



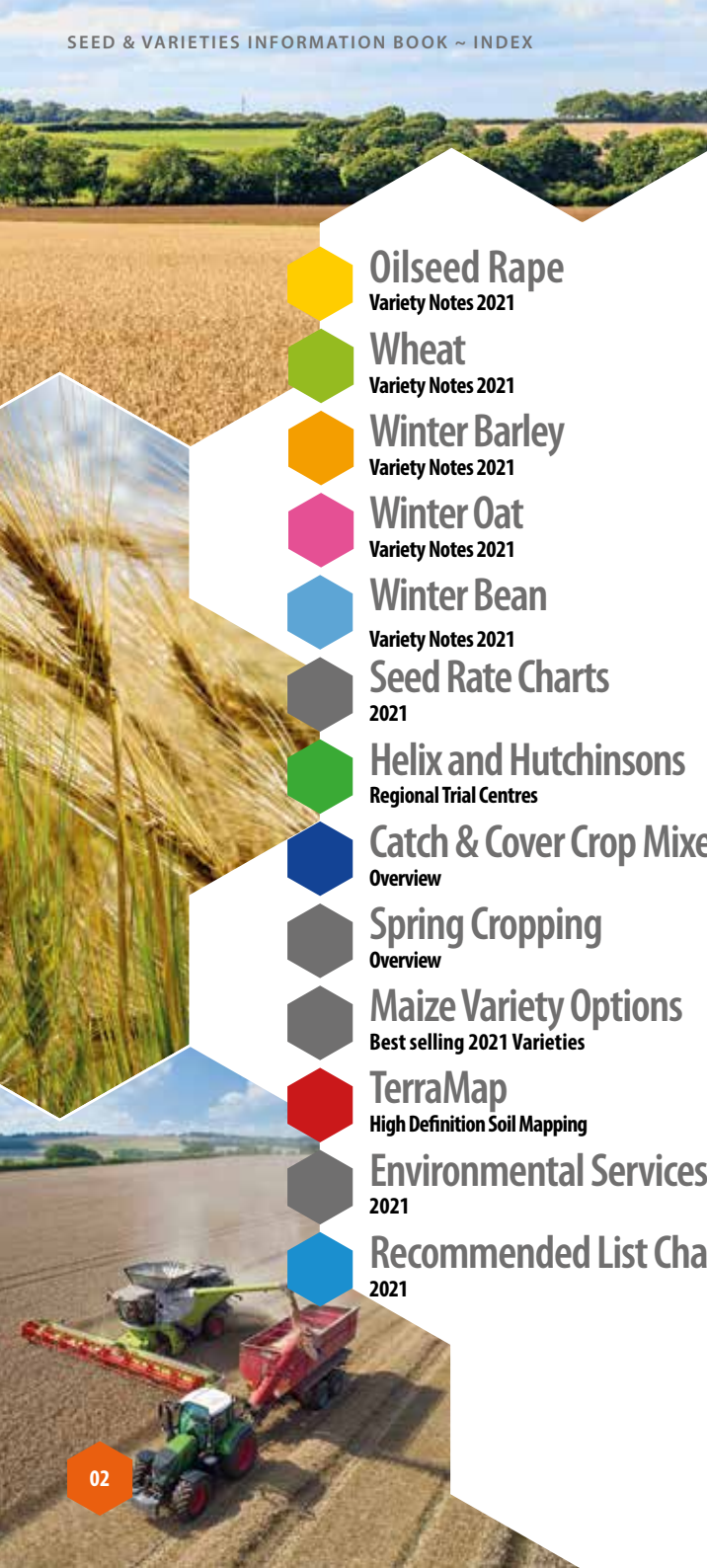
HUTCHINSONS














Crop Production Specialists

Seed & Varieties

INFORMATION BOOK 2021





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Message from the Seed Team

Thinking back to extreme weather events, we have thankfully faced a more “normal” autumn and given that the autumn of 2019 was one not experienced in quite literally generations, then normal this season is acceptable on every level!

Hybrid wheat is still on the horizon but, in reality, no closer than at this time last year (hopefully this will change by next year). Hybrid barley will continue to be the focus for this sector at present, with more varieties entering the fold to offer advancement in agronomics.

With last year's introduction of a BYDV resistant trait in a wheat variety from RAGT, we await to see if Wolverine is going to be a game changer, as more commercial seed enters the market place.

The oilseed rape market dipped to circa 310,000 hectares last autumn (790,000 ha at the beginning of the last decade), but there is a very real chance that we will see a bounce back in autumn 2021 given the success of the 2020 crop established – people will have seen neighbouring growers successfully establish a vigorous and strong crop, with the prospect of high oilseed prices at the farm gate.

This in turn, with another year's break for those who did not plant last autumn, lends itself to growing the crop again this autumn.

There are many variety options to consider, but we will look to offer advice and polarise these options. The key features will be Hybrid, TuYV resistance, Pod Shatter resistance, robust disease scores and vigour, which will remain essential.

This year, we are also pleased to extend the bespoke Hutchinsons cover crop range, specifically designed to maximise the many known benefits associated with their use. These bespoke mixes proved hugely successful and were in great demand last year. Details can be found on pages 35 - 37.

We will again look to advise, support, deliver and assist in all the challenging decisions that present themselves without fail every season, for autumn 2021 and beyond.



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LG Aviron

With OSR likely to increase in area planted for 2021, finding the ideal variety that suits the region and soil types is key. With this in mind, we would like to draw your attention to **LG Aviron** - newly recommended for this autumn. On the AHDB Recommended List, it is equal top for gross output in the UK, second in the East/West and second in the North.

With this universal ability to perform across the regions, coupled with RLM 7+ Phoma resistance (7), good light leaf spot (7), TuYV which is now a key consideration and the addition of Pod Shatter resistance, plus the N Flex characteristic to aid development, this variety has all the attributes that you need to consider.

Although the ideal drilling position would be 15th August to 10th September, it can be drilled earlier (but with attention paid to a robust PGR programme due to the excellent autumn vigour, second to none), or indeed later if the soils remain warm and there is moisture to utilise. Aviron has what appears to be the most robust and enabling vigour in the autumn, coupled with an excellent spring vigour trait, that really can inspire some confidence in its establishment once drilled.

If OSR is a key part of your rotation, then Aviron should in turn be a key part of that crop portfolio.



RECOMMENDED

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LG Aviron
Hybrid
UK

NEW

Variety type
Scope of recommendation

United Kingdom (5.3 t/ha)	108
East/West region (5.2 t/ha)	109
North region (5.9 t/ha)	105

Seed yield (% treated control)

United Kingdom (4.9 t/ha)	110
East/West region (4.8 t/ha)	110
North region (5.4 t/ha)	107
United Kingdom (5.4 t/ha)	-
United Kingdom (5.0 t/ha)	-

Agronomic features

Resistance to lodging (1-9)	[7]
Stem stiffness (1-9)	6
Shortness of stem (1-9)	6
Plant height (cm)	161
Earliness of flowering (1-9)	8
Earliness of maturity (1-9)	6
Pod shatter	R

Disease resistance

Light leaf spot (1-9)	7
Stem canker (1-9)	7
TuYV	R

Oilseed Rape

Variety Notes 2021

RECOMMENDED LIST CHART PAGES 48 - 49

AMBASSADOR

LIMAGRAIN

RESTORED HYBRID

Gross Output: 108 • Oil content: 45.2

TuYV resistant • Recommended for UK

- A restored hybrid variety, recommended for the UK
- Pod Shatter resistance.



LG AVIRON

WINTER OILSEED RAPE

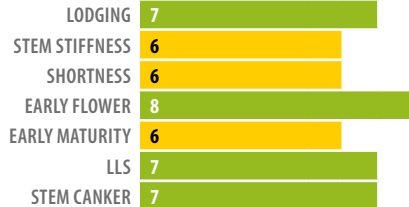
LIMAGRAIN

RESTORED HYBRID

Gross Output: 108 • Oil content: 44.5

TuYV resistant • Recommended for UK

- **NEW** – restored hybrid
- Joint highest yielding variety on AHDB RL
- Exceptional autumn and spring vigour
- Suited for a main to late drilling window
- Fully loaded hybrid N-Flex, RLM7+, POSH, TuYV
- Consistent high yield across all regions (2nd East/West and 2nd in the North)
- Hutchinsons' semi exclusive.



AURELIA

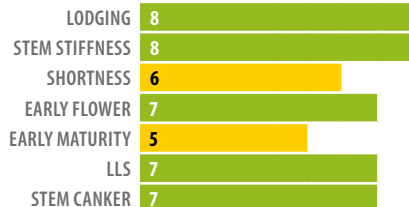
WINTER OILSEED RAPE

LIMAGRAIN

RESTORED HYBRID

Gross Output: 107 (UK) • Oil content: 45.3 • TuYV resistant • Recommended for UK

- Restored hybrid added to the RL in 2020 and the highest yielding of any variety in the North
- Excellent disease resistance, so in essence a good all-round variety with excellent vigour
- TuYV resistance coupled with Pod shatter
- Most widely drilled variety in autumn 2020.



NOTES: if growing OSR in autumn 2021 this should be a given, as a variety of choice.

DK Expedient

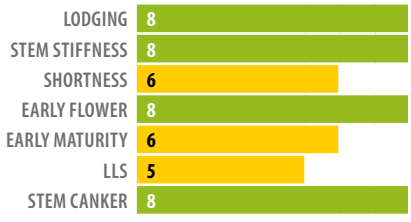
DEKALB

RESTORED HYBRID

Gross Output: 103 • Oil content: 45.3

Recommended for East/West

- Variety for East/West regions
- RLM7 Phoma resistance giving strong resistance to Stem Canker
- Average resistance to Light Leaf Spot



- Very early spring regrowth with mid/late flowering
- Good yield potential and oil content
- Pod Shatter resistance.

TENNYSON

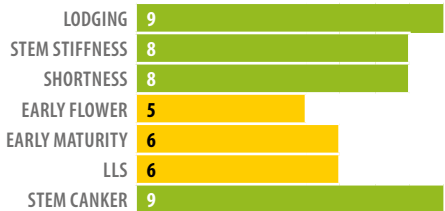
ELSOMS

RESTORED HYBRID

Gross Output: 106 • Oil content: 44.2

Candidate for East/West

- **NEW** – for 2021
- TuYV resistant



- Excellent stem canker
- Performs very well in the East/West to date.

PICASSO

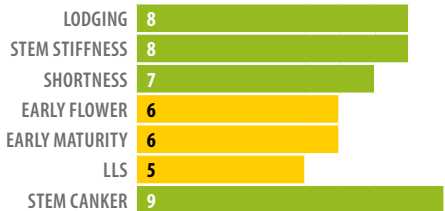
LSPB

RESTORED HYBRID

Gross Output: 104 • Oil content: 44

Common catalogue

- **NEW** – common catalogue variety with excellent Phoma resistance
- Good autumn vigour



- Good standing ability
- Good resistance to lodging with medium maturity.

Dazzler

DSV

RESTORED HYBRID

Gross Output: 102 • Oil content: 46.2

TuYV resistant • Recommended for East/West

- Added to the RL in 2020
- DSV's flagship triple layer variety
- Multi gene resistance – RLM7 resistance, TuYV resistance and Pod Shatter resistance



- Delivers high gross output
- Outstanding autumn vigour
- Has no lodging weakness and has good stem stiffness.



DK Exstar

DEKALB

RESTORED HYBRID

Gross Output: 105 • Oil content: 45.3

UK VARIETY

- Restored hybrid for the UK, RL Candidate 2018/19
- Has produced high gross output in the North region
- Good resistance to light leaf spot and stem canker



- Relatively tall variety but has good resistant to lodging.

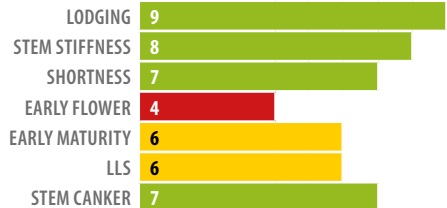
PT303

PROTECTOR SCLEROTINIA

PIONEER VARIETY

Gross Output: 111 • Oil content: 46.2

- First Protector® Sclerotinia hybrid launched in Europe
- TuYV resistance



- Multi genetic Phoma resistance
- Highest ranked candidate for Gross Output in all AHDB regions.

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ACACIA

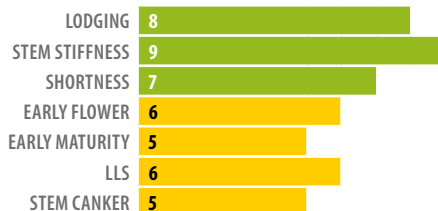
WINTER OILSEED RAPE

LIMAGRAIN

CONVENTIONAL

Gross Output: 107 • Oil content: 45.7 • Recommended for UK

- Added to the RL in 2020 - a later maturing variety, with the highest treated gross output recommended of any conventional variety currently available
- Recommended for all regions
- Very stiff stemmed, with a high resistance to lodging and excellent agronomics
- Excellent autumn and spring vigour for a conventional type.



ANNIKA

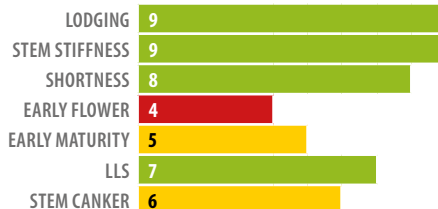
LIMAGRAIN

CONVENTIONAL

Gross Output: 106 • Oil content: 45

Candidate for 2021

- Candidate for the Recommended List in 2021
- Performs well in all regions
- Good autumn vigour and better than some of its contemporaries
- TuYV trait in a conventional variety.



KWS BLAZEN



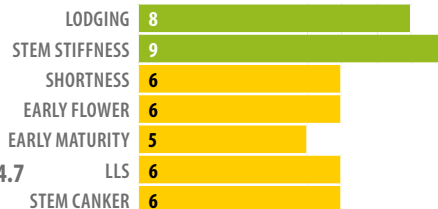
KWS

CONVENTIONAL

Gross Output: 102 (NORTH) • Oil content: 44.7

Recommended for North Region

- Added to the RL in 2020 - a later maturing variety, with high treated gross output recommended for the North region
- Very stiff stemmed, with a high resistance to lodging and excellent agronomics
- Available with establishment protection scheme.



DK Imprint CL

DEKALB

CLEARFIELD® HYBRID

Gross Output: 95 UK • Oil content: 43.8
Recommended for UK

- **NEW** - Clearfield® hybrid.



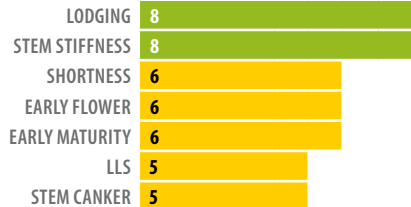
PT279 CL

PIONEER

CLEARFIELD® VARIETY

Gross Output: 96 • Oil content: 45.0
Recommended for East/West

- A European Clearfield® hybrid variety.



DK Immortal CL

DEKALB

CLEARFIELD® VARIETY

Gross Output: 100 • Oil content: 45
NEW for East/West • TuYV resistant

- A European Clearfield® hybrid variety.
- Available in very small quantities in autumn 2021
- Step on from DK Imprint and DK Impresario.



