the desired fermentation temperature once signs of fermentation are evident.

## **Secondary Fermentation:**

A secondary fermentation at a temperature below the primary fermentation allows for a slow reduction of any remaining fermentable sugars. This secondary fermentation can take from one to three weeks at temperatures starting between 39-41°F (4-5°C) and slowly falling to as low as 33°F (1°C). The length of the secondary depends on the amount of fermentable sugars remaining.

## **Conditioning or Lagering:**

Lagering is a time when harsh flavors from fermentation are mellowed. Yeast re-absorb some of the ester compounds from fermentation as well as some of the sulfur compounds. Malt tannins coagulate with haze-forming proteins and precipitate out along with some sulfurous compounds.

Temperatures should remain very stable during lagering, generally in the range of 33-34°F (1-2°C). Contact with oxygen at this point is very detrimental to beer flavor and should be avoided at all costs. Lagering time depends on many factors. If a cold secondary fermentation was employed, then the length of the lagering period can generally be decreased. A lagering period of one to four weeks is typical.



A photograph showing a large number of overturned green beer crates and broken glass bottles scattered across a road surface, indicating a major accident or spill. The crates are mostly green with white labels, and the road is littered with shattered glass and debris. In the background, a white van is visible on the road, and the scene is set in a wooded area.



