

Kazbek Cup 2020 and an introduction of a new product Kazbek PE45 for dry hopping



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INTRODUCTION

In March 2020, a regular conference "Application of the Czech Hops in Brewing" and the 2nd year of an accompanying beer competition Kazbek Cup 2020 were to be held. 37 breweries signed up for the second mentioned event with 43 samples in the categories of bottom fermented (24 samples) and top fermented (19 samples) beers. The annual organizer of this event is BOHEMIA HOP in cooperation with the Hop Research Institute.

During this meeting, Bohemia Hop wanted to present a new product Kazbek PE45 - Kazbek variety in the form of enriched pellets type 45 for dry hopping. Not only do these pellets have a higher content of alpha acids, but they also have a higher content of essential oils.

The original idea and request for processing the Kazbek variety into pellets type 45 was raised by Michal Havrda, a co-owner and a brew master from the Pioneer Brewery, who has many years of experience and has gained knowledge by using different hops varieties. He used this hops in his K-45 Indian Pale Lager beer.

Although the conference and beer competition could not take place due to government regulations and measures (due to Covid-19 pandemic), we tested beers brewed from Kazbek variety from both pellets type 90 and 45. Our results were checked by accredited laboratories. The Pioneer Brewery also shared their practical experience with us.



Comparison of analysis of essential oils for pellets type 90 and 45



The original raw hops were the same for both types of pellets. Thus, the original characteristic of hops before processing was identical. CHMELARSTVI, družstvo Zatec processed the hops to both types of pellets type 90 and type 45.

During processing of hops to pellets type 90, hop cones of raw hops are cleaned, homogenized, milled and gently pressed into the form of pellets - pelletized. During processing hops to pellets type 45 (also known as enriched pellets), hop cones of raw hops are cleaned and homogenized. The next stages – milling and separation take place in an environment with -30°C where the lupulin glands are separated due to their frozen form from the rest of the hop cones material with sieving. Before pelletizing, both parts are blended to achieve the final required concentration. The product made in this process of mechanical enrichment can be considered as 100 % natural product.

Before a trial brew, we had the analysis of essential oils done at the Hop Research Institute. The original hypothesis of a higher content of essential oils in pellets type 45 has been confirmed.



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The analyses showed a **higher increase of concentration of essential oils** in comparison to an increase of concentration of alpha acids. The alpha of pellets type 90 was 4,75% (EBC 7.4), alpha of enriched pellets type 45 reached 6,69% (EBC 7.4). Pellets type 90 contained 0,8 g per 100g of essential oils, pellets type 45 contained 1,23 g per 100 g of essential oils.

Beer samples

IPA – Single hop Kazbek + 3 g/l dry hopping (pellets type 45, type 90 and type 90 from the Hop Research Institute) brewed in the experimental brewery of the Hop research Institute by brew master Jan Hervert.

Comparison of samples at Bohemia Hop

Due to the circumstances the tasting of the samples took place in Bohemia Hop in a limited number of participants, partly also in separate groups and under modified conditions. At dry hopped beer with pellets type 45 a pleasant and distinctive aroma (hop citrus) was evaluated very well. The beer kept its aroma for a long time. The bitterness was pronounced but pleasant, it did not stick anywhere and did not have a negative effect on drinkability, which was very good. The tastes and aromas were clean.

Beer hopped with pellets type 90, from the same lot of the Kazbek variety, performed softer, rather floral and sweet citrus, which quickly faded. The bitterness was more pronounced and slightly rougher. Drinkability was good.

For comparison, we had another sample of beer from the brew master Jan Hervert from the Hop Research Institute, who made a single hop IPA from another lot of Kazbek. The beer hopped with pellets type 90 from the Hop Research Institute had a very good drinkability and higher bitterness. The aroma was more after sweet fruit and citrus.



Results of the overall impression in the evaluation of blank samples at Bohemia Hop

Pellets type 45 – first place 5 times

Pellets type 90 – second place twice and third place three times

Pellets type 90 from the Hop Research Institute – second place three times and third place twice

Evaluation of Beer by The Research Institute of Brewing and Malting (RIBM)



Beer samples brewed with both Kazbek hops in pellets type 90 and 45 were sent to the Research Institute of Brewing and Malting in Prague. The Institute provided us a complete set of sensory and analytical analyses.

The evaluation of sensory difference between samples was realized with the Triangular Test. The first attempt was not conclusive. The second attempted showed the variance at 95% level of probability where 4 of 5 judges found the difference. However, the result cannot be considered as conclusive in total.

The performances of hops in all beer samples were close to a report from RIBM. The main variances were recorded in a floral aroma that was more intensive in a sample with Kazbek pellets type 90 and in green-fruity aroma that was performed more intensively in beer with Kazbek pellets type 45. Individual judges described the beer with Kazbek pellets type 45 as rich in aroma with more intensive citrus aroma (grapefruit, Lemon, Orange) – and fruity-scented (tropical fruits, green and red apple) profile. The judges gave a higher preference to the beer with Kazbek pellets type 45 over the beer with Kazbek pellets type 90.

Bohemia Hop has the official report and all certificates of analysis from RIBM at disposal.

The results of sensory analysis from RIBM confirmed our sensory perception of both types of Kazbek pellets.