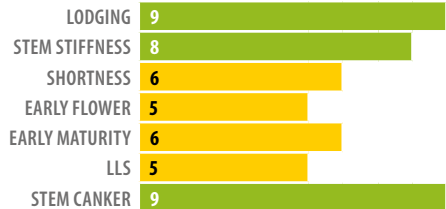
Matrix CL-Quad

DSV

CLEARFIELD® HYBRID

Gross Output: 102.5 • Oil content: 46
Candidate for UK • TuYV resistant

- **NEW** - Clearfield® hybrid with TuYV resistance
- High oil content
- First quad trait stacked variety.



CROME

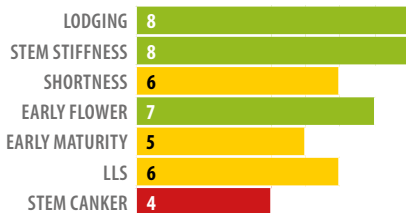
LSPB

RESTORED HYBRID

CLUBROOT RESISTANT

Gross Output: 101 • Oil content: 43.6 • Clubroot Resistance
Recommended for Clubroot infected land only (UK)

- Clubroot resistance
- Suitable for sites where the Clubroot pathogen is a limitation to varieties without resistance.



Crocodile

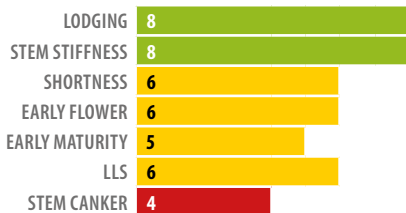
DSV

RESTORED HYBRID

CLUBROOT RESISTANT

Gross Output: 103 • Oil content: 45
Recommended for Clubroot infected land only East/West

- Added to the RL in 2020 - Recommended for clubroot situations in East/West regions
- Good yields in East/West
- **Should only be grown in areas where Clubroot is a threat!**
- Good light leaf spot scores, but weaker on Phoma and has good standing power.



CROOZER

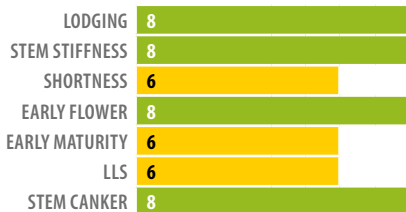
LSPB

RESTORED HYBRID

CLUBROOT RESISTANT

Gross Output: 101 • Oil content: 44.8
Clubroot Resistance
Recommended for Clubroot infected land only East/West

- Recommended for clubroot situations in East/West regions
- Suitable for sites where the Clubroot pathogen is a limitation to varieties without resistance
- Very good Phoma resistance for the clubroot sector.



Wheat

Variety Notes 2021

RECOMMENDED LIST CHART PAGES 50 - 51

KWS ZYATT



KWS

GROUP 1 HARD
UK 98 • EAST 98 • WEST 99 • NORTH 97

- Group 1 variety with high yields, milling quality characteristics and an excellent agronomic package
- High untreated yield, limited data suggests a sprouting rating 5, something to watch
- Now well-liked by multiple end users, careful N management required to ensure full protein specification
- Very good eyespot as well as acceptable resistance to Septoria
- ukp bread export potential.

MILDEW	7
YELLOW RUST	5
BROWN RUST	6
SEPTORIA TRITICI	6.4
EYESPOT	7
FUSARIUM	6

NOTES: performs very well as a 2nd wheat.

RAGT Grow to expect the best
RGT SKYFALL
 G1 WINTER WHEAT

RAGT

GROUP 1 HARD
UK 97 • EAST 97 • WEST 97 • NORTH 96

- High yielding, awned Group 1 variety
- Relatively short and a good stander, better drilled towards the end September due to its rapid speed of development in the spring
- It is an early maturing variety
- High Fusarium rating makes it especially suited to be grown after maize
- Has Pch1 eyespot resistant gene, good 2nd wheat, performs well on light soils
- **The only quality wheat to have OWBM resistance, giving it a definite advantage over its counterparts**
- Higher N applications needed to achieve full protein specification
- Good Hagbergs (although has a tendency to sprout, so priority must be given to it at harvest), it also has a good specific weight
- Most flexible drilling dates currently available.

MILDEW	6
YELLOW RUST	3
BROWN RUST	8
SEPTORIA TRITICI	5.8
EYESPOT	6
FUSARIUM	7


NOTES: Grown specifically for its agronomics, over and above its milling quality in certain instances, re-enforcing its capabilities in the field, as well as its milling potential. Continues to maintain significant market share. Starting to be more susceptible to Yellow Rust.

CRUSOE

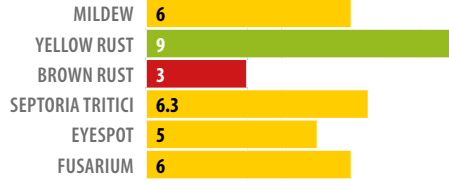
WINTER WHEAT

LIMAGRAIN

GROUP 1 HARD

UK 96 • EAST 96 • WEST 97 • NORTH 93

- Good agronomics apart from a growing susceptibility to brown rust and eyespot, although very useful Septoria score
- An established, consistent milling variety becoming very popular with end users for its specific quality attributes



- Meets the specifications for ukp bread wheat for export, good specific weight and Hagbergs
- Still a very well-respected variety by the millers and maintains a niche market share.

KWS EXTASE

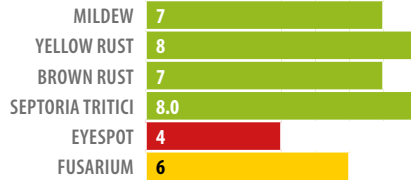


KWS

GROUP 2 HARD

UK 100 • EAST 100 • WEST 101 • NORTH 98

- Group 2 added to the recommended list in 2019
- Highest untreated yield on the RL and high treated yields in the West
- Second highest Septoria Tritici resistance rating on the 2021/22 recommended list
- Very good yellow rust rating
- Has done particularly well relative to others on the light soils



- Better suited to mid drilling slot (relatively tall but good stander)
- Limited data would suggest it has ukp export potential.



NOTES: Second highest Septoria Tritici resistance rating on the recommended list at 8.0.

KWS SISKIN



KWS

GROUP 2 HARD

UK 100 • EAST 99 • WEST 100 • NORTH 98

- Short strawed variety with reasonable standing ability
- One of the highest untreated UK yields on the RL
- Good overall disease package. Has done well as a first or second wheat
- Has done well in an early/mid drilling slot but needs a good PGR policy to realise its potential
- Meets the specifications for ukp bread wheat for export, although some variability in the baking process may mean it is more suitable for blending
- Limited data suggests it might have a tendency to sprout and may warrant giving it priority at harvest.



LG DETROIT

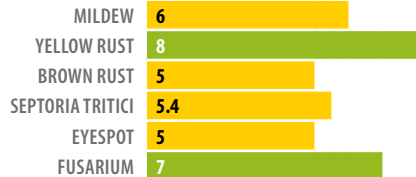
WINTER WHEAT

LIMAGRAIN

GROUP 2 HARD

UK 99 • EAST 99 • WEST 99 • NORTH 93

- Group 2 variety added to the recommended list in 2019
- Only Group 2 variety to have OWBM resistance
- Stiff strawed with high resistance to yellow rust
- Possibly better suited to an earlier drilling slot
- Excellent fusarium resistance so a variety that will perhaps fit in a maize rotation
- Limited data would suggest it has uks export potential.



NOTES: Only Group 2 variety to have orange blossom midge resistance.

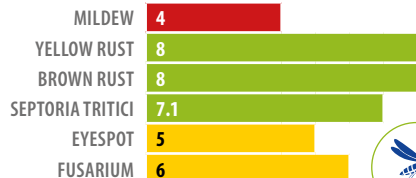
LG PRINCE

LIMAGRAIN

GROUP 3 SOFT

UK 103 • EAST 104 • WEST 102 • NORTH (100)

- **NEW**



NOTES: Good quality group 3 with good all round disease resistance. Bushel weight toward the lower end of the ideal.

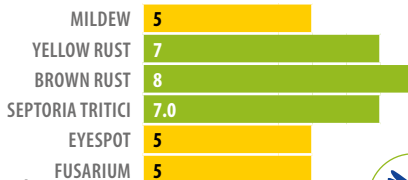
LG ILLUMINATE

LIMAGRAIN

GROUP 3 SOFT

UK 102 • EAST 102 • WEST 101 • NORTH (102)

- **NEW** Group 3 variety with good all round disease resistance.



KWS FIREFLY

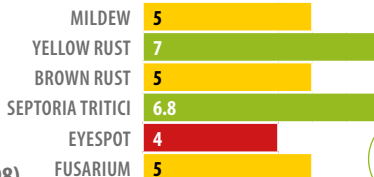


KWS

GROUP 3 SOFT

UK 101 • EAST 102 • WEST 101 • NORTH (98)

- Group 3 soft variety producing high treated yields in the East and West
- High resistance to yellow rust and resistance to OWBM
- Short, stiff-strawed variety
- Has, on limited data, uks export potential
- Rated as poor for distilling.



Notes: Liked by millers and exporters alike.

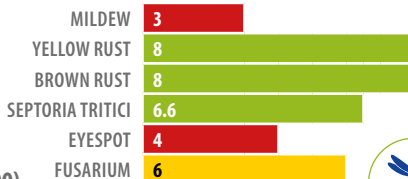
MERIT

ELSOMS

GROUP 3 SOFT

UK 101 • EAST 103 • WEST 99 • NORTH (100)

- **NEW**



NOTES: Excellent yield in the east but with greater susceptibility to mildew. Good grain quality.

LG ASTRONOMER

LIMAGRAIN

GROUP 3 SOFT

UK 101 • EAST 102 • WEST 100 • NORTH (98)

- **NEW**



NOTES: Excellent bushel weight and the best Septoria resistance within the group 3 sector.

LG SKYSCRAPER

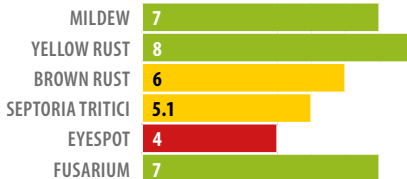
WINTER WHEAT

LIMAGRAIN

GROUP 4 SOFT

UK 105 • EAST 105 • WEST 104 • NORTH 103

- A very high yielding Group 4 soft variety added to the 2019 recommended list
- A relatively tall variety, but with acceptable straw strength nonetheless. Good PGR management and later drilling will assist with any minor concerns
- Weaker on eyespot, but above average scores for yellow rust and with OWBM resistance
- Very consistent yield performance (Season v Regional).



NOTES: One of highest yielding varieties available in any sector for autumn 2021. Pedigree (Cassius x NAWW29) x KWS Santiago Soft milling feed variety with excellent grain quality, "Good" distilling quality (+ve) in last two years.



RGT SAKI

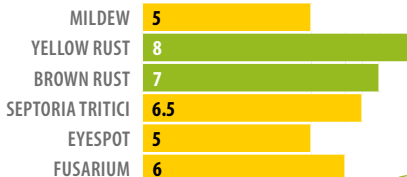
G4 WINTER WHEAT

RAGT

GROUP 4 SOFT

UK 104 • EAST 104 • WEST 104 • NORTH 102

- Group 4 feed wheat variety - added to the 2020/21 recommended list
- Consistent performer across all regions
- Very solid disease resistance and OWBM resistant



- Good grain quality and good straw strength
- Potential for distilling use.

LG SPOTLIGHT

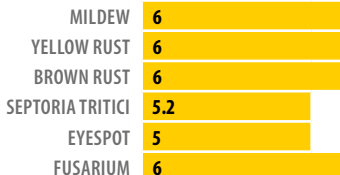
WINTER WHEAT

LIMAGRAIN

GROUP 4 SOFT

UK 103 • EAST 102 • WEST 104 • NORTH 101

- Very high yielding feed variety that was added to the recommended list in 2019
- Produced very high yields in treated trials
- High yield potential in the West
- Very good Hagbergs and specific weights



- Stiff strawed and performs particularly well on heavy soils
- OWBM resistant.

NOTES: At the lower end of the spectrum for Septoria Tritici.

ELATION

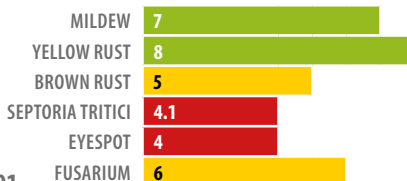
ELSOMS

GROUP 4 SOFT

UK 101 • EAST 101 • WEST 101 • NORTH 101

Recommended for the North

- High yielding soft Group 4 variety recommended for the North
- Has performed well in first and second wheat situations on light or heavy soils. Also capable in early and late drilled positions, however watch the eyespot rating (4) with regard to early drilling. Brown rust being relatively weak (5)
- Less suitable in the west due to a lower Septoria resistance
- A relatively short and stiff strawed variety
- Performs well on all soil types
- OWBM resistant
- It is rated medium for distilling.

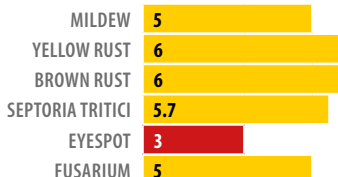


SENOVA

GROUP 4 SOFT

UK 100 • EAST 100 • WEST 100 • NORTH (102) • **Recommended for the North**

- **NEW** for 2021
- Very good standing ability
- Performs well in an earlier drilled slot comparatively.



NOTES: New to the group 4 list, without offering anything outstanding other than being a suitable option for the North.

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LG SUNDANCE

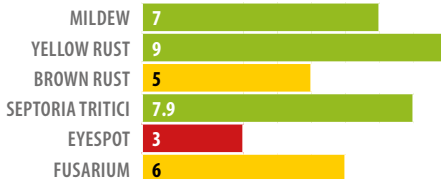
WINTER WHEAT

LIMAGRAIN

GROUP 4 SOFT

UK 100 • EAST 99 • WEST 100 • NORTH 99

- Consistent yielding soft Group 4 variety across all regions
- Good untreated yield (83)
- Robust disease profile especially for Septoria Tritici and is third highest on the AHDB list at 7.9
- Mid-late sowing date (which ties in with its standing ratings) and one of the later varieties to mature
- Although it has performed well as a second wheat, its susceptibility to Eyespot might limit its potential to be drilled in these situations



- Drilling into medium or heavy soils after mid-October will reduce risk of lower specific weight
- OWBM resistant
- It is rated medium for distilling.



NOTES: Particularly well suited to medium potential sites, third highest Septoria resistance of any variety currently available. Is vulnerable to Eyespot. Vulnerable on light soil types to lower bushel weight. Outside of this soil type then it is unlikely to be a problem.

SY Insitor

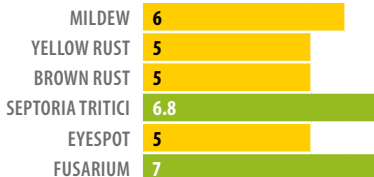
Winter wheat

SYNGENTA

GROUP 4 HARD

UK 104 • EAST 104 • WEST 104 • NORTH 105

- A variety with high yields
- Has performed in all regions especially the North
- Very early maturing variety with reasonable disease resistance. It has weaker brown rust and eyespot rating



- Good Hagberg and excellent bushel weight, providing confidence in grain quality.



