DANISH MALTING BARLEY

Catalogue 2018
Introduction

The Danish Preferred Committee welcomes you to the 2018 Danish Malting Barley Catalogue version 1. In this catalogue, you will find a short presentation on the varieties which have finished their Industrial Test in 2018.

Further information on the program and full dataset for both Stress- and Industry Test can be accessed via https://danishpreferred.com/
## Danish Preferred approved varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Breeder</th>
<th>Year of approval</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evergreen</td>
<td>Nordic Seed</td>
<td>2017</td>
<td>*</td>
</tr>
<tr>
<td>KWS Irina</td>
<td>KWS</td>
<td>2017</td>
<td>*</td>
</tr>
<tr>
<td>Odyssey</td>
<td>Limagrain</td>
<td>2017</td>
<td>*</td>
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<tr>
<td>Propino</td>
<td>Syngenta</td>
<td>2017</td>
<td>*</td>
</tr>
<tr>
<td>Quench</td>
<td>Syngenta</td>
<td>2017</td>
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<tr>
<td>RGT Planet</td>
<td>RAGT</td>
<td>2017</td>
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<tr>
<td>Crossway</td>
<td>Nordic Seed</td>
<td>2018</td>
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<tr>
<td>Flair</td>
<td>Sejet</td>
<td>2018</td>
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</tr>
<tr>
<td>Laureate</td>
<td>Syngenta</td>
<td>2018</td>
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</tr>
</tbody>
</table>

*Pre-approved variety – well known and accepted by malting and brewing industry*
Short description of program

Preconditions for application:
• Two years results from either Danish Official Testing or Farmer Union Trials.
• Two years of micro malting performed at VLB with samples and application through the Tystofte Foundation.
• Minimum 5 tons of seed available at application.

Stress Test:
• Micro malting from three locations under variable conditions: Steeping degree 45%, 43%, 41%; germination temp. 18/14,5°C; 5 days germination; isothermal mashing at 65 °C.
• The applicants will be invited to present the candidate varieties for the committee and comment on the results from stress test/micro malting.

Industry Test:
• Large scale malting at the two Danish malting companies (Viking Malt and Fuglsang) and one large scale malting at one of the other partners in the program (currently: Avangard Malz, Cargill, CRISP Malting Group, Holland Malt, Malteurop, Soufflet)
• Brewing test at three breweries in Denmark or abroad.
• The industry step will have to be completed during either one or two seasons.

Final approval:
• Before final approval, a multiplication acreage of 500 hectares is required.
## Distribution of Industry Tests

<table>
<thead>
<tr>
<th>Variety</th>
<th>Variety owner and representative</th>
<th>Large scale malting and brewing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breeder</td>
<td>Applicant</td>
</tr>
<tr>
<td>CROSSWAY</td>
<td>Nordic Seed</td>
<td>Nordic Seed</td>
</tr>
<tr>
<td>FLAIR</td>
<td>Sejet</td>
<td>Sejet</td>
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<tr>
<td>KWS FANTEX</td>
<td>KWS</td>
<td>KWS</td>
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<tr>
<td>LAUREATE</td>
<td>Syngenta</td>
<td>Sejet</td>
</tr>
<tr>
<td>CHANSON</td>
<td>Ackermann</td>
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<td>COSMOPOLITAN</td>
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<td>EMBRACE</td>
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<td>KWS BECKIE</td>
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<td>KWS CANTTON</td>
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<td>ELLINOR</td>
<td>Saatzucht Josef Breun</td>
<td>Nordic Seed</td>
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<tr>
<td>CHAMP</td>
<td>Sejet</td>
<td>Sejet</td>
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<td>PROSPECT</td>
<td>Sejet</td>
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<td>APPLAUS</td>
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### Grain lots from crop 2016 and 2017
- Tests to be performed with grain lots from crop 2016 and 2017

<table>
<thead>
<tr>
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<td>DLA/Danish Agro</td>
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<td>Sejet</td>
<td>Sejet</td>
<td>DLA/Danish Agro</td>
</tr>
<tr>
<td>KWS FANTEX</td>
<td>KWS</td>
<td>KWS</td>
<td>Nielsen og Smith</td>
</tr>
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### Tests to be performed

- **Tests to be performed with grain lots from crop 2016 and 2017**

- **Tests to be performed with grain lots from crop 2017 and 2018**

- **Tests to be performed with grain lots from crop 2018 and 2019**
**VARIETY NAME: CROSSWAY**

**GENERAL INFORMATION**
- **Variety:** Crossway
- **Type:** Two row spring malting barley
- **Breeder:** Nordic Seed, Denmark
- **Representative:** Nordic Seed, Denmark
- **Distributor:** DLA
- **Pedigree:** Quench x (Perdita x Titan)
- **Status:** 736 ha multiplication in DK in 2018
- **Geography:** DK, DE and the Baltics

**AGRONOMY**
Data from Danish Official and National trials.

**Relative yield index.**
- **Crossway:**
  - 2014: 92
  - 2015: 94
  - 2016: 96
  - 2017: 98
  - 2018: 100

**VLB MICRO MALTING**
Stress test crop 2017 at 41%, 43% and 45% steeping degree. Tested variety is compared to the two largest malting barley varieties in Denmark for crop 2017.

