Bottoms Up Brewery
Nokomis, Florida, U.S.A.

http://bubrew.org

Exploring the Effects of Counterpressure Filling vs Bottle Conditioning

October 2005
by Danny Williams, Dunedin Brewers Guild
danny@bubrew.org

There exists some speculation around the homebrewing community that bottle conditioned beers will age more gracefully than bottles that are carbonated in a keg then bottled without added yeast or sugars. Since bottle conditioning uses yeast and added sugars in the bottle to produce carbonation, any oxygen introduced at bottling should theoretically be scavenged and reduce shelf-life robbing oxidation. Bottling also has the benefit of requiring no specialized and expensive equipment.

So why not always bottle condition?

Well, bottles filled from the keg are generally sediment free and so they travel more easily without clouding. Carbonation in the keg is measurable, adjustable, and therefore consistent, and your beer can potentially be packaged and ready to drink earlier when coming from the keg. You also have more final packaging options if your beer is bulk-stored in a keg. You can, over the life of the keg, fill a few 12oz bottles for competitions, later decide you want some bombers to give to friends, and still later fill a growler or two to take to a party. Without the keg all your packaging choices are made on bottling day.

The question at hand, however, is not the relative merits or detriments of bottling or kegging, but the quality of the homebrew after long term storage in a bottle.

For this tasting we gathered seven DBG members and handed out questionnaires requesting feedback in the areas of Mouthfeel, Aroma, Taste, Alcohol perception, and

Appearance. This was not a blind tasting; each sample was identified as it was poured and handed out. Samples will be identified from here forward as: BC=Bottle Conditioned. CPOC=Counterpressure, OxyCap. CPRC=Counterpressure, Regular cap. CPST=Counterpressure, Swing Top that was refrigerated since bottling.

Here are some of the raw comments from group as we tasted:

Mouthfeel
- BC more carbonated
- BC maintained carbonation better as it warmed
- BC has more complete carbonation, which disperses the flavors better
- CPRC better, sharper, more carbonated.

Aroma
- A couple said "no difference"
- CPRC slightly more chicory/licorice aroma than BC
- CPOC slightly more intense than CPRC

Taste
- BC more roasty, complex, showing licorice that the others do not
- BC roasty, semi acrid aftertaste
- BC more complexity in darker malts – roasty, chocolate, very mild licorice
- BC seemed more complex
- CPRC & CPOC more balanced, pleasant aftertaste
- CPST more hops, flavor, carbonation; tastes fresh & balanced
- CPST hop component remains that was lost in the others
- CPST "fresher"

About the beer:

Brewed April 29, 2005 as a 1.071 porter/stout. Final gravity 1.022.

On May 6 bottled five 12oz bottles with 4 PrimeTabs each.

Around May 15 counterpressure filled bottles with a "Poor Man's Counterpressure Filler" and capped without foaming. Two 12oz capped with OxyCaps, two 16oz capped with regular caps, and one with a swing top. The swing top went in the fridge; all the rest went in a dark closet at 78º-82ºF.

October 17 all the warm beers were moved to the fridge.

Tasting took place at the DBG meeting on October 20, 2005 when the beers were almost 6 months old.

Alcohol perception & Appearance
No one could perceive any difference between any of the samples.

From that information, one might conclude that we came to no conclusion, since there seem to be as many comments in favor of one packaging method as the other. One would be wrong, however, since we had some more tests still to complete.

We sent Jeff Allen, one of our more experienced members to another table and set him up with a double blind triangle tasting. When presented with two CP samples and one BC sample he was able to quickly and correctly pick out which sample was BC. Obviously, then *there is a perceptible difference* between bottle conditioned and pressure filled

bottles.

For our final, and perhaps most important test, we simple asked around the table which sample each person preferred, just from an overall drinkability standpoint. *BC was preferred by an overwhelming margin*, and may have even been unanimous. Someone set a wet pint glass on the notes at that spot, so in true Florida tradition we cannot be completely sure of the final vote count.

Conclusions

There is a perceptible difference between bottle conditioned and pressure filled bottles, but the difference is not as dramatic as the legend presents. BC gets the nod for final quality, but you are not heinously ruining your beer by CP filling and storing it, even warm. The overwhelming oxidation I expected in the CP bottles didn't show up at all.

Even if you like the convenience of CP filling, you might want to BC a few bottles from each batch for competitions to showcase the very best quality you can.

Things to consider next time:

- A lighter, more delicate style like Kolsch or Blonde Ale, might show flaws more clearly
- Overall blind tasting might insulate raw group results from any preconceptions.
- Would a primed keg show similar characteristics to a BC bottle?
- Bottle filling from the keg can be done many ways, perhaps some are better than others
  - Fill with hose from faucet and cap on foam
  - Poor Man's Counterpressure Filler
  - Commercial counterpressure filler
  - Beer Gun

Refrigerated storage will preserve characteristics of beers from when they are fresh, so you might want to do that for hoppy styles in which you do not want the hops to fade. For maltier, or darker beers that you want to mellow and blend; store them warm.

Thanks to Nelson Crowle, Jeff Allen, Clay Hogue, John Hesting, Jim Worsnopp and the new guy whose name I did not get for joining me in this experiment, and to KK and Dave for coordinating the event.