

CRAFT BREWERS HELP NEW HOP DEVELOPMENTS

Hop Research International (HRI), at Wye in Kent, is the UK centre for hop research & development. They are particularly committed to developing new strains of the so-called 'dwarf' or 'hedgerow' hops, i.e. hops which grow to 10 > 12 feet, rather than 18+ feet. These are seen as the future in hop growing as they offer considerable advantages, particularly regarding disease control and mechanised harvesting.

However, breeding research so far has failed to produce new varieties which can fully compare with two of brewer's favourite hops, the aromatic Goldings and the high-alpha Target.

Scientific analysis of two new, as yet un-named, varieties showed promise and HRI decided, for the first time, to seek the views of members of the Wye Hop Industry Board, the charitable organisation financed jointly by hop growers and brewers to support English hop research. They decided that the ultimate test was to have beers brewed with these new hops and test them by subjecting them to the discerning taste buds of Board

Members. Traditionally, HRI have asked Brewing Research International (BRI), the Surrey based international centre for research into all things brewing, to test potential new hop varieties. However, it was suggested that their brews tend to be laboratory brews seeking potential faults and brewed in a manner similar to that used by the world's major breweries. On this occasion it was felt that the new hop varieties deserved something better, something that would show off the

new hop's character to their best advantage.

So, who better to ask for help than the Craft Brewing Association, whose showcasing of hoppy brews at various GBBFs and Beauty of Hops events have aroused the interest of those who believe that most modern commercial beers fail to utilise the full potential of hop character?

Cutting a long story short, James McCrorie enlisted the help of his fellow Durden Park Beer Circle member, Bob Broadwood, to brew these beers and have their skills judged by this discerning panel.

Bob took on the task of brewing 4 gallons using Target hops (12.2% a/a), as a test control brew and 4 gallons using the new high alpha hops, designated SW 199 (12.64% a/a). Using the same mash wort he boiled each brew for 1 hour with 1oz hops then added a further ¼ oz of hops for the final 30 minutes of the boil. After the boil ½ oz of hops were added & allowed to steep for 30 minutes. Both brews were adjusted to OG 1045 and fermented at between 18°C and 20°C with Gervain English Ale yeast. They were both racked at 1007 into polypins and finings added. Four days later they were bottled into primed quart flagons.

James's brews started off similarly but used Goldings (5.15 % a/a) for the control brew and the new aroma hop, designated 50/95/33 (4.46% a/a), using 2.25 oz & 2.5 oz hops as bittering hops, respectfully. Hop additions were 1.25 oz after 1 hour and the same amount at the end of boil for both brews. Re-hydrated Safale S-04 yeast was pitched and

fermentation controlled at 20°C. The Goldings brew had an OG of 1042 and finished at 1011, the new hop brew started at OG 1044 and finished at 1013. Both brews were racked off into Cornelius kegs. After 3 weeks both beers were racked into further Cornelius kegs containing ¼ oz of their respective hops for 2 weeks before being again racked off bright into further kegs.

All the brews were designed to fit within the parameters set by HRI.

Bottles of all four brews were delivered to BRI for analysis and taste/aroma evaluation. The analysis showed that Bob's Target brew had 48 IBU and 5.99% ABV and the New Hop brew 43 IBU and 5.92% ABV. James's Goldings brew had 36 IBU and 3.86% ABV and his New Aroma Hops brew, 30 IBU and 4.25% ABV.

By contrast, the BRI new hop brews were around 20-21 IBU and 3.4% ABV.

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Next Issue: Malt and feeble excuses about the lack of a malt edition.

The tastings took place at Gale's Brewery in Horndean and there was no doubt that the CBA brews demonstrated the characteristics of all the hop varieties to their best. Dr Debbie Parker, BRI's tasting guru, led the tastings with her comments on each brew. The general consensus was that the new Aroma hop compared most favourably with East Kent Goldings, particularly as the particular control brew Goldings hops were amongst the best of the 2001 English hop harvest. The new High Alpha hop also compared very favourably with Target, with perhaps a more delicate flavour profile. Although some tasters felt that Bob's high alpha brews were a tad more bitter than the general drinking public might accept, it is of interest that the BRI staff involved retained Bob's test bottles for a while so that they could enjoy another drink of them at their leisure!

Tony Redsell, Chairman of the National Hop Association, (NHA), commented :

"Both of these hops are at an early stage of 'selection' and neither have yet been planted on farms. It will be 3-4 years at the earliest before any supply of these varieties could be available". He also thanked CBA for "those wonderful brews".

Earlier information, in January 2002, from HRI on the new hops was:

SW 199 Hop: A dwarf variety which is planned to be planted at farm sites in the Spring of 2002. Indications are of good resistance to wilt and a consistent alpha-acid content of about 12.3%. The plot at Wye from the 2001 harvest gave an alpha of 11.5%. It is a direct seedling of 'First Gold' crossed with a male which has given alpha but not aroma to its progeny.

50/95/33 Hop: A dwarf variety where the analysis and rubbing indicates that it might be suitable as

an aroma variety. Whether or not it progresses to farm trials will depend on the brewing trials. It has an alpha-acid content of 4.8%, a cohumulone content of less than 28% and an alpha/beta ratio of less than 2 – all of which suggests that it could be suitable for aroma. It is very much a 'wild card' since it arises as an open pollination of a parent which was itself an open pollination of the dwarf variety 'Pioneer'.

As a result of these tastings, both new varieties will go on to farm trials.

It was flattering for CBA to be invited to undertake these hop trial brews but the results demonstrated the high level of our brewing skills to a most discerning audience. There is no doubt that it resulted in the credibility of Craft Brewers being given a considerable boost, not least amongst the staff of BRI.

For the traditionalists amongst us, it was reassuring to be told by several hop growers at the tastings that they intend to grow Goldings and Fuggles for many years to come, despite these new developments!

see www.hops.co.uk - then gallery for downloadable hop pictures.

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Retro Beer Festival by the Ed.