<table>
<thead>
<tr>
<th>Variety</th>
<th>KWS Irina_45</th>
<th>KWS Irina_43</th>
<th>HSV Planet_45</th>
<th>HSV Planet_43</th>
<th>Crossway_45</th>
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<tr>
<td>Attenuation</td>
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<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

**INDUSTRY BREWING**
- **Brew house:**
  - In one of the trials additional deepcuts and wort collection time was needed.
  - Brewhouse loss in one test reported to be slightly higher than normal.
- **Fermentation and filtration:**
  - As normal
- **Packaged beer:**
  - As normal

**INDUSTRY MALTING**
- **Comments to malted barley lots:**
  - No comments to appearance of barley – and only “low to medium level” of Skinned Grains found
  - Average Germination Energy in malted barley lots
  - Below average barley screening >2,8 mm
  - High specific weight for barley from Danish crop 2016
- **Malt results - Positive:**
  - High extract level in malt - but also “low to medium” level of Skinned Grains in the barley!
  - Well modified malt expressed by good betaglucan level and friability values
- **Malt results - Negative:**
  - All tests found high level of soluble nitrogen in the produced malt.
    - This could be problematic or positive depending on maltsters preference!
  - A low beta-amylase level in the malt was partly confirmed in the full scale industry malting tests

**RECOMMENDATION**
Crossway is an average yielding malting barley variety with average agronomic features – however tendency to slightly higher then average straw breaking. Barley grading in terms of grain fraction >2,8 mm was found to be normal in National Trials, but below average in the malted barley lots. Maltsters will need to be aware of the very high level of soluble nitrogen in produced malt. This characteristic could be problematic or positive depending on maltsters preference! Limit attenuation level was found to be normal even through the beta-amylase level is consistently low.

**www.sortinfo.dk**
**VARIETY NAME: FLAIR**

**GENERAL INFORMATION**

Variety: Flair  
Type: Two row spring malting barley  
Breeder: Sejet, Denmark  
Representative: Sejet, Denmark  
Distributor: DLG  
Pedigree: Dacapo x (Tamtam x Overture)  
Status: 2.680 ha multiplication in DK in 2018  
Geography: DK, SE, PL and ES

**AGRONOMY**

Data from Danish Official and National trials.  
Relative yield index.

**VLB MICRO MALTING**

Stress test crop 2017 at 41%, 43% and 45% steeping degree. Tested variety is compared to the two largest malting barley varieties in Denmark for crop 2017.

**INDUSTRY BREWING**

Brew house:  
• Good lautering/wort collection  
• Brewhouse loss in one test reported to be slightly higher than normal

Fermentation and filtration:  
• Final Attenuation nicely high  
• Good low beer haze  
• Good beer filtration

Packaged beer:  
• As normal

**INDUSTRY MALTING**

Comments to malted barley lots:  
• No comments to appearance of barley – however high level of Skinned Grains was noticed as it was often for barley from crop 2017  
• High Germination Energy in malted barley lots  
• Barley screening >2,8 mm average to slightly low  
• Low but still better than average specific weight for barley from Danish crop 2017

Malt results - Positive:  
• Well modified malt expressed by good betaglucan level and low viscosity values  
• Very high enzymatic level in malt

Malt results - Negative:  
• No significant negative values found for tested parameters

**RECOMMENDATION**

Flair is a very high yielding malting barley variety with good agronomic features.  
Barley grading in terms of grain fraction >2,8 mm could be better.  
Good modification, high enzymatic level and good Final Attenuation in produced malt and beer.
VARIETY NAME: LAUREATE

GENERAL INFORMATION
Variety: Laureate, Non GN variety
Type: Two row spring malting barley
Breeder: Syngenta, Germany
Representative: Sejet, Denmark
Distributor: DLG
Pedigree: Sanette x Concerto
Status: 1.152 ha multiplication in DK in 2018
Geography: DK, UK, SE, F, PL, DE, IR and LT

AGRONOMY
Data from Danish Official and National trials. Relative yield index.

VLB MICRO MALTING
Stress test crop 2017 at 41%, 43% and 45% steeping degree. Tested variety is compared to the two largest malting barley varieties in Denmark for crop 2017.

INDUSTRY BREWING
Brew house:
• Very good wort collection reported
• Good laureating behavior
Fermentation and filtration:
• As normal
Packaged beer:
• As normal

INDUSTRY MALTING
Comments to malted barley lots:
• No comments to appearance of barley and low level of Skinned Grains compared to general level of crop 2017
• High Germination Energy in all malted barley lots
• Very good screening >2,8 mm
• High Water Sensitivity noticed

Malt results - Positive:
• Generally high extract levels in all trials
• Very high alpha-amylose activity found in one of the trials and better then average beta amylase levels found generally
• High Attenuation

Malt results - Negative:
• Below average malt modification expressed by betaglucan level and friablility values

RECOMMENDATION
Laureate is a very high yielding malting barley variety with good agronomic features. Barley grading in terms of grain fraction >2,8 mm is good. Laureate was found to be slightly difficult in regards to malt modification. Notice that Laureate is a Non-GN variety! Very high enzymatic level and high Attenuation in produced malt. Good brewery performance found through all trials.