plus Company Update

GrainCo

seed special

2020 edition

www.grainco.co.uk

The North of England & Scotland's leading farmer-owned grain and seed marketing business

PROFILE ON

RGT SAKI

Nothing messes with this wheat!

PROFILE ON

AURELIA

Oilseed Rape

THE FORGOTTEN SEED AND SOIL BOURNE DISEASES

Why seed dressing is so important

Seed shortages predicted

Your complete guide to this autumns key cereal and oilseed varieties, plus the latest information on seed treatments

GrainCo

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WELCOME

Welcome to our new 2020 Seeds Special which i hope you will find a useful aid in helping you decide which varieties of cereal and oil seed rape, in conjunction with the correct seed treatments you should be considering on your farm for this coming autumn.

Since acquiring the locally based Piercebridge seed production facility in the summer of 2016, throughput has increased dramatically for both the autumn and spring seasons and your support in making this happen is greatly appreciated.

As we know ensuring we can get our seed crops which are grown across our trading area, harvested, sampled, tested, processed and ultimately delivered back onto farm within the tight time frame that we know exists is a challenge for any production team.

We do however have in place a small team of dedicated individuals at the plant who have each worked within agriculture and particularly seed production for over 40 years and are well versed with the challenges that different seasons bring, 2019 being no exception to that rule.

Many of our sales team as you would expect are FACTS trained and are also Ministry Licensed Crop Inspectors, therefore when you place a seed order with them the likelihood is that they have actually inspected the crop in the field and not just relating information gleaned from a book or the internet.

With last autumn in farmers minds, the over whelming desire will I expect be to drill early come what may, therefore our option for farmers to take delivery of "specifically grown" overwintered wheat seed during the months of June and July ensuring seed is in the "shed" and ready to drill will once again be extremely popular.

Our customers should be aware that supplies of certified seed are predicted to be short for this coming season with the area entered for production back by 30%.

Furthermore it is quite possible that a percentage of this area will never of actually been drilled and that field losses will be substantially higher than normal, therefore more than ever my advice is to order early.

I am pleased to say that **Grainco** continues to be a strong thriving business with a strong balance sheet and we continue to invest in the business. Indeed as you will see in one of the enclosed articles we have invested in-excess of £2million in a new pelleting plant at Tyne Dock where we convert oat husks into a renewable heat source, therefore completing the circle from seed to energy, something we are very proud of.

I hope you enjoy the read and we look forward to supplying your seed requirements in the coming months.

Gary Bright,
Managing Director.

DID YOU KNOW?

The reason we continue to provide high quality seed from our Piercebridge Seed Facility is due to one key word and that's… **CONTROL**.

We place all of our seed crops with growers who have a proven track record for growing quality and importantly clean seed crops from right across the north of England.

We have our own in-house team of Ministry Licensed Crop Inspectors who inspect each and every crop we produce to ensure growers maintain standards, **we remain Black Grass Free**.

We have our own in-house Ministry Licensed seed laboratory and analyst.

We own and operate our own bulk haulage fleet.

We control intake, packing and dispatch of all of our seed to ensure real time information and timely delivery.

We are proud of the level of service we give.

Thank you for supporting a farmer owned seed business.

Piercebridge Seed Facility Germination Chart

	EEC MINIMUM	HVS STANDARD	PIERCEBRIDGE WHEAT 2018	PIERCEBRIDGE WHEAT 2019	PIERCEBRIDGE BARLEY 2018	PIERCEBRIDGE BARLEY 2019
Germination	85%	85%	98%	96%	98%	97%
Purity	98%	99%	99.9%	99.9%	99.9%	99.9%
Blackgrass Free	NO	NO	CLEAR	CLEAR	CLEAR	CLEAR

GrainCo Infrastructure

Across Tynegrain and GrainCo's four controlled sites in the North-East of England there is capacity to store nearly 200,000mt of grain and an average combined drying capacity of 410mt/hr. Well-located, high capacity stores mean our farmers receive a high level of service at harvest at competitive storage rates.


Tyne Dock

Tyne Dock

Tynegrain's main site is located at the Port of Tyne, approximately 10 miles east of Newcastle. The site can store up to 100,000mt of grain in a range of flat stores and silos. **Tynegrain** have recently made significant investment at the Tyne to improve output and efficiency, especially at harvest; intake capacity has been boosted to 250mt per hour and increased drying facility means on average 170mt per hour can be processed.

The Tyne Dock facilities are well located for export; capacity to berth large Panamax vessels means our farmers have access to markets across the world for their products. In fact, **GrainCo** still boast one of the largest grain-shipments from the UK, the 66,000mt Rosco Poplar, loaded in only six days in 2015. Continued investment at Tynedock has most recently seen construction of a pelleting plant, broadening the facilities on site and bringing in a diverse income (see page 5).

Wilton

GrainCo's Wilton site, near Teesside, is nearing it's 9th Harvest since being

commissioned in 2012.The site is comprised of 36,000mt of flat storage with drying capacity for up to 100 tonnes per hour.

The site has been designed for fast throughput, especially at harvest, with the site's record daily intake standing at over 6,300mt. The site is strategically located to allow either export from Teesport or for movement into the neighbouring **Ensus** bio-ethanol plant, one of the UK's biggest wheat consumers. Being so well located ensures that members grain stored at the Wilton site is best placed to access markets, be it a year of surplus or deficit.


Piercebridge

Piercebridge

Piercebridge is the location of **GrainCo's** seed plant as well as providing 37.500mt of grain and oilseed storage space and capacity to dry 80mt per hour, invaluable for farmers in the area, especially at harvest. A combination of Kerosene and Biomass power the dries at Piercebridge, helping to reduce reliance on fossil fuels whilst also lowering carbon emissions. The Piercebridge site is well-located to supply a number of mills in the vicinity, allowing our farmer's grain to reach end-use as efficiently as possible.

Meldon

Meldon store, near Morpeth, provides around 22,000mt of storage and capacity to dry 60mt per hour on average. Like Piercebridge, Meldon uses a combination of Kerosene and biomass to provide drying energy whilst also reducing our reliance on fossil fuels.

Meldon has also seen recent investment to intake and handling to boost efficiency and quality whilst also improving health and safety for staff and customers when on site. Meldon predominantly caters for farmers delivering grain at harvest with tractors and trailers and is focussed on ensuring an efficient service is provided at harvest.


Meldon

GrainCo's £2 Million Pelleting Plant Investment Completes the Circle!

The Pelletising Plant at Tyne Dock.

GrainCo's latest investment at Tyne Dock will bring benefits not just for our growers but also strengthen our ties with two of our most important customers, Quaker Oats and Drax. The new pellet plant will mean GrainCo are now involved from start to finish in the entire milling oat process.

