

HONEY BREWING

By Mike Carter

You probably know the feeling – it's the day after the beer festival and there is that vague recollection that as you were packing up your empty bottles you were approached by a suspicious character with a notebook. Perhaps it was someone asking for the recipe of your prize-winning honey beer? Still there is the nagging feeling that you said you would do something else. Then it is confirmed – tucked into the corner of the last page of December's Brewer's Contact it says "March Issue – Honey Brewing" – and the penny suddenly drops! So why did I make a honey beer? It all started from a strange stickiness emerging from the kitchen cupboard. It was cleaned up but next day it was there again. Eventually the culprit was found. On top of the cupboard were some jars of honey from a local beekeeper. Unfortunately the content of one of the jars had started to ferment and was oozing honey. So the decision was made – better to make it into wine or beer than to throw it away. Looking through recipes I eventually decided to brew a beer from Durden Park Beer Circle's new book 'Old British Beers and How to Make Them' (if you haven't got a copy contact alex@kovacevic.org.uk or 07956 699911). The only recipe for beer with honey was 'Windsor Ale (1796) Bass Museum – Brewer's Notebook'. This used 0.6 oz of honey in 1 gal (1.4% of grain bill), which I thought was hardly worth the effort of putting in so I put in the contents of the whole jar. (Incidentally, I have tasted the beer brewed with the specified amount of honey. It also makes an excellent beer but with hardly any honey flavours or aromas).

The recipe for my beer is

For 23lts (5 gals)	5.55kg	Pale Malt (93.5%)
	385 g	Light coloured mild flavoured honey (6.5 %)
	124 g	Fuggles at start of the boil
	5 g	Fuggles 5 minutes from end of the boil

The water was treated for a bitter style of beer.

Mash temperature was 67°C for 1½ hours and the temperature was then raised to 77°C before sparging.

The honey was dissolved in hot boiled-water and added to the end of the boil, stirred in and the heater immediately switched off. The original gravity was 1.070.

I used Gervin NA strain yeast and it took 5 days to reach the final gravity of 1.008. Two gallons were primed and bottled and the rest was put into a barrel for day-to-day consumption.

What you need to know about adding honey to beer.

From ancient to modern times in virtually every culture evidence can be found of the use of honey as a food source. Until recently it was the only concentrated form of sugar available to man in most parts of the world. Honey in beer has a long history and it is still a popular beverage across the African continent. For example, a commercial honey beer in Kenya contains 27 kg of honey with 108 kg of sugar in 250 litres of water with 20 – 30 slices of the muratina or sausage tree used to inoculate the beer with yeast. Production takes several days to complete. This is in contrast to a honey beer made in Tanzania that uses just honey and water (ratio 1:3.5) and it can be ready to drink in 6 hours! (Read about honey in 'Value Added Products from Beekeeping' www.fao.org/documents). In the EU and USA there are a large number of commercial beers that include honey in the recipe (for example www.onlyfinebeer.co.uk stock list has 44 bottled beers that contain honey.) Most beer styles can be brewed with added honey.

Honey makes a contribution to the beer in a number of ways. It adds its own characteristic aroma and flavour, it has a smoothing or rounding effect on the overall flavour profile and it has an impact on how the four basic tastes are perceived. The perception of sourness and bitterness is decreased with the addition of honey. The bitterness of hops tends to be decreased without masking the desirable flavours of the hop.

The quantity of honey used in the recipe depends on type of beer being brewed. The US National Honey Board (www.nhb.org) suggests the following percentage weight of the total grain bill to achieve the required flavour profile:

3 – 10 %	A subtle honey flavour is contributed to the ales or larger. Most commercially available honeys such as Clover, Alfalfa, Orange Blossom, Sage and Mixed Wildflower are very mild in aromatic flavour intensity.
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- 11 – 30 % A distinctly noticeable honey flavour note will develop. Stronger hop flavours, caramelised or roasted malts, spices or other ingredients should be carefully considered when formulating recipes to balance stronger honey flavours at this higher level.
- More than 30% -The flavour will likely to dominate the other flavours in the beer. The beverage should probably be considered in a category of its own.

Light- coloured honeys with a mild flavour are suitable for light beers, pale ales, dry beers, fruit and spice beers and lagers. 'Industrial' blends are more suited to stouts and porters.

What does honey contain that is useful to the brewer?

About 80% of honey is sugars (fructose and glucose). Maltose, sucrose and other complex carbohydrates, proteins, amino acids, vitamins and minerals are present in varying amounts. Honey also contains diastatic enzymes (alpha- and beta-amylase). Ninety-five percent of the carbohydrate in honey is fermentable, therefore honey added to fermenting beer wort not only decreases the dextrin content of the beer by dilution, but it increases the potential alcohol content of the finished beer. This may degrade the texture and body of the finished beer. To compensate for this the brewer should consider higher mash temperatures 68 - 72°C (155 - 162°F) to promote dextrin formation and retention. If high alcohol content is not required then a lower starting gravity should be considered.

Honey available in supermarkets is usually pasteurised but if you get your honey from a farmers' market or beekeeper it is likely to be unpasteurised. This presents further problems for the brewer as it is likely to contain bacteria and wild yeasts that become active when the honey is diluted and this may result in a high incidence of beer infections. Adding the honey to the boiling wort will effectively destroy the enzymes and any wild yeasts and bacteria but this will also remove the honey's contribution of flavour and aroma from the beer!

There are two solutions to the problem. To retain the maximum flavour the honey can be heat-treated. This involves heating the honey to 80° C (176°F) for 2½ hours and rapidly cooling it before adding it to the fermenting vessel at the peak of fermentation activity (for full details of pasteurisation method www.honey.com.) Alternatively, it can be stirred into the wort at the end of the boil.

Honey adds more to the finished beer than fermentable sugars; it can enhance the hop flavours and produce a desirable roundness to beers. Also it can be used to produce a lighter, dryer and more refreshing beer than an all-malt beer. So get out there, visit a farmers' market, get a beehive or befriend an apiarist and get honey beer brewing. (Please send your feedback and tasting notes to mikecarter@f2s.com.)

Further recipes are available on the CBA web site. www.craftbrewing.com

Always allow for the increased sugar when formulating your recipe; mash temperature should be higher to encourage dextrin formation as the sugar content will ferment out leaving a drier, thinner bodied beer. It will also raise the alcohol content.

Some honey types have been listed below for guidance.

NB. Do not use Eucalyptus honey, as this will produce an undesirable medicinal taste.

Floral Source	Typical Colour and Flavor Intensity	Suggested Use in Beers
Clover	Light Mild	Ales, brown ales, stouts
Alfalfa	Light Mild	Ales, lagers
Sage	Light Mild	Pale ales
Orange Blossom	Light Mild,	Ginger, spice beers
Raspberry	White to light Delicate	Ales Spice, fruit beers
Wildflower	Medium to dark Medium to strong	Pale ale, Speciality beers
Blended	Medium	Cream stouts, porters
Buckwheat	Dark Strong	Stouts and porters