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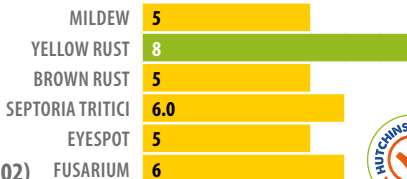
KWS CRANIUM



KWS

GROUP 4 HARD

UK 104 • EAST 104 • WEST 104 • NORTH (102)



- **NEW** Looks to be a genuine alternative to others within the KWS portfolio and should solve some of the potential issues that Kinetic (poor yellow rust) and Kerrin (moderate grain quality) experience.



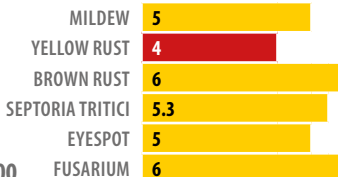
KWS KINETIC



KWS

GROUP 4 HARD

UK 103 • EAST 103 • WEST 105 • NORTH 100



- Added to the recommended list in autumn 2019
- Over the past two years it has given a 3% yield advantage over the control variety, KWS Santiago
- It has a reasonable disease package and OWBM resistance and responds well to a robust fungicide programme
- It stands well in the field due to its short very stiff straw
- With a specific weight of 78.5 kg/hl
- **Very vulnerable to yellow rust.**



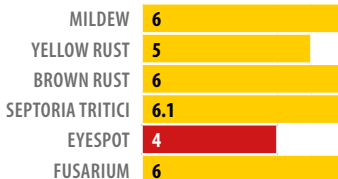
Gleam

Winter wheat

SYNGENTA

GROUP 4 HARD

UK 103 • EAST 103 • WEST 103 • NORTH 102



- A consistent performer across the regions
- Robust agronomics and high untreated yields will offer easier management in most situations
- Performs well on all soil types, in either first or second wheat situations
- It is a short and stiffer strawed variety
- OWBM resistant
- Good grain quality and early to mature.



NOTES: Particularly flexible wheat, 1st or 2nd, early or late drilled, good grain characteristics, has started to be affected by yellow rust due to the Hereford in its parentage.



RGT GRAVITY

G4 WINTER WHEAT

RAGT

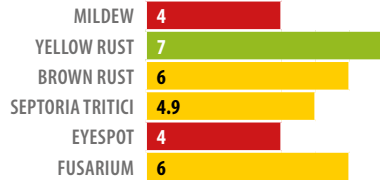
GROUP 4 HARD

UK 103 • EAST 103 • WEST 103 • NORTH 101

- This variety has produced consistently high treated UK yields – good 1st wheat, performing equally well on light as well as heavy soils
- Fusarium, brown and yellow rust are very acceptable, but has a vulnerability to mildew and possibly eyespot
- Only average resistance to lodging, although has done relatively better from later drilling
- OWBM resistance.



NOTES: Sold out in autumn 2018 taking close to 6% of market in its first year of availability. Good grain characteristics.



Winter wheat

SYNGENTA

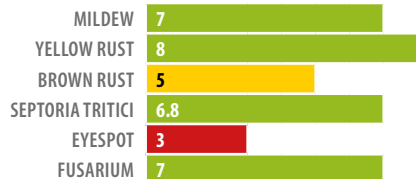
GROUP 4 HARD

UK 102 • EAST 101 • WEST 105 • NORTH 101

- A variety with high untreated yields
- Has performed best in the West - less suitable North of the borders
- Very early maturing variety with good all-round disease resistance and good Septoria Tritici resistance, although only weakness being a poor eyespot rating
- Suitable for early drilling in first wheat situations
- Good resistance to sprouting
- Good Hagberg and bushel weight, providing confidence in grain quality.



NOTES: Good for Septoria, making it a good geographical fit for the South West, whilst not undermining its national ability as a clean variety. Looks to be a suitable early drilling option.



RGT WOLVERINE

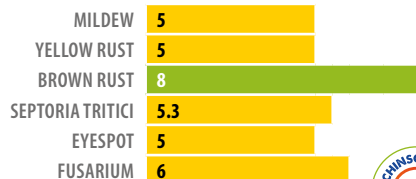
BYDV RESISTANT WINTER WHEAT

RAGT

GROUP 4 HARD

UK 102 • EAST 101 • WEST 102 • NORTH (103) • BYDV Resistant Trait

- **NEW** feed variety added to the 2021 AHDB Recommended List.



NOTES: Only very small quantities of seed available commercially in 2020.



Shabras

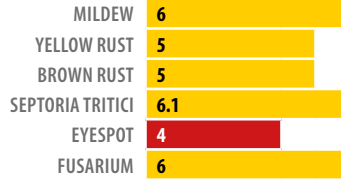
Winter wheat

SYNGENTA

GROUP 4 HARD

UK 101 • EAST 101 • WEST 101 • NORTH 102

- Good high yield feed wheat in all regions
- Performs well on all soil types, particularly light soils and as a 2nd wheat
- Yellow rust rating is good. Possibly weaker on Brown rust
- No OWBM resistance
- Good all-round disease package with good grain quality.



Notes: Best suited to a mainstream drilling window.

Costello

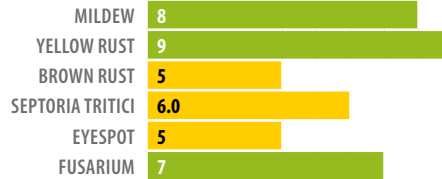
WINTER WHEAT

SENOVA

GROUP 4 HARD

UK 99 • EAST 99 • WEST 100 • NORTH 99

- Short and stiff strawed with high Hagberg and with a specific weight second to none
- Very robust agronomics give this variety a good untreated yield and it is an ideal 2nd wheat candidate
- Ideal to be positioned on outlying farms, whilst maintaining peace of mind
- Good resistance to sprouting
- Relatively late maturing variety.



NOTES: Highest specific weight of any winter wheat currently available. A safe option for all the right reasons, without being at the summit for pure yield. A very useful and farmer friendly variety.



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Winter Barley

Variety Notes 2021

RECOMMENDED LIST CHART PAGES 52 - 53



Electrum

Winter barley

SYNGENTA

TWO ROW MALTING

UK 97 • EAST 97 • WEST 96 • NORTH 96 • BaYMV Resistant

- 2 row malting variety
- Performed best in East and West
- Has produced high specific weights
- Suited to heavier soils and has high yellow rust rating
- Has been seen to be relatively early maturing
- Resistant to BaYMV strains.
- Now with full approval from MBC.

NOTES: Introduced in 2018 - malting variety suited to the East and West regions with full MBC approval.

MILDEW	6
BROWN RUST	7
RHYNCHOSPORIUM	6
NET BLOTCH	6



Craft

Winter barley

SYNGENTA

TWO ROW MALTING

UK 96 • EAST 96 • WEST 95 • NORTH 96 • BaYMV Resistant

- Malting variety for brewing with good agronomic characteristics
- Has full approval from the MBC
- Stiff-strawed and has performed better on light soils
- Resistant to common strains of BaYMV.

MILDEW	6
BROWN RUST	6
RHYNCHOSPORIUM	6
NET BLOTCH	6

KWS TARDIS



MILDEW	5
BROWN RUST	6
RHYNCHOSPORIUM	7
NET BLOTCH	5

KWS

TWO ROW FEED

UK 106 • EAST 107 • WEST 105 • NORTH (105) • BaYMV Resistant

- **NEW** – a high yielding 2 row feed barley variety for the UK
- Stiff strawed
- Highest yielding 2 row barley currently available in the market place
- Very good resistance to Rhynchosporium.



BOLTON

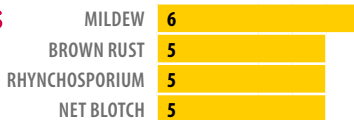


ELSOMS ACKERMANN

TWO ROW FEED

UK 106 • EAST 107 • WEST 104 • NORTH (105) • BaYMV Resistant

- **NEW** – a high yielding 2 row feed barley variety for the UK
- Performs well across all regions
- Excellent grain quality with low screenings.



BORDEAUX

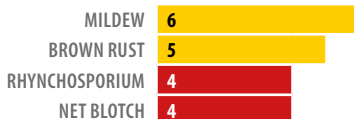
WINTER BARLEY

SENOVA

TWO ROW FEED

UK 106 • EAST 107 • WEST 104 • NORTH (104) • BaYMV Resistant

- **NEW** – a high yielding 2 row feed barley variety for the UK
- Very high bushel weight
- Moderate straw strength and will respond favourably to a more robust fungicide and PGR programme
- Rhynchosporium at the lower levels and will need management.



NOTES: Performs well on all soil types and across the regions.

LG MOUNTAIN

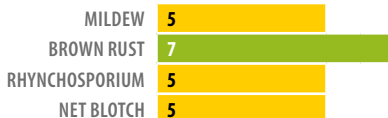
WINTER BARLEY

LIMAGRAIN

TWO ROW FEED

UK 104 • EAST 105 • WEST 102 • NORTH 105 • BaYMV Resistant

- A high-yielding two-row feed variety for the UK
- This short-strawed variety has performed particularly well in the East and North regions
- Has shown high resistance to brown rust and no major weaknesses in other diseases
- Relatively early to mature and has given the highest yields of all two-row feed varieties on both light and heavy soils (based on limited data)
- Resistant to common strains of BaYMV.



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KWS HAWKING

MILDEW	5
BROWN RUST	6
RHYNCHOSPORIUM	6
NET BLOTCH	6

KWS

TWO ROW FEED**UK 103 • EAST 105 • WEST 103 • NORTH 101 • BaYMV Resistant**

- Added to the RL in 2020 - a 2 row feed barley variety for the UK
- Excellent performance for the UK, with special recommendation for the East
- Good standing ability
- Good grain quality.

Notes: Very capable all-round performer and one of the highest yielding two row variety available to growers.

JORDAN

SAATEN UNION

TWO ROW FEED

MILDEW	5
BROWN RUST	8
RHYNCHOSPORIUM	7
NET BLOTCH	5

UK 103 • EAST 105 • WEST 103 • NORTH 99 • BaYMV Resistant

- Added to the RL in 2020 – a 2 row feed variety
- Very high untreated yield
- Short strawed with good standing ability with PGR
- Highest yields in the East where it performs very solidly.

NOTES: Looks to offer excellent management opportunity, coupled with good yields across the UK.

LG FLYNN
WINTER BARLEY

MILDEW	4
BROWN RUST	7
RHYNCHOSPORIUM	6
NET BLOTCH	6

LIMAGRAIN

TWO ROW FEED**UK 102 • EAST 104 • WEST 101 • NORTH 101 • BaYMV Resistant**

- A high-yielding two-row feed variety for the UK with a high specific weight added to the RL in 2019
- Has performed particularly well in the East and West regions
- Has shown high resistance to brown rust, but is susceptible to mildew
- Very good lodging resistance
- Resistant to common strains of BaYMV.

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KWS ORWELL



MILDEW	3
BROWN RUST	7
RHYNCHOSPORIUM	6
NET BLOTCH	5

KWS

TWO ROW FEED

UK 102 • EAST 102 • WEST 102 • NORTH 101 • BaYMV Resistant

- A high yielding two-row variety
- High resistance to lodging and rusts, but very susceptible to mildew. BaYMV resistant
- Likely to increase market share at the expense of some of its stablemates.

Surge

Winter barley

SYNGENTA

TWO ROW FEED

UK 101 • EAST 103 • WEST 101 • NORTH 99 • BaYMV Resistant

- High yielding two-row feed variety
- Exceptional untreated yield and high resistance to rusts and Rhynchosporium – BaYMV resistant
- High net blotch rating
- Very high specific weight and low screenings
- Performed better on heavier soils
- Offers a consistent option to the competitor genetics.



MILDEW	5
BROWN RUST	7
RHYNCHOSPORIUM	7
NET BLOTCH	6

Valerie

WINTER BARLEY

SENOVA

TWO ROW FEED

UK 101 • EAST 101 • WEST 100 • NORTH 100 • BaYMV Resistant

- A high yielding two-row feed variety with a high specific weight and exceptionally low screenings
- It has performed particularly well in the East region
- Valerie combines good grain quality characteristics with high resistance to lodging
- Relatively early to mature. Over three years of testing, it has given good yields in untreated UK trials
- Good overall disease resistance
- Resistant to common strains of BaYMV.



MILDEW	6
BROWN RUST	6
RHYNCHOSPORIUM	6
NET BLOTCH	6

KWS CRESSWELL

KWS

TWO ROW FEED

UK 100 • EAST 100 • WEST 100 • NORTH 101 • BaYMV Resistant

- Two-row feed barley, recommended for the Northern region
- Resistant to common strains of BaYMV.

MILDEW	4
BROWN RUST	6
RHYNCHOSPORIUM	6
NET BLOTCH	5

KWS CASSIA

KWS

TWO ROW FEED

UK 98 • EAST 98 • WEST 98 • NORTH 98 • BaYMV Resistant

- Has been a popular, consistent two row variety with stiff straw and good specific weight
- **Becoming outclassed** in comparison with newer two row alternatives, but still hanging on in there
- Still the 'go-to' variety for grain quality and livestock farmers accordingly
- Invariably one of the first two barleys to sell out year on year, as seed stocks wane.

MILDEW	5
BROWN RUST	7
RHYNCHOSPORIUM	5
NET BLOTCH	5


Belmont[®]
Hyvido

SYNGENTA

SIX ROW FEED

UK 107 • EAST 108 • WEST 107 • NORTH 107 • BaYMV Resistant

- Added to the AHDB Recommended List in 2018
- One of the highest yielding Hybrid Barley varieties
- Low untreated yields but responds well to fungicides
- Good agronomics except for brown rust
- Performs well on heavier soils
- Belmont has good grain quality.

MILDEW	5
BROWN RUST	4
RHYNCHOSPORIUM	7
NET BLOTCH	5



SY Kingston[®]
Hyvido

SYNGENTA

SIX ROW FEED

UK 107 • East 106 • West 109 • North 108 • BaYMV Resistant

- **NEW** – Very high yielding 6 row hybrid feed variety added to 2021/22 Recommended List
- Resistant to common strains of BaYMV.

MILDEW	7
BROWN RUST	6
RHYNCHOSPORIUM	6
NET BLOTCH	6

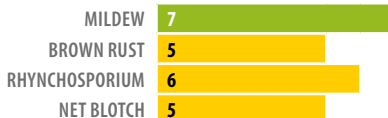


SYNGENTA

SIX ROW FEED

UK 107 • East 107 • West 107 • North 107 • BaYMV Resistant

- Very high yielding 6 row hybrid feed variety added to 2019/20 Recommended List
- One of the highest yielding feed varieties in the East and the most widely planted in autumn 2020
- Good overall disease resistance
- High specific weight and good resistance to lodging
- Resistant to common strains of BaYMV.



