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Scotland's Rural College

Cereal varieties: summer 2019 update - winter wheat, winter barley and spring barley.

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Cereal Varieties

Summer 2019 Update

Winter wheat

Winter barley

Spring barley



Winter Wheat

North region yields are given as a % of fungicide-treated controls (11.2 t/ha). Untreated yield is a % of UK treated controls (11.2 t/ha).

Comment

Winter wheat varieties with soft endosperm remain the most important choices for Scottish growers in meeting the needs of the grain distilling sector. The nabim soft Group 4 category for distilling and feed use include well-established varieties such as Viscount, Leeds, Revelation, LG Motown and LG Sundance along with the more recently introduced KWS Jackal and Elation, and new varieties LG Skyscraper and LG Spotlight.

Some Group 3 biscuit-making varieties such as Zulu and Elicit also suit distilling use.

For hard feed wheat, Gleam and RGT Gravity are the top choices, whilst a new hard milling variety KWS Extase looks interesting with an outstanding untreated yield.

When making variety choices check for the best balance of disease resistance, maturity, straw stiffness and grain quality.

Yellow rust note. Many varieties in trials in the south-east of Scotland and north of England have been infected with yellow rust, even those with a good resistance rating of 8 or 9. Please note any changes in disease resistance ratings as AHDB compile new data from harvest 2019.

Bennington: A soft Group 4 variety with recommendation for the East and West regions, but underperforms in the North region [99] and is rated poor for distilling. This variety has tall and stiff straw has given good yields on heavier soils. It has a relatively high untreated yield [84], with good resistance to mildew and Septoria tritici, but with an intermediate rating for yellow rust it has looked poor in some untreated plots.

Costello: A hard-milling feed variety with an outstanding specific weight [80.9] and very high Hagberg figures. It has modest yield [100] and intermediate untreated yield [82], but has attracted interest among feed wheat growers as a consistent performer. It has short stiff straw and good resistance to mildew and yellow rust.

Crusoe: This Group 1 variety is rarely grown in Scotland, though in bread-making millers value its consistently good baking performance and bread crumb structure. North region yield is low [93], as is untreated yield [74]. It has a high specific weight. It has short straw and good resistance to mildew, yellow rust and Septoria tritici, but is susceptible to eyespot and very susceptible to brown rust.

Dunston: A high yielding feed variety [102] with strong agronomic features, including a good untreated yield [86]. It has tall straw with good standing ability. It is suitable as a first or second cereal. Limited data suggests it is versatile across drilling dates and soil textures. It has good resistance to yellow rust and Septoria tritici.

Elation: This is soft feed variety is rated good for distilling. It has high yield potential [103], with moderate untreated yield [79]. Specific weight is good and Hagberg figures are moderate. Resistance to Septoria tritici is poor. It has performed well as a second wheat and also suits lighter textured soils.

Elicit: A biscuit-making variety that is rated good for distilling. Compared to Zulu, it has improved treated [102] and untreated [82] yield, with similar maturity and higher specific weight, but lower Hagberg figures. It has good resistance to yellow rust and *Septoria tritici*.

Elysium: This candidate soft wheat has good all-round agronomic features, with tall stiff straw and early maturity. UK yield [103] and untreated yield are good.

Evolution: This hard feed variety is no longer in trials. In the north region it has produced high yields [103]. It has no serious disease weaknesses and intermediate untreated yield [80]. It tends to give a low specific weight and low Hagberg figures. This variety has produced high yields on lighter textured soils and performs well in second cereal situations. It has tall moderately stiff straw. It is rather late maturing. It has no midge resistance.

Freiston: This hard feed variety is no longer on the Recommended List, though it has produced high treated [103] and untreated [86] yields. It has an intermediate specific weight. This variety has performed well in North region trials. It has good all-round disease resistance, with excellent resistance to *Septoria tritici*. It is susceptible to eyespot. It has tall straw with medium strength.

Gleam: A hard feed variety with very good treated yield [104] and good untreated yield [85]. It is relatively early maturing and has no severe disease weaknesses. It suits all soil types and looks relatively strong in the second cereal position.

