

“Applications of Czech hops in the brewing industry”

Hop seminar – 22nd April 2015, Zatec (Saaz)



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INTRODUCTION

Bohemia Hop in cooperation with the Hop Research Institute in Zatec organized a traditional seminar on „Application of Czech Hops in the Brewing Industry” that took place on 22nd April 2015. Almost 100 participants from Czech breweries and other experts related with brewing industry gathered at the Hop Research Institute to learn about the current trends in the hop and brewing industry and to taste and evaluate beers brewed from Czech hop varieties in a trial brewery of the Hop research institute. The seminar topics and beer samples were focused on dry hopping.

Mr. Josef Patzak, new director of the Institute, and Mr. Zdenek Rosa, chairman of Bohemia Hop and Chmelarstvi cooperative, welcomed all participants and opened the seminar. The program included 5 oral presentations and 5 rounds of the evaluation of different beer types.



Main topics of the seminar were focused on:

- Breeding Program of Czech Hop Varieties (Vladimir Nesvadba, Hop Research Institute)
- Beer Styles around the World (Aleš Dvořák, Budějovický Budvar, n.p.)
- Hop Grower Year (Josef Ježek, Hop Research Institute)
- Fresh Hops and Its Utilization in the Brewing Process (Karel Krofta, Hop Research Institute)
- News from the Craft Brewer’s Conference in Portland 2015 (Zdeněk Rosa, Bohemia Hop a.s.)

Main topics of evaluation of beers:

- Wheat beer – dry hopping with Kazbek
- Pale lager 12% EPM – single-hop beer (Saaz Late)
- Special lager 15% EPM – Dry hopping with different hop varieties and different hop products
- ALE 14% EPM – Dry hopping comparison between Kazbek and foreign hops
- ALE 14% EPM – Dry hopping comparison between Kazbek and new genotypes





TESTING AND EVALUATION

The first round

Wheat beer; upper fermentation; 13,7 % EPM; hops for kettle addition – 1st hop addition Sladek, 2nd hop addition Kazbek (10 min before the end of boiling process).

Original beer 19,6 IBU

Dry hopping: 4 days, 4 °C

Kazbek, fresh hops 8 g/l; 22,1 IBU

Kazbek, pellets 90 3 g/l; 22,8 IBU

Sample	aroma		bitterness		Final impression	
	points	ranking	points	ranking	points	ranking
Kazbek - fresh hops	143	1	175	3	168	3
Kazbek - without dry hopping	168	2	166	2	157	1
Kazbek - pellets P90	179	3	152	1	164	2

The results of the first round were very close. The fresh hops had a very good impact on the aroma of the beer.

The second round

Pale lager, bottom fermentation; 12 % EPM; single-hop beer (Saaz Late)

Saaz Late, fresh hops 28,0 IBU

Saaz Late, dry hops 30,9 IBU

Saaz Late, pellets 90 35,2 IBU

Sample	aroma		bitterness		Final impression	
	points	ranking	points	ranking	points	ranking
Saaz Late - fresh hops (frozen cones)	189	3	185	3	189	3
Saaz Late - dry whole leaf hops	168	1	157	1	150	1
Saaz Late - pellets 90	182	2	181	2	185	2

In the second round the clear winner both in aroma and also in overall was the beer where dry hop cones were used. The pellets 90 ranked second mostly because the higher bitterness of the beer compared to the other samples.

The third round

Special pale lager, bottom fermentation; 15 % EPM; hops for kettle addition – 1st hop addition Agnus, 2nd hop addition Sladek, 3rd hop addition Saaz (10 min before the end of boiling process).

Original beer 39,8 IBU

Dry hopping: 3 days, 4 °C

Saaz, fresh hops 5,3 g/l; 41,9 IBU

Kazbek, pellets 90 1,5 g/l; 42,6 IBU

Sample	aroma		bitterness		Final impression	
	points	ranking	points	ranking	points	ranking
without dry hopping	197	3	166	2	169	2
Kazbek - pellets P90	158	1	152	1	136	1
Saaz - fresh hops	163	2	198	3	203	3

The third round also had a clear winner in the beer where Kazbek pellets were used for the dry hopping. Saaz fresh (frozen cones) did very well in the aroma but not as well in the overall impression when higher bitterness was perceived in this beer.



The fourth round

ALE; upper fermentation; 14 % EPM; hops for kettle addition – 1st hop addition Agnus, 2nd hop addition Sladek, 3rd hop addition Kazbek. Whole leaf hops were used for dry hopping.

Dry hopping: 4 days, 4 °C

Kazbek, dry hops 3 g/l; 61,8 IBU

Cascade, dry hops 3 g/l; 61,6 IBU

Amarillo, dry hops 3 g/l; 60,2 IBU

Polaris, dry hops 3 g/l; 62,0 IBU

Sample	aroma		bitterness		Final impression	
	points	ranking	points	ranking	points	ranking
Kazbek	201	3	224	3	229	3
Cascade	181	2	184	2	186	2
Amarillo	153	1	170	1	160	1
Polaris	294	4	276	4	285	4

This was a very interesting round which proved that Cascade and Kazbek are quite close in the use for dry hopping in the brewing industry. In the same time Amarillo did well both in all rankings and Polaris finished clearly in the end.

Note: The high content of yeast in original beer has a harmful influence on an unpleasant bitterness and final impression of the beers.



The fifth round

ALE; upper fermentation; 14 % EPM; hops for kettle addition – 1st hop addition Agnus, 2nd hop addition Sladek, 3rd hop addition Kazbek. Whole leaf hops were used for dry hopping.