SYNGENTA

SIX ROW FEED

UK 107 • East 107 • West 105 • North 106 • BaYMV Resistant

- Very high yielding 6 row hybrid feed variety candidate for the 2021 Recommended List
- Very good overall disease resistance with the highest untreated score of any current hyvido
- High specific weight and good resistance to lodging
- Early maturity
- Available in very minimal volumes this autumn.
- Resistant to common strains of BaYMV.



SYNGENTA

SIX ROW FEED

UK 107 • East 107 • West (107) • North 107 • BaYMV Resistant

- **NEW** – 6-row hybrid feed variety added to the 2021/22 Recommended List
- Resistant to common strains of BaYMV
- Good bushel weight
- Taller variety.

NOTES: Excellent new variety from Syngenta with sound grain quality and very high yield. Taller than some, so attention to preferred PGR programme will assist in achieving fullest potential.



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SYNGENTA

SIX ROW FEED

UK 103 • EAST 103 • WEST 104 • NORTH 102 • BaYMV Resistant

- LIBRA is a hybrid barley added to the AHDB Recommended List in 2018 and in its final year of availability as we write
- Outstanding grain quality with the high specific weight
- Very good disease profile
- Resistant to common strains of BaYMV
- Tall strawed variety with high resistance to lodging
- Semi exclusive to Hutchinsons.
- Early to mature



MILDEW	4
BROWN RUST	6
RHYNCHOSPORIUM	6
NET BLOTCH	6

LIMAGRAIN

SIX ROW FEED

6 row conventional barley • BYDV Tolerance • BREEDER'S DATA

- 2019/20 six-row conventional French variety with very early spring development
- Not on the AHDB list but will find support given lack of seed treatment for BYDV.
- Tolerant to BYDV
- Strong disease resistance
- Very competitive with black-grass



MILDEW	8
YELLOW RUST	7
BROWN RUST	8
RHYNCHOSPORIUM	7
NET BLOTCH	

NOTES: Tolerance to BYDV.

Malting Barley Committee Approved List of Winter Varieties Harvest 2021

Full Approval:**FLAGON • CRAFT • ELECTRUM**

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Winter Oat

Variety Notes 2021



RGT SOUTHWARK

WINTER OATS

RAGT - UK 104

- RGT Southwark is the highest yielding winter oat on the 2021/22 Recommended List
- It combines high yield and quality, notably specific weight
- RGT Southwark has high resistance to the common strains of crown rust, but is very susceptible to mildew
- It is relatively early maturing, with a low lodging resistance.

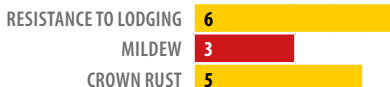


RGT LINEOUT

WINTER OATS

RAGT - UK 100

- An early ripening husked variety from RAGT, with a higher yield than some established varieties and a reasonable grain quality
- It is susceptible to mildew
- It has moderate straw strength and is the earliest maturing variety on the recommended list.



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Dalguise

WINTER OAT

RESISTANCE TO LODGING	4
MILDEW	4
CROWN RUST	4

SENOVA - UK 99

- Dalguise is a very consistent variety with relatively low screenings and a high specific weight
- It has relatively long straw with low lodging resistance
- Needs robust management due to poor agronomic characteristics

Mascani

WINTER OAT

RESISTANCE TO LODGING	6
MILDEW	6
CROWN RUST	5

SENOVA - UK 97

- Mascani remains by far the most popular variety with oat millers and growers
- It is less susceptible to mildew than most recommended varieties and has moderate resistance to crown rust, although a race exists to which it could be susceptible
- Mascani delivers moderate yields, but this is compensated by its combination of high kernel content and specific weight.

Gerald

WINTER OAT

RESISTANCE TO LODGING	6
MILDEW	4
CROWN RUST	4

SENOVA - UK 96

- Gerald's consistent yields and good field characteristics ensure it remains a popular variety choice for growers, although it is now being superseded
- Top quality milling variety – limited data suggests it is susceptible to mildew
- A late maturing variety, with a low kernel content and moderate straw strength.



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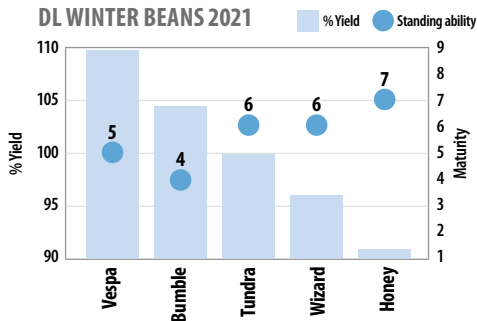


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Winter Bean

Variety Notes 2021

DL WINTER BEANS 2021



Data courtesy of PGRO, Descriptive List data 2021

The control yield from year 4 & 5 varieties (4,45t/ha), yield differences of less than 9.9% are not statistically significant.

Introduction

Beans will continue to remain key within the rotation for many growers in providing a useful break crop to cereals. They also offer additional flexibility in an autumn sowing window, beyond the peak work requirements of oilseed rape and cereals. Beans are also taking acreage from oilseed rape because of issues attributed to cabbage stem flea beetle.

The later sowing affords a greater opportunity to maximize the effects from the use of non-selective herbicides prior to drilling and better residual activity of pre-emergence herbicides applied to moist soils, thereby improving the efficacy of grass weed control within the rotation.

Varieties General

Winter Bean choice has remained relatively unchanged from last year, the only exceptions being the introduction of two new high yielding variety from Senova, **Vincent** and **Norton**.

Variety listings in order of yield as they appear on the Descriptive List.

Vespa (Senova) Yld: **109** First listed 2018, gained full recommendation in 2020, whilst also moving to the top of the yield rankings. It produces high yields with excellent standing ability, albeit slightly inferior to Tundra in shortness of straw and ripening.

DESCRIPTIVE LIST CHART PAGE 55

Bumble (Senova) Yld: **104** First listed in 2016, an other high yielder, slightly behind Tundra in agronomic characteristics in shortness of straw, standing ability and slightly later in maturity. It has slightly larger seed, although lower grain protein.

Tundra (Limagrain) Yld: **99** First listed in 2014, although still a popular variety. It is a moderately short straw variety, with good standing ability and an earlier maturity. In many ways similar in agronomic characterises to Wizard, with a slightly higher yield.

Wizard (Senova) Yld: **96** First appearing on the recommended list in 2003, proves its consistency as a variety. It is now starting to lose ground in terms of yield to the newcomers. Agronomically a sound performer with additional resistance to leaf and pod spot (*Ascochyta fabae*). A large-seeded variety with good protein levels, suited for use in the animal feed market and has excellent premium export potential.

Honey (Senova) Yld: **92** First listed in 2012, it has good agronomic characteristics, the earliest maturing variety with the shortest straw and standing ability on a par with Vespa, bold seed and good protein content. It is well suited to fertile sites and the North, due to its early maturity. The only downside, its yield is dropping away from the other contenders.

New Varieties

Vincent (Senova) Yld: **110** New to the 2021 descriptive list. Presently the highest yielding variety. Similar to Vespa in height (medium) and good standing ability, although slightly later to maturity. Exceptionally large seed with good protein content, could be popular with the export and feed market.

Norton (Senova) Yld: **107** New to the 2021 descriptive list, has many good agronomic aspects and is one of the earliest maturing varieties, on a par with Honey. It has exceptionally large seed, with potential for feed or export.

Seed Rate Charts



Oil Seed Rape	seeds/m ²	30	40	50	60	70	80	90	100
TGW									
4		1.2	1.6	2	2.4	2.8	3.2	3.6	4
4.5		1.35	1.8	2.25	2.7	3.15	3.6	4.05	4.5
5		1.5	2	2.5	3	3.5	4	4.5	5
5.5		1.65	2.2	2.75	3.3	3.85	4.4	4.95	5.5
6		1.8	2.4	3	3.6	4.2	4.8	5.4	6
6.5		1.95	2.6	3.25	3.9	4.55	5.2	5.85	6.5



Cereals	seeds/m ²	250	275	300	325	350	375	400	425
TGW									
45		113	124	135	147	158	169	180	192
46		115	127	138	150	161	173	184	196
47		118	130	141	153	165	177	188	200
48		120	132	144	156	168	180	192	204
49		123	135	147	160	172	184	196	209
50		125	138	150	163	175	188	200	213
51		128	141	153	166	179	192	204	217
52		130	143	156	169	182	195	208	221



Winter Beans	seeds/m ²	18	20	22	24
TGW					
450		81	90	99	108
475		86	95	105	114
500		90	100	110	120
525		95	105	116	126
550		99	110	121	132
575		104	115	127	138
600		108	120	132	144



Spring Beans	seeds/m ²	40	42	44	46	48	50
TGW							
450		180	189	198	207	216	225
475		190	200	209	219	228	238
500		200	210	220	230	240	250
525		210	221	231	242	252	263
550		220	231	242	253	264	275
575		230	242	253	265	276	288
600		240	252	264	276	288	300



Spring Peas	seeds/m ²	54	56	58	60	62	64
TGW							
275		149	154	160	165	171	176
300		162	168	174	180	186	192
325		176	182	189	195	202	208
350		189	196	203	210	217	224
375		183	210	218	225	233	240
400		216	224	232	240	248	256

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Units: kg/ha - The seed rates in kg/ha highlighted assume 100% establishment.

To amend these figures to reflect your own expectations of establishment (to include germination and field losses), multiply the relevant figure (from the seed chart above) by 100 and divide by your **expected establishment percentage**.



Project Optimising Output



Helix & Hutchinsons

Regional Trial Centres

Stuart Hill (Hutchinsons Head of Technology and Innovation) **introduces our knowledge transfer opportunities for 2021.**

As we know, Corona virus rules and restrictions challenged the traditional approach to demonstration last year. This allowed an opportunity to be more innovative in our approach with the use of online seminars, videos and podcasts in the Fieldwise 'LIVE' format to demonstrate the important and exciting developments at Helix farms and Regional trial centres. Ultimately the topics and technologies we cover have to add value to you as growers and answer the 'so what' questions.

This year presents a different challenge again, in that the restrictions as we move through the spring and summer will, fingers crossed, be relaxing. It is vitally important we take into account risk and therefore our demonstrations will take various formats, such as Fieldwise LIVE, individual tours, small groups and in some instances structured open days.

We can use all these together and rest assured whichever delivery approach is used, we will always have your safety in mind.

We are in a dynamic period of farming brought on by evolving politics, Brexit, disruptive markets and technologies, transparency, financial instability, soils focus and the need to address climate change.

All these factors link together to evolve solutions and this is at the core of the Helix concept and our Helix farms.


Helix concept and farms:

Helix is all about adding value to the grower, financial and environmental and consequently sustainability. The aim is to develop new technologies that deliver more precise data that, along with agronomy interpretation and knowledge, then deliver added value advice.

There are **five focus areas** that we are concentrating on and asking ourselves what the key challenges are in these areas. These are **data and sustainability, improving soils, optimising nutrition, genetic benefits and integrated crop management**, which encompasses climate and environment.

Early farm scale development takes place at our Helix national development farm over in Northamptonshire, courtesy of Andrew Pitts. Further development and demonstrations are delivered at our emerging Helix regional farms, of which we currently we have four - Helix East, Helix North, Helix Borders and Helix Central. Further farms will come on board over the next 2 years.

In conjunction we are monitoring the increasingly more strategic relationship between the grower and agronomist and how agronomy evolves into a more transparent, targeted, efficient and justified approach.



The first stage on farm is understanding the farm's current strategic position. Therefore, key criteria such as productivity, nutrition status, environment, soils, to name but a few, are key measurements as a start point. Achievable targets can then be agreed and a strategy put in place to accomplish those targets.

This last year has seen the development and introduction of technologies such as the climate system, TerraMap soil and nutrition mapping, BYDV, blight and growth stage prediction models, a field diary / scout app and cost of production mapping. Ultimately these need a central system to work through and that is where the **Omnia** platform comes in.

This year we are continuing to investigate and develop novel biological seed treatments and crop protection, Nitrogen and phosphate use efficiency, nutrition technologies, a farm planning tool, carbon mapping and improvement, Integrated Crop Management techniques and transparency, along with increasingly targeted agronomy and yield prediction.

We will continue to demonstrate a combination of the technologies delivered last year, alongside the new developments, at our Helix regional farms - so there are plenty of exciting options to see.

Fieldwise LIVE will again bring this development to life for you on our websites and social media platforms, so keep an eye on the Hutchinsons and Helix websites to keep up to date.

Regional trial centres:

The Regional trial centres will contain a varied combination of small plot and larger block trials, which help to underpin our broader farm scale work at the Helix farms.

Our theme this year will be around Carbon and ultimately how we can improve carbon sequestration and management. Carbon is impacted by many aspects of crop production and these challenges are focus areas at our Helix farms.

All of the regional centres have winter wheat variety trials linked into a fungicide programme. This enables bespoke agronomy and also allows us to discuss risk management related to cropping choice, rotation and variety choice - all part of Integrated Crop Management.

We are researching seed rate influences on establishment, subsequent crop management and the impact on yield. This includes assessment of Hybrid wheat and blends, in comparison to conventional varieties.

There are also centres working on soils and nutrition, both a significant part of the overall carbon jigsaw.

As with Helix technology farms, you can see regular video updates from the Regional trial centres as part of Fieldwise LIVE on our websites and social media. This is a great opportunity to try different methods of demonstration and allow for greater discussion on these very important areas for farm sustainability. Fingers crossed, restrictions permitting, we look forward to seeing you during the year.

Follow progress at our demonstration sites via [Fieldwise Live](#) – view all the latest information on our websites www.helixfarm.co.uk & www.hlhltd.co.uk



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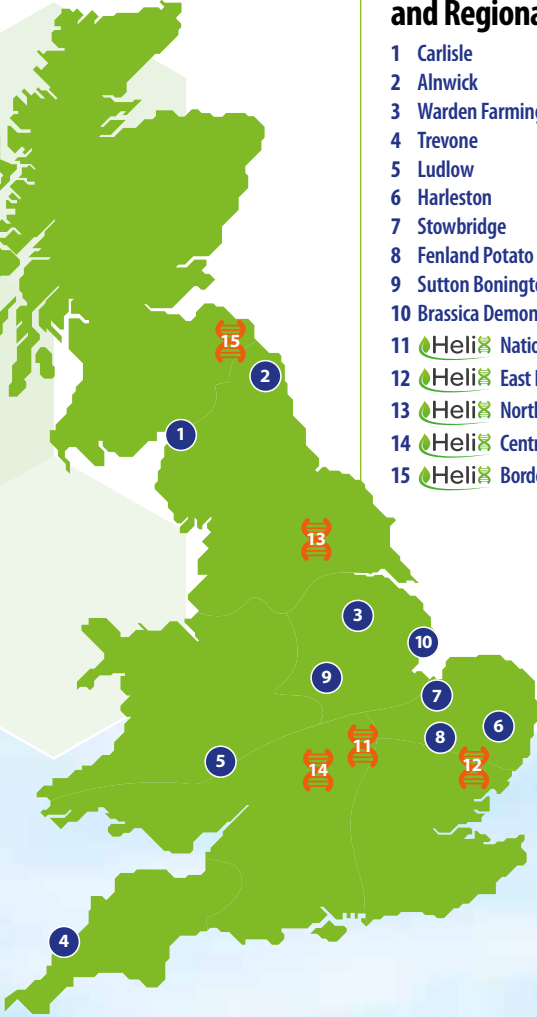
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Helix Demonstration Farms and Regional Trial Centres 2021

- 1 Carlisle
- 2 Alnwick
- 3 Warden Farming, Grayingham
- 4 Trevone
- 5 Ludlow
- 6 Harleston
- 7 Stowbridge
- 8 Fenland Potato Demonstration
- 9 Sutton Bonington
- 10 Brassica Demonstration
- 11  National Technology Farm
- 12  East Demonstration Farm
- 13  North Demonstration Farm (NEW)
- 14  Central Demonstration Farm (NEW)
- 15  Borders Demonstration Farm (NEW)



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Catch & Cover Crop Mixes

Catch and cover crops are now increasingly used across all sectors of crop production to improve key soil functions, add organic matter and cycle nutrients for the following crop.