From carefully selecting growers to produce milling oat seed, processed through our own seed plant, to supplying the inputs required to deliver the best quality crop to **Quaker** and now handling the by-product from the milling process to create a renewable fuel source, **GrainCo** are involved at every step.

The oat husks have traditionally had a wide range of uses from animal bedding to a low-value feed source, however these markets are limited. The oat husks will now be pelleted to produce a renewable fuel source, supplying **Drax Power Station**.

The pellet plant has the capability to pellet over 50,000mt of oat husks annually, guaranteeing off-take at **Quaker** and releasing valuable resources within their plant, whilst also allowing **GrainCo** to provide **Drax** with a renewable supply of oat husk pellets.

Milling oats have for a long time been a crucial commodity for growers in the North East and Scotland; not only do they provide a valuable break-crop, but thanks to **GrainCo's** strong relationship with **Quaker**, a profitable one too.

For many years **OatCo** (the farmer grower- group set up by **GrainCo** to supply **Quaker**) has been the leading supplier to **Quaker's** UK processing plant in Fife. As well as being well located geographically to supply **Quaker**, our region has a climate well suited to producing a high yield of top quality milling oats.

Quality seed sourced from **GrainCo's** own plant at Piercebridge gives **OatCo** growers reassurance that their crop will have the best possible start and allows total traceability throughout the entire process. After harvest, oats are moved either into store or direct to Fife for processing, depending on each individual grower's storage capacity and crop quality. The oat husk is the by-product produced during the de-hulling process when the outside of the oat is removed to leave only the kernel.

The oat husks are tipped in the new purpose-built shed complex at the Tyne, where a walking-floor system ensures the plant intake is constantly fed without the need for supervision. The pelleting process is relatively simple; the oat husks are transported into a pellet press where a high pressure roller forces the material through an 8mm die. Once processed, the pellets are passed through a cooler system which hardens the pellets before being elevated into a bulk store where they can be bulk loaded out as required.

The development of this plant is a prime example of the co-operative ethos at the heart of **GrainCo** to provide benefits to farmers and consumers all along the supply chain. This new development will bring added value to our farmer-growers whilst also creating a sustainable outlet for **Quaker's** by-product and a renewable fuel source for **Drax**.

Unprocessed oat husk.

The fiinished product.

Spring Oat Area to Soar to Highest Since 1976

One major knock on effect of the awful conditions last autumn is an expected rise in oats area to as much as 230k/h. This would be the highest in almost 45 years and could result in a significant surplus to be carried, or go to feeding/export.

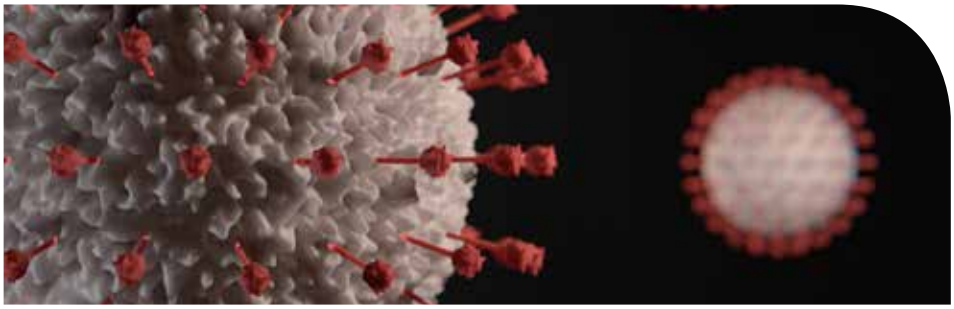
The 10 year average for UK oats production is 812tmt, with the 2020 crop potentially rising to as much as 1.1mmt based on average yields. 2/3rds of this area is expected to be spring, with growers looking for alternatives for land originally planned for winter wheat. Although recent dryness will certainly not be helping spring oats establish well, the current planting forecast would still suggest abundant supplies next season.

In terms of milling demand, there remains a clear split between **Quaker** in the North; who prefer high beta glucan spring oats, and millers largely in the South; who predominately use **Mascani** winter oats, due to its better availability in proximity to those sites. Recent consumer stockpiling in light of the virus has seen a large spike in demand for porridge, amongst other breakfast cereals, with **GrainCo's** Grower Group **OatCo** well placed to meet this. 75% of our members are based within 30 miles of the site, providing a robust supply chain for the **Quaker** mill and helping lower the carbon footprint of the operation, especially when combined with our exciting new project with the oat husks.

Quaker's own variety, **Conway**, has seen a large increase in area in particular supported by **GrainCo**, with the **OatCo** group now providing this as 25% of our total supply. **Conway** is a high beta glucan spring oat variety which mills well compared to other varieties. Despite its lower yield relative to **Canyon**, (which is the most widely grown variety in Central Scotland), our growers have stepped up to the challenge posed by **Quaker** a few years ago and grown exactly what was asked of them. Supplying end users with the right quality and product, as opposed to focusing primarily on yield, has paid dividends for those working with **Quaker** over the years, with terms historically beneficial to that of the wider market. This closer relationship between grower and end user is certainly a model we'd like to see replicated in other cereals too, with clear benefits to both sides.

New varieties wise, **WPB Isabel** looks a promising spring oat prospect, with trial work pointing to high yield, specific weight and low screenings. We will watch with interest to see how this performs this year, and whilst it's too early for its milling quality to be known, it certainly ticks a number of boxes agronomically.

Trading with Coronavirus



Coronavirus seems certain to be the defining moment of a generation; it has tipped normal life upside down and it seems unlikely that we will be back to 'normal' for a long time, if ever. It is also likely to have a marked effect on grain markets for the foreseeable future.

The crude oil price has plummeted since the start of the Coronavirus pandemic and with nations on lockdown demand for fuel has crumbled. In short, the global bio-ethanol market is all but erased. Not only is this bearish for wheat prices in the North-East given the influence of **Ensus**, but the downfall of the American bio-ethanol industry is potentially disastrous for global feed prices over the next 12 months.

Up to 40% of America's 350MMT corn crop goes into producing bio-ethanol; without this vital outlet the market has been flooded and prices have tumbled. Mid-West farmers are already reporting cash Corn values of $2.50 a bushel – equating to around £78/t. The result of this is that the world is currently a-wash with feed grains and so domestic feed values for wheat and barley are unlikely to take much of an uptick.