Camra's GBBF has once again taken the retrograde step of making CBA's participation impossible. (They charge too much). They know we make the best beers. They have acknowledged we make the best beers. The industry canvases our opinion on the best beers. Maybe I've touched on the problem. I have fond memories of GBBF. I helped promote the beautiful Braxonia beer machine there, and met a former pupil of mine, with her husband, on the CBA stand. The picture came to light last week quite by accident. A firm believer in non-scientific things like "Jenny and Al were obviously meant to get into BC", I thought I'd share their happy grin with all the members. Please get in touch guys! Love to hear from you again.. Write something for BC!



HOP VARIETIES: USES AND SUBSTITUTION BY IAN PRIDDEY

The following article is based upon a talk given to the Northern CBA's meeting on 27 April 2002 at 'Brupaks', Huddersfield.

BACKGROUND

My interest in hop varieties increased in 1985 when on my first trip to the USA I visited the Anchor Brewery in San Francisco and fell in love with their Liberty Ale, heavily hopped with the floral American variety Cascade. By 1988 I was growing Cascade and Goldings hops at home and soon had half a freezer full of home grown hops, plus samples of new American varieties sent to me by a friend working in an American micro-brewery. There seemed little point in buying more hops, which led me to experiment with substituting hop varieties in existing recipes based upon what I had available. But how to substitute varieties?

Classification of hop varieties by use.

When I started brewing in 1980 I used to think in terms of aroma and bittering hops. As the number of varieties increased and higher alpha acid varieties came along it seemed to make sense to consider some hops as being dual purpose, whilst the new super-alpha acid hops were clearly bittering only, as they often had undesirable/rough aromas. Cascade is considered primarily as an aroma hop but as my own substitutions showed it made a perfectly good bittering hop and can thus be considered as a dual purpose hop. I remember giving samples of a home brewed beer with Cascade as the bittering hop to an American friend whom detested the typical Cascade characteristic. He enjoyed the beer and didn't detect Cascade as its aroma characteristics had been boiled off. To complicate matters some high alpha acid varieties that are not considered good to use as the sole hop variety can be used in small amounts to contribute to a pleasant aroma. For example, I like to add some Chinook pellets for aroma, which contributes to a nice citrus/grapefruit character. Furthermore there are now new high alpha acid varieties such as Horizon, Magnum, Simcoe and Warrior which are claimed to have good aroma characteristics such that they can be used to make a good single hop variety beer. These classifications always had their limitations but I think they have become increasingly less useful.

Implications for use and substitutions

If the old way of classifying hops into aroma, dual-purpose and bittering purposes is now of limited value where does this leave us when considering hop varieties and their substitution? There is now more scope for experimentation and substitution as the number of varieties available has increased but more care needs to be taken in regard to how much to use as the range of

alpha acid percentages has increased. In thinking about hop varieties and how to formulate recipes to give us the desired beer I find it more useful to think in terms of the desired level of overall bitterness plus the type and intensity of the hop flavour/aroma. There are several ways that science can help guide us here but especially at the craft brewing level it ultimately comes down to our knowledge of the ingredients and our vision of what we desire the beer to be like.

Calculating for substitutions—alpha acid units

My first attempt at controlling for the different alpha acid strength of hops to achieve a similar level of bitterness was based on the Hop Utilisation Summary Table and concept of Alpha Acid Units per gallon as described in Dave Line's 'The Big Book of Brewing'. For an example of how this works let's look at my 1062 OG Strong Ale that came first in the last Northern CBA competition. For 1.5 gallons (designed for racking into a demijohn for secondary fermentation) I used 3 additions of hops, all of 0.5 oz. Firstly 5.5% Cascade for the bittering addition (60 minutes boil), secondly 5.0% Goldings for the flavour addition (20 minutes boil) and thirdly 4.1% Crystal for the aroma addition (pellets added to primary fermenter).

- 1) 0.5oz x 5.5% Alpha Acid = 2.75
 - 2) 0.5oz x 5.0% Alpha Acid = 2.50
 - 3) 0.5oz x 4.1% Alpha Acid = 2.05
- = 7.30 Alpha Acid Units.

Divide by 1.5 gallons = 4.87 Alpha Acid Units per gallon.

Now Dave Line doesn't give a guide for Strong Ale but the nearest is Barley Wine of starting gravity 1060 to 1080 with a recommended 5 to 7 Alpha Acid Units per gallon. As I did not want the hops to dominate in a 1062 gravity Strong Ale this seemed about right to me.

However this system will only work if you use a "typical distribution" of hops for the style throughout the boil. If all the hops had been added at the beginning of the boil it would still be a 4.87 Alpha Acid Unit per gallon brew but the bitterness would be excessive with little hop flavour or aroma. If you want to brew to a given level of bitterness this system is probably too limited and you may want to try estimating bitterness in terms of the International Bitterness Unit system.

Calculating for substitutions—international bitterness units (IBUs)

This system is based not on the amount of hops used in the brewing as in Alpha Acid Units but upon the amount of isomerised alpha acid that actually gets into the beer, measured as mg per litre (parts per million). There are several ways of writing the formula that will

(Hop Garden. Continued from page 3)

give you an estimation of the IBU. I stress estimate as the true IBU can only be determined by analysis which is beyond most craft brewers. Having to make assumptions about your percentage utilisation (the amount of available alpha acid that becomes isomerised and goes into solution in your beer) and the percentage of alpha acid in home grown hops as well as allowances for changes during storage of all hops, gives plenty of scope for errors to creep in. Nevertheless it should get you roughly where you want to be. If your beer comes out tasting more or less bitter than intended try adjusting your target IBU accordingly next time.

The formula that I use is that given in Fred Eckhardt's 'The Essentials of Beer Style: a catalogue of classic beer styles for brewers and beer enthusiasts'. Although many of the examples are American it is a useful reference for the amount of bitterness to be aiming for. First if you work in Imperial measures, convert to metric and work out your hop ratios in terms of grams per litre for each addition. Returning to my Strong Ale example the hop additions are 14.18 grams and the volume is 6.81 litres, giving a ratio of 2.082 grams per litre.