Graham: This hard feed variety has a modest treated yield [100], but high untreated yield [88]. It has performed best in the West region, but has also been popular with feed growers in the north of England. It has early maturity with good results as a first cereal and on heavier soils. It has good resistance to mildew, yellow rust and *Septoria tritici*. It is susceptible to eyespot.

Hardwicke: This soft Group 4 feed variety was a North region recommendation, but is no longer on the List. It is rated as medium for distilling.

JB Diego: This established hard feed variety has given consistently good yields in many situations and has been a popular choice in the north of England. Its Hagberg figures and specific weight are consistently good. It has early maturity with good sprouting resistance, though only moderate disease resistance, with poor untreated yield [71]. It performs well as a second wheat. With its trials yield [100] becoming outclassed, it is no longer being tested.

KWS Barrel: A Group 3 variety has biscuit making and export potential, but is rated poor for distilling. It has short stiff-straw and has produced very high treated high yields [105], though untreated yield is poor [72]. It has performed particularly well on lighter soils. Although it has a high rating for yellow rust resistance, infection has been high in crop trials. It is very susceptible to *Septoria tritici* and eyespot, but has orange wheat blossom midge resistance.

KWS Basset: This Group 3 biscuit wheat has moderate yield [99] and low untreated yield [74]. It meets the quality criteria for biscuit and export wheat, but is rated poor for distilling. It has a good specific weight and yields well when drilled early. It has good resistance to yellow rust and is orange wheat blossom midge resistant.

KWS Crispin: A hard feed variety that underperforms in the North region [98]. It has intermediate grain quality and agronomic features, but can be prone to lodging, so a robust PGR program is required. It performs best in first cereal situations and is suitable for late sowing.

KWS Extase: This new Group 2 variety has a competitive yield [102], with an outstanding untreated yield [95] and a top rating for Septoria tritici resistance [8.1]. It has very good grain characteristics: including high protein levels, Hagberg falling number and specific weight. With the exception of eyespot, it has good disease resistance and is early maturing. With such strong agronomic features, this hard milling variety could have wider appeal.

KWS Firefly: A new Group 3 biscuit-making variety rated poor for distilling. It underperforms in the North region [99], though has a good untreated yield [86] with good resistance to Septoria tritici. It has stiff straw and is relatively early to mature.

KWS Jackal: This soft feed variety is a North region recommendation and is rated medium for distilling. It has high yield potential [104], with good resistance to mildew and yellow rust, though untreated yield is just intermediate [77]. It is earlier maturing than Leeds and Myriad and has stiffish straw. It is relatively good as second wheat.

KWS Kerrin: This short-strawed hard feed variety has an East and West recommendation. It has produced high yields [105] as a first or second wheat, with good performance on lighter textured soils, or when sown late. It tends to give low specific weight and Hagberg figures. It has good resistance to mildew and brown rust as well as being resistant to orange wheat blossom midge. Its intermediate rating for yellow rust resistance is now looking weak. Its untreated yield is intermediate [81].

KWS Kinetic: A high yielding hard feed candidate. It is early maturing and has intermediate agronomic features. UK yield [105] and untreated yield [86] are good.

KWS Lili: This Group 2 milling variety has produced high treated yields [103] in the North region. It has a high Hagberg falling number, but tends toward low protein content, so will require careful nitrogen management if looking for a premium market. It has stiff straw and good resistance to mildew, though other disease resistances are intermediate and its untreated yield can be very low [72]. It has performed particularly well on lighter soils and is best suited to first wheat situations. It is later maturing than other milling varieties.

KWS Parkin: This hard feed candidate has very early maturity and very short, stiff straw. Other agronomic features are intermediate. UK yield [103] and untreated yield [84] are good.

KWS Santiago: This high yielding hard feed variety has been an established East and West recommendation, but is no longer on the List. It is valued for versatility across a range of soil types and rotational positions. Regarded as a high input and high output variety, it requires a good fungicide and PGR programme to get the best from it. Its grain quality is moderate and maturity is relatively late.

