Spreading the grains far and wide!

An article highlighting a day in the life of Head Maltster Chris Garratt at Warminster traditional floor maltings in Warminster, Wiltshire, England

by

Simon Watkinson

The traditional process of malting barley on floors (ie leaving the barley to germinate on the floor) was once very popular in Warminster, Wiltshire due mainly to its ideal location in the middle of the prime malting barley growing counties of Dorset, Hampshire and Wiltshire. Indeed, in 1720 the town boasted 36 malthouses. Today, almost 300 years later, Warminster has just one surviving malthouse, which is in Pound Street and dates from the Victorian era. As one of a mere handful of the labour and space-intensive floor maltings left in the UK, it produces 2 000 tonnes of malt each year. Warminster Maltings Ltd. employs 8 staff and supplies all mash tun materials, all pale ale malts and coloured malts, and was taken over in 1994 by Westcrop, which is now its parent company. Its varieties (grades ranging from lager to mild whilst roasting is performed elsewhere) include 'two-row' Maris Otter; Pipkin; Optic; Cooper and small batches of Golden Promise along with the malted wheat varieties Riband and Consort.

As Head Maltster at Warminster, Chris Garratt has few professional counterparts. After leaving school in 1975, Chris started work at the Warminster malthouse, which was then owned by Guinness. Having completed all his malting and brewing training under their wing, he then took a Post Experience Course in Brewing Science at

Birmingham University's British School of Brewing. Perhaps Chris was always destined to be a maltster; it's a strange coincidence that the earliest maltster known to have worked in Warminster in 1554 was Henry Garratt, one of Chris' distant ancestors.

I met Chris at the malthouse last winter on an unseasonably mild February day.

"Shame we can't have this cooler weather in the summer, then we wouldn't have to use the electric coolers," Chris lamented before showing me into the maltings. Chris' working day starts at 8 am and for the first two hours he walks the malt floors and inspects each batch of malt (a batch being 10 tonnes). He will then inspect the finished product in the laboratory; assess the latest batch for flavour; and analyse the previous day's laboratory results. Whilst the larger maltsters have switched to industrial methods of malting - employing Saladin Boxes and drum maltings - and can produce 100 times as much as the floor malting method, the latter still holds an attraction for micro brewers and the small independents. Perhaps size is the biggest drawing point as the floor maltsters have more quality control of goods inward - it is far easier to check 1,500 tonnes than it is 450,000 tonnes.

"If the malt made in the old way is perceived as being more *real* than malt made in a drum, then that's sentiment," Chris told me when asked about the two malting methods. "Still, there are brewers who say that traditionally-made malts perform

better for them. So our products are in huge demand and since there is no over-supply of our kind of product we're free to concentrate on getting them absolutely right."

Indeed, the proof of the malt is in the drinking. Several prize-winning ales e.g. Ash Vine's *Hop & Glory*; Hop Back's *Summer Lightning*; Tisbury's *Archibald Beckett*; Hampshire Brewery's *Pride of Romsey*; and Marston's *Head Brewer's Choice* ales are all brewed with Warminster malting barley. Chris certainly enjoys the interaction with the customer and sharing the benefits of their brewing of top quality real ales.

"Meeting the customer is a very important part of my job," he admits, "when I'm delivering I can meet them in the work environment and get feedback from them. I would hope to visit at least one customer a week and will deliver to Cornwall, the Midlands, the South-east and the south coast but most of the malt is transported by local contract hauliers. We supply thirty-five breweries alongside home brewers who are continually calling in to collect malt. "

"As far as I'm concerned, I'm only too pleased to spend time discussing individual requirements, even for orders of half a ton because once the relationship is established the repeat orders will follow.

"We don't brew here but we do wholesale bottle-conditioned ales - two cases at a time. There is a synergy here because if I can interest the public in real ale in a bottle then it helps my brewing customers without whose success we would have no future."

Whilst we were walking around the edge of the malting floors, Chris bent down and picked up a handful of barley for inspection. After squeezing a barley husk on the palm of his hand to reveal a small smear of starch, he smiled at me declaring, "Isn't that wonderful!"

This starch is broken down in the mashing process into maltose to yield fermentable sugars which will then be attacked by the brewer's yeast to produce ale.