Oilseed Rape has seen its two biggest markets collapse almost overnight; of the estimated 9.5MMT of Oilseeds used to produce bio-diesel in the EU, approximately 5MMT comes from Oilseed Rape. As mentioned earlier, the collapse in both the price of oil and basic fuel demand has led to a sharp drop in the value of bio-diesel. Furthermore, the shutting of restaurants, cafes, bars and hotels has led to a rapid drop in the demand for vegetable oil as a consequence, putting greater pressure on Oilseed Rape values.

Malting Barley and Distilling Wheat markets have also contracted with the closing of pubs and bars; despite home consumption rising (understandably), brewers will face great difficulty in shifting from barrel production to bottles and cans.

On a more bullish note, with slaughtering capacity dropping, animals are being kept on farm longer resulting in a slightly higher feed demand. The reduction in the availability of brewers-grains from the production of beer and spirits has also given the feed-barley market a small boost as compounders look to makeup intake requirements.

Grain Markets, like so many elements of the economy, are dealing with a totally unprecedented situation. As much as people will still need to eat and drink, the manner in which they do this has for the time being changed enormously. As supply chains adapt and change, there is going to be an inevitable effect on markets.

As always the weather will have a heavy influence on global markets, especially over the coming months, but it would seem that certainly for the rest of the year Coronavirus will match it.

Winter and spring crops suffer in the driest April on record.

Barley Exports Lead the Way at the Tyne

GrainCo has had another busy export season with net exports currently totalling nearly 165KT.

Feed barley has made up the bulk of this season's exports with shipments-to-date of over 115KT – an increase of nearly 85KT from the 2018-2019 season, a consequence of the much larger barley harvest this year.

The majority of this year's barley exports have headed to Europe, with Spain the largest single destination - a stark reminder, if needed, of our reliance on trade with our European neighbours.

Oilseed rape exports continue to dwindle with a meagre 7.6KT shipped this season; in comparison to three or four years ago where GrainCo regularly exported over 30KT per year, the issues surrounding growing oilseed rape and the subsequent knock-on effect to yields could not be clearer.

Milling oats continue to be a growth market for GrainCo with to-date exports of over 20KT, an increase of over 50% year-on-year. The increased demand for high quality milling oats both domestically and abroad is good news for farmers in our area especially with margins for both oilseed rape and feed barley dwindling.

Wheat exports make up the balance with year-to-date exports of 20KT: a brisk start in the autumn in the lead up to Brexit has been followed by a very quiet export trade for the last four months and given the issues with upcoming harvest it is unlikely to change soon.

Alongside smaller port stores along the East coast, the bulk of GrainCo's export work comes from the Tyne.

Having invested heavily in upgraded handling facilities and increased storage capacity at the Tyne, GrainCo are in a fantastic position to access markets around the world for our customers in the North East.

Feed barley has made up the bulk of this season's exports with shipments-to-date of over 115KT

The MV Impala loading feed barley from the Port of Tyne – March 2020.

GrainCo

2020 PIERCEBRIDGE SEED PLANT CERTIFIED WINTER WHEAT AND WINTER BARLEY AVAILABILITY LIST

WINTER WHEAT

GROUP 1	KWS ZYATT, SKYFALL
GROUP 2	KWS EXTASE, KWS LILI
GROUP 3	KWS FIREFLY
GROUP 4 SOFT	LG SKYSCRAPER, RGT SAKI
GROUP 4 HARD	COSTELLO, GLEAM, GRAFTON, GRAHAM, KWS KERRIN, KWS PARKIN, RGT GRAVITY, WOLVERINE

WINTER BARLEY

TWO-ROW FEED	KWS CASSIA, KWS ORWELL, KWS GIMLET, KWS HAWKING, LG FLYNN, VALERIE
TWO-ROW MALTING	CRAFT
HYBRID*	SY KINGSBARN, BAZOOKA

Yearling Barley and Wheat Seed for June–July delivery. Please enquire for availability.

Winter Beans, Oats and indeed most combinable crops can be sourced if required.

SEED DRESSINGS

All of our certified seed is dressed with either REDIGO PRO **or** RANCONA I-MIX

ADDITIONAL SEED DRESSINGS INCLUDE	VIBRANCE DUO, MANGANESE, RADIATE, LATITUDE

*** Not processed at Piercebridge**

Nabim Group 1 – Breadmaking Wheat

KWS ZYATT

Hereford x Quartz | **UK Market Share 6.9%** | **UK Yield 102%** | **East 102%** | **North 100%**

The UK's highest yielding Group 1 bread making wheat comes as expected with excellent grain quality coupled with very good all round disease resistance. This is further highlighted by its Pch1 eyespot resistance which may go some way to explaining its excellent second wheat performance.

With its early maturity, short stiff straw and consistent performance you can see why it was the UK's 4th most popular variety in 2019.

1st Wheat %	98	OWBM Resistance	NO
2nd Wheat %	99	Mildew	7
Light Soils %	97	Yellow Rust	7
Heavy Soils %	100	Brown Rust	6
Specific wt kg/hl	77.8	Septoria Tritici	6.4
Maturity	0	Fusarium	6
Protein Content %	12.4	Eyespot	7
Hagberg Falling No.	269	Resistance to lodging (–PGR)	7
Untreated Yield %	84	Resistance to lodging (+PGR)	8

RAGT SKYFALL

C4148 x Hurricane | **UK Market Share 10.4%** | **UK Yield 97%** | **East 97%** | **North 96%**

In recent years **Skyfall** has been the most popular variety in the UK and was only beaten into 2nd place last year by the relatively new variety **Gleam**. It offers as you would expect from a milling wheat excellent grain quality coupled with a sound agronomic package, stiff straw and OWBM resistance.

A fast developer its best suited to the traditional mid-late September drilling slot.

1st Wheat %	97	OWBM Resistance	YES
2nd Wheat %	98	Mildew	6
Light Soils %	97	Yellow Rust	5
Heavy Soils %	97	Brown Rust	8
Specific wt kg/hl	78.3	Septoria Tritici	5.8
Maturity	0	Fusarium	7
Protein Content %	12.4	Eyespot	6
Hagberg Falling No.	278	Resistance to lodging (–PGR)	8
Untreated Yield %	78	Resistance to lodging (+PGR)	8

Nabim Group 2 – Breadmaking Potential

PROVEN FIRST WHEAT

KWS LILI

Horizon x Cordiale x Timaru | **UK Market Share 0.9%** | **UK Yield 99%** | **East 99%** | **North 101%**

This high tillering consistent performer is well-suited to the Northern region where it can be drilled early and nicely fits that first wheat slot.

It offers good grain characteristics with short, stiff straw and comes with a good set of disease ratings.