Our agronomists have considerable experience of using these crops to benefit our customers and provide the correct solution to match their objectives. Hutchinsons offers its own range of catch and cover crop mixes, updated and extended for 2021. These mixes have been constructed around the reliability of the individual species and their ability to deliver key agronomic advantages and improvements in soil health.

Technical justification has been the driver in the selection of each species and the key aim with each mix has been to provide as much diversity as possible, while considering cost, reliability and confidence in performance.

Our core over-winter mixes all use the same eight species, with ratios of each adjusted according to the situation in which they are placed. Working consistently with the species ensures confidence in delivering the intended outcomes. Our catch crop mixes present a great opportunity for those with more restrictive rotations to gain improvements in soil health, but also an additional opportunity for those already using cover crops.

For 2021 new specialist mixes have also been added, to better meet the needs of our customers - offering something for everyone. **Please always speak to your Hutchinsons agronomist for advice on selecting and getting the best from your cover crops.**

MaxiCover

A multi-purpose over-winter mix which suits a wide range of situations and soil types. MaxiCover provides fantastic diversity in root growth. Its varied root depth and architecture helps to aggregate soil and create drainage channels.

Various types of plant canopy offer excellent soil armour and weather protection.

The mix contains legumes, forbs and brassicas which provides a varied food source for soil microbes. The diversity of the mix and a low inclusion rate of each plant type reduces the risk of exacerbating rotational pest or disease issues.

MaxiN

MaxiN is suitable for a wide range of situations and soil types but also offers the opportunity to maximise nitrogen fixation with a high ratio of legumes. With the correct management techniques, rates of manufactured nitrogen can be reduced in the following crop.

Hairy vetch has been shown to produce a higher biomass, more quickly than other vetch and clover species. Crimson clover is fast to emerge and grows vigorously.

The brassica content of this mix is significantly lower than in MaxiCover, but the diversity of roots and canopy remains, delivering all of the same benefits as the MaxiCover with the addition of high N fixation.



MaxiRooter

MaxiRooter can be used to alleviate minor shallow compaction or slumping issues by favouring species with larger, vigorous root systems.

The aim with MaxiRooter (more so than with the other mixes) is to save a cultivation pass, using 'roots not iron' to repair damage and create a friable soil for establishment of the following crop. Careful examination of the soil prior to planting this mix will help to determine whether the intended outcome is achievable, or if targeted subsoiling should be used alongside this cover crop.

MaxiVeg

MaxiVeg has been designed for those who do not want to use brassicas in cover crop mixes. For example, those who regularly grow brassica cash crops in rotation and have associated issues with soil borne pathogens must avoid brassicas in cover crops, so that the problem does not get worse.

This mix is brassica free but keeps the remaining five species of the over-winter range and so still provides a good level of plant diversity and therefore a number of key benefits, including nitrogen fixing legumes.

MaxiGraze

All the Hutchinsons catch and cover crop mixes can be grazed, but for those wishing to strike a balance between improving soil health and providing better forage for grazing, MaxiGraze is the ideal choice.

Single species forage crops, grown over-winter deliver very few of the key soil health benefits that a multi species cover crop does. However, where growing winter forage for sheep or cattle is important, this mix offers both options.

Three brassicas, forage rape, smart radish and stubble turnip provide the bulk of the forage in this mix and due to their three different growth habits, canopy and root types, they still satisfy the requirement for diversity within the mix.

Winter vetch and crimson clover provide quality forage as well as nitrogen fixation and further diversity of root growth. Linseed, whilst not as palatable, will also be grazed and provides all-important soil stability from its fine, fibrous root system.

MaxiSpectrum

MaxiSpectrum delivers maximum species diversity with 15 species from the following plant families: forbs, brassicas, legumes, cereals, grasses and chenopods.

This mix will provide many different types of canopy architecture, root structure and growth habit which in turn provide a multitude of benefits to the soil, the environment and the following crop.

Roots will explore the soil to different depths, helping to create excellent friable soil and nutrient cycling should be enhanced for the benefit of the following cash crop. Different root exudates interact with soil microbes, resulting in an uplift of the total microbial population as well as supporting a more diverse population.



MaxiFruit

Cover crops are used in combinable crop systems to improve soil function, raise organic matter, improve fertility and build biological activity. This in turn supports healthy, nutrient dense crops which are better able to fight off pests and diseases and cope with extremes in weather.

Fruit crops are no different and the added challenge in orchards, hop yards and vineyards is that the soil between the fruit rows is frequently run on by machinery, which can cause compaction problems.

MaxiFruit has been developed to provide all the soil benefits mentioned above, as well as to hold up machinery better through its deep and diverse root types. It is a perennial, grass-based mix, but includes a number of legume and herb species.

MaxiInterCrop

MaxiInterCrop is designed to provide shorter term summer cover, in a variety of situations, on all soil types.

Most years, this mix may be used in front of an autumn sown cash crop either after carrots harvested winter/early spring, after vining peas or after wholecrop cereals (AD or feed), to name a few examples.

Again, this mix contains forbs, legumes and brassicas but also includes a C4 plant in the form of millet, a warm season grass species. C4 plants thrive in the warmer summer months and develop fantastic root systems in a short period of time as well as fixing significantly more carbon than C3 plants. High levels of sugary root exudates offer a great food source for soil microbes. C4 plants also have a high drought tolerance.

MaxiCatchCrop

MaxiCatchCrop can be used on any soil type and is designed to fill a gap of approximately six - eight weeks between cash crops, e.g., between Oilseed Rape and Winter Wheat providing a way of capitalising on every opportunity in the rotation to introduce diversity and living roots.

The three chosen species in the mix, Buckwheat, Berseem clover and white mustard, are fast to establish and grow away quickly, a very important characteristic considering the short growing window.

MaxiImpact

MaxiImpact is designed to do exactly that, make a visual impact. The six species chosen for this mix produce a range of vibrant colours during flowering to deliver a powerful visual impact in the landscape as well as providing a pollen and nectar source, a haven for birds, pollinators, beneficial insects and natural predators.

There are a number of opportunities to utilise this mix across the farm including along headlands of cash crop fields to encourage beneficial insects, or as part of a wildlife corridor through the farm.

Again, diversity of species is delivering multiple benefits to both soil life and the life above the soil. A range of flowering periods will provide high quality habitat throughout the summer.



Spring Cropping

Overview

RECOMMENDED LIST CHART PAGE 54

Cereals

In spring 2021, **Spring Barley** is currently the key component in this section of the rotation, as the most competitive of the spring cereals options for the control of black-grass (Spring wheat, although being less competitive in nature, still has a place in certain rotations).

There was of course a slip in hectares drilled, back to a more conventional spring model, after last year's record crop entered and this will invariably be now considered the norms.

Spring Barley: –

In recent years **RGT PLANET** has taken the largest proportion of spring barley area, **LAUREATE** is becoming increasingly popular and has out yielded Planet in the last two seasons. **PROPINO** has seemingly had its day as it becomes outclassed and superseded. Varieties **LG DIABLO**, now fully approved for malting and distilling, and most recently **COSMOPOLITAN**, are also impacting on these previously popular, consistent performers.

Newer varieties include **SY SPLENDOR** (brewing) and **SY TUNGSTEN** (potential for brewing and malt distilling) are provisionally approved by MBC.

New variety **SKYWAY** offers potential brewing ability and is under test by MBC. Aside from this, it offers the highest UK yield and the highest yield of any variety in the West, coupled with good resistance to brackling and decent straw length for the feed sector, possibly?! It is not commercially available until spring 2022, but definitely one to put a name against.

Feed varieties - **KELIM** still sells well and has had a favoured following in the north west. However, the malting varieties grown as "feed" are capable of the highest yields and, unless straw is the main requirement, can be every bit as effective.

Spring Wheat: –

MULIKA remains the most widely grown variety and the only group 1, but at now significant yield deficit and should only be considered if a guarantee of grade 1 quality is a given.

KWS COCHISE, **KWS CHILHAM**, **KWS GIRAFFE** and **KWS WILLOW** provide alternatives in the group 2 sector. Giraffe will be more widely available in spring 2022.

Some growers are now considering more risk averse alternatives - the Hard Feed Wheat varieties. **KWS KILBURN** and **KWS ALDERON** have been more widely grown from this group 4 sector. Two of the newest varieties to the scene are **KWS TALISKER** and **HEXHAM** from Senova. They have seen limited uptake due to volume availability. New in the group 4 hard group and again, like Giraffe, not widely available until spring 2022, is **WPB ESCAPE** which is now the highest yielding spring wheat available.

Spring Oats: –

Little change in this section as **CANYON**, **ASPEN** and **WPB ELYANN** were the market leaders in spring 2021, where seed availability and quality were both at a premium.

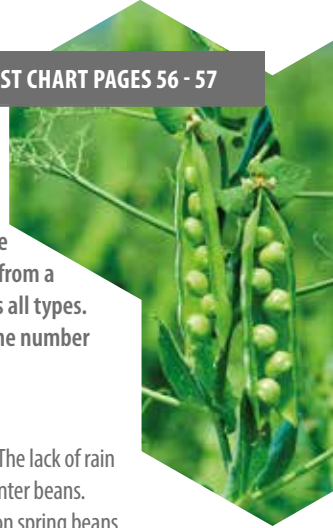
We have seen more interest in the newer varieties **DELFIN** and **ELISON**, as they become more widely available, but restricted volumes of seed have meant that their market share has not as yet grown significantly.

Spring Cropping

Overview

DESCRIPTIVE LIST CHART PAGES 56 - 57

This year marks a distinctive change in PGRO variety trials as the data moves from the long-established Recommended list (RL) to a Descriptive list (DL). The DL list uses a five-year rolling average data set like the old RL, year 1 and 2 coming from national lists, year 3 being the first year on the list and by year 5 are established. The method of calculating the mean is from a more robust basket of varieties that have been in trial for 4-5 years across all types. The recommendation category has now been removed and replaced by the number of years in trials, or when first listed in RL or DL lists.

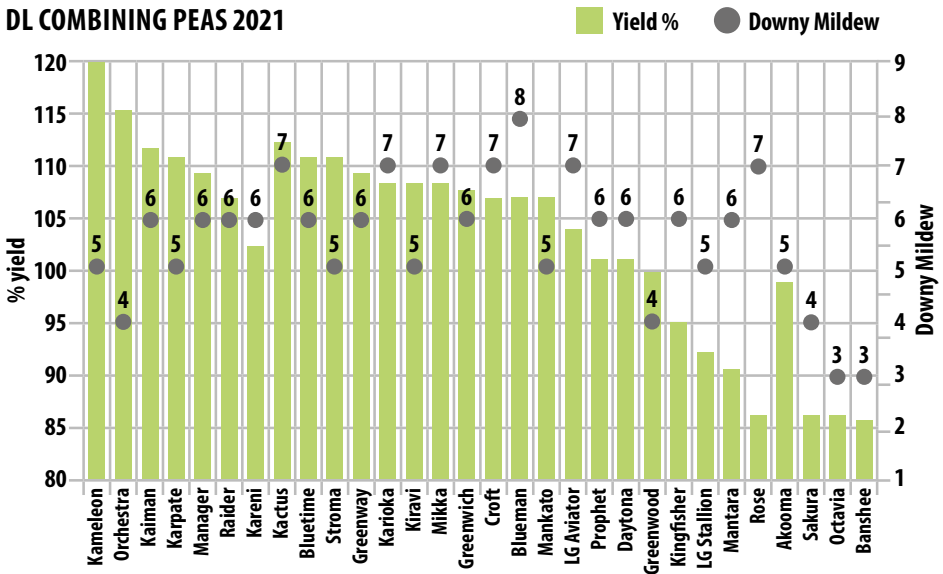


Pulses in 2020

The extreme weather conditions of 2020 impacted pulse yields more than most. The lack of rain post drilling gave way to uneven emergence - the impact felt most heavily on winter beans. Late season powdery mildew impacted heavily on peas, whereas rust impacted on spring beans. Hence RL yields have been generally lower and so much more variable this season.

Combining Peas

DL COMBINING PEAS 2021



Tables: taken from the PGRO Descriptive List 2021.

The control yield from year 4 & 5 varieties (3.85t/ha), yield differences of less than 10.5% are not statistically significant.

Six trials went through to harvest in 2020, the highest yielding one was in Hampshire last year with a yield of 3.71t/ha, which says everything of last season's yield potentials.

Combining peas:

There has been a change in classification of peas this year, aligning more to international standards and in moving to a descriptive list. Large blues are now listed as Green/Blue and whites as Yellow/White, the Maple and Marrowfats classifications remain unchanged. There have been seven additions to the list this year (four greens/blue, one marrowfat, two yellow/white and two withdrawals by the breeders, Bluetooth (LS Plant Breeding) and Vertex (Senova) both blues.

Green/Blues (large and small blue combined into one): Generally, the largest sector if gauged by the seed production, at around 50% of the market.

- Additions include **Stroma (111) NEW** LS Plant Breeding, high yielding and one of the highest TGW in the group at 303g. **Kiravi (108) NEW** from Senova. **Greenway (109) NEW** and **Mikka (108) NEW** from IAR Agri both very similar in terms of agronomics.
- The highest yielder in this category is now a variety in year four in trials **Kactus (112)**, followed by **Bluetime (111)** year 5 and **Stroma (111)** year 3.
- **Kactus (112)**, **Greenwich (107)** and **LG Aviator (103)** all received listings last year. Kactus being the highest yielding of all three with good agronomics as well (shortness of straw, standing ability and downy mildew rating). Greenwich with a grain size of 324g is the largest of the group (potentially suited to micronizing).
- **Mankato (106)** KWS and **Croft (106)** LS Plant Breeding move to P3 recommendation.
- **Bluetime (111)** the second highest yielder on the list, **Karioka (108)** and **Blueman (106)** all progressed to recommended last year. Blueman stands out in its rating of 8 to downy mildew, it also has a high resistance to powdery mildew.

Marrowfats: the second largest sector if judged by seed production at around 40% of the market.