Dry hopping: 4 days, 4 °C

Kazbek, dry hops 3 g/l; 61,8 IBU

NS 30/226, dry hops 3 g/l; 62,8 IBU

NS 29/133, dry hops 3 g/l; 61,8 IBU

NS 33/140, dry hops 3 g/l; 64,9 IBU

Sample	aroma		bitterness		Final impression	
	points	ranking	points	ranking	points	ranking
NS 30/226	177	2	194	2	188	2
NS 29/133	147	1	169	1	160	1
NS 33/140	241	4	238	4	249	4
Kazbek	227	3	228	3	227	3

The last round was focused on the outcomes of the breeding programme of the Hop research institute. All participants could see that we have some very promising varieties for the future. The most interesting for all was the number 29/133 which had very fruity aroma mostly described as peach.



VISIT OF DITTRICH'S FARM IN LENESICE

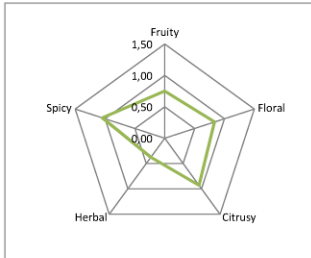
After the seminar, participants moved on to Dittrich's Farm in Lenesice nearby Zatec (Saaz). Mr. Karel Dittrich jr., owner of the farm, introduced a history of his farm and described current trends in hop cultivation. Moreover, participants could see technologies for cultivation, harvest and postharvest treatment of hops. Representatives of breweries were very interested in all things about growing hops and were putting lot of questions to Mr. Dittrich and Mr. Rosa. This successful and interesting day was concluded with a dinner in the Hop and Beer Temple in Zatec.



SENSORY PROFILE OF CZECH HOP VARIETIES

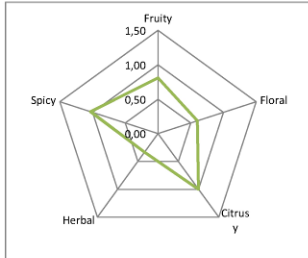
SAAZ

Fruity	Floral	Citrusy	Herbal	Spicy
0,75	0,84	0,93	0,38	1,05



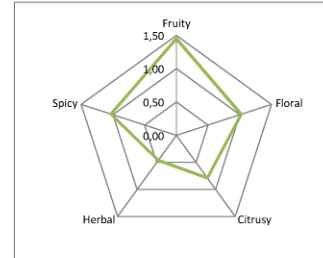
SAAZ LATE

Fruity	Floral	Citrusy	Herbal	Spicy
0,81	0,60	1,00	0,33	1,03



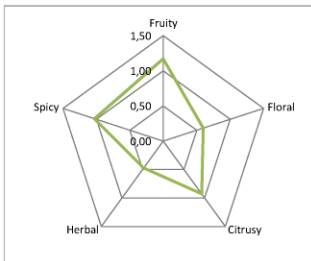
PREMIANT

Fruity	Floral	Citrusy	Herbal	Spicy
1,45	1,02	0,79	0,46	1,03



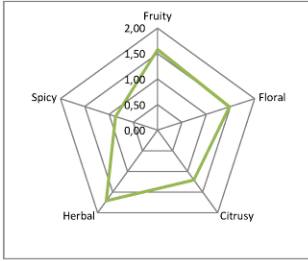
SLADEK

Fruity	Floral	Citrusy	Herbal	Spicy
1,17	0,60	0,93	0,48	1,03



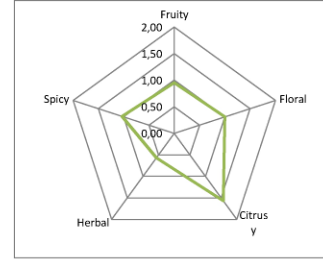
HARMONIE

Fruity	Floral	Citrusy	Herbal	Spicy
1,58	1,48	1,21	1,71	0,87



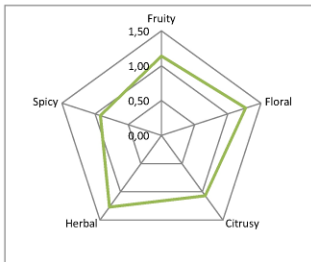
AGNUS

Fruity	Floral	Citrusy	Herbal	Spicy
0,95	1,00	1,57	0,57	1,03



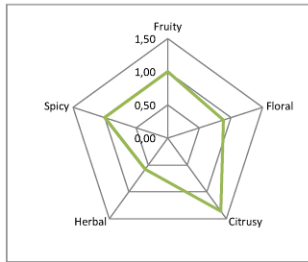
BOHEMIE

Fruity	Floral	Citrusy	Herbal	Spicy
1,14	1,27	1,07	1,27	0,92



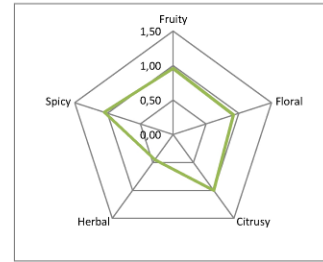
KAZBEK

Fruity	Floral	Citrusy	Herbal	Spicy
1,00	0,88	1,36	0,58	1,00



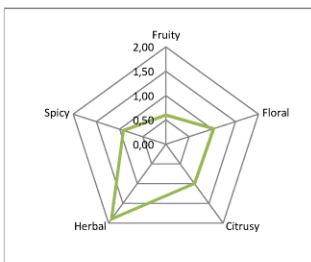
BOR

Fruity	Floral	Citrusy	Herbal	Spicy
0,96	0,92	1,00	0,45	1,05



RUBIN

Fruity	Floral	Citrusy	Herbal	Spicy
0,60	1,03	1,00	1,90	0,92



VITAL

Fruity	Floral	Citrusy	Herbal	Spicy
2,00	1,49	1,36	1,34	0,78