Next estimate your % utilisation. For hops boiled for 60 minutes assume 28%, maybe up to 30% if boiled for 90 minutes. However I would not recommend boiling hops for longer than 90 minutes and personally I do not think that there is any overall advantage in boiling hops for over an hour. Hops boiled for 15 to 20 minutes will have 8 to 12% utilisation. I generally assume 10% utilisation for this flavour addition. Those added for less than 5 minutes boiling or at the end of the boil will contribute little bitterness but I generally assume 5% utilisation. If using hop pellets your utilisation is likely to be a little higher, so instead of 28, 10, and 5% you may want to assume 30, 12, and 6% utilisation.

Having got this far the formula is:

$$\text{IBU} = \text{G/L hops} \times \text{Alpha Acid \%} \times \text{Utilisation \%} \times 1,000$$

Going back to my Strong Ale example with additions of 5.5% Cascade, 5% Goldings and 4.1% Crystal the calculations look like this:

- 1) $2.082 \times 5.5\% = 0.1145 \times 28\% = 0.0321 \times 1,000 = 32.1 \text{ IBU}$
- 2) $2.082 \times 5.0\% = 0.1041 \times 10\% = 0.0104 \times 1,000 = 10.4 \text{ IBU}$
- 3) $2.082 \times 4.1\% = 0.0853 \times 5\% = 0.0043 \times 1,000 = 4.3 \text{ IBU}$

Add together the three individual contributions to = 46.8 IBU

Now compare this with the Alpha Acid Unit per gallon where the first, second and third additions all

contributed similar amounts of AAU's closely related to the strength of the hops. Here, when looking at bitterness alone, the contribution is significantly influenced by the length of the boil such that the majority of the bitterness is provided by the first addition of Cascade hops. The Goldings and Crystal do contribute some bitterness but their role is primarily to contribute hop flavour and aroma

I rarely make strong beers so this formula is usually as far as I go. However you probably know that as your wort gets stronger, the alpha acid in the hops is less easily isomerised so less gets into your beer. Effectively the % utilisation drops and this formula becomes increasingly inaccurate as wort gravities increase above 1050.

Calculating for substitutions—IBUs with corrections for high gravity worts

Ray Daniels in an article 'Hop Fundamentals' in 'Zymurgy' Vol. 24 No 6, November/December 2001 gives a formula for calculating IBU's with a correction factor. This is calculated as follows:

$$\text{Correction Factor} = 1 + [(\text{gravity of boil minus } 1.050) \text{ divided by } 0.2]$$

So in my Strong Ale the Correction Factor becomes:

$$1 + [(1.062 \text{ minus } 1.050) \text{ divided by } 0.2]$$

$$1 + [0.012 \text{ divided by } 0.2]$$

$$1 + 0.06 = 1.06$$

Going back to my Strong Ale the first addition of Cascade now looks like this:

$$\text{IBU} = \frac{\text{G/L} \times \text{Alpha Acid \%} \times \text{Utilisation \%} \times 1,000}{\text{Correction Factor}}$$

$$\text{IBU} = \frac{2.082 \times 5.5\% \times 28\% \times 1,000}{1.06} = \frac{32.1}{1.06} = 30.3$$

Similarly the IBU for the second and third additions drops to 9.81 and 4.06, giving a corrected IBU of 44.2, 2.6 IBU's less than the previously calculated 46.8 IBU. Given the variation created by minor changes in estimates of % alpha acid and utilisation you may not consider this important. Equally you may wish to control for one factor which can be calculated, especially if you are brewing even stronger beers where its influence will become more significant.

Other considerations for substitution—aroma and cohumulone

So far we have looked at three increasingly sophisticated ways of judging the amount of hops to use based upon their alpha acid levels. It doesn't therefore matter how

(Continued on page 5)

high the alpha acid content of the hops is as long as you take this into account when calculating how much to use when designing a new recipe or substituting varieties in an existing recipe. What now matters is the hop flavour and aroma you get from the hops. If you are not sure about a new variety, brew a standard Pale Ale and hop entirely with the new variety. What beers might you want this character in, what beers might it give a welcome contribution to? Don't worry too much if it is intended for the first bittering addition as it is unlikely to significantly influence the final beers hop flavour or aroma.

Gerard Lemmen's in 'Veteran Voice: An Outspoken View on Hops' (in the aforementioned 'Zymurgy' issue) gives some suggestions for substitutions for similar hop characteristics:

- Cascade, Amarillo;
- Crystal, Mount Hood, Liberty, Ultra, Hallertau;
- Fuggles, Tettnanger, Wilamette, Styrian Goldings;
- Galena, Tomahawk, Columbus, Zeus, Brewers Gold,
- Bullion, Chinook;
- Northern Brewer, Nugget;
- Sterling, Czech Saaz;
- Horizon, Magnum, Simcoe.

One additional factor that may be worth taking into account is the Cohumulone level of your hops. The Cohumulone % tells you what portion of the total alpha acid content is contributed by the alpha acid Cohumulone. High levels of Cohumulone are thought to produce a harsh, unpleasant bitterness and may have a negative impact upon head retention. Admittedly it is a somewhat controversial theory but there is a view that when making well-hopped beers, say of above 25 IBU's, the Cohumulone levels need to be relatively low.

High Cohumulone hops include: Admiral, Bullion, Cascade, Eroica, Galena, Herald, Pioneer, Target and WGV.

Low Cohumulone hops include: Challenger, Crystal, Hallertau, Liberty, Mount Hood, Northdown, Northern Brewer, Phoenix, Czech Saaz and Tettnanger.

This is a somewhat arbitrary classification and inbetween lie mid Cohumulone varieties such as Bramling Cross, Chinook, Columbus, First Gold, Fuggles and Goldings.

Now I've tried several beers hopped solely with Target and found them somewhat rough - could this be part of the explanation as Target is high in Cohumulone?

As another example take my Strong Ale where a high Cohumulone Cascade (range 33 to 40% Cohumulone) was used in combination with a mid Cohumulone Goldings (26 to 32%) and a low Cohumulone Crystal

(20 to 26%). For a commercial example the sadly discontinued Thomas Hardy's Ale, with a massive 75 IBU, was hopped with Challenger, Goldings and Northdown, all relatively low in Cohumulone levels.