- **Akooma (97) NEW** from LS Plant Breeding with a yield of 11% above Sakura and has very large seed. It is a tall variety with a relatively low rating for standing. A slightly higher rating for downy mildew, as well as being a bold seeded variety.



- **Sakura (86)** is fully recommended.
- **Banasee (85)** Senova and **Octavia (86)** IAR Agri continue to year four of trials, both have short to medium straw, better standing ability than most marrowfats and are late maturing, with low ratings for downy mildew.

Yellow/White-seeded:

- **Additions for 2021 are Kaiman (112) NEW** from Senova a tall variety, yet a good stander, although a late maturing variety, and **Raider (106) NEW** from IAR Agri, good all-round agronomics apart from seed size at 265g TGW.
- **Kameleon (120)** Senova a P4 variety tops the list followed by **Orchestra (105)** LS Breeding. **Kameleon** has exceptional yields, out yielding its nearest rival by 5%. With good standing ability and earliness to maturity, it has some outstanding credentials. Its grain size makes it suitable to the whole grain packet and split pea market, as well general suitability to the animal feed sector. **Orchestra** is a medium plant height with moderate standing ability, with a medium maturity. The TGW of 308g will make it attractive to some high value niche markets. Its downy mildew rating however is only 4.

Maple peas:

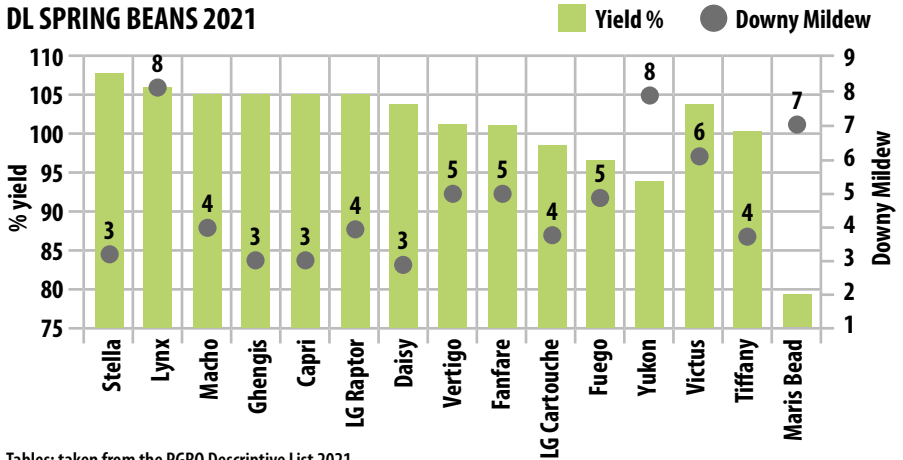
- **Mantara (90)** and **Rose (86)** remain as recommended.



Spring Beans

DESCRIPTIVE LIST CHART PAGE 58

DL SPRING BEANS 2021



Tables: taken from the PGR0 Descriptive List 2021.

The control yield from year 4 & 5 varieties (4.47t/ha), yield differences of less than 6.3% are not statistically significant.

The descriptive list is represented by eight trials taken to harvest in 2020, yields ranged from 6.29t/ha in North Yorkshire to 1.88t/ha in Lincolnshire.

We have seen the addition of seven new varieties to the list this year and one withdrawn.

Stella (108), **Capri (105)**, and **Daisy (104)** all **NEW** from Saaten Union were added to the descriptive list for 2021. Stella (108) becomes the highest yielding variety on the list 2% above **Lynx (106)**. Lynx was previously the highest yielding variety from 5 years of trials. Capri and Daisy have similar characteristics to Stella, although a higher protein content is offset by a smaller seed size.

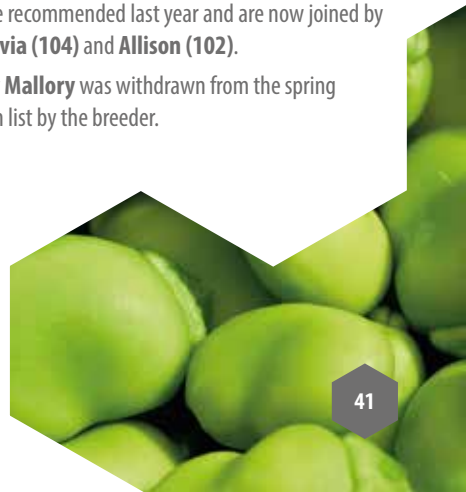
Two **NEW** varieties from Limagrain, **LG Viper (108)** now vying for top spot alongside Stella. It ticks all the boxes agronomically. **LG Sphinx (103)** was also added, a little behind LG Viper.

Two **NEW** varieties from LS Plant Breeding have been included, both are low LVC varieties (Low Vicine/Convicine). **Allison (102)** only 2% behind Victus, an early maturing, short variety with good standing ability, although a low rating for downy mildew.

Bolivia (104) a slightly later maturing variety with similar agronomic characteristics, with better downy mildew resistance, although an inferior seed size.

A new sub-category was established last year (LVC) linked to low Vicine and Convicine. These are glycosides, anti-nutritional compounds, they hamper the development of fava beans as a worldwide food and feed crop. High LVC's in beans cause a disease called favism, a hemolytic response to the consumption of fava beans in people who have an inherited absence of the enzyme glucose-6-phosphate dehydrogenase (G6PD) in their red blood cells. It is estimated more than 100 million people worldwide are genetically deficient in G6PD. The incidence of this genetic deficiency is as high as 50% in some populations. **Victus 104** and **Tiffany 101** were recommended last year and are now joined by **Bolivia (104)** and **Allison (102)**.

Only **Mallory** was withdrawn from the spring bean list by the breeder.



Maize Variety Options

Defra statistics illustrate the rising popularity of maize, showing that over the past five years the UK planted area has increased from less than 190,000 ha to around 226,000 ha in 2020. This has increased the demand for seed in both traditional mixed farming or livestock-based maize growing areas, as well as in arable regions now growing maize for biogas and grain production.

Variety selection is challenging, but our portfolio is selected from material produced by top breeders, with performance data supplemented by our regional trials and feedback from our national network of agronomists. This enables us to offer independent advice on the range of varieties best suited to individual farm location and conditions.


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Best-selling varieties for 2021 by maturity class

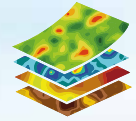
		FAO	FORAGE	BIOGAS	GRAIN
Very early maturing varieties	PEREZ	160	X	X	
	DUXXBURY	160	X		
	ARTIKUS	160	X	X	
Early maturing varieties	AUTENS	170	X	X	X
	PROSPECT	170	X	X	X
	P7326	180	X	X	X
	ABILITY	180	X	X	
	P7034	190	X	X	X
	AGIRAXX	190	X	X	
Intermediate maturing varieties	P7524	200	X	X	
	KEOPS	210	X	X	
	MOVANNA	210	X	X	
	P7948	210/220	X	X	X
	MANTILLA	220		X	
Late maturing varieties	NEUTRINO	230	X	X	
	INDEXX	240		X	
	AMAROC	240		X	

Hutchinsons have access to varieties from all of the main maize breeders including:



TerraMap

High Definition Soil Mapping



TerraMap



Hutchinsons would like this opportunity to explain their innovative and affordable soil analysis system, that sets a high standard for accuracy in precision agriculture.

TerraMap is a revolutionary system that delivers the highest definition field maps existing today.

TerraMap gives growers a deeper understanding of the variability in fertility and textural-based properties of their soil, offering much more than traditional soil measurement practices.

TerraMap delivers the highest definition and most detailed field nutrient maps obtainable today. Data is proven to be reliable and repeatable which allows growers to make the best decisions for their soil and nutrient management, with confidence.

For decades, low definition soil tests have only scratched the surface with only 1 to 2 samples per hectare. Results between these points can vary significantly, with results that can often be misleading, especially for variable rate applications. Other scanning systems can be adversely affected by soil moisture, compaction, cultivations or vegetation cover.

Using cutting edge gamma ray detection technology, **TerraMap** gives growers the most in-depth analysis

Today's
precision farming
requirements
demand greater
accuracy!



of their soil with a resolution of over 800 points per hectare. High definition nutrient maps are generated based on the analysis results which can be incorporated into **Omnia** to create variable rate application plans for seed and fertiliser inputs.

TerraMap measures and maps all common nutrient properties including pH, phosphorus, potassium and magnesium, along with additional micro & macro nutrients, soil texture and other properties such as organic matter and CEC.

TerraMap also has the ability to map soil carbon content, an important consideration for the future.

Available exclusively from Hutchinsons, the **TerraMap** service has been successfully proven with farmers in the UK for the past 3 years.

Environmental Services



As we are drip fed more information about the future of public funding for farmers, it is becoming clear that the environment is going to be at the forefront of any scheme, which is why we are suggesting getting into a scheme now, rather than waiting until the launch of ELMS in 4-5 years.

No matter what level you decide to go in at, the experience of managing options and running an environmental scheme on your farm, that is providing both 'public good' and 'natural capital', is the best preparation you can do for ELMS. They will not be re-inventing the wheel when it comes to the scheme options, so many of those currently available in Countryside Stewardship (CS) will more than likely be available in ELMS.

ELMS is likely to reward farms that are providing the most biodiversity. As this is something that cannot increase overnight, we suggest exploring some of the options already available to start building habitats now.

For example, planting AB8 wildflower margins (£539/ha) is a great way to take marginal areas out of production and increase biodiversity, plus it will give you a long-term option that you can roll straight into ELMS (without having to re-establish).

Furthermore, you can start to use some of the options in Countryside Stewardship to help fund changes in the way you farm, or perhaps fund something you are already doing. Options for grass leys, such as AB15 two-year legume fallow (£522/ha) or GS4 legume and herb-rich sward (£309/ha) represent excellent opportunities to try something new in the rotation. There is even an option for SW6 overwintered cover crops (£114/ha), which will help to support your move towards conservation agriculture - something we know will be encouraged in ELMS.

Code	Your Countryside Mix	Spec	Bag Size kgs	kgs/ha
AB1	Nectar Gold Mix	Nectar Gold Mix	12	12
AB8	AB8 Flower-Rich Grass Mix	Long lasting quality mix, short term mix, unlikely to last more than 5 years	20	16-20
AB8	BGM4 - with flowres		20	20
AB9	WBS1	Budget Mix	20	40
AB9	Feed & Cover	Wildlife mix	20	40
AB9	WBS4	Game mix	20	40
AB9	WBS2	Two year mix	20	40
AB9	Northern WBS1	North and early drillers	20	40
AB9	Additions	Kale - Gruner Angeliter	1	2-3
		Sunflowers - treated	5	4
		Phacelia	2	0.5
AB15	2 yr Legume mix	no grass	20	20
		with grass	20	30
AB16	Autumn Bumblebird mix	cheaper mix with no perenial flowers	20	40
		premium mix with no perenial flowers	20	40
GS4	Legume and herb rich		20	32
SW1, SW3, SW4	BGM1 tussocky grass	with cockfoot	20	20
SW1, SW3, SW4	BGM2 tussocky	without cockfoot	20	20

With warmer weather fast approaching, many of you will be thinking about drilling your CS options this spring - our advice is to wait until perfect conditions before drilling anything. It is important to remember that you are not trying to gain yield from early establishment with these mixes, as you might with spring crops, it is far more important to wait for warm, moist soils and consolidated, clean seedbeds. Some species in the mixes will not even grow unless soils temperature is 14 degrees C and rising, which we do not often see until late May, therefore patience is the key to successful CS option establishment.

The table above shows a few of the environmental stewardship mixes that Hutchisons can offer, please get in touch with your agronomist for a quote and management advice.

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AHDB Recommended List Winter Triticale 2021/22

AHDB
DESCRIBED

DL Candidate	Keston		Treaton 8		KWS Pro		Ternon		SU Lanes		Treaton		Bridon		Oxton		Tern		Tender 720		Aposton		Aposton		Average LSD (5%)
	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	C	NEW	
Grain yield (as % treated control)																									
Fungicide-treated (10.7 t/ha)	101	-	90	[90]	[98]	97	10	6	6	[98]	97	10	6	6	[96]	95	10	8	8	94	94	91	91	8.5	
Number of trials																									
Agroonomic features																									
Lodging (%)	[0]	-	[0]	-	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[16]	[0]	[0]	[0]	4.7
Straw length (cm)	101	-	111	[107]	[104]	118	118	[122]	98	[98]	118	118	[122]	98	[98]	98	98	[98]	[98]	[124]	[0]	101	101	6.8	
Ripening (days +/- Agrostis, -ve = earlier)	[+1]	-	[0]	[0]	[+1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[-1]	[0]	[0]	101	101	2.6	
Grain quality																									
Specific weight (kg/hl)	74.6	-	77.0	[73.1]	[73.6]	73.8	73.8	[79.1]	74.4	74.4	73.0	73.0	[72.5]	74.4	74.4	73.0	73.0	75.8	75.8	75.4	75.4	75.4	75.4	1.6	
Protein content (%)	12.2	-	11.8	[12.0]	[12.3]	12.1	12.1	[12.5]	12.3	12.3	12.7	12.7	[12.2]	12.3	12.3	12.7	12.7	12.2	12.2	12.2	12.2	12.2	12.2	0.6	
Disease resistance																									
Yellow rust (1-3) - see note below	8	-	6	[7]	[8]	7	7	[7]	4	4	5	5	6	6	7	7	6	6	7	7	6	6	7	7	1.5
Breeder/UK contact																									
Breeder	Dark	Deep	Lant	Lant	Nord	Dark	Dark	Dark	Hod	Hod	Hod	Hod	Dark	Dark	Dark	Hod	Hod	ICP	ICP	Lant	Lant	Lant	Lant	-	
UK contact	Sen	Eng	Sen	Sen	SU	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Sen	Dalt	Dalt	Dalt	Dalt	Sen	Sen	Sen	Sen	Sen	
Status in DL system																									
Year first listed	18	21	14	21	21	21	12	21	21	21	16	16	20	20	20	20	20	20	20	20	20	11	11	-	
DL status	-	P1	-	P1	P1	P1	-	P1	P1	P1	-	P1	P1	P1	P2	P2	P2	P2	P2	-	-	-	-	-	

Varieties no longer listed: Securo.
 The data in this table are provided for information only and do not constitute a recommendation.
 \$ Data cannot be published as variety has not completed National List testing.

C = Yield control (for current table)
 * = Variety no longer under test in RL trials
 [] = Limited data
 P1 = First year of listing
 P2 = Second year of listing
 Cope = Cope Seeds & Grain (copesseeds.co.uk)
 Dalt = Daltion Seeds (daltion.co.uk)
 Dark = Danko Hobbies Florin, Poland (danko.pl)
 Deep = Mazon Normand Desprez, France (normand-desprez.com)
 Eng = Elkom Seeds (elkomseeds.com)
 Eng = Saatzucht Streng-Engelen

Hod = Hobbies Florin Strzelce, Poland (h-srzalce.pl)
 ICP = ICP-Pflanzenschutz, Germany
 Lant = Laromann SW Seed BV
 Nord = Nordjaak, Germany (nordjaak.de)
 Sen = Senviva (senviva.uk.com)
 SU = Saaten Union UK (saaten-union.co.uk)

LSD = Least significant difference
 Average LSD (5%) Varieties that are more than one LSD apart are significantly different at the 95% confidence level

Winter triticale rust ratings
 The RL 2021/22 now features disease ratings for winter triticale (yellow rust). As Described, not Recommended, varieties. Less information is available to calculate the ratings. As a result, these ratings use a six-year dataset. As for all ratings, statistical significance (LSD) should be taken into account when deciding if varieties have different susceptibility to disease.