1st Wheat %	100	OWBM Resistance	NO
2nd Wheat %	98	Mildew	8
Light Soils %	100	Yellow Rust	7
Heavy Soils %	99	Brown Rust	4
Specific wt kg/hl	77.3	Septoria Tritici	5.9
Maturity	+2	Fusarium	6
Protein Content %	11.5	Eyespot	4
Hagberg Falling No.	295	Resistance to lodging (–PGR)	7
Untreated Yield %	71	Resistance to lodging (+PGR)	8

OUTSTANDING DISEASE RESISTANCE

KWS EXTASE

Boisseau x Sorehio | **UK Market Share 5.2%** | **UK Yield 101%** | **East 100%** | **North 100%**

This variety offers growers unrivalled levels of disease resistance and consequently has the highest untreated yield available.

A high spt wt with early maturity, it's a taller stiff strawed variety and is best suited to later drillings to its vigorous autumn growth habit.

1st Wheat %	101	OWBM Resistance	NO
2nd Wheat %	100	Mildew	6
Light Soils %	103	Yellow Rust	9
Heavy Soils %	101	Brown Rust	7
Specific wt kg/hl	78.4	Septoria Tritici	8.1
Maturity	0	Fusarium	6
Protein Content %	12.0	Eyespot	4
Hagberg Falling No.	297	Resistance to lodging (–PGR)	7
Untreated Yield %	95	Resistance to lodging (+PGR)	8

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Nabim Group 3 – Biscuit Making Potential

SEEDLING AND ADULT RESISTANCE TO YELLOW RUST

KWS FIREFLY

Cougar x Rowen | UK Market Share 4.7% | UK Yield 102% | East 102% | North 98%

The UK's highest yielding Group 3 variety is an excellent choice for growers looking for a high yielding first wheat which can offer a combination of exceptionally stiff straw (joint stiffest on the RL) as well as a good combination of disease resistance ratings. These include both seedling and adult resistance to yellow rust and an impressive 7 rating for septoria tritici, a significant improvement over its stablemate KWS Barrel (4.3)

1st Wheat %	102
2nd Wheat %	100
Light Soils %	101
Heavy Soils %	103
Specific wt kg/hl	75.8
Maturity	+1
Protein Content %	11.9
Hagberg Falling No.	245
Untreated Yield %	84

OWBM Resistance	YES
Mildew	5
Yellow Rust	9
Brown Rust	6
Septoria Tritici	7
Fusarium	5
Eyespot	4
Resistance to lodging (–PGR)	8
Resistance to lodging (+PGR)	8

KWS Firefly appears to perform better on heavier soils with the potential to be drilled relatively early and to complete the package it offers Orange Wheat Blossom Midge resistance.

Nabim Group 4 – Soft Wheats

HIGHEST YIELDING VARIETY

LG SKYSCRAPER

Cassius x Santiago

UK Market Share 5.9%

UK Yield 105% East 106% North 103%

The joint highest yielding wheat variety in all situations ie 1st wheat, 2nd wheat, light land and heavy land. It's a taller variety which responds well to PGR treatments and is best suited to the main drilling window. With its early maturity, good grain characteristics and solid disease resistance profile including OWBM resistance you can well understand why it took a near 6% market share in its first year of recommendation and will undoubtedly increase its popularity this season.

1st Wheat %	105	OWBM Resistance	YES
2nd Wheat %	104	Mildew	7
Light Soils %	105	Yellow Rust	8
Heavy Soils %	105	Brown Rust	6
Specific wt kg/hl	76.9	Septoria Tritici	5.0
Maturity	0	Fusarium	6
Protein Content %	11.4	Eyespot	4
Hagberg Falling No.	218	Resistance to lodging (–PGR)	7
Untreated Yield %	83	Resistance to lodging (+PGR)	7

* NEW VARIETY * *SEEDLING AND ADULT RESISTANCE TO YELLOW RUST*

RGT SAKI

Cougar x Santiago

UK Yield 104% East 104% North 101%

RGT Saki is one of the most exciting varieties to hit the Recommended List in recent years.

The variety ticks many boxes for growers, including exceptional fungicide-treated and untreated yields, underpinned by excellent agronomics and disease resistance scores which crucially include a 6.8 for septoria tritici, seedling and adult resistance to yellow rust, plus the added bonus of being resistant to OWBM.

1st Wheat %	103	OWBM Resistance	YES
2nd Wheat %	103	Mildew	6
Light Soils %	102	Yellow Rust	9
Heavy Soils %	104	Brown Rust	8
Specific wt kg/hl	75.7	Septoria Tritici	6.8
Maturity	+3	Fusarium	6
Protein Content %	11.6	Eyespot	–
Hagberg Falling No.	221	Resistance to lodging (–PGR)	7
Untreated Yield %	86	Resistance to lodging (+PGR)	8

Medium tall with stiff straw it can be drilled early, blackgrass might have put paid to this practice further south, however it remains an important consideration for northern growers where the autumn weather window can close all too soon.

Some growers might be wary of the variety's RL ripening score of +3, it is worth noting however this is based on a small dataset and that figure should come down.

Comprehensive sowing date trials in 2019 reinforce that thought – the dataset showed the earlier **RGT Saki** was drilled, the more it closed the gap on **Skyfall**, ripening a day earlier when drilled on 5 September. It also came in two days earlier than **Graham** and **Sundance** and one day earlier than **Skyscraper**. This suggests that growers who crack on with drilling know they are also manipulating the variety's ripening dates, increasing the chances of a timely harvest.

Nabim Group 4 – Hard Wheats

HUGE SPEC WEIGHT | *SEEDLING AND ADULT RESISTANCE TO YELLOW RUST*

SENOVA COSTELLO — Timaru x W151 — UK Market Share 4.7% — UK Yield 99% — East 99% — North 98%

Despite not being perceived as a high yielder, this variety continues to be extremely popular not just in our trading area but nationally.

A short stiff strawed variety with exceptional grain quality including the best specific weight of any variety on the RL, a valuable asset in a challenging season and still one of the most robust disease resistance profiles available.

1st Wheat %	100	OWBM Resistance	NO
2nd Wheat %	98	Mildew	8
Light Soils %	98	Yellow Rust	9
Heavy Soils %	100	Brown Rust	5
Specific wt kg/hl	80.7	Septoria Tritici	6.1
Maturity	+2	Fusarium	6
Protein Content %	12.0	Eyespot	5
Hagberg Falling No.	321	Resistance to lodging (–PGR)	7
Untreated Yield %	81	Resistance to lodging (+PGR)	8

EARLY DRILLER | * ORDER EARLY TO CATCH PRODUCTION *

KWS GRAFTON* — Cordiale x W07 — UK Market Share n/a — UK Yield 99% — East 99% — North 101%

No longer listed on the new AHDB RL, this niche variety however will maintain its place on many farms due in no small part to its suitability for early drilling and is also one of the earliest to harvest.