KWS Siskin: This Group 2 milling variety has tended to underperform in the North region [100]. It has produced high Hagberg figures and good specific weights. It has good resistance to Septoria tritici, mildew and yellow rust, with intermediate untreated yield [85], but is susceptible to eyespot. It has performed well as a first and second cereal, and on heavier textured soils. It has moderate resistance to lodging but responds well to plant growth regulators.

KWS Trinity: This Group 1 milling variety is no longer in RL trials. It failed to develop much UK market interest and has no outlet in Scotland. Apart from weakness to Septoria tritici, its agronomic features are fairly good, including stiff straw.

KWS Zyatt: This nabim Group 1 variety has a high UK yield, but underperforms in the North region [99]. Quality tests indicate good processing and baking performance. It has high Hagberg figures and specific weight. It has a high untreated yield [86] with good resistance to mildew, yellow rust, Septoria and eyespot. It has stiff straw and early maturity. For rotational position, it suits heavier textured soils and is good in the second wheat position.

Leeds: This established soft Group 4 variety is rated medium for distilling. It has performed best in the North region [101] with consistently good specific weight. It is susceptible to mildew and Septoria tritici and has a very poor untreated yield [68]. It is orange wheat blossom midge resistant. It is rather late maturing. This variety suits lighter textures soils and has yielded well in late sown trials.

LG Detroit: This new nabim Group 2 variety underperforms in the North region [95]. It has potential for breeding making, but is unlikely to have an outlet in Scotland. It has high protein levels and good specific weight. Disease resistance and untreated yield [77] are intermediate, though yellow rust resistance is good. It is relatively late maturing.

LG Graduate: A high yielding, but late maturing, soft feed candidate. It is under test for grain distilling use. Grain quality and agronomic features are intermediate. Its UK yield [105] looks very good and untreated yield is intermediate [81].

LG Interstellar: This variety was a soft feed candidate in 2018, but not added to the 2019/20 Recommended List. It has intermediate agronomic features, but very poor untreated yield [67], with similar maturity to Leeds and Myriad.

LG Jigsaw: This variety was a hard feed candidate in 2018, but not added to the 2019/20 Recommended List. It has a lowish specific weight whilst other grain quality and agronomic features are intermediate.

LG Motown: A soft feed variety rated medium for distilling. It is relatively early to mature and has produced intermediate yields in both treated [102] and untreated [84] trials. It has yielded very well on light soils. This short-strawed variety has only moderate resistance to lodging and will benefit from a good PGR programme. It has good all-round disease resistance with high resistance to mildew, yellow rust and brown rust, it is also resistant to orange wheat blossom midge, but is susceptible to eyespot.

LG Rhythm: A candidate biscuit making variety in 2018, but not added to the 2019/20 Recommended List. It has intermediate agronomic features, though its Hagberg figures and specific weight are below average.

LG Sabertooth: This was a candidate soft feed variety in 2018, but was not added to the 2019/20 Recommended List. It under performed in the North region [102] and is late maturing. Specific weight is low.

LG Skyscraper: This new soft feed variety is high yielding [104] and has early maturity. It is rated medium for distilling. Hagberg figures and specific weight are intermediate. It has good resistance to mildew and yellow rust, with good untreated yield [84]. It is relatively tall, but straw strength is about average for this category.

LG Spotlight: A new soft feed variety rated medium for distilling. Hagberg figures and specific weight are excellent for a soft wheat. Yield in the North region yield [101] is below its UK average. Untreated yield is intermediate [82]. Although it has a high resistance rating for yellow rust, infection is evident in crop trials. It has relatively good resistance to Fusarium ear blight. Maturity is earlier than Leeds.

LG Sundance: This soft Group 4 variety is rated medium for distilling. This variety has produced good yields in treated [102] and untreated [86], but tends to give low specific weights. It has very good resistance to Septoria tritici with high resistance to yellow rust, and resistance to OWBM. However, it is highly susceptible to eyespot. It has late maturity and intermediate straw stiffness that benefits from a good PGR programme.