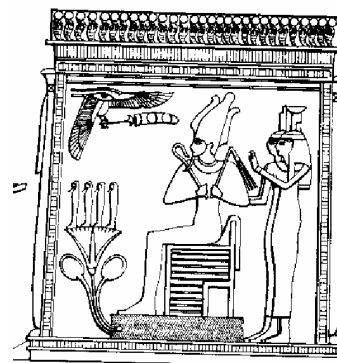
To take us back to where I started, a similar balancing act is believed to be carried out in Anchor Liberty Ale, quoted by Fred Eckhardt at 45 IBU's. Here where the Cascade character is desired, the initial bittering is thought to be provided by the low Cohumulone Northern Brewer (20 to 30%) producing a high IBU beer with the characteristic hop profile of the high Cohumulone Cascade that remains delicate and smooth. These examples seem to fit in with the Cohumulone theory but I'd be interested to hear of other brewers' experiences. Knowledge, theories and calculations should help guide you with the choice and amount of hops to use but it's not an exact science and there remains plenty of scope for experimentation and the "Brewers Art".

Note on References:

I believe Dave Lines's book is out of print. Fred Eckhardt's book and 'Zymurgy' may be available through Beer-Inn Print. Contact Paul Travis on Tel/Fax 01422 844437 for details.

Great Brewing Forces (3) Isis & Osiris.

Legend has it that the first brewer was a brewster. Herodotus in 450 BC ascribed brewing to Isis, wife of Osiris, also called Rameses II. Herodotus was hardly contemporaneous for the happy brewing couple (who were also siblings), lived 1500 years earlier. Their beer must have been fantastic stuff, for other legends tell, after Osiris' death and dismemberment, Isis found his penis and conceived her son Horus with its aid. Wow! Eat your heart out Ann Summers. Mozart was fascinated by this pair too. The final chorus of the Magic Flute is usually translated, *Thanks be to you Isis and Osiris. Strength triumphs and pays wisdom and beauty with an eternal crown.* Boring stuff. Let all the puns in the German text shine through and you get, *Thanks be to you Isis and Osiris. Starch rules and as payment crowns beauty and wisdom with an eternal head.* (Anon)



Isis & Osiris depicted in "The Book of the Dead."

Media Corner (2) Brewing Software by Martin Farrimond
This is an area I've only very recently begun to investigate. Being an IT-sort, I thought it would be useful to try to put my brewing records into a database for future reference, so that was initially what I was looking for. Most software I looked at, however, went quite a way beyond this insofar as they provide assistance with formulating recipes, conducting mashes and boils and many other features.

Many of these programs are "shareware". The concept of shareware is try-before-you-buy software. Most of it is freely available for downloading, installing and using. The idea being that if you like it, you stump up the registration/license fee to the author and carry on using it. These days, most shareware is protected in some form or another. Protection can take a number of forms. The most common is that the program will work for a 30 day trial period and then cease to function until you register (pay!). You'll then be provided with a "key" which unlocks the program & gives unrestricted use.

Another form is where the unregistered version has reduced functionality – like allowing you to use all the features, but not allowing you to save recipes.

Most of these brewing programs contain a database (which you can add to and edit as you wish) of various grains and their properties (e.g.: expected yield when mashed, colour...), various hops and their properties (Alpha acid...), various yeasts, and so on. When formulating a recipe, you select items from the respective databases, select mash step temperatures, boil duration and the program calculates the overall expected yield, OG, FG, %ABV, colour, bitterness, residual sweetness, and a whole host of other things.

- Hops and Vines - <http://www.eramm.ukgateway.net/hopsvine.htm> - a very old (1997), yet easy to use application from a

UK author (I think). I don't see any way of registering it (yippee!), but that probably means there's no support for it should you need to ask questions or encounter problems). It manages both beer & wine production – the only program I've come across that tries to do both. It seems to do what it does pretty well. The only problem I have is that I make copious notes of my brews. This software does allow a certain amount of notes, but it's "event" based and very limited.

- Brew Simple - <http://www.brewdomain.com/> is one I haven't looked at. If you try it, please let me know what you think.
- Home Brew Kit Master - <http://www.5star-shareware.com/Homehob/Food-Beverage/homebrew.html> is another I've not looked at. Reading the blurb, it seems to be more of a "logging" program to help record your brews, though it does also calculate alcoholic strength. It can also print bottle labels and reports. It has a free trial period after which registration costs \$15.
- ProMash - <http://www.promash.com/> is probably the Rolls-Royce of brewing software. I decided it was over and above what I need. It is VERY comprehensive. It comes with a 30-day trial period after which various functions become disabled. ProMash also provides a comprehensive set of ingredients databases, water profiles database for water treatments, AHA & BJCP beer style guidelines and a tutorial. Registration costs \$24.95 and can be paid securely via the web site.
- Strangebrew - <http://www.strangebrew.ca/> is written and support by a Canadian – Drew Avis. This is the package that I've settled on, mainly because the support is so good. I had so many questions initially and Drew happily replied to all

my emails – almost in real time. The web site has a bulletin board where you can post questions & read the postings & replies from others, and list of Frequently asked Questions (FAQs) which are worth reading. Again, the application contains several databases – beer styles, grains and sugars, hops, yeasts, "other ingredients", water profiles, and contains a mash manager, water manager, inventory manager, carbonation manager. It allows you to choose whatever units you want to use, and mix them as you will (e.g.: kg & Imp galls). It calculates OG, FG, %ABV, mash liquor needed, strike temp, sparge water temp & vol..... Probably far more than you'll ever need. Registration is \$15 and can be done either via email or securely on the web site.