Its combination of excellent grain quality coupled with short very stiff straw makes it an ideal variety for very fit soils. A shy tiller, growers should look to lift seed rates accordingly.

* All data shown taken from 2018/19 AHDB RL

1st Wheat %	99	OWBM Resistance	NO
2nd Wheat %	97	Mildew	7
Light Soils %	96	Yellow Rust	6
Heavy Soils %	99	Brown Rust	6
Specific wt kg/hl	79.1	Septoria Tritici	5.4
Maturity	-1	Fusarium	5
Protein Content %	11.6	Eyespot	6
Hagberg Falling No.	324	Resistance to lodging (–PGR)	8
Untreated Yield %	74	Resistance to lodging (+PGR)	8

EXCELLENT DISEASE RESISTANCE

SYNGENTA GRAHAM — Primo x Expert — UK Market Share 9.5% — UK Yield 102% — East 101% — North 99%

Ideally suited to the first wheat slot, this medium tall, stiff strawed variety offers growers consistently high yields coupled with good grain quality, excellent levels of disease resistance and as a result one of the best untreated yields available.

It is suitable for early drilling and importantly offers growers early maturity at harvest.

1st Wheat %	102	OWBM Resistance	NO
2nd Wheat %	100	Mildew	7
Light Soils %	100	Yellow Rust	8
Heavy Soils %	102	Brown Rust	6
Specific wt kg/hl	76.8	Septoria Tritici	6.8
Maturity	0	Fusarium	6
Protein Content %	11.4	Eyespot	4
Hagberg Falling No.	276	Resistance to lodging (–PGR)	7
Untreated Yield %	88	Resistance to lodging (+PGR)	8

EARLY MATURITY | * NEW VARIETY *

KWS PARKIN — Costello x Reflection — UK Market Share n/a — UK Yield 102% — East n/a — North n/a

This new variety failed to get its recommendation to the new 2020 RL, however is suited to all regions of the UK, performing especially well throughout the Yorkshire region where it will appeal to those on heavy land or in very fertile situations.

In addition to being shorter and stiffer than any other wheat on the RL it is also the earliest to mature so could be one to consider as a possible replacement for **Grafton**.

Seed supplies will be tight in its first commercial year therefore growers should look to order this variety early and to ensure they don't miss those crucial early production runs.

1st Wheat %	-	OWBM Resistance	NO
2nd Wheat %	-	Mildew	6
Light Soils %	-	Yellow Rust	9
Heavy Soils %	-	Brown Rust	5
Specific wt kg/hl	76.3	Septoria Tritici	5.5
Maturity	-1	Fusarium	6
Protein Content %	11.3	Eyespot	1
Hagberg Falling No.	259	Resistance to lodging (–PGR)	8
Untreated Yield %	81	Resistance to lodging (+PGR)	8

BIG YIELD POTENTIAL

KWS KERRIN

Santiago x Istabraq | UK Market Share 5.3% | UK Yield 102% | East 102% | North 103%

This classic high input / high output, high tillering variety has one of the best northern yields available.

It is rotationally very versatile and has topped our continuous wheat demonstration site at Boroughbridge in North Yorkshire three years running.

1st Wheat %	102
2nd Wheat %	103
Light Soils %	102
Heavy Soils %	101
Specific wt kg/hl	76.3
Maturity	+1
Protein Content %	10.9
Hagberg Falling No.	151
Untreated Yield %	81

OWBM Resistance	YES
Mildew	7
Yellow Rust	7
Brown Rust	7
Septoria Tritici	4.9
Fusarium	6
Eyespot	5
Resistance to lodging (–PGR)	7
Resistance to lodging (+PGR)	7

BIG YIELD POTENTIAL

RGT GRAVITY

Scout x Oakley x Santiago | UK Market Share 3.7% | UK Yield 103% | East 103% | North 102%

This high input, high output variety is capable of producing some big yields.

Medium height, medium stiff, it produces a large canopy and large flag leaf and is best suited to the traditional mid-late September drilling slot.

Performs equally well on all soil types and rotational slots.

1st Wheat %	103
2nd Wheat %	103
Light Soils %	103
Heavy Soils %	102
Specific wt kg/hl	76.0
Maturity	+1
Protein Content %	11.4
Hagberg Falling No.	204
Untreated Yield %	79

OWBM Resistance	YES
Mildew	4
Yellow Rust	8
Brown Rust	6
Septoria Tritici	4.8
Fusarium	6
Eyespot	4
Resistance to lodging (–PGR)	7
Resistance to lodging (+PGR)	7

MARKET LEADER

SYNGENTA GLEAM

Kielder x Hereford | UK Market Share 11.6% | UK Yield 103% | East 103% | North 102%

Gleam is an ideal variety for growers wanting an easy-to-manage, barn-filling feed wheat with a flexible drilling window.

Complete with a robust disease resistance package, OWBM resistance, good grain characteristics and early maturity it's not difficult to understand why it became the biggest selling variety in 2019.

1st Wheat %	103
2nd Wheat %	104
Light Soils %	102
Heavy Soils %	103
Specific wt kg/hl	76.3
Maturity	0
Protein Content %	11.3
Hagberg Falling No.	219
Untreated Yield %	85

OWBM Resistance	YES
Mildew	6
Yellow Rust	7
Brown Rust	6
Septoria Tritici	6.3
Fusarium	6
Eyespot	4
Resistance to lodging (–PGR)	7
Resistance to lodging (+PGR)	7

RGT Saki – Robust Genetics Delivering Reliably High Yields

Cathy Hooper, Technical Sales Manager, RAGT Seeds UK

Growers in the north wanting to update their winter wheat portfolio should take a close look at RGT Saki, one of the most exciting varieties to hit the Recommended List in recent years.

The variety ticks many boxes for growers in the region, including exceptional fungicide-treated and untreated yields, underpinned by excellent agronomics and disease resistance scores.

Importantly, it can also be drilled early. Blackgrass might have put paid to this practice further south, but it remains important in the north where the autumn weather window can close all too soon.

RGT Saki's potential as a possible early driller was demonstrated in 2018 in **RAGT** trials drilled on 25 September. **RGT Saki** yielded 110% of controls, while **Skyscraper** and **Santiago** managed 105% and 103% respectively.

The following year, in trials drilled on 14 September, **RGT Saki** produced 108% of controls, equal to **Skyscraper** and a point ahead of **Santiago**. It is very likely to turn in a similar performance when drilled in the first week of September.

