



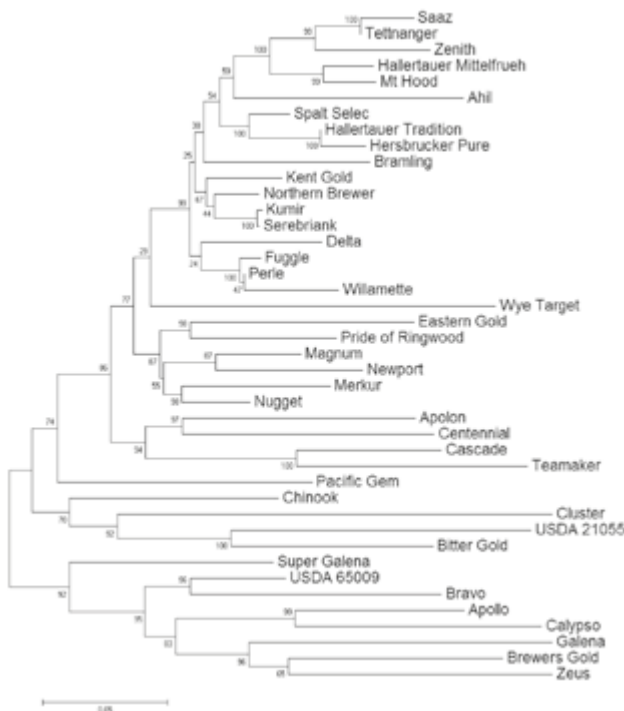
NEWSLETTER 03/2015

TECHNICAL SUPPORT

The Importance of Genotyping Hops

Genotyping is the characterization of a hop variety by examination of its DNA sequences. This information is used in the Hopsteiner breeding program to select parents and evaluate seedlings, but molecular markers have immediate applications to quality control. For example, prior to propagation for planting a new field, the source material is tested for identity and purity by comparing its DNA fingerprints to an in-house database of molecular marker profiles for reference varieties. Until now, genotyping in hops, or other niche crops, lacked sufficient power, due to the small number of features measured in each assay and the considerable cost. Hopsteiner has solved this by applying Next Generation Sequencing (NGS) to hops, which increases the number and diversity of measured DNA features per assay – far beyond what is required for routine genotyping.

Validated methods for application of NGS to hops, through genotyping-by-sequencing (GBS), were implemented to increase the depth of molecular fingerprinting by a factor of about 20X over other platforms, providing an unprecedented number (17,128) of novel molecular markers for hops. The quality and utility of the new SNP markers was evaluated by monitoring the distribution and genetic segregation of markers in defined families and also by predicting commonly known pedigrees from hierarchical cluster analyses of the novel fingerprint features. (Matthews and Pitra, 2013).



P. D. Matthews, M. C. Coles, and N. J. Pitra. 2013. Next Generation Sequencing for a Plant of Great Tradition: Application of NGS to SNP Detection and Validation in Hops (*Humulus lupulus* L.) *BrewingScience*, Nov/Dec, (Vol 66).

If you want any further information please do not hesitate to contact us.

Simon H. Steiner, Hopfen, GmbH *S.S. Steiner, Inc.*
 Newsletter, March 2015

April '15

Save the date!

April, 14th-17th

[Craft Brewers Conference, Portland/USA](#)

May '15



Meet our Team!

At Ingolstadt's first [Bier-Genuss-Tage](#) on May 1st to 3rd.

Check out our Video of Hop Harvest on hopsteiner.de



HOPSTEINER
Shop

Hopsteiner Shop – online now!

Check out our new online shop and get your hops quickly, safely and easily!

www.hopsteiner-shop.de

Hopsteiner[®]

COMMITTED TO THE BREWER