Cereal varieties: What to look out for in 2018

Steve Hoad, SRUC
Headlines

• New malting spring barley varieties provide extra yield potential

• More options in spring oats

• Plenty of choice in distilling wheat varieties, with two new varieties added to 2018 list

• New six-row winter barley varieties, with several two-row varieties becoming outclassed
Harvest report 2017

- Total cereal production in 2017 was 2.86 million tonnes, or 1% down on the ten year average; with spring barley down 85,000 tonnes, oats up 35,000 tonnes, and both wheat and winter barley up slightly

<table>
<thead>
<tr>
<th></th>
<th>Spring barley</th>
<th>Winter barley</th>
<th>Winter wheat</th>
<th>Oats (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (ha)</td>
<td>243,838</td>
<td>47,509</td>
<td>109,489</td>
<td>32,625</td>
</tr>
<tr>
<td>Yield (t/ha)</td>
<td>5.88</td>
<td>7.41</td>
<td>8.12</td>
<td>5.66</td>
</tr>
<tr>
<td>Production (t)</td>
<td>1,432,815</td>
<td>352,108</td>
<td>889,308</td>
<td>184,813</td>
</tr>
</tbody>
</table>
## Spring barley list 2018

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yield (%)</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 LG Diablo</td>
<td>109</td>
<td>New. Potential for B and D</td>
</tr>
<tr>
<td>P1 LG Tomahawk</td>
<td>107</td>
<td>New. Potential for D</td>
</tr>
<tr>
<td>R Laureate</td>
<td>105</td>
<td>Full Approval for B and D</td>
</tr>
<tr>
<td>R KWS Sassy</td>
<td>105</td>
<td>Full Approval for D</td>
</tr>
<tr>
<td>R Sienna</td>
<td>103</td>
<td>Full Approval for D</td>
</tr>
<tr>
<td>P1 RGT Asteroid</td>
<td>102</td>
<td>New. Potential for B, D and GD</td>
</tr>
<tr>
<td>P3 Fairing</td>
<td>96</td>
<td>Provisional Approval for GD</td>
</tr>
<tr>
<td>R Concerto</td>
<td>93</td>
<td>Full Approval for B and D</td>
</tr>
<tr>
<td>R RGT Planet</td>
<td>104</td>
<td>Brewing varieties (Full Approval). Also consider for feed</td>
</tr>
<tr>
<td>R KWS Irina</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>R Propino</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>R Scholar</td>
<td>105</td>
<td>Feed variety</td>
</tr>
</tbody>
</table>

**Varieties no longer on Scottish list**: Belgravia, Odyssey, Olympus, Octavia, LG Opera and Waggon
# Winter barley list 2018

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yield (%)</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 KWS Creswell</td>
<td>104</td>
<td>Year 2. High yielding 2-row</td>
</tr>
<tr>
<td>R KWS Orwell</td>
<td>103</td>
<td>High yielding 2-row</td>
</tr>
<tr>
<td>O KWS Infinity</td>
<td>103</td>
<td>Becoming outclassed</td>
</tr>
<tr>
<td>R KWS Tower</td>
<td>102</td>
<td>Remains popular</td>
</tr>
<tr>
<td>O KWS Glacier</td>
<td>101</td>
<td>Becoming outclassed</td>
</tr>
<tr>
<td>S KWS Cassia</td>
<td>99</td>
<td>Special use – high specific weight</td>
</tr>
<tr>
<td>P2 Funky</td>
<td>106</td>
<td>Year 2. Highest yielding conv. 6-row</td>
</tr>
<tr>
<td>P1 KWS Astaire</td>
<td>104</td>
<td>New conventional 6-row</td>
</tr>
<tr>
<td>P2 Sunningdale</td>
<td>110</td>
<td>Year 2. Highest yielding hybrid 6-row</td>
</tr>
<tr>
<td>P1 Belmont</td>
<td>109</td>
<td>New. High yielding hybrid</td>
</tr>
<tr>
<td>R Bazooka</td>
<td>107</td>
<td>Established hybrid variety</td>
</tr>
<tr>
<td>P3 Belfry</td>
<td>106</td>
<td>Continues as provisional Year 3</td>
</tr>
<tr>
<td>P1 Libra</td>
<td>103</td>
<td>New. Hybrid with excellent specific wt.</td>
</tr>
</tbody>
</table>