- The last brewing program I'll mention is rather oddly named. SUDS - <http://www.oldlib.com/suds/>. This is "nagware" in so far as the unregistered version nags you to register, and delays access to the program for 20 secs each time you run it! This has a somewhat different look and feel to it compared to the others above, and uses a Windows Explorer – type of drill-down. Hard to explain, but fairly easy to use. Registration is \$20.
- Finally, BreWater – an application to help you figure out water treatment needed for brewing is available from <http://web.bham.ac.uk/GraftonG/contents.htm>. This program allows you to input the levels of various minerals in your water supply (Ca, Mg, SO₄, Cl, etc.) – as provided by your water company's analysis. Allows you to select a target profile (and provides several for you), and then allows you to select amounts of (e.g.: Epsom Salts, Gypsum) to achieve the target. Very

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simple, very handy, and it's

KIWI HOPS

By Graham Kingham

The growing area of Europe for hops might be under threat, along with a reduction of some traditional varieties, but take heart, New Zealand has some choice hops to offer. These are easily obtained for the craft brewer from Brupaks at your local home brewing outlets, available as foil packed 'teabags' for dry hopping or 100 gram sealed packets.

New Zealand now accounts for 5% of the world's output. Due to its position, hops do not suffer from pollution or the major diseases of the rest of the world. Early in the 19th century English then German settlers introduced their own native varieties primarily for home brewing. To date most hop growing is concentrated around Nelson in the northern reaches of the South Island. The Californian hop, Cluster, was imported in 1930 but unfortunately suffered from black root rot. By crossing a female Cluster with an amorous wild male, 8 to 10 % acid levels were achieved together with immunity from rot. As a direct research approach to market demands the following has been achieved by genetic manipulation. Higher acid levels; fewer hops required in the copper; lower growing plants making them easier to harvest; seedless bracts. Seeds add nothing to the brew and account for up to 20% of the crop weight. Eighty five percent of their crop is exported worldwide. Below I have listed the selection available with some explanation of styles.

Green Bullet: average alpha acid content 13%. Usage: Ales. Kettle and dry hopping. Aroma and taste: Raisiny character, slight floral note.

Hallertau Aroma: average alpha acid content 7.5%. Usage: German style beers. Kettle and finishing hop. Aroma and taste: Citrus character, slight floral note.

Pacific Hallertau: average alpha acid content 5%. Usage: German style beers. All round hop. Aroma and taste: Cinnamon spiciness character, slight floral note.

Pacific Gem: average alpha acid content 16%. Usage: Ale style beers. Kettle only.

Sticklebract: average alpha acid content 13%. Usage: Belgium style beers and Scottish ales. Kettle and dry hopping. Aroma and taste: Citrus character, slight pine note.

Featured Brewery (2) Adnams of Southwold

The Adnams Brewery stands opposite the lighthouse. The two buildings dominate the townscape just as the brewery seems to dominate the local economy. They are a company determined to succeed in the modern market place, *and* keep the quality of their product. They unashamedly say that in the current climate £1.80 per pint for a premium bitter is too cheap, but they can only justify prices in excess of that by presenting a quality beer.

To secure this position they have made sacrifices that larger breweries wouldn't necessarily consider. For example, whether you buy hops by weight or volume, the alpha acid percent is what counts. They insist on not accepting high alpha acid varieties because they get left with old hops. Anything too low and they will have to exceed what the market place will stand. They brew all their beers with Goldings as the first copper hop at around 5.5% and Fuggles as the late hop at 4.5%. Adding Fuggles too early produces harshness, even though analytically they are the lower bittering hop. They only dry hop their bitters.

The alpha acid percentage varies through the 14 days of picking and so a batch may not be homogenous. This may explain some of the periodical harshness craft brewers experience.

Farmers are driven by the strictures of the grain and seed merchants. To get round the pressures exerted on the farmers, Adnams contract grow their own barley. It is also malted locally and transport costs and pollution are kept to a minimum.

A lot of effort is put into providing the brewery and its pubs with sustainability. In 1998 they brewed 50000 barrels and were up to 74120 by the year 2000. Did they see expansion as unendingly inevitable? Not necessarily. The target to achieve financial security for the firm is 100000 barrels per year. This would still leave them among the minnows, but would give them sufficient market share to remain viable.

Although the MD Simon Loftus was sure he wouldn't bother to target the North of England, I have noticed Adnams products in local pubs and supermarkets. They are using distributors to allow themselves to sell into the free beer trade. And there comes the rub. We may have assumed that Adnams have some loyalty to the small brewery sector. None of it. I heard the head brewer of the Shoreditch Brewery (annual output around 30 000 barrels) complain that the distributors were refusing to carry his beers because "it wasn't worth it." In short, the real minnows are being pushed out the market and we are in a culture of small is beautiful so long as it isn't too small. Too small seems to be less than 100 000 barrels. All we beer journalists managed a sympathetic tut tut for the Shoreditch, but you could hear a pin drop as we waited for the echo from the Adnams marketing team.

Letters

Dear Bill,
 Good news. David and I have exchanged emails and agreed to try and form a group.
 As you already know David has experience of this and has some excellent suggestions to which I will try and add to.
 Our first step is to mail shot all members likely to be interested and I understand you can provide this information?
 How far out do we canvas? Central England rather than just West Midlands? I think WM as too restrictive.
 I was intending to do an actual letter and post it, in addition to copying on email. I have volunteered for this.
 I understand there maybe a donation from funds to the cost? £10 ? Please let me know what to do.
 We have agreed the first meeting to be at The Beacon Hotel, Sedgley, home of the famous Sarah Hughes Ruby Mild, on 27th September 2002. (yes this is some forward planning but too many other commitments).
 Can you please pass this information on to Clive? for inclusion on future Brewers Contact?
 No branch name chosen but David commented CBA West Midlands looking for a name from its group members.

Regards
 Greg
 PittsPitch Brew House (to be,nearly), Birmingham, UK

Dear Bill,
 Please could you give your thoughts or refer me to other members-I wish to make up a very old traditional drink of roughly equal parts Honey & Pale Malt. To this I will pitch an unknown quantity of Carton Apple Juice into my fermenting bin. For a final 40

pints finished product I am at a total loss to work out what quantity of Apple Juice to pitch in to start with? Naturally this will vary to personal taste but what quantity would be an average starter to then fine tune?