"The total malting process takes nine days", Chris said as we went up some stairs. This process entails three days *steeping* (immersing the barley in water taken from a well and soaking it for 12 hours then draining it and leaving it for another 12 hours so as to remove dirt, agro-chemicals and other impurities from the barley) - ten tonnes of barley in steep will produce eight tonnes of malt. This is followed by five days germination on the malt floors during which it is ploughed four times a day and turned twice a day with mechanical rotivator to allow the grain to breathe. Germination and the biological changes that take place within the grain lead to an increase in heat that must be carefully controlled or the grain will suffocate. During

this process, known as *modification*, the embryo of the grain starts to grow while tiny roots break through the husk. The grain is made up of two parts, the starchy endosperm and a tough outer layer that protects the endosperm and contains proteins. The growth of the embryo causes natural enzymic chemical reactions to transform the proteins and starch and so make them soluble. Whilst the endosperm softens, the rootlets grow at a great speed. The maltster tests the degree of modification by 'rubbing out' the grain between the fingers. If it is soft then 'modification' has gone far enough and the barley has become what is known as 'green malt'.

Ale brewers require a fully modified malt with as high a level of enzymes as possible as this allows a simple infusion mashing system that turns starches into brewing sugars. Whilst lager brewers have traditionally used less modified malt with a lower rate of protein conversion, the reason for the difference being that lager brewers in central Europe didn't have access to maritime barley and so had to use inferior varieties.

After 'modification' the malt is kiln dried for one day, the kiln resembling a large chimney with a gas fire at the bottom which heats the malt spread over a mesh floor above. The temperature is carefully regulated to produce the right type and colour of malt required by the brewer. The first temperature stage, around 60 degrees Centigrade, stops germination. To produce white malt for lager brewing, the heat is increased slightly and held for 24 hours whilst a slightly higher temperature is used

for pale malt, the essential factor being that the heat must be maintained at a level that will not kill the enzymes which turn starch into sugar in the brewery.

Heavily kilned malts have fewer fermentable sugars and so are used solely for producing colour and flavour. After kilning a malt deculmer separates the malt from its rootlets.

Barley germinates continuously and as Head maltster Chris is continually on call, having to oversee each batch through to its kilning stages.

"Germination has no respect for weekends or leisure time," Chris said. So as to alleviate the stress, Chris is an active member of Salisbury District Angling Club and a keen trout fisherman on the rivers Avon and Wylye.

"It's great to get away from malt and relax. It's so peaceful down there that sometimes I just go there to walk alongside the banks of the river."

Living five miles away from Warminster in Codford where there's also a barley intake, grain store facility and laboratory, Chris doesn't get much time off, but he admits to a fascination of the global craft brewing scene.

"When we go on holiday I make sure that we go a long way away," he stressed, "Last

year we went to Florida for some sun. The year before we went to Singapore and Malaysia where my wife unfortunately kept me away from the many small breweries that were sprouting up all over the place."

Additional information

- Warminster Maltings are currently supplying their premium quality malt to a number of ale brewers in North America and Canada. Should you wish to receive further information regarding the products available, please contact Mr Jim Pryor, Victoria. Tel. 250 881 7481, email hpryor@direct.ca or contact Chris Garratt, the Head Maltster, direct on warmalt@globalnet.co.uk or visit their web site at www.net2000.co.uk/hp/warmalt.

- Their address is: Warminster Maltings Ltd., 39 Pound Street, Warminster, Wiltshire, BA12 8NN;Tel: +44 1985 212014

- Two-row barley - the name refers to the number of rows of grain within each ear - is the variety preferred by ale brewers; the finest variety being known as "maritime barley" which grows close to the sea on the rich, dark soil types found

in East Anglia, the Scottish Lowlands and Belgium. However, six-row barley is more common in warmer climates, such as those enjoyed by the US and Mediterranean countries. As its thicker husk contains tannins known as polyphenols, which can cause a haze in the finished beer, it is blended with large amounts of adjuncts, such as corn and rice, to counter this haziness.

- Master brewers in Czechoslovakia and Germany, the biggest beer-drinking nation in the world, regard six-row barley as giving an astringent and harsh character to the beer and will therefore only use two-row barley. The 1300 German breweries produce 115 million hl per year (constituting over 10 % share of the world's 1.2 billion hectoliter beer market) and need 2.4 million tons of malt (made from about 2.6 million tons of barley and other grains) per year, of which just under 25% is imported. German grain farmers receive over 1 billion Deutschmarks per year from sales to the brewing industry. In light of such gargantuan statistics, it is not surprising that floor maltings no longer exist in Germany, the last closing some twenty years ago (source of information: German Maltsters' Association)

- Malteries Franco-Belges (MFB), a division of the Soufflet Group, has a combined output of 1.3 billion pounds of malt annually making them the largest maltsters in France. With malthouses in Champagne, Lorraine, Beauce-Gatinais, and Bourgogne, MFB has a monopoly on the best barley growing areas in France and its malts are also available in the US under exclusive agreement with Grain

Millers, Inc., based in Eugene, Oregon.

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