Varieties no longer on Scottish list: Craft, Cassata, Pearl and KWS Meridian
# Winter wheat list 2018

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yield (%)</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P1</strong> KWS Jackal</td>
<td>105</td>
<td>New. Rated medium for distilling</td>
</tr>
<tr>
<td><strong>P1</strong> Elation</td>
<td>103</td>
<td>New. Rated good for distilling</td>
</tr>
<tr>
<td><strong>R</strong> Leeds</td>
<td>102</td>
<td>Established variety, medium for distilling</td>
</tr>
<tr>
<td><strong>P2</strong> LG Motown</td>
<td>102</td>
<td>Year 2. Medium for distilling</td>
</tr>
<tr>
<td><strong>P2</strong> LG Sundance</td>
<td>102</td>
<td>Year 2. Medium for distilling</td>
</tr>
<tr>
<td><strong>R</strong> Viscount</td>
<td>101</td>
<td>10th year. Rated good for distilling</td>
</tr>
<tr>
<td><strong>O</strong> Myriad</td>
<td>101</td>
<td>Becoming outclassed. Medium for distilling</td>
</tr>
<tr>
<td><strong>S</strong> Revelation</td>
<td>99</td>
<td>Specific use variety. Good for distilling</td>
</tr>
<tr>
<td><strong>R</strong> KWS Barrel</td>
<td>107</td>
<td>High yield, soft milling. Poor for distilling</td>
</tr>
<tr>
<td><strong>P1</strong> Elicit</td>
<td>104</td>
<td>New. Soft milling. Poor for distilling</td>
</tr>
<tr>
<td><strong>R</strong> Zulu</td>
<td>102</td>
<td>Established variety, medium for distilling</td>
</tr>
<tr>
<td><strong>R</strong> KWS Lili</td>
<td>103</td>
<td>Hard milling, nabim Group 2</td>
</tr>
<tr>
<td><strong>R</strong> KWS Siskin</td>
<td>100</td>
<td>Hard milling, nabim Group 2</td>
</tr>
<tr>
<td><strong>S</strong> Grafton</td>
<td>101</td>
<td>10th year. Hard feed option</td>
</tr>
</tbody>
</table>

**Varieties no longer on Scottish list**: Horatio and Savello
## Spring and winter oats 2018

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Yield (%)</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 Delfin</td>
<td>105</td>
<td>New. High yielding. Tall and stiff straw</td>
</tr>
<tr>
<td>P2 Yukon</td>
<td>103</td>
<td>Year 2. High yield. Tall and stiff straw</td>
</tr>
<tr>
<td>O Aspen</td>
<td>102</td>
<td>Becoming outclassed in market place</td>
</tr>
<tr>
<td>R Canyon</td>
<td>100</td>
<td>Establish variety</td>
</tr>
<tr>
<td>R Montrose</td>
<td>99</td>
<td>Good specific weight</td>
</tr>
<tr>
<td>P2 WPB Elyann</td>
<td>99</td>
<td>Very high kernel content</td>
</tr>
<tr>
<td>R Firth</td>
<td>97</td>
<td>19th year. High kernel content</td>
</tr>
<tr>
<td>R Conway</td>
<td>95</td>
<td>High kernel content</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendation</th>
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<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Dalguise</td>
<td>99</td>
<td>Established variety. Early maturity</td>
</tr>
<tr>
<td>R Gerald</td>
<td>98</td>
<td>Long established variety. Later maturity</td>
</tr>
</tbody>
</table>
Concerto – *Dominant, but outclassed on yield*

- 10th year on RL
- Almost ¾ of Scottish spring malting barley intake
- Good grain and malt quality (apart from skinning)
- Low agronomic yield
- Moderate straw strength, weak for *Rhynchosporium*
Laureate — *Full Approval for B and D*

- Full MBC Approval for brewing and distilling
- Very promising grain quality
- 12% higher yield than Concerto
- Strong agronomic features
- Short straw
- Lowish specific weight
Sienna – Full Approval for distilling

- Full MBC Approval for distilling
- 10% higher yield than Concerto
- With better straw strength and Rhynchosporium resistance
- Very high specific weight
- Future will depend on further commercial evaluation in 2018 and progress with Laureate
KWS Sassy – *Full Approval for distilling*