My interest in this type of drink has sparkled for two reasons. Firstly being a Beekeeper & secondly an article I read in a recent CAMRA magazine involving brewing with Honey.
 Many thanks
 Owen Pengelly

Clive,
 In addition to being a regular brewer of beers of all types, I also make "real" cider, employing the same principles as in craft brewing. I have not seen cider mentioned in Brewers Contact and I for one see no reason why it should not be included. However, before I submit something in writing for consideration as a possible future article, I wondered what your thoughts on the matter are.
 Regards
 Graham Barthorpe

Ed says: Great idea. Watch for cider in the next edition!

Clive,
 Your response to Dennis Porter's letter in the March Edition of BC was a bit po-faced!
 His, as you acknowledge, well researched letter raised the point that 'craft-brewed' beers possibly had greater health benefits than chill-filtered commercial beers. It is interesting to find, on my occasional visits to health-food shops, that 'brewer's yeast' and hop-derived products are on sale as health aids!
 I particularly take point with your suggestion that 1 pint per day and a second on 'high days and holidays' and 'never before 19:00 hours' is a recommended regime. This

suggests to me that your home-brew isn't all that good! I know, from personal experience of your intake at the Northern/Scottish CBA meeting at Masham, that when faced with decent ale your personal consumption is, shall we diplomatically say, in excess of your day-to-day puritan consumption.

I do admit that when one has a decent ale at home, and only a few yards from one's chair, it is easy to give in to the temptation to have 'just one more pint' but, as Dennis points out, I console myself with the thought of all the additional vitamins I have absorbed.
 Could there be some truth in the old adage 'never trust beer brewed by a thin brewer'?

Hoppy brewing,
 James McCrorie.

*Ed says: Me po-faced? Never. I always smile. Especially when someone intimates my beer is no good. More for me!
 Caring Puritan? Yes. It's my upbringing. I feel sorry for people with an addiction problem. And while we are giving puritan advice, James, you do drink and smoke too much. The former vice is forgivable. Your beers are superb. I want to be able to call you "friend" for many years to come, so please give up the smokes very soon!
 As for my Masham consumption. Their beers lacked the body of mine, hence I did manage five pints in twelve hours. How about you?*

Dear Clive,
 I read that you had discontinued the CBA stand at the GBBF at Olympia because the CBA would be charged too much for the stand. As luck would have it, the organiser of Reading beer festival is a vague friend of mine. I met him yesterday and I asked whether Reading would be interested in having a CBA stand. He is a naturally enthusiastic chap and this time was no

Letters

(Continued from page 8)

exception. His reply was a strong affirmative.

Now to tell you a little bit about Reading beer festival. It is the third largest in the country (behind Peterborough and the GBBF). It is an outdoors festival in a big marquee. It is very near the main railway station. It is held in early May. There is even a small home-brew shop in Reading if we need some emergency supplies. There is a main tent (the noisy tent) where the bar is and where the bands play in the evening. There is also a smaller tent (the quiet tent) which is where they held the champion cider and perry awards and also where the SIBA competition was. The smaller tent is quieter and allows conversation but is more out of the way. The get maximum impact I would prefer the CBA stand to be in the big tent and just close it down in the evening when it gets too noisy to hear yourself think. The fact that it is under canvas could be a slight problem but not too much.

The organiser, Andrew Lord, was sure that some way could be found to enable a CBA stand to be at the festival.

Yours, Elvis Evans

Ed says:

I'm sorry Elvis we didn't get back to you in time on this one. My fault entirely! It slipped in the wrong folder. However, next year is another year and maybe any CBA members able to front us in Reading would contact James McCrorie at James@craftbrewing.freeserve.co.uk James may be able to coordinate.

Hello Clive,

My name is Andy Graham, formerly tech editor of Ausbeer and one of the four founders of Ausbeer (gone for ever). I miss your great articles. Anyway, Colin emailed a

copy off your new creation Vol. 2 Issue 3 . What a great little mag. I noticed an article by Dave Ranger on 100 % wheat beer. I have been brewing such a beer for about 12 years or more and using rice hulls as the draining medium . To give credit to the man who gave me the hint on rice hulls all those years ago, was a fellow by the name of Graham Howard of Brisbane in Queensland. Graham had a micro brewery in a pub in Brisbane and brewed and bottled a 100% wheat beer back in those days. His company was called Colonial Brewing and he also sold reproductions of old Aussie pub posters. Alas, the Queenslanders did not support him well enough. Grahams beers won many prizes in Australian national comps. His wheat beer was dryish but well balanced with a light hop flavour and low bitterness. He used NZ green bullet and NZ Hallertau, from memory and lager yeast. It had a beautiful creamy head and was brilliantly clear pale beer. With the absence of barley malt the beer has a very clean taste.

In my experiments on wheat beer (I brew 100% wheat beer every season) I have found that using all malted wheat produces a great lager type beer but for a more traditional wheat beer taste, about 20 to 25 % unmalted wheat gives that sharper traditional flavour. More than 25% gives an unpleasant cheap malt extract tang. Since I moved from Melbourne to Perth in Western Australia 5 years ago, I was unable to access rice hulls for this beer .Oat hulls could be found, but not easily. Used wheat husks from local flour mill work fine in about the same ratio. My wheat beers are traditionally clear, as I can't stand all that mud floating about. To me, the yeast in suspension masks too much of the wheat flavour.

How often does magazine come out and is it available on line ? Keep up

the great work.

Regards Andy

Ed says:

Brewer's Contact appears quarterly and I'm quite happy to email the pdf version to old buddies overseas. There is an issue about cost. What do I charge? There is no print or postage cost, but it would seem unreasonable to expect the paying UK membership to completely subsidise guys who export Fosters to the rest of the world. Please email our membership secretary Bill Cooper at Billpamcoo@aol.com. I'll let him make a decision.

Thanks for the wheat beer recipe. We seem to have made the decision not to carry recipes, but this may not be what the membership want. Feedback please or a message board.

Hallo Clive.