AHDB Recommended List Winter Oilseed Rape 2021/22

Yield, quality, agronomy and disease resistance

AHDB
RECOMMENDED

Variety type	Recommended for the UK (both East/West and North regions)										Recommended for use in suboptimal/infertile land						Described varieties		
	Ardsador	LA Avon	Aurida	Acrida	Artemis	Asprex	Ardark	Argentation	DK Expansion	Ballad	V16 CL-	DK Impact CL A	Crowm S	Crowm S	Crocodm S	Crocodm S		Average LSD (5%)	Report 1
Scope of recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK Sp	UK Sp	EW Sp	EW Sp	(5%)	Hybrid	UK HEAR
Common winter oilseed rape for all production (& Winter cover crop)																			
United Kingdom (5.3 t/ha)	108	108	107	107	106	104	104	103	102	100	98	95	101	102	100		4.6	95	92
East/West region (5.2 t/ha)	109	109	107	107	104	104	103	102	100	99	95	101	103	101	101		5.0	95	92
North region (5.9 t/ha)	102	105	106	104	102	103	98	102	102	102	98	91	102	99	99		5.7	96	90
Early yield (& Winter cover crop)																			
United Kingdom (4.9 t/ha)	108	110	107	106	103	103	102	102	100	98	97	100	103	103			4.2	94	92
East/West region (4.8 t/ha)	109	110	107	107	106	103	104	102	100	99	97	100	104	102			4.6	94	92
North region (5.4 t/ha)	103	107	104	102	102	102	97	102	101	96	93	101	97	97			5.3	94	90
High yield (& Winter cover crop)																			
United Kingdom (5.4 t/ha)	110	-	109	105	105	103	103	101	98	98	-	101	97	98			6.6	92	92
High yield (& Winter cover crop) & Winter cover crop																			
United Kingdom (5.0 t/ha)	110	-	109	105	105	103	102	101	98	98	-	100	98	98			6.3	92	92
Agromorph features																			
Resistance to lodging (1-9)	[R]	[7]	8	8	[R]	8	8	8	8	8	8	[R]	8	[R]	[R]		0.3	8	8
Stem stiffness (1-9)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		0.5	9	6
Shortness of stem (1-9)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		0.2	9	6
Plant height (cm)	159	161	155	150	164	146	153	154	165	150	157	163	154	153	151		2.9	170	154
Earliness of flowering (1-9)	7	8	7	6	6	7	6	6	6	6	6	6	6	6	6		0.3	6	7
Earliness of maturity (1-9)	6	6	5	5	6	4	5	5	5	5	5	5	5	5	5		0.4	4	5
Pod shatter	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		-	-	-
Other features																			
Light leaf spot (1-4)	7	7	7	6	6	7	7	6	6	6	6	6	6	6	6		0.7	7	6
Stem canker (1-4)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		0.8	6	5
TUUV	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		-	-	-
Food quality (if R/F treatment)																			
Oil content, fungicide-treated (%)	45.2	44.5	45.3	45.7	45.6	45.7	45.7	46.1	45.5	45.6	45.3	43.8	46.3	45.0	44.8		0.3	46.6	45.7
Glucosinolate (µmole/kg)	10.9	11.2	10.2	8.1	12.3	9.8	10.0	12.0	10.1	10.8	12.3	14.3	10.8	12.8	12.2		0.4	14.0	

Varieties no longer listed in the UK (both East/West and North regions): Alizex, Campus and Mentor.

Varieties no longer listed in the East/West regions: Aquila, Ergo, Flamingo and Wembley.

Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

Glucosinolate contents are taken from the National List trials data.

On the 1-9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance).

The target (spring) plant population is 40 plants/m² for RL trials. Maximum seed rate is 70 seeds/m² and may be lower if conditions permit.

LSD = Least significant difference

Glucosinolate contents are taken from the National List trials data.

AHDB Recommended List Winter Oilseed Rape 2021/22

Yield, quality, agronomy and disease resistance



Variety type Scope of recommendation	Recommended for the East/West region only												Recommended for the North region only									
	DK Esperation		Respect		Blackpearl		Daring		George		Daxler		PT275		PT279CL &		Nizza CL &		Buzen		DK Exalt	
	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW	EW	NEW
Gross output, yield adjusted for oil content (% treated control)	106	106	106	106	103	103	102	102	102	102	102	102	102	102	102	102	101	101	102	98	94	94
East/West region (5.2 t/ha)	109	107	106		103	103	102	102	102	102	102	102	102	102	102	101	101	101	101	97	94	94
North region (5.9 t/ha)	102	98	101		100	100	99	97	97	97	97	97	97	97	97	97	97	97	97	94	94	94
Seed yield (% treated control)	106	106	106		102	103	101	102	98	94												
United Kingdom (4.9 t/ha)	108	107	107		103	103	101	102	97	94												
East/West region (4.8 t/ha)	102	96	102		99	100	97	97	92	89												
North region (5.4 t/ha)																						
Unadjusted gross output, yield adjusted for oil content (% untreated control)	-	-	-	-	102	99	102	101	94	87												
United Kingdom (6.4 t/ha)	-	-	-	-	101	99	101	101	95	86												
Unadjusted gross yield (% untreated control)	-	-	-	-	101	99	101	101	95	86												
United Kingdom (6.0 t/ha)	-	-	-	-	101	99	101	101	95	86												
Agroclimatic features																						
Resistance to lodging (1-9)	8	7	8		8	8	8	8	8	8												
Stem stiffness (1-9)	6	6	6		6	7	9	8	8	8												
Shortness of stems (1-9)	6	6	6		6	7	6	6	6	6												
Plant height (cm)	152	156	162		159	151	153	156	156	152												
Earliness of flowering (1-9)	7	6	7		7	7	8	5	6	7												
Earliness of maturity (1-9)	6	6	5		5	5	6	5	6	5												
Pod shatter	R	R	-		R	-	R	R	-	-												
Disease resistance																						
Light leaf spot (1-9)	8	7	6		6	6	6	6	5	5												
Stem canker (1-9)	7	8	8		8	8	8	5	5	6												
TuYV	R	R	-		R	-	R	-	-	-												
Oil content, fungicide-treated (%)	45.8	45.4	45.0		46.1	45.5	46.2	46.4	45.0	44.8												
Glucanase (jandem/g)	11.5	12.2	11.8		12.2	9.6	11.1	8.4	10.9	14.9												
Average LSD (%)																						
DK Exalt																						
Buzen																						
DK Exalt																						

UK = Recommended for both the East/West and North regions
 EW = Recommended for the East/West region
 N = Recommended for the North region
 Sp = Specific recommendation
 (Sp) = Resistance to Turnip Yellow
 Virus is no longer a specialist category. Architect and Tempra have a specific recommendation for this trait.
 Conv = Conventional open-pollinated variety
 RH = Restored hybrid
 SD = Semi-dwarf
 C = Yield control (for current table). For this table Campus and Alize were also control varieties but are no longer faced.
 * = Variety no longer in main region
 † = Specific recommendation for growing on land infested with common strains of clubroot. These varieties should only be used in-line with current AHDB clubroot management guidelines, to reduce the risk of resistance breakdown.
 & = Herbicide tolerant variety.
 PT279CL and Nizza CL have a specific recommendation for tolerance to specific imidazolinone herbicides (a Clearfield® variety).
 † = HOLL (High Oleic, Low Linolenic) variety
 ‡ = HEAR (High Erucic Acid) variety
 † = Unadjusted yield data available for 2017, 2018 and 2019 only. Unadjusted trials are treated for sclerotinia at flowering.
 □ = Limited data
 R = Believed to be resistant to Turnip Yellow Virus (TuYV) but this has not been verified in Recommended List tests.

AHDB Recommended List Winter Wheat 2021/22

Yield, agronomy and disease resistance

AHDB
RECOMMENDED

End-use group Scope of recommendation	KWS Zylat		Skyfall		Crissoe		RGT Illustrious		KWS Extase		KWS Siskin		LG Detroit		LG Prince		LG Illumina		LG Quasar		KWS Firefly		Marti		LG Astronomer		KWS Barrel		Elicit		Average LSD (5%)
	UK	C	UK	C	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK		
Fungicide-treated grain yield (% treated control)																															
United Kingdom (10.8 t/ha)	98	97	96	96	96	96	96	96	100	100	99	99	102	102	102	101	101	101	101	100	99	100	100	101	101	100	100	99	99	2.2	
East region (10.7 t/ha)	98	97	96	96	96	96	96	96	100	99	99	99	102	102	102	102	102	102	100	99	100	100	101	101	100	100	99	99	2.5		
West region (10.9 t/ha)	99	97	97	97	97	97	97	97	101	100	99	99	102	101	101	101	101	99	100	100	100	100	100	100	100	100	99	99	2.9		
North region (11.0 t/ha)	97	96	93	94	94	94	94	94	98	96	93	93	100	102	101	98	100	98	103	100	100	100	100	100	100	100	100	100	3.4		
Untreated grain yield (% treated control)																															
United Kingdom (10.8 t/ha)	79	74	69	66	66	66	66	66	93	80	75	83	85	82	80	80	80	86	71	78	78	78	78	78	78	78	78	78	5.7		
Agroclimatic features																															
Resistance to lodging without PCR (1-9)	7	8	7	7	7	7	7	7	7	6	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	0.8		
Resistance to lodging with PCR (1-9)	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	0.6		
Height without PCR (cm)	84	83	81	86	86	86	86	86	90	84	86	86	83	82	89	83	85	86	84	85	85	85	85	85	85	85	85	85	1.9		
Reaping (days +/- Skyfall, -ve = earlier)	0	0	0	+1	+1	+1	+1	+1	-2	+1	+2	+1	+2	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0.7		
Resistance to sprouting (1-9)	5	5	5	6	6	6	6	6	7	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1.0		
Disease resistance																															
Mildew (1-9)	7	6	6	7	7	7	7	7	7	7	6	4	5	6	5	6	5	3	4	6	6	6	6	6	6	6	6	6	1.3		
Yellow rust (1-9) - see note below	5	3	9	8	8	8	8	8	8	9	8	8	7	6	7	8	9	7	8	9	7	8	8	8	8	8	8	8	0.9		
Brown rust (1-9) - see note below	6	8	3	6	6	6	6	6	7	5	5	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	1.0		
Septoria tritici (1-9)	6.4	5.8	6.3	6.0	6.0	6.0	6.0	6.0	6.0	6.5	5.4	7.1	7.0	6.6	6.9	6.6	6.6	7.4	4.2	4.2	5.1	4.4	4.4	4.4	4.4	4.4	4.4	4.4	1.7		
Eyepot (1-9)	7	6	5	6	6	6	6	6	7	5	5	6	5	6	5	6	5	6	6	6	6	6	6	6	6	6	6	6	0.5		
Fusarium ear blight (1-9)	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0.5		
Orange wheat blossom midge	-	R	-	-	-	-	-	-	-	-	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	0.5		

On the 1-9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). Comparisons of varieties across regions are not valid.

Yellow and brown rust ratings

During 2019 higher than expected levels of yellow and brown rust were seen in some varieties in some trials. Careful analysis of the 2019 data from RL trials did not reveal dramatic changes in average disease ratings. These are national average ratings, and it is not yet clear if the reported cases of highly yellow and brown rust disease levels in 2019 indicate the initial emergence of new rust races or exceptionally high disease pressure at some sites. Given the highly dynamic nature of the yellow and brown rust populations in the UK over recent years, all varieties should be closely monitored for rusts, as local rust populations may differ from the general UK population and may be more or less virulent on a variety than the RL rating suggests.

Varieties no longer listed: Evolution, JB Diego, KWS Trinity and Myriad. All yields in this table are taken from treated trials receiving a full fungicide and PCR programme.

UK = Recommended for the UK
 EAW = Recommended for the East and West regions
 N = Recommended for the North region
 C = Yield control (current table).
 For this table KWS Santiago was also a yield control but is no longer listed.
 * = Variety no longer in trials
 [] = Limited data

@ = Believed to carry the Pch1
 R = Resistant to orange wheat blossom midge (OWBM) but this has not been verified in Recommended List tests.
 R = Believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in Recommended List tests.
 LSD = Least significant difference
 Average LSD (5%):
 Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

AHDB Recommended List Winter Wheat 2021/22

Yield, agronomy and disease resistance



End-use group	Soft Group 4				Hard Group 4				Average LSD (5%)					
Scope of recommendation	UK	UK	N	UK	UK	UK	UK	UK	EAW	UK	Sp	UK	UK	W
Fungicide-treated grain yield (% treated control)														
United Kingdom (10.8 t/ha)	105	104	103	101	100	100	100	100	102	102	102	101	99	99
East region (10.7 t/ha)	105	104	102	101	100	99	100	100	103	103	103	101	101	99
West region (10.9 t/ha)	104	104	104	101	100	100	100	100	102	102	102	101	100	102
North region (11.0 t/ha)	103	102	101	101	102	101	99	100	102	101	103	102	99	100
Untreated grain yield (% treated control)														
United Kingdom (10.8 t/ha)	81	85	78	75	79	73	83	78	78	74	81	77	74	87
Agromomic features														
Resistance to lodging without PGR (1-9)	7	7	7	7	8	7	6	6	8	7	7	7	7	7
Resistance to lodging with PGR (1-9)	7	7	8	8	9	7	7	7	8	8	7	8	7	8
Height without PGR (cm)	92	88	93	82	79	87	87	95	86	84	87	88	86	86
Ripening (days +/- Skyfall, -ve = earlier)	0	+3	+1	+1	0	+1	+2	+1	+2	0	+1	+1	+2	0
Resistance to sprouting (1-9)	5	5	6	7	6	5	4	5	6	6	5	4	6	6
Disease resistance														
Mildew (1-9)	7	5	6	7	5	7	7	6	5	5	6	4	7	7
Yellow rust (1-9) - see note below	8	8	6	8	6	9	9	5	8	4	5	7	4	8
Brown rust (1-9) - see note below	6	7	6	5	6	5	5	5	5	6	6	6	5	5
Septoria tritici (1-9)	5.1	6.5	6.2	4.1	6.7	4.8	7.9	6.8	6.0	5.3	6.1	4.9	4.8	6.8
Eyespot (1-9)	4	5	5	4	3	4	3	5	5	4	4	4	5	3
Fusarium ear blight (1-9)	7	6	6	6	5	6	6	7	6	6	6	6	6	7
Orange wheat blossom midge	R	R	R	R	R	R	R	R	R	R	R	R	R	R

On the 1-9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). Comparisons of varieties across regions are not valid.

Varities no longer listed: Evolution, JB Diego, KWS Trinity and Myriad. All yields in this table are taken from treated trials receiving a full fungicide and PGR programme.

