Recipe Development

Exercise

Anders Kissmeyer, Master Brewer

Exercise
Design your own recipe for a special beer

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EST.1925 SCANDINAVIAN SCHOOL OF BREWING

Purpose

- **Use the learning from AK's lectures**
- **Apply the 'Expected Learnings' in Recipe Development**
- **Find the beer to be brewed in Pilot Brewing**

Information given

- Choice of 3 beer styles (next slides!)
- Relevant websites for finding malts, hops and yeasts (next slides!)
- All malts used are calculated as having 80 % extract as is
- Mash volume must be minimum 40 L – assume 1L/Kg from malt/adjuncts
- Brewhouse yield is calculated as 80 %
- Alcohol Calculated using the 'Craft Formula' (http://www.beercalc.com/)

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More information given

- Assume an alfa-acid content of the bittering hops, i.g. the middle of the range given by the supplier
- Hop utilisation is 35 % when added at start of boil. Decreases with 5 % every 10 mins thereafter
- Color conversion factor – from weighted average color of the malts used to actual beer color (11 % P): Multiply the malt color average with 2.0

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Color conversion example:

Lottrup 3 King's Night				
	Spec	Kgs	%	Impact
Pilsner	3,5	400	40,0	1400
Pale Ale	6	350	35,0	2100
WEY Pale Rye	7	50	5,0	350
WEY Munich I	15	100	10,0	1500
WEY CaraMunich I	90	40	4,0	3600
CaraAroma	400	20	2,0	8000
Pale Chocolate	500	10	1,0	5000
Oats	0	30	3,0	0
		1000		21950
Malt Color Impact				22
Malt to beer correction				2,0
Plato correction	17	11		1,55
Real beer color EBC				68

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Your task is to propose a recipe for a **100 L brew** (hot wort), and this proposal must include (priority one in red):

- A name
- A verbal description of the beer
- A set of technical specifications (original extract, alcohol, RDF, color, clarity, bitterness and CO_2)
- Brewing liqour (soft or hard water, additions)
- Malt grist in Kgs and % of each malt type used
- Hopping regime (quantitative)
- Other ingredients
- Mashing process
- Other brewhouse processes, incl. wort oxygenation
- Yeast strain
- Primary fermentation process
- Secondary fermentation process

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The three different beer types to choose between are:

- **Amber Ale** (styles: 59, 70, 71, 84 a, c and d, 93, 96, 105, 106, + variations (next slide!))
- **Porter** (styles: 19 a, 87, 88 + variations (next slide!))
- **Pale Lager** (styles: 35, 36, 37, 38, 39, 42, 44, 45, 46, 50, 52, 53, 54 + variations (next slide!))

Numbers above refer to the most recent Brewers' Association style guidelines: https://www.worldbeercup.org/participate/beer-styles/ with the base styles in bold.

'Variations' refer to some of the many *elaborations* on base styles (next slide!) that are possible. Feel free to choose any of these, but for your own sake: Keep it simple! And please note that you will have to source any 'other ingredients' chosen for your beer yourselves!

Beer Styles - Variations (WBC 2020)

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2. Fruit Beer

6. Chili Beer

7. Herb and Spice Beer

8. Chocolate Beer

9. Coffee Beer

10. Coffee Stout or Porter

13. Honey Beer

14. Classic Non-Alcohol Ale or Lager

15. Hoppy Non-Alcohol Beer

17 a. Session Beer

34. Smoke Beer

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You are of course free to find the information on raw materials and or processes anywhere you like, but in case you want to get quickly into some of the best sources for this information, I have below given you some good websites, and you have to check the availability of the materials from 'Humlecentralen' (https://humlecentralen.dk/) where the actual ingredients will be sourced.

Inspiration and in-depth descriptions:

- Malts: https://www.weyermann.de/eng/gelbe_seiten_en.asp?go=brewery&umenue=yes&idmenue=37&sprache=2
- Hops: https://www.hopsteiner.com/variety-data-sheets/
- Yeast strains: www.whitelabs.com

Exercise – Practical Plan

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Timing:

- Deadline for submitting proposals to me through Kim (kim.lou.johansen@food.ku.dk) is ***today at 15:30 hours***
- ***At 15:45 hours*** each group is given 5 minutes to present their results (remember to during group work set aside the time necessary to write your proposals in a PP presentation), including time for questions and discussion
- After the group presentations (and a few minutes for me to evaluate the proposals) the winners will be chosen and announced

Price for the winning group:

The price for the winning team is that their recipe will be chosen as the beer to be brewed in the pilot plant tomorrow Thursday.