I responded to the "Help Wanted" in an article called "Cleaning UP" written as I thought by Graham Kingham in last months BC. He replied saying it was not his article. Can you pass on my details to who ever wrote it or let me have a contact address. Last BC had an article by Mike Davey on the Thomas Hardy Tasting we had at County Beermakers some time ago. County Beermakers is a club that started in 1976 by some enthusiastic brewers, We have a membership of about 17 with a regular attendance of about 13. Each month we try to have a different subject for tasting, hence Thomas Hardy, but more often just a beer style. Its not unusual to have up to 20 beers to taste. Next month is our Durden Park tasting. We meet at the Birkbeck Arms Layton East London at 8pm on the 3rd Tuesday in the month.

Regards Phill Turner

Ed says: Brilliant news. How can we involve your members in BC?

A Great day out in Masham *by our man in the North*

June saw the coming together of The Scottish and Northern Associations in the Black Sheep Brewery in Masham. The setting was perfect, although our kick off had to wait for Denmark to succumb. There was the obligatory brewery visit, very interesting admiring their slate squares and very ethnic, listening to a Last of the Summer Wine look-alike giving it the brogue like no one in Yorkshire actually does. Still, if it



year, so he turned up with some perfectly foul medieval beers, which made sleep impossible for many

A vote of confidence for Theakstones. The NCB chairperson (Steve Taylor) ended the evening on wine

Pepper and Bill Cooper had a perceptible warm glow about them. It wasn't just the beer. A dream had come true, for which they have worked so hard. Hats off, forelocks touched in deference and reverence. A great bash and thanks a

days after. He was followed by Alwyn, who has done some research into Bog Myrtle as a

bittering agent in beer and had made some malt from eight row barley. Graham Wheeler was cunningly tricked into being

Roger Protz and

Some members at Masham sampling medi(evil) beers.

gave a highly entertaining answer and question session on things he'd seen and heard and some he'd actually done although that was

going back a long way.



The head brewer, also a Scot, answered many questions too, but no one knows

how. The bar staff thought he put away around 30 pints a day, and he spoke to us late afternoon.

James McCrorie told jokes and ruined punch lines and cuddled anyone who was prepared to be

The sight of a mash tun always makes James McCrorie feel amorous. When he'd finished the cuddle I got the shot I wanted (right) of the gleaming copper.

cuddled and was of the right gender. Steve Taylor was MC for the day and he, Alan



million from everyone who witnessed such a truly historic event.

No one had the nerve to ask: Yorkshire Squares?

The evening festivities were completed with a marvellous meal and a quiz on the brewery and Masham. It was fairly well wasted on most members, who could tell you what they had drunk but were less clear about how much! Even Po-faced Poncy, editor of BC

works for the Yanks?

There were talks by guest speakers. Roger Protz cried off. He was supposed to talk about Porter, but

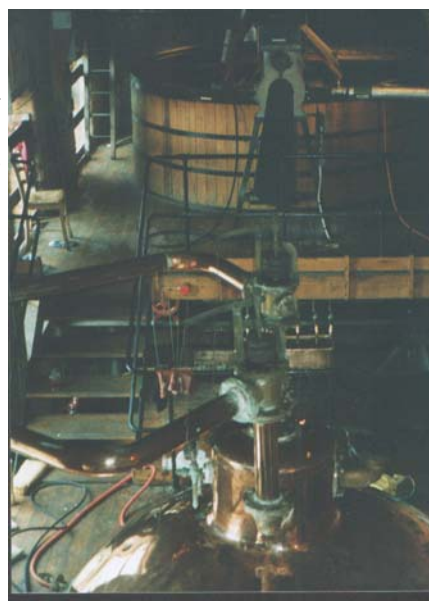
Al and Al down from the true North, unsure about how many or why or what.

with his theories on Obidiah Poundage and Bretanomyces it was a blessed mercy he chose to stay south of Watford Gap.

The other speakers came to the rescue and expanded on their pet topics. Clive La Pensée was only too aware that he put the Scottish Craft



Brewers to sleep in his Livingston address earlier this



exceeded his customary one pint per day. What a Woos!?

Jottings by Graham Kingham

Before the advent of CBA, life was a little more boring in the Hestia Brewery. Experience and experiments can cost a lot in time and money. However, these things help to make a brewer wiser!

One experience prompted me to explore the world of ingredients by over-exposing them. In a recipe by G Wheeler – ‘Brewing Your Own Real Ale’ – he uses crystal malt at the rate of 30% in an attempt to make ‘Arkells Mash Tun Mild’ (page 52). This was an outstanding brew.

Other malts that I have used to excess include Special B a caramel malt used to enhance Belgian style beers adding colour and richness at 500g per 23 litre batch, this provides a sultana taste that rises above every thing else, full of body, but not to be recommended at this level. The other no go is the over indulgence of black malt, the acrid bitterness cannot be reduced by diluting down.

Two further events also shaped my taste buds. A chap named James (some of you might just know him) allowed me a sample of his Goldings hop bitter - one with fresh green hops, the other with the same hops but dried. Amazing hop aroma and taste with a subtle bitterness. The other occasion really was excess. 1lb of hops was used to dry hop five gallons of bitter for a few days. No it didn't strip the lining off your tongue! The flavour was very intense and surprisingly likeable. (I note that a London microbrewer is making a weaker malt tasting brew in order for the hop flavour to show through; he is a trained, viniculturist and believes that like grape varieties, hops can also have a signature of their own.)

I have included a few brews that have been liked by my drinking panel.

Barley Mow

This uses flaked barley to add body

and a lovely grainy taste to bitter; commonly used in darker beers as it can cause cloudiness at high levels. This has a gentle bitterness, with a medium hop profile.

Volume 23 litres; Bitterness 52EBU; Mash time 90 minutes @ 66° C; Boil Time 90 minutes OG1052-FG1008. Sparge volume: 11 litres. 5.1 Kg Pale Malt. 200g Flaked Barley, hops, Goldings 90g+ Challenger 15g+ 10g Goldings last 10 minutes of boil. Yeast, Gervins x 2; prepared a day before. Water treatment for Bitter. Fermenting temp. 18-20° C.

