



# ***HUMULUS LUPULUS***

## **AND OTHER BITTER TRUTHS**

### **Wood and hops - A Match Made in Heaven**

Dry-hopping and barrel-ageing are extremely popular techniques in the world of beer today. Both add complex aromas to beer. Used together in the brewing process, however, they prove to be counterproductive. Put a dry-hopped beer in a barrel and the first thing to go is the bouquet, followed gradually by the bitterness – smoothed down and dissipated. There's no doubt that the wooden barrel does the hop aroma absolutely no good.

After taking a closer look at this conflict, the Barth-Haas Group's Brewing Solutions department in Nuremberg came up with a product that reconciles the two adversaries. Provoak combines hops and wood in pellet form. The product is available in two variants: the harmoniously elegant "EU style", a mixture of various hop varieties and untoasted oak, and the expressive "US style" using aroma-rich hop varieties and toasted oak.

#### **Interesting interplay of aromas**

A dry-hopped pilsner using EU-style Provoak has a citrusy mandarin-like nose, with creamy notes from the wood. The first tasting impression is a foamy one, followed by a silky texture. The overall tasting impression features citrus and bitterness with an underlying foundation of subtle wood notes. Light and complex at the same time; creamier and more full-bodied than the original pilsner.

The US-style Provoak in a pale ale presents the nose with a surprising combination of peach and whisky-like notes. The muscular body is a good match for the very dominant bitterness and carries it into a long finish laced with woody notes suggesting vanilla and whisky – an interplay that is highly reminiscent of barrel-ageing.

In a Munich brown ale using EU-style Provoak, the immediate impressions are of mandarin and orange peel, followed by soft plum, vanilla and wood. Complex, dry and full of zest.

This "perfect marriage" is shown to particular advantage in a dark EU-style Provoak bock beer, with overtones of strong red berries from the hops and creamy, toffee-like notes from the wood. The impression on the palate is one of soft dried fruit with undertones of dark chocolate and pleasantly woody notes – complex and well integrated.

To sum up, wood gives the hops greater depth, provides a base for the ethereal aromas and adds more texture to the mouthfeel.

Provoak combines hops and wood both in terms of flavour and in terms of the brewing process. It is added for dry-hopping in exactly the same way as hop pellets and dosed according to hop oil content. Provoak therefore saves time – as well as the money and space for wooden barrels. Flavour stability is much less vulnerable, as the brewer is able to avoid the high-oxygen microbiological risks associated with barrel ageing. Separation in the fermentation or the storage tank is also easy because the wood powder forms a sediment with the hops and does not have to be removed separately.

#### **Challenging development phase**

The Brewing Solutions team started work on developing the product in 2016. The first challenge that presented itself was to find the right mixing ratio of wood and hop powder to ensure both a balanced flavour and good processability in the pelletisation plant. As wood is drier than hops and does not contain any lupulin, the team tested a variety of mixing ratios. A further challenge was presented by the contact time required for aroma extraction from the wood powder in the beer. However, fears that the wood would require longer con-



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tact and that the hop flavour would suffer as a result of Provoak spending too long in the tank soon proved to be unfounded. In fact, the beer takes on the wood aroma almost as quickly as the hop aroma.

Provoak can be used at any stage in the cold process - in the main fermentation, the secondary fermentation and storage, and also in the whirlpool. Brewers can play around with these possibilities and use Provoak for dry-hopping, for example, to achieve a touch more body and texture, rather than a superficial barrel flavour. Wine producers work in a similar way.

Apropos of wine, Provoak can be used in the production of other beverages too, including not only wine, but also lemonade and cider.

Who would have thought: hops and wood - a match made in heaven!