Some growers in the north might be wary of the variety's RL ripening score of +3. It is worth noting this is based on a small dataset and that figure should come down.

Comprehensive sowing date trials carried out by Agrii in 2019 reinforce that thought – the dataset showed the earlier **RGT Saki** was drilled, the more it closed the gap on **Skyfall**, which is rated 0.

In more detail, **RGT Saki** took 5 days longer from drilling to ripening than **Skyfall** when sown on 25 November. That gap closed to two days on 2 October-drilled plots. However, **RGT Saki** ripened a day earlier than **Skyfall** when drilled on 5 September. It also came in two days earlier than **Graham** and **Sundance** and one day earlier than **Skyscraper**.

This suggests that growers who crack on with drilling know they are also manipulating the variety's ripening dates, increasing the chances of a timely harvest.

RGT Saki's agronomic profile also fits with how many forward-thinking farmers are now choosing their varieties, taking account of the overall genetic package as well as high yields.

Strong disease scores are becoming more and more important as disease resistance and legislation reduce the effectiveness of the fungicide armoury.

A high untreated yield is the best indication of a variety's resilience. But to appeal commercially a variety also needs a very high fungicide-treated score.

RGT Saki provides both. If you want to push yields and take a belt-and-braces approach it will respond. However, if you are unable to treat the crop at the right time or want to take a lower input approach, your yield is still protected.

The variety is a consistent performer as a first or second wheat, on light and heavy soils. It looks resilient, with a nice prostrate growth habit going into winter with broad leaves.

RAGT expects to have enough seed available next autumn to supply 6-7% of certified wheat seed sales.

RGT Saki has no weaknesses and offers something completely new. It's a really hard-working variety that delivers. We expect it to prove popular for growers looking to achieve the full potential from their crops.

RGT SAKI – KEY POINTS

- **Exceptional treated and untreated yields**
- **Very solid disease resistance**
- **OWBM resistant**
- **Good grain quality**
- **Good straw strength**

Gleam Shines Brightly for Northern Wheat Growers

Barn-busting yields and user-friendly agronomic characteristics make **Gleam** stand out

With high yields and a host of agronomic features that make it well-suited to Northern conditions, it's no wonder the hard group 4 winter wheat, Gleam stands out head and shoulders as a popular choice for growers.

A barn-filling treated yield on the AHDB Recommended List (RL) – equivalent to 11.5 t/ha for both the North region and the UK – may be the first thing you notice about **Gleam**.

But dig deeper and you'll see this popular Group 4 variety offers a whole range of other attractions for Northern growers, says its breeder **Syngenta**.

"**Gleam** is a very versatile and adaptable variety" points out Tracy Creasy, Seeds marketing manager at **Syngenta**. "For a start, it has a wide drilling window: **Gleam** can be drilled from the first week of September to late November, and even as late as mid-February if need be."

It also has excellent flexibility in its rotational position, performing very well in both a first and second cereal position, and trials have shown it performs well on a wide range of soil types, adds Tracy.

"The flexibility to drill **Gleam** early offers a real bonus for the region's growers who want to get crops established before the autumn or winter weather sets in," says Tracy.

"Alternatively, if you're a grower who is unable to drill early – for example because of black-grass problems or concerns about barley yellow dwarf virus (BYDV), or simply because drilling is delayed – you still have the option with **Gleam** to drill later. Indeed, in **Syngenta** trials, **Gleam** showed the smallest yield penalty of varieties tested when drilling was delayed until the last week of November."

Building Yield

Another agronomic characteristic that brings benefits to **Gleam** for the North at both ends of the season, says Tracy, is its capacity for tillering.

"**Gleam** tillers well and then holds on to its' tillers," she explains, "which sets it up well for more challenging growing environments.

"In addition to that, with a decent number of fertile tillers, it means it doesn't depend on an extended grain-filling period to build its yield. This is why **Gleam** is able to produce high yields without being late maturing. It is rated zero for maturity on the AHDB Recommended List.

"There are also other traits about **Gleam** that make it a straightforward variety to manage during the season," Tracy adds. **Gleam** also has excellent agronomics, including short, stiff straw and good resistance to lodging, both with and without a PGR. "We have seen **Gleam's** excellent standing in **Syngenta** trials over a number of years now" commented Tracy. **Gleam** also has orange wheat blossom midge resistance," she adds.

Spray Timings

Another key attribute of **Gleam** is its excellent disease resistance profile, where it has a 7 for yellow rust and 6.3 for Septoria tritici. In addition to this, another noteworthy characteristic of **Gleam** is its growth habit in spring. Tracy noted "Trials observations have shown that **Gleam** is fairly late to reach GS31, but then accelerates through growth stages. As such, it isn't exposed to long intervals between fungicide spray applications."

Gleam makes an ideal choice for growers wanting high yield potential plus the reassurance of resilience if fungicide spray timings become compromised.

"Ultimately, of course, variety choice for feed wheat is about how well it actually yields in the field. Reassuringly, we saw fantastic performance from **Gleam** in its first full year on-farm last season. It has also yielded consistently well in **Syngenta** trials, and on the AHDB Recommended List, where its treated yield has only varied by 2% over the last five harvests.

"This combined with its good specific weight, flexibility of drilling date, and easy-to-manage agronomic characteristics, makes **Gleam** a key variety to consider for this autumn," Tracy adds.

KWS Varieties Push Yield, Quality and Agronomic Strengths to New Levels

Trial topping wheats, Recommended List highest performers and a raft of new varieties coming forward mean KWS has a lot to offer growers and some exciting years ahead of it.

KWS varieties **Kerrin**, **Zyatt** and **Siskin** have convincingly topped trials at **GrainCo's** winter wheat demonstration plots at Limebar Farm, Boroughbridge, over the last three years.

Hosted by grower Stephen Buckle, the trials show top performer **KWS Kerrin** achieving nearly 0.8t/ha more than the average achieved by a selection of the most popular wheats grown on-farm over recent years.

In 2019, **KWS Kerrin** was the only variety out of 18 tested to achieve a yield over 12t/ha with **KWS Zyatt** and **Siskin** close behind, explains the company's Julie Goult.

"**Kerrin** reached 12.1t/ha in the **GrainCo** trials last year but what really stands out is the consistency achieved by the varieties over three very different sets of growing conditions in 2017, 2018 and 2019.

"The Group four **Kerrin**'s average three-year yield was 11.23t/ha, whilst Group one contender **Zyatt** was 10.93t/ha and the Group two variety **Siskin** was 10.50t/ha which shows remarkable performance across all the major wheat groups.