Moulton: This soft-milling feed variety is rated as poor for distilling, and is no longer on the Recommended List. It has a high specific weight, and a high untreated yield [88], has high resistance to mildew, yellow rust, brown rust and Septoria tritici, but it is susceptible to eyespot. It has relatively early maturity.

Myriad: A North region recommendation as a soft milling feed wheat, rated as medium for distilling. It is no longer in trials and has been removed from the SRUC Scottish List. A very poor untreated yield [63] reflects poor disease resistance; it is susceptible to mildew and yellow rust. It is resistant to orange wheat blossom midge. It has moderate resistance to lodging.

Revelation: A soft endosperm feed variety rated as good for distilling. This variety has above average disease resistance, with high resistance to yellow rust, brown rust and eyespot and above average resistance to Fusarium head blight. It is not midge resistant. This late maturing variety has slow primordial development and is best suited to very early drilling to improve its modest treated yield [98].

RGT Blossom: A candidate with potential for bread-making. UK yield [100] is comparable with other milling quality varieties, though untreated yield [73] is low. Most agronomic and grain quality characters are intermediate, though maturity is early and Hagberg figures are very high.

RGT Gravity: This hard feed variety yields very well in the North region [105] and is the highest yielding hard Group 4 variety on the SRUC Scottish List. Its Hagberg figures and specific weight are below average. Its resistance to mildew and Septoria tritici are relatively low, with a modest untreated yield [80], but otherwise it has no severe agronomic weaknesses. Performance as a second wheat, or when late sown, is very good.

RGT Illustrious: A Group 1 quality bread wheat, but underperforms in the North region [94] and is not likely to attract a market in Scotland. It has similar maturity to other quality bread wheats and a relatively good disease package with high ratings for mildew, yellow rust, brown rust and eyespot.

RGT Lantern: This candidate hard feed variety a good UK yield [104] and is intermediate for most agronomic features. Its specific weight is below average.

RGT Saki: A candidate with potential for feed use. Data cannot be published as it has not completed National List testing.

RGT Wasabi: A candidate with potential for feed use. Data cannot be published as it has not completed National List testing.

Savello: This soft feed variety is rated as medium for distilling, but is no longer on the Recommended List. It was also removed from the SRUC Scottish List in 2018. It has a low specific weight and intermediate Hagberg falling number. It has high resistance to mildew and yellow rust, but is susceptible to *Septoria tritici* and eyespot. Its straw stiffness is only moderate, but responds well to plant growth regulators. It is early maturing and has performed relatively well in second cereal situations.

Shabras: A hard feed variety that has given very high yields [104], particularly in trials on lighter soils and in second cereal situations. It is relatively early maturing. Its specific weight is below that of Grafton and JB Diego. It has only moderate resistance to lodging. It has intermediate resistance to yellow rust and *Septoria tritici*.

Skyfall: An established bread-making variety, but with very limited use in Scotland. It is favoured by bread-makers because it shows good milling and baking qualities. It is also popular as a feed variety in the north of England. It has relatively good yield [98] for a Group 1, with good Hagberg figures and specific weight. It has good straw strength, but is weak for mildew and yellow rust. It is early ripening and can be grown as a first or second wheat.

Spyder: This Group 3 biscuit making variety is rated poor for distilling, and it is no longer on the Recommended List. It was recommended for the East and West regions, but underperforms in the North.

SY Loki: This soft feed variety was a candidate in 2018 but was not added to the 2019/20 Recommended List. Most of its agronomic features are intermediate, but its straw stiffness and resistance to *Septoria tritici* are below average. Its specific weight is relatively low.

SY Medea: This hard milling variety was a bread-making candidate in 2018 but was not added to the 2019/20 Recommended List. Its yield was relatively low, but protein level looked very good.

Theodore: This hard feed candidate has an excellent untreated yield [92] and early maturity. It has very good disease resistance. Hagberg figures are well above the Group average, though specific weight is very low [73.9].

Viscount: A long established soft feed variety recommended for the North region where it has achieved consistently good yield [101]. It is a benchmark variety for distilling quality. It also meets the UK specification for export markets. It has short stiff straw variety and its disease resistance is intermediate, with weak resistance to *Septoria tritici* and a low untreated yield [73]. It tends to give low Hagberg figures.