IPL - K 45, Michal Havrda, Pioneer Brewery – Kazbek pellets type 45 in practise



Statistical numbers and analytical analyses are a good basis, but nothing can replace the experience of use in practice. Therefore, we asked Michal Havrda, the originator of the idea of processing Kazbek into the pellets type 45, to share his experience and write a few sentences:

"I am glad that we were the first to try Kazbek in the form of enriched pellets type 45. We brewed a trial batch of single hop beer in the style of India Pale Lager - significantly hoppy lager with a dose of dry hops. Kazbek could thus show the maximum of its character. Thanks to the use of enriched pellets, we achieved intense but pure bitterness without sticking. Dry hopping then added a distinct citrus-spicy aroma. Beer immediately became very popular with our customers and it is one of the best rated. We decided to include it in the permanent offer. Kazbek pellets type 45 show more intense aroma with a cleaner fruity aroma profile, without disturbing vegetal and grassy tones. The bitterness is clean without unpleasant adhesion and promotes high drinkability. At the same time, thanks to the use of pellets type 45, beer losses during dry hopping can be significantly reduced. I definitely recommend enriched pellets instead of the classic pellets type 90, especially for dry hopping. "



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Summary

All the tasted beers were very good and with a high drinkability. Kazbek Pellets type 45 were a very pleasant surprise, both analytically and sensorially. This type of pellets emphasizes the hop and fruit, especially the citrus aroma and adds a more pronounced bitterness, which, however, is clean, pleasant and does not stick anywhere. On the contrary, the taste of grass and vegetable tones decreased.

Kazbek pellets type 90 show more floral tones and a delicate citrus aroma. The bitterness is usually longer than at pellets type 45, however, it is still pleasant.

Our tests have shown that both variants of pellets are of great potential. Subsequent discussions with all participants, who were involved in this project, led us to the idea that with higher enrichment of granules the differences will be more pronounced, which might be a topic for the beer competition next year.

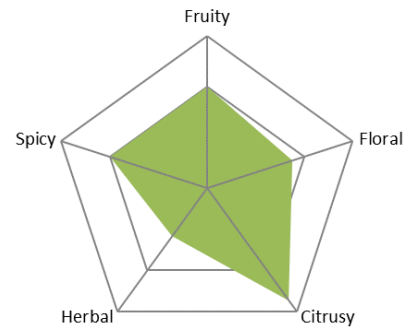
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About the Kazbek Variety

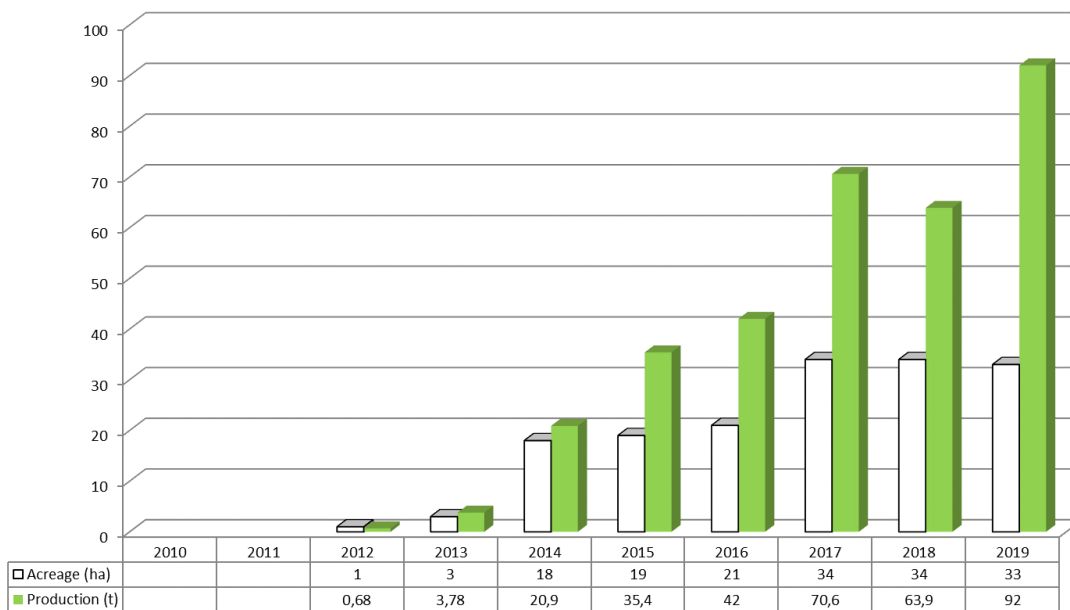
This variety belongs to the group of so-called "flavour hops". It is characterized by citrus aroma and is recommended for second and dry hopping. It has found its use in both bottom-fermented beers and Ale Beer type. The results of past beer competitions with the Kazbek variety can be found at www.bohemiahop.cz

Selection from hybrid progenies of breeding material with the origin in Russian wild hops. Vigorousness and stability are obvious from its name as Kazbek is the highest peak within middle Cuacanus mountain range. This mountain became a model for the logo of our beer competition. This variety is characterized by overall vitality, high and stable yield.

The content of alpha acids is also very stable within the years. This is a late variety, which is harvested approximately in mid-September.



KAZBEK variety - Acreage and production



Report prepared by Marketa Barcajova, Bohemia Hop