"What's also interesting is that the Group one and two 'dynamic wheat' varieties **Zyatt** and **Siskin**, which give growers the opportunity to add-value by being suitable for premium markets, significantly out-yielded traditional Group four barn-fillers."

In the case of **KWS Zyatt** this was as much as 1.0t/ha as the table of results shows, she points out.

"The fact that you have milling quality varieties outperforming traditional high yielders in such a way means growers have real potential to maximise value from their crops and add real flexibility to their businesses.

"Gone are the days where the choice was between yield or quality. You can now select a range of varieties for your enterprise and have options as to how you manage and market them depending on the most appropriate conditions and opportunities at the time.

"Plus the levels of resilience and reliability shown by these varieties over the years means they can deliver consistent performance in a range of conditions whether it's the 'Beast from the East', drought or the recent heavy rainfall."

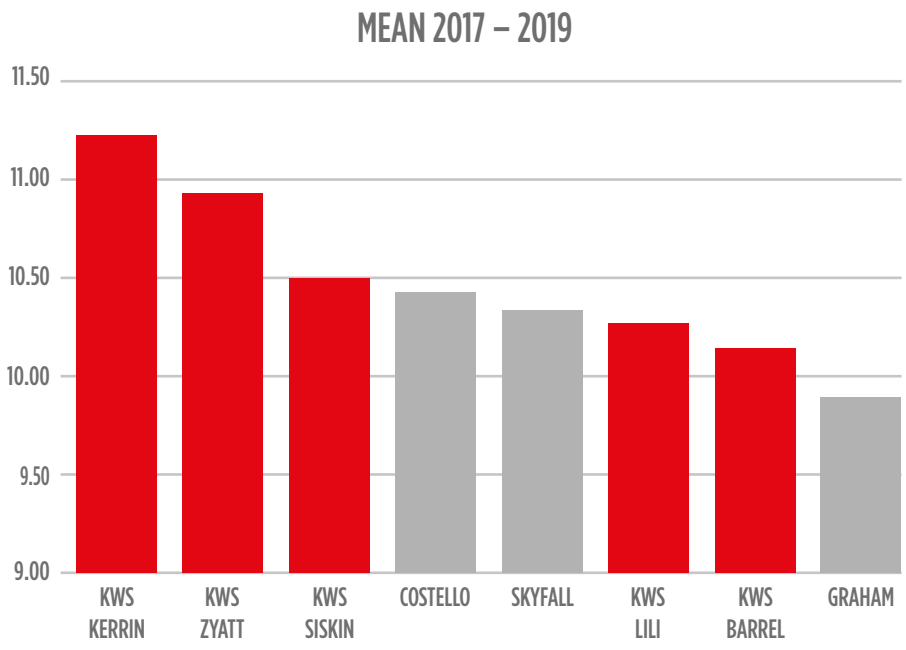
KWS Varieties Top RL

KWS Zyatt is the highest yielding Group one wheat on the current 2020/21 RL with a yield of 11.1t/ha whilst **KWS Extase** tops the Group two varieties at 11.3t/ha, Julie Goult explains.

"**KWS Extase** is creating a lot of interest at the moment not just because of its 10.6t/ha untreated yield and 8.1 for Septoria resistance but also because it has a host of strong agronomic characteristics, too.

"Compared to many other varieties, **Extase** is more flexible in its management being less dependent on chemistry to deliver its yield and more resilient in the face of increasingly variable growing conditions.

"**Extase** is vigorous, so it can be drilled end of September and keep ahead of everything else right through to an early harvest spot plus it's extremely



stiff so it's very manageable all the way through the growing season.

"It has the potential to deliver consistently high yields of premium quality breadmaking wheat in conditions that others could struggle in – which is increasingly important."

KWS Firefly is another RL variety that has got the trade and growers alike thinking, she adds.

"**KWS Firefly** is the UK's highest yielding Group three variety and has a great disease package including a 7.0 for Septoria resistance and has OWBM resistance plus it's the joint stiffest variety on the RL.

"It's a soft milling wheat with broad market appeal and suited to all regions. **Firefly** is a consistent performer across light and heavy soils as well as being ideal as either a first or second wheat and has a higher untreated yield than other Group 3s.

"Its Hagberg is also strong with a good grain package and correct balance of resistance and extensibility making **Firefly** well suited for biscuit manufacturers.

"As well being in demand by UK millers it has genuine overseas potential thanks to it being fully approved for export under the UKS classification."

KWS Parkin is a new stand-out wheat with earlier maturity and shorter, stiffer straw than any variety on the RL, she says.

"Whilst **Parkin** was not added to the 2020/21 RL, it will have a valuable role to play in many rotations.

"It's really early to harvest with extremely short and stiff straw, not unlike the old favourite **Grafton**. However it differs from **Grafton** with a much more vigorous speed of development.

"It's got good yield potential and is well suited to all regions of the UK, performing especially well in **KWS** trials throughout the Yorkshire/Humber region.

"In addition, the variety has good solid disease resistance and grain packages with an excellent Hagberg of 259 and a specific weight of 76.3 kg/hl making it of real interest to buyers.

"**KWS Parkin** is the ideal replacement for growers looking to move on from early short stiff types such as **Cordiale** and **Grafton** and outclassed shorter varieties such as **Relay** and **Viscount**."

Growers Comments

KWS Firefly

"I haven't been this excited about a Group 3 wheat since **Consort**. I think **Firefly** will kick the others out of the picture.

"It's a wheat that really does have the full package of high yield and good agronomics, so it's set to fly off the shelf.

"It's the figures that form the clincher with the variety – a really good yield backed up with a solid disease package and OWBM resistance. It performs consistently and seems to do well whether on light or heavy soils."

Tony Pulham, Suffolk

KWS Extase

"I could tell it was a different variety when it emerged – we'd put it in a heavy bit of dirt and expected large losses. But, oh my God, in the spring it flew out of the blocks.

"It performed very well under our usual farm-standard fungicide regime, yielding 12.31t/ha with a Hagberg of 347, specific weight of 79.7kg/hl and 13.62% protein. But there's clearly potential to save on inputs too."

Andrew Robinson, Bedfordshire

KWS Parkin

"I've always been a **Skyfall** man, but I think we may have found our new main crop.

"I was instantly attracted to the early maturity and the fact it's suited specifically to northern growers.

"It was the height and stiffness of the variety that really stood out for us in terms of risk management."

Robert Childerhouse, North Yorkshire

Winter Barley Variety Comments

PLEASE ORDER YOUR BARLEY REQUIREMENTS EARLY

CONSISTANT PERFORMER

KWS CASSIA — Carat x Saffron — TWO-ROW — UK Yield 97% — East 97% — North 98%

The second biggest selling two-row feed variety in 2019 despite having being recommended way back in 2010. A medium- tall variety with very stiff straw and still the best specific weight of any barley variety on the recommended list. Consistent in all regions and all soil types, newer varieties can now however offer a potential yield benefit of up to 7%.