Zulu: An established nabim Group 3 soft biscuit variety with a medium rating for distilling and UK export potential. It consistently meets the quality requirements for soft milling. It has intermediate Hagberg figures and specific weight. It has high resistance to mildew but is weak for yellow rust, and susceptible to eyespot. It has orange wheat blossom midge resistance. It has produced good yields in the North [102]. It has only moderate resistance to lodging it responds well to plant growth regulators.

Winter Barley

North region yields are given as the % of fungicide-treated controls (9.8 t/ha). Untreated yield is a % of UK treated controls (9.9 t/ha).

Comment

In two-row feed varieties, the best yields have been achieved by LG Mountain, KWS Creswell, KWS Orwell and KWS Infinity. Feed varieties with the best grain quality are Valerie, KWS Cassia and LG Flynn. Most two-row varieties have weakness to one or more of the major diseases e.g. mildew, Rhynchosporium or net blotch.

The list of six-row varieties is dominated by hybrids. For 2019/20, there are two new hybrids, SY Baracooda and SY Kingsbarn. The best conventional six-row varieties are Funky and KWS Astaire.

The Scottish market for winter malting varieties remains small, at about 10 percent of the UK total intake. Malting varieties have a significant yield penalty compared to most feed varieties.

Specific weight along with disease resistance, maturity and straw stiffness should be considered when making variety choices. Unless stated otherwise, all the varieties listed below have resistance to barley mild mosaic virus (BaMMV) and barley yellow mosaic virus (BaYMV) strain 1.

MBC = Malting Barley Committee.

Bazooka: This hybrid six-row is high yielding [**106**] with a very good untreated yield [**89**]. It has a good specific weight and relatively low screenings. It has tall stiff straw, but can lodge under high pressure situations. It has intermediate disease resistance, though is relatively weak for mildew. Maturity is intermediate. It yields well in all regions and performs well on heavy textured soils.

Belfry: This hybrid six-row has a competitive yield [**105**] and very good untreated yield [**90**]. It is average for specific weight and screenings. It has stiff straw, though high yielding crops are prone to leaning and lodging. Maturity is intermediate. It has performed well on heavy textured soils.

Belmont: A hybrid six-row variety with outstanding yield [**108**], though yield loss is very high in untreated trials [**78**]. It is average for specific weight and screenings. Other features such as maturity and straw stiffness are intermediate.

California: Recommended for the West for its tall stiff straw, this variety has early maturity and moderate specific weight. Disease resistance is intermediate. It is well suited to heavier soils. Its North region yield [**97**] has become out-classed, but untreated yield [**80**] is average for this category.

Craft: This malting variety has MBC Full Approval for brewing and had just over 20% of the UK market share in 2018. However, check if there is any market interest in 2019/20 before sowing. Treated yield [**97**] is low compared to feed varieties. Specific weight is good. It has stiff straw, but low untreated yield [**77**].

Dalham: Data for this candidate two-row feed variety cannot be published as it has not completed National List testing.

Electrum: A UK malting variety with MBC Provisional Approval for brewing. It is low yielding [95], but has good specific weight. It is early maturing and has average disease resistance.

Fay: This candidate malting variety is under test for brewing use. It low yielding [98], but has very early maturity. It has very good specific weight.

Funky: A conventional six-row variety with average treated yield [104], but very good untreated yield [90]. This variety has a very good specific weight, but is prone to high screenings. It has short and very stiff straw, and is early maturing.

KWS Astaire: This conventional six-row feed variety has average yield [103]. It has low specific weight, though screenings are also low. It has very stiff and above average disease resistance.

Jordan: This candidate two-row feed variety has a high UK yield [105] and fairly good untreated yield [86]. Specific weight is very good [70.0] and grain maturity is intermediate. It may not be resistant to BaMMV or BaYMV.

KWS Cassia: This widely grown successor to Saffron has excellent specific weight [71.0] and consistent performance in the North region, though in trials it has become outclassed [98]. It remains on the SRUC Scottish List as a specific use variety. Resistance to lodging is good. Mildew and Rhynchosporium resistance are weak, but brown rust and net blotch resistance relatively good. Its maturity is later than average.