- Full MBC Approval for distilling
- 12% higher yield than Concerto
- Moderate for straw stiffness and brackling
- Low screenings
- Relatively tall straw
- Future will depend on further commercial evaluation in 2018 and progress with Laureate
Fairing – *Grain distilling variety*

- Provisional Year 3 on Scottish List
- Provisional MBC Approval for grain distilling
- 5% yield improvement over Belgravia
- Earliest variety on the RL
- Strong agronomic features, including very good *Rhynchosporium* resistance
LG Diablo – *New, potential for B and D*

- Provisional Year 1
- Under MBC testing for brewing and distilling
- Very high yielding
- 4% above Laureate
- Slightly later than Concerto
- Intermediate straw length
- Very good brackling resistance
LG Tomahawk – *New, potential for D*

- Provisional year 1
- Under MBC testing for distilling
- Very high yielding
- 2% above Laureate
- Slightly later than Concerto
- Shortish straw
- Lowish specific weight
RGT Asteroid – *New, potential for B, D & GD*

- Provisional year 1
- Under MBC testing for brewing, distilling and grain distilling
- Intermediate yield
- 3% below Laureate
- Slightly later than Concerto
- Very good brackling resistance
- Good specific weight, low screenings
Brewing varieties – *also suit feed use*

- RGT Planet
- KWS Irina
- Propino

- All three brewing varieties are competitive for yield and are relatively early with good straw strength

- Scholar is a fully recommended feed-only variety

- Waggon has become outclassed for yield
Spring oats – *New choices*

- **Delfin**

- **Yukon**
  High treated and untreated yield. Intermediate for kernel content and specific weight. Tall, stiff straw.

- **WPB Elyann**
Research highlights

Projects – crop improvement and variety choice:

• Specific weight in barley

• Grain skinning

• Remote sensing for diagnosing limits to crop yield
Specific weight in spring barley

• AHDB funded PhD studentship – Aaron Hoyle

• Aim: To understand grain components that determine specific weight and how these influence the malting process

• Components of specific weight:
  
  Specific Weight = grain density × packing efficiency
  
  Packing Efficiency = grain number × mean grain volume
Grain shape influences grain number in a vessel.

- Grain density is also important in determining specific weight.
Grain skinning and malting quality

- SRUC PhD studentship – Paulina Okoro

- **Aim:** To quantify the effects of grain skinning on the malting process

- **Objectives:** (1) To understand how pre-harvest and crop handling conditions affect skinning and (2) Establish the impacts of skinning on malting parameters
Grain skinning and malting

- Micro-malting study of skinned barley grains (focus on hot water extract)
ATEC Project

Advanced Technologies for Efficient Crop management

Objectives:

• Evaluation of crop observations (with supporting data analysis and modelling) in wheat and potatoes.

• Demonstrate technologies to diagnose yield limitations.

• Provide, through co-creation, recommendations for optimum sensors and processing techniques to support precision agriculture management decisions.

• University of Edinburgh: Mathew Williams, Andrew Revill and Alasdair MacArthur

• SRUC: Anna Florence, Bob Rees, Andrew Barnes and Steve Hoad
Sample UAV sensor imagery data of the winter wheat trial plots acquired on 18th July 2017.

- The ATEC project is looking for collaboration with local farms in 2018 and 2019. Contact anna.florence@sruc.ac.uk
Summary

Spring barley
• Laureate to grow market share
• KWS Sassy and Sienna develop some market interest
• Fairing has potential for grain distilling
• New varieties: LG Diablo, LG Tomahawk and RGT Asteroid
• RGT Planet and KWS Irina can be considered for feed use

Spring Oats
• Firth, Canyon and Conway remain the market leaders because of their preferred milling qualities
• Delfin is a new variety with high yield potential
• Consider Yukon and WPB Elyann
Summary

Winter barley

- The highest yielding two-row options are KWS Orwell, KWS Infinity and KWS Creswell. The older variety KWS Cassia is appreciated for its superior specific weight.
- Three new six-row varieties. Hybrids Belmont and Libra, and conventional KWS Astaire

Winter wheat

- Plenty of choice when it comes to distilling wheat varieties. List includes new varieties KWS Jackal and Elation, as well as LG Motown and LG Sundance (added in 2017)
Thank you