Yellow and brown rust ratings

During 2019 higher than expected levels of yellow and brown rust were seen in some varieties in some trials. Careful analysis of the 2019 data from RL trials did not reveal dramatic changes in average disease ratings. These are national average ratings, and it is not yet clear if the reported cases of high yellow and brown rust disease levels in 2019 indicate the initial emergence of new rust races or exceptionally high disease pressure at some sites. Given the highly dynamic nature of the yellow and brown rust populations in the UK over recent years, all varieties should be closely monitored for rusts, as local rust populations may differ from the general UK population and may be more or less virulent on a variety than the RL rating suggests.

UK = Recommended for the UK

EAW = Recommended for the East and West regions

N = Recommended for the North region

* = Variety no longer in trials

@ = Believed to carry the Pm1 R gene

resistance gene to eyespot but this has not been

verified in Recommended List tests.

LSD = Least significant difference

Average LSD (5%) Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

R = Believed to be resistant to orange wheat blossom midge (OWBM) but this has not been verified in Recommended List tests.

AHDB Recommended List Winter Barley 2021/22

Market options, yield and grain quality, agronomy and disease resistance



End-use group	Two-row malting		Three-row feed		Average LSD (%)																
	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
Scope of Recommendation	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	
Complete sorted grain yield (% treated control)																					
United Kingdom (9.7 t/ha)	97	99	108	108	108	104	103	103	102	102	101	101	101	100	100	99	98	98	98	98	98
East region (9.5 t/ha)	97	99	107	107	105	105	105	104	102	103	103	101	100	100	99	100	98	98	98	98	98
West region (9.8 t/ha)	98	99	109	109	105	105	105	104	102	103	103	101	100	100	99	100	98	98	98	98	98
North region (9.8 t/ha)	96	96	105	105	104	105	101	101	101	101	99	101	101	100	100	99	98	98	98	98	98
Unthreshed grain yield (% treated control)																					
United Kingdom (9.7 t/ha)	77	76	83	83	81	83	81	82	81	81	80	85	75	72	70	81	81	81	81	81	81
Wheat harvest options																					
MBC - heading approval for breeding use	F	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grain quality																					
Specific weight (kg/hl)	69.2	69.5	69.1	69.6	69.9	69.4	69.7	69.5	69.9	70.3	69.1	69.3	70.0	68.4	67.8	68.2	71.4	68.2	71.4	68.2	71.4
Screenings (% through 2.5 mm)	2.3	2.1	2.2	1.9	1.7	2.2	2.3	2.4	1.8	1.7	2.1	1.9	0.9	2.1	2.2	2.0	1.7	0.7	1.7	0.7	0.7
Screenings (% through 2.5 mm)	6.8	6.0	7.2	6.6	5.5	7.5	7.3	7.5	6.1	5.4	6.3	6.0	3.1	7.4	7.3	6.5	5.1	1.6	1.6	1.6	1.6
Millotage content (%)	1.65	1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stalks in RL system																					
Year first used	18	18	21	21	21	19	20	19	20	19	19	16	19	17	14	13	13	13	13	13	13
Agroclimatic Reserves																					
Responsive to lodging (1-6)	7	6	8	8	7	7	8	7	7	7	7	8	7	8	7	8	8	8	7	8	7
Stem height without PDG (cm)	95	95	102	105	106	97	102	100	107	96	99	99	92	90	90	95	94	94	94	94	94
Stem height with PDG (cm)	91	89	96	94	96	90	97	95	94	92	96	96	87	88	88	92	91	91	91	91	91
Rooting (1-10) (0 = shallow)	-1	-1	0	-1	0	0	-1	-2	-1	-1	0	0	0	0	-1	0	-1	0	-1	0	-1
Winter hardiness #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disease Resistance																					
Mildew (1-4)	6	6	6	6	5	5	6	6	5	4	3	5	6	4	5	6	6	6	6	6	6
Brown rust (1-4)	7	6	5	5	7	6	6	6	7	7	7	7	6	6	7	5	7	5	7	5	7
Phytophthora (1-4)	6	6	7	5	4	5	6	6	7	6	6	7	6	6	6	6	6	6	6	6	6
Net blotch (1-4)	6	6	5	5	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
BarMV	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

Varieties no longer listed:
 KWS Infinity and Summingdale
 Comparisons of variety performance across regions are not valid.
 UK = Recommended for the UK
 C = Yield control (for current table)
 F = Full MBC approval
 LSD = Least significant difference
 W = Recommended for the West region
 * = Variety no longer in trials
 P = Provisional MBC approval
 N = Recommended for the North region
 S = Hybrid variety
 T = Under test for MBC approval
 [] = Limited data
 Average LSD (5%): Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

AHDB Recommended List Spring Barley 2021

Yield, agronomy and disease resistance



RECOMMENDED

End-use group	Skyway		SY Splendor		SY Tungsten		Firefox		Cosmopolitan		LG Diablo		Laureate		RGT Planet		Iconic		Sienna		KWS Sassy		Propno		Fairing		Cadiz		Fairway		Prospect		Average LSD (5%)
	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK		
Scope of recommendation	NEW																																
Fungicide-treated grain yield (% treated control)																																	
United Kingdom (7.5 t/ha)	106	103	103	102	102	102	102	101	100	100	99	98	98	98	98	95	93	103	103	102	102	102	102	102	102	102	102	102	102	102	102	1.9	
East region (7.5 t/ha)	106	103	101	102	102	103	102	102	102	102	102	102	102	102	102	94	92	105	103	104	104	104	104	104	104	104	104	104	104	104	3.1		
West region (7.1 t/ha)	[106]	103	102	102	102	102	102	102	102	102	101	98	98	98	96	96	95	106	102	102	102	102	102	102	102	102	102	102	102	102	3.5		
North region (7.7 t/ha)	103	103	103	102	103	102	103	100	99	99	99	99	99	99	99	95	92	100	103	103	102	102	102	102	102	102	102	102	102	102	2.6		
Untreated grain yield (% treated control)																																	
United Kingdom (7.5 t/ha)	96	91	91	92	93	94	93	91	91	91	90	89	89	89	82	84	94	91	91	91	91	91	91	91	91	91	91	91	91	91	91	3.0	
Agronomic features																																	
Resistance to lodging (no PCR) (1-9)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	0.5	
Straw height (cm)	75	73	73	71	70	72	70	73	76	77	78	75	72	75	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	1.6	
Reaping (+/-Concerto, -ve = earlier)	+1	+2	+1	+1	+2	+1	0	0	0	+1	+1	0	-1	0	-1	0	+1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	
Resistance to trampling (1-9)	8	8	8	8	7	8	8	8	8	8	8	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	0.9		
Disease resistance																																	
Mildew (1-9)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	0.4	
Brown rust (1-9)	-	3	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1.3	
Rhynchosporium (1-9)	-	[4]	[4]	[5]	6	5	6	5	[6]	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	3.0	
Main market options																																	
MBC milling approval for brewing use	T	P	P	-	P	F	F	F	F	F	P	-	N	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MBC milling approval for malt distilling use	-	-	P	P	-	F	F	N	-	O	F	N	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MBC milling approval for grain distilling use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

On the 1-9 scales, high figures indicate that a variety shows the character to a high degree (e.g. high resistance). Comparisons of variety performance across regions are not valid.

Varities no longer listed: Chanson, Hader, KWS Ima, LG Iomahawk, Olympus, Ovation and Scholar. Growers are strongly advised to check with their buyer before committing to a malting variety without full MBC approval.

UK = Recommended for the UK

Sp = Fairing is suitable for the production of malt for grain distilling

Average LSD (5%); Varieties that are more than one LSD apart are significantly different at the 95% confidence level.

W = Recommended for the West region

C = Least significant difference

LS = Yield control (for current table). For this table KWS Ima was also a yield control but is no longer listed.

[] = Limited data

PGRO Descriptive List Winter Beans 2021

The control for yield comparisons is the mean of 4 & 5 year varieties.
Yield differences of less than 9.9% are not statistically different.

UK Agent see appendix	Agronomic characters					Seed characters				Year first listed
	Yield as % Control	Flower colour	Earliness of maturity (1-9)	Straw length (cm)	Standing ability at harvest (1-9)	Thousand seed weight (g) (@15%mc)	Protein content (% dry)	No. Years in matrix		
Pale Hilum										
Vespa	Sen	C	5	126	8	686	26.1	5	18	
Bumble	Sen	C	4	132	6	703	25.6	5	16	
Tundra	LUK	C	6	119	7	650	26.0	5	14	
Wizard	Sen	C	6	122	7	682	26.4	5	03	
Honey	Sen	C	7	116	8	699	25.9	5	12	

(1-9) A high rating indicates that the variety shows the character to a high degree.

The scales of characters of winter beans do not necessarily correspond with those for spring beans.


Wizard has resistance to leaf & pod spot (*Ascochyta fabae*).

Varieties **Vincent & Norton** will be added subject to confirmed NL status.

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PGRO Descriptive List Combining Peas 2021

The control for yield is the mean of 4 & 5 year varieties (3.85t/ha).
Yield differences of less than 10.5% are not statistically different.



UK Agent see appendix	Agronomic characters					Resistance to			Seed characters			Year first listed
	Yield as % Control	Earliness of maturity (1-9)	Straw length (cm)	Standing ability at harvest (1-9)	Pea wilt (Race 1)	Downy mildew (1-9)	Powdery mildew *	Thousand seed weight (g) (@15%mc)	Protein content (% dry)	No. Years in matrix		
Yellow (white)												
Kameleon	Sen	120	7	79	6	R	5	[S]	295	21.9	4	20
Orchestra	LSPB	115	6	84	6	R	4	[S]	308	21.5	4	20
Kaiman	Sen	112	5	86	7	R	6	[S]	292	21.5	3	21
Karpate	Sen	111	6	84	6	R	5	[S]	280	22.1	5	17
Manager	KWS	109	6	85	6	R	6	[MR]	270	22.5	5	18
Raider	IARA	106	7	77	7	R	6	[MR]	265	22.0	3	21
Kareni	Sen	102	7	79	7	R	6	[S]	280	22.6	5	16
Green (Blue)												
Kactus	Sen	112	5	82	7	R	7	[S]	276	21.3	4	20
Bluetime	LSPB	111	4	93	6	R	6	[S]	277	21.2	5	18
Stroma	LSPB	111	6	85	6	R	5	[S]	303	21.2	3	21
Greenway	IARA	109	6	91	6	R	6	[S]	279	22.1	3	21
Karioka	Sen	108	5	89	6	R	7	[S]	244	22.3	5	18
Kiravi	Sen	108	5	86	7	R	5	[S]	267	21.7	3	21

PGRO Descriptive List Combining Peas 2021

The control for yield is the mean of 4 & 5 year varieties (3.85t/ha).
Yield differences of less than 10.5% are not statistically different.

Mikka	IARA	108	6	90	6	R	7	[S]	281	22.1	3	21
Greenwich	LSPB	107	7	82	6	R	6	[S]	324	22.4	4	20
Croft	LSPB	106	5	90	6	R	7	[S]	266	20.5	5	19
Blueman	LSPB	106	3	89	7	R	8	[HR]	232	22.7	5	18
Mankato	KWS	106	5	85	6	R	5	[S]	253	22.1	4	19
LG Aviator	LUK	103	5	79	6	R	7	[HR]	275	22.0	4	20
Prophet	LUK	100	5	79	6	R	6	[S]	282	21.4	5	07
Daytona	Agrii	100	7	81	6	R	6	[S]	263	21.5	5	10
Greenwood	IARA	98	8	73	5	-	4	[HR]	225	20.6	5	17
Kingfisher	LUK	94	6	87	7	R	6	[S]	256	21.1	4	16
LG Stallion	LUK	92	5	86	7	R	5	[S]	258	22.0	5	17
Maple												
Mantara	LUK	90	6	66	6	R	6	[S]	238	21.9	3	10
Rose	Dait	86	7	79	5	S	7	[S]	245	24.6	3	03
Marrowfat												
Akooma	LSPB	97	4	86	4	R	5	[S]	405	23.2	3	21
Sakura	Dait	86	5	84	6	R	4	[S]	370	23.2	5	08
Octavia	IARA	86	3	82	7	R	3	[S]	381	23.1	4	20
Banshee	Sen	85	4	81	7	R	3	[S]	377	22.4	4	20

(1-9) A high rating indicates that the variety shows the character to a high degree.

All varieties are semi-leafless.

Pea wilt (*Fusarium oxysporum* f. sp. *pisi*) (race 1)

R = Resistant; S = Susceptible.

Data for new varieties supplied by SASA

*Powdery mildew Breeders

information - HR = High resistance,

MR = Moderate resistance,

S = Susceptible. © PGRO 2019

PGRO Descriptive List Spring Beans 2021

The control for yield is the mean of 4 & 5 year varieties (4.47t/ha).
Yield differences of less than 6.3% are not statistically different.



UK Agent see appendix	Agronomic characters				Resistance to			Seed characters			
	Yield as % Control	Flower colour	Earliness of maturity (1-9)	Straw length (cm)	Standing ability at harvest (1-9)	Downy mildew (1-9)	Rust* (1-9)	Thousand seed weight (g) (@15%mc)	Protein content (% dry)	No. Years in matrix	Year first listed
Pale Hilum											
SU	108	C	6	123	6	3	5	561	27.0	3	21
LSPB	106	C	5	121	7	8	4	535	27.3	5	16
LSPB	105	C	5	121	6	4	6	679	26.9	4	20
LSPB	105	C	7	125	6	3	5	573	27.4	4	20
SU	105	C	6	122	6	3	4	522	27.8	3	21
LUK	105	C	7	122	7	4	5	550	27.5	4	20
SU	104	C	6	122	6	3	5	528	27.2	3	21
LSPB	102	C	6	122	6	5	4	583	27.1	5	13
LSPB	102	C	6	121	6	5	4	556	27.4	5	13
LUK	99	C	6	114	8	4	6	546	29.2	5	17
LUK	97	C	7	116	7	5	4	580	27.6	5	05
LSPB	94	C	9	115	6	8	5	636	26.9	4	20
Pale Hilum & LVC											
LSPB	104	C	7	116	6	6	4	556	27.1	5	19
LSPB	101	C	6	121	7	4	4	527	28.0	5	19
Black Hilum, T/c											
WAC	79	C	5	126	5	7	-	408	28.7	5	64

(1-9) A high rating indicates that the variety shows the character to a high degree.

The scales of characters of spring beans do not necessarily correspond with those for winter beans. The export market usually requires pale hilum types. LVC = Low Viciine & Low Convicine.

*Rust data influenced mostly by 4 trials in 2020. The LSD is approx 1 rating point.

Varieties LG Viper, LG Sphinx, Boliva & Allison will be added subject to confirmed NL status. © PGRO 19.11.20

AGENT	COOL	ON DL	UK AGENT
Agri			Agri
Deil			Ducon Seeds
MAMA			IMB Agri
RWS			YVS UK Ltd
LSPB			LS Plant Breeding
LUK			Linagrain UK Ltd
			Berona Ltd
SU			Berona Union Ltd
WAC			WA Church (Barrow) Ltd

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