KWS Creswell: A recommendation for the North region, where its yield [103] has been above its UK average. It has an intermediate specific weight, with average straw length and strength. A very low untreated yield [74] reflects weaknesses for mildew and net blotch. It has achieved high yields on lighter soils.

KWS Glacier: With a competitive yield [101] and very good specific weight, this two-row feed variety has been grown widely. It is no longer on the SRUC Scottish list because of a decline in market share. Its straw is both weaker and shorter than KWS Cassia. It is very weak for mildew and Rhynchosporium, and has a low untreated yield [77]. It has intermediate maturity and performs well on heavier textured soils.

KWS Gimlet: This new two-row feed variety underperforms in the North region [100]. It is very tall and late, with intermediate straw strength. Specific weight is good and disease resistance average with a fairly good untreated yield [84]. Limited data indicates suitability to heavy textured soils.

KWS Hawking: This candidate two-row feed variety has a very high UK yield [107] and excellent specific weight [70.2], with above average untreated yield [84]. It has intermediate maturity. If recommended, then this variety could become of interest to Scottish growers.

KWS Infinity: A high yielding [102] two-row feed variety with fairly good specific weight. It has intermediate straw strength. It has weak resistance to mildew with moderate resistance to other diseases and below average untreated yield [79]. It is now considered to be outclassed on the SRUC Scottish list.

KWS Patriot: This candidate two-row feed variety has a very high UK yield [106] and average untreated yield [82]. Its specific weight is good. It is relatively weak for mildew and net blotch.

KWS Orwell: A high yielding [102] two-row feed variety with intermediate specific weight. It has stiff medium-length straw. It is very weak for mildew and has average Rhynchosporium resistance. Maturity is average. It performs well on both heavy and lighter textured soils.

KWS Tower: This widely grown two-row feed variety has consistent yield [102] and moderate specific weight. It is taller than KWS Glacier and slightly later maturing. It is weak for net blotch, and tends to be poor for mildew. It has performed well on lighter soils.

Libra: This hybrid six-row feed variety has a modest yield in the North region [103], but an excellent specific weight [70.8]. It is early maturing and has average straw strength. It is weak for mildew. Yields have been very good on heavier land.

Surge: A two-feed variety that underperforms in the North region [98], though it has a good untreated yield [86] and specific weight. Lodging resistance and maturity are average. Disease resistance is relatively good, especially for Rhynchosporium and net blotch.

LG Flynn: A new two-row feed variety with very good specific weight. Its treated yield [101] is low in the North region compared to its overall UK performance, whilst untreated yield is average [85]. It has weak resistance to mildew and is relatively late maturing. Limited data indicates that it is best suited to heavy textured soils.

LG Mountain: This new two-row feed variety is very high yielding [105] and early maturing. It has good specific weight. Disease resistance and untreated yield [83] are average. Limited data indicates that it is best suited to heavy textured soils and responds well to plant growth regulators. It is the highest yielding two-row variety on the SRUC Scottish List.

Sunningdale: This hybrid six-row variety has the best North region yield [109]. Specific weight is just below other six-row varieties. It has moderate straw strength and average maturity. It yields even better on lighter textured soils.

SY Baracooda: A new hybrid six-row variety with high yield [106] and very good untreated yield [91]. It has good specific weight and relatively low screenings. It is very tall and needs protection from leaning and lodging under high pressure situations. It has excellent resistance to mildew.

SY Kingsbarn: This new hybrid six-row variety has high yield [106], very good untreated yield [89] and very good specific weight. It also has low screenings. Its straw is relatively stiff and maturity about average.

SY Kingston: A candidate hybrid six-row with very high UK yield [108] and excellent untreated yield [91]. Specific weight is excellent [70.9]. Maturity is relatively early.

SY Melbourne: A candidate hybrid six-row with very high UK yield [109] and excellent untreated yield [91]. Disease resistance is above average. Specific weight is intermediate.