Chocolate Excess

For stout lovers only! This leaves a long bitter chocolate after-taste that matures down with keeping (recommended 3 months); nothing like this on the market! [Correction, Tesco did a beer challenge last year and the stouts are well worth seeking out]

Volume 23 litres. Bitterness 35EBU. Mash time 90 minutes @ 66°C; Boil Time 90 minutes OG1046-FG1008. Sparge volume 11 litres. 3.5 kg Pale Malt, 400 g Flaked barley, 700g Chocolate Malt, 100g Wheat, Hops Fuggles 90g. Yeast, Gervins x 2, prepared a day before or for a drier taste, use a Guinness style. Water treatment for stout. Fermenting temperature 18-20° C.

How many of you master brewers mix your ales to make an interesting variation?

A 10 to 15% dilution with water will make a difference in taste and mouth feel, so try experimenting with your brews in a small glass with a mix of your choice, at this level to start with, I mix the Chocolate excess with the Special B at 10% to create an old.

I can thoroughly recommend the Durden Park beer circle's recipe book “Old English Ale”; they use a lot of ingredients that give very powerful tasting beers that were brewed by our ancestors.

See you there!

“CBA will not be having a stand at GBBF this year (6th –10th August), primarily due to the costs involved. However, James McCrorie will be at the White Horse on Parson’s Green, Fulham, London on Sunday, 4th August, from about 12 noon until sometime in the evening(!), when an interesting group of people usually congregate. Several CBA members have made their way there in past years and more than a few USA visitors jump off their ‘red-eye’ flights and head straight there. All CBA members are welcome, should they feel inclined to come into London on a, usually sunny, Sunday. Come out of Parson’s Green Tube, turn right and the White Horse is about 150 yards on the left.”

Remember:- CBA were the first people to run a brewery at a piss up.

Ed’s Comment to GBBF is on page 2.

COFFEE & BEER MANIFESTO

“It is disgusting to notice the increase in coffee used by my subjects and the amount of money that goes out of the country in consequence.

Everyone is using more coffee.

If possible this must be prevented.

His Majesty was brought up on beer and so were his ancestors and his officers.

Many battles have been fought and won by soldiers nourished on beer and the King does not believe that coffee-drinking soldiers can be depended on to endure hardship or beat his enemies in the case of the occurrence of another war.”

Prussian King Frederick the Great 1777

Hobgoblin Refreshment equals Craft Brewer's Nightmare

The following blurb dropped through my letter box. I was scandalized. Read it! How often are Wychwood Brewery classified as Craft Brewers? I hot footed to my nearest Safeway Branch and invested £1.69 in a bottle of Hobgoblin Strong Ale. I did get an extra 32% "free". No wonder! It came in clear glass. I immediately thought of James' article on skunking (Brewer's Contact Vol.2 No. 30). It's an ill wind as they say! I now know what a very skunked beer tastes like.

My daughter, who is a lager and loud music pub-goer thought it was OK, but then the after-taste of the skunk kicked in. "Oh no!" she said.

It was dark, 20-30% crystal malt I guess, which is far too much and leaves that sickly cloying taste, and 5.5% alcohol by volume which, with all its other faults, would have made it the perfect vehicle for a hangover.

Read the article and see what we are up against. I would be prepared to pay an extra membership fee and we engage a lawyer to protect *Craft Brewing* as intellectual property. The alternative is to see us trashed the way Homebrewing was. That said, the Homebrewing industry shot off its own big toe. This time the danger is from outside.

"REFRESHMENT FOR HOBGOBLIN

Dynamic young brand-owners Refresh UK today announced completion of the acquisition of the Wychwood Brewery, brewers of the famous Hobgoblin.

The fast growing craft brewer based in Witney, Oxfordshire, put themselves up

for sale at the beginning of the year. Rupert Thompson, CEO of Refresh, who co-founded the company UK two years ago, comments: "We are delighted to be adding the strong Wychwood brands to our portfolio—they are growing in popularity with sales up 38% year on year, and Hobgoblin itself is up 40%, a great performance".

"Coming so soon after our appointment by Wadworth of Devizes earlier this month to handle the classic 6X brand in the Off Trade, this really gives us an outstanding and diverse portfolio. In addition to the Wychwood brands which include Hobgoblin, Goliath, Fiddlers Elbow and Circle Master, we will also be handling the highly respected Caledonian, Brakspears and Exmoor brands in the Off Trade. These are all beers with distinctive tastes and brand images, and with strong customer following s".

"Wychwood was amongst the first of the smaller craft brewers to realise the importance of building packaged beer brands. Both Refresh and Wychwood share a commitment to innovation and finding out what the customer wants. We will be increasing marketing investment in the brands, in particular Hobgoblin, which is already the number 6 in premium bottled ale in the UK multiple supermarket sector".

"Refresh will also be looking to promote the expanded portfolio in export markets, where Wychwood sales are growing by 17%, and we anticipate this will soon require additional resourcing". Thompson announced that Ian Rogers, Hobgoblin's founder, MD and goblin-in-chief will be staying on as a non-Executive Director to advise on strategies for Hobgoblin. He will also join the Refresh Advisory Board.

Ed's Corner

- *What happened to the malt edition? I can only plead the fact that we are all unpaid volunteers and it just hasn't come together. It will.*
- *This edition has so much about hops that it is nearly a hop edition.*
- *Please keep the mail coming in. Please put your name or email address or mailing address in the communication if you want someone to contact you. I'm afraid I can't run a messaging service. But maybe there is a need for a message board on our website, which is receiving serious attention. A few volunteers to run it would be most appreciated.*
- *Many thanks for all the articles. If I haven't used one or the other then don't read anything into it apart from space problems and my time. Don't hesitate to write a second time and chide me. Things do slip through my busy net and it may just be negligence on my behalf.*
- *Loads of people took digital pictures of the Masham bash. Not one was emailed to me. Why? What about a National event?*
- *Other magazines fail because they need advertising or have to pay contributors. We have neither problem but it does mean we have to have contributions from our membership. Without your input we will rapidly become stale and repetitive.*
- *Lots more regional news please!*

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