SY Venture: A malting variety with MBC Full Approval for brewing. In 2018, it had just under 20% of the UK winter malting intake, with a small quantity sourced from Scotland. It has a very low yield [94] and poor untreated yield [69]. It can produce above average screenings.

Valerie: A new two-row feed variety with excellent specific weight [70.2] and strong agronomic features. It is early maturing, with stiff straw and relatively good disease resistance. Untreated yield is very high [87], with a North region treated yield just below its UK average [102].

Zophia: This candidate malting variety is under test for brewing use. It is low yielding [98], but has outstanding specific weight [71.2].

Spring Barley

Yield figures are for the North region as a % of the treated controls (7.5 t/ha). Untreated yield is a % of UK treated controls (7.6 t/ha).

MBC = Malting Barley Committee.

Barbarella: A malting candidate with potential for brewing use. Data cannot be published as the variety has not completed National List testing.

Chanson: This variety has been removed from the MBC Approved List. It has a special use in brewing where its lack of a gene for lipoxygenase production increases product quality and storage in some processes. It has low specific weight, but relatively low screening losses. It has medium length straw, but is relatively weak for lodging. It is weak for *Rhynchosporium* and brown rust, and is relatively early maturing.

Concerto: Fully Approved by the MBC for both brewing and malt distilling. It retained a significant market share in 2018, with just under 40% of the Scottish malting intake, but is now significantly out-classed for agronomic yield [92]. The industry has now moved to Laureate as the main dual-purpose use variety (i.e. brewing and distilling). Its straw is tall and rather weak, but it has good brackling resistance. It is very vulnerable to *Rhynchosporium* and untreated yield is low [84].

Cosmopolitan: A high yielding [106] brewing variety with MBC Provisional Approval. It has a low specific weight and average grain maturity. It has been added to the SRUC Scottish list as a high yielding malting variety that can also be considered for feed use.

Fairing: This variety is a special recommendation for the grain distilling market, for which it has MBC Full Approval. It is not likely to be used malt distilling. It has average straw strength and good resistance to brackling. It has excellent resistance to *Rhynchosporium*. Its vulnerability to brown rust is less of an issue in the North region. Its treated yield is low [95], but it might be considered in feed areas where very early maturity [-2] is of value.

Fairway: A candidate feed variety. Data cannot be published as it has not completed National List testing.

Firefoxx: A candidate malting variety with potential for distilling. Data cannot be published as it has not completed National List testing.

Flyer: A candidate feed variety. Data cannot be published as it has not completed National List testing.

Iconic: This candidate malting variety has produced some very encouraging results in brewing tests, but it will not be accepted for distilling. It has high treated [105] yield and very high untreated [98] yield, and intermediate specific weight.

Jaspa: A candidate feed variety. Data cannot be published as it has not completed National List testing.

Hacker: Recommended as a feed variety suitable for the West, this variety is no longer in trials. It is outclassed on yield [99]. Straw strength is good and brackling resistance is excellent. Specific weight is also very high. It has intermediate maturity.

KWS Irina: This brewing variety is no longer Approved by the MBC. It has moderate yield [102], but poor specific weight. It has short and stiff straw with very good brackling resistance. It has intermediate resistance to Ramularia, but is vulnerable to Rhynchosporium and brown rust. Its maturity is relatively early (similar to Propino).

KWS Sassy: A malting distilling variety with Full Approval from the MBC. It has a high hot water extract. In terms of usage, it has a supporting role to Laureate and Concerto, with about 3% of the 2018 Scottish intake. Straw strength and brackling resistance are relatively weak in this tall variety. It is intermediate for Rhynchosporium.

Laureate: With MBC Full Approval for both brewing and distilling this high yielding variety [104] had almost half of the Scottish intake and one-third of the total UK intake at harvest 2018. It has high hot water extract. Straw strength is good and brackling resistance very good. It has a very high untreated yield [94] and no significant disease weaknesses. Maturity is slightly later than Concerto.

LG Diablo: This variety has been given MBC Full Approval for malt distilling, but remains at Provisional Approval for brewing. It is very high yielding [107] with excellent untreated yield [94]. Following encouraging macro-scale tests, this variety should start to compete for intake in 2020. It is late maturing [+2], but has good straw stiffness and high brackling resistance. Screenings are relatively low.

LG Goddess: A malting candidate in 2018, but was not added to the 2019/20 Recommended List.

LG Furlong: A malting candidate with potential for brewing, but not for distilling. It has a very high UK yield [107] and excellent untreated yield [97]. It has short straw. Specific weight is fairly low.

LG Serengeti: A malting candidate with potential for brewing and distilling, but data cannot be published as it has not completed National List testing.

LG Tomahawk: This variety was not supported for malting and subsequently considered as feed only. It is no longer in trials.

Olympus: This variety has MBC Full Approval for grain distilling. Its 8% yield advantage [103] over Fairing is significant. However, it has been removed from the SRUC Scottish List because of limited market interest. Compared to Fairing, it has lower grain nitrogen content and a smaller intake in 2018. Its straw is of average strength, with mediocre resistance to brackling. Maturity is similar to Concerto.

Player: A candidate malting variety, but is unlikely to make progress for either brewing or distilling.

Prospect: A candidate malting variety, but is unlikely to make progress for either brewing or distilling.

Ovation: Recommended as a feed variety, though both treated [102] and untreated [87] yields are lower than the top malting varieties. Its straw strength is average, but shorter than Waggon and Westminster. It has intermediate disease resistance.

Propino: Fully Approved by the MBC for brewing. In Scotland, it has been used mainly as a feed variety, with fairly tall straw of average strength and good brackling resistance. Given its relatively low yield [99], growers should consider whether to replace it with another brewing-only variety such as RGT Planet or Cosmopolitan, or whether to move to a dual-purpose variety such as Laureate. It is vulnerable to mildew. Maturity is relatively early.

RGT Asteroid: A malting variety that has provisional approval for malt distilling, brewing and grain distilling. Although not as high yielding [102] as LG Diablo, this variety has good agronomic features; including a high untreated yield [93], as well as high specific weight and low screenings.

RGT Orbiter: This was a malting candidate in 2018, but not added to the 2019/20 Recommended List.

RGT Planet: This brewing variety has MBC Full Approval. It has a hot water extract better than Propino. It has a competitive treated yield [103] and has shown consistency across a wide range of growing conditions. Its straw length and strength are average, and it has good resistance to brackling. It has fairly good resistance to Ramularia, but is vulnerable to brown rust. Maturity is relatively early.

RGT Slipstream: A malting candidate with potential for brewing. Treated yield is good [105] and straw is short and stiff. Specific weight is low.

Scholar: This North region recommended as a feed-only variety is no longer in trials. Consideration should be given to malting varieties as some of these will have comparable treated [104] and untreated [92] yields, as well as taller straw. It has excellent brackling resistance. It has good resistance to Ramularia. Maturity is average.

Sienna: This variety has MBC Full Approval for malt distilling. It had almost 2% of the Scottish intake in 2018. Its hot water extract is close to Concerto and it has a very high specific weight [70.9], which might be an advantage in a batch malting processes. Treated yield is intermediate [102]. It has average straw strength and is relatively tall. It has fairly good brackling resistance. Disease resistance is above average. Maturity is average.

SY Contour: This malting candidate in 2018 was not added the 2019/20 Recommended List. It is very late maturing and has a low specific weight.

SY Kailash: This feed candidate in 2018 was not added the 2019/20 Recommended List. It is very late maturing and has a low specific weight.

SY Splendor: A malting candidate with potential for brewing, but will not suit distilling. Treated [107] and untreated [96] yields are very good. Specific weight is good and maturity relatively early.

SY Tungsten: A malting candidate with very encouraging results in both brewing and distilling tests. Treated [107] and untreated [96] yields are very good [107]. Specific weight is good and maturity is average.

Further details:

The full data sets collected are available on the AHDB Cereals & Oilseeds website here, <http://cereals.ahdb.org.uk/varieties>

Cereal varieties of most value to growers in Scotland are highlighted in the SRUC Scottish List tables here, <https://www.sruc.ac.uk/recommendedcereals>



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