Specific wt kg/hl	71.2	Mildew	4
Maturity	0	Yellow Rust	5
Untreated Yield %	81	Brown Rust	7
Straw Height with PGR cm	88	Net Blotch	5
Light Soils %	97	Rhyncho	5
Heavy Soils %	97	Resistance to Lodging	8

ABUNDANCE OF STRAW POTENTIAL — OVER YEARED SEED AVAILABLE

KWS GIMLET — (California x Matros) x KWS Glacier — TWO-ROW — UK Yield 103% — East 106% — North 102%

The joint highest yielding variety in the Eastern region. This variety offers growers a combination of good specific weights, improved disease resistance ratings and lots of valuable good quality barley straw for the bedding market. Not as stiff as its sister variety **KWS Orwell** it will benefit from a good PGr programme. Trials data show it gives its best results on heavier soils.

Specific wt kg/hl	68.2	Mildew	6
Maturity	0	Yellow Rust	-
Untreated Yield %	83	Brown Rust	6
Straw Height with PGR cm	98	Net Blotch	6
Light Soils %	102	Rhyncho	6
Heavy Soils %	104	Resistance to Lodging	7

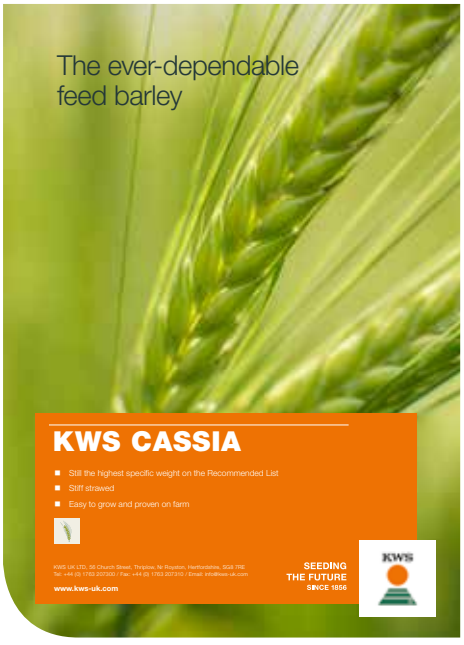
HUGE SPECIFIC WEIGHT

LG FLYNN — Captain x Tower — TWO-ROW — UK Yield 102% — East 103% — North 102%

Newly recommended for 2019, this high tillering pigmented variety from the **Limagrain** stable offers growers market leading yields with medium tall but stiff straw something which has to be an important factor when considering varietal choice.

Specific wt kg/hl	70.2	Mildew	4
Maturity	0	Yellow Rust	-
Untreated Yield %	82	Brown Rust	7
Straw Height with PGR cm	94	Net Blotch	6
Light Soils %	102	Rhyncho	6
Heavy Soils %	104	Resistance to Lodging	7

It also provides a nice big bold sample as a result of its excellent specific weight, second to only **KWS Cassia** but with a 5% yield advantage. The variety has a good all round disease resistance profile with the exception of mildew (4) which needs monitoring. Happy on all soil types but in trials saves its best optimum performances on heavier soils.



Winter Barley Variety Comments

PLEASE ORDER YOUR BARLEY REQUIREMENTS EARLY

MARKET LEADER

KWS ORWELL

B105 x Salsa | TWO-ROW | UK Yield 102% | East 102% | North 101%

The UK's most popular two-row variety for the past two seasons. Liked by growers for its consistency across all regions and soil types, it comes with slightly shorter but stiffer straw than its direct competitors. The variety is however susceptible to mildew and growers could well be looking to try newer varieties going forward.

Specific wt kg/hl	67.9
Maturity	0
Untreated Yield %	80
Straw Height with PGR cm	84
Light Soils %	100
Heavy Soils %	102

Mildew	3
Yellow Rust	7
Brown Rust	7
Net Blotch	5
Rhyncho	6
Resistance to Lodging	8

NEWLY RECOMMENDED

KWS HAWKING

California x Tower x Coded Lime | TWO-ROW | UK Yield 104% | East 106% | North 102%

Newly recommended and sitting at the top of the new RL, **KWS Hawking** is the logical step forward for growers looking to move of from **KWS Orwell**. With a PGR it offers the same short stiff straw length as **Orwell**, but with yields on par with its sister variety **KWS Gimlet** and a much improved level of disease resistance.

Specific wt kg/hl	68.5
Maturity	0
Untreated Yield %	83
Straw Height with PGR cm	84
Light Soils %	102
Heavy Soils %	106

Mildew	5
Yellow Rust	6
Brown Rust	6
Net Blotch	6
Rhyncho	6
Resistance to Lodging	7

Earlier to mature, in KWS trials it has been significantly ahead of its sister varieties in reaching ear emergence. Giving its best performance on heavier soils, this new variety doesn't appear to have any weaknesses and could well be the biggest selling two-row in 2020.

GOOD ALL ROUNDER

VALERIE

Coded lines x Sandra | TWO-ROW | UK Yield 101% | East 102% | North 101%

From the same German breeder as **JB Diego**, this variety attracted a great deal of early season interest last autumn. Sales however were held back by the shortage of seed something that may well be repeated again so interested growers should look to order early.

Specific wt kg/hl	70.2
Maturity	-1
Untreated Yield %	86
Straw Height with PGR cm	89
Light Soils %	101
Heavy Soils %	101

Mildew	6
Yellow Rust	-
Brown Rust	9
Net Blotch	6
Rhyncho	6
Resistance to Lodging	8

It may behind its main competitors in terms of yield it offers growers a nice combination of medium tall, very stiff straw with one of the highest specific weights available giving plenty of valuable barley straw and a nice bold sample. A good disease resistance profile complements this is solid farmer friendly variety.

Hybrid Barley

Hybrid barley is not processed at our Piercebridge plant however due to our excellent working relationship with the breeder Syngenta, we can supply most if not all of their varieties on the RL including **KINGSBARN** and **BAZOOKA** both of which have proved popular with our customers.

SYNGENTA KINGSBARN

HYBRID | UK Yield 108% | East 108% | North 107%

The top yielding and most popular hybrid in 2019 , this variety combines high untreated yields, tall stiff straw and a spt wt comparable to the two-rows

Specific wt kg/hl	69.8
Maturity	-1
Untreated Yield %	88
Straw Height with PGR cm	101
Light Soils %	106
Heavy Soils %	108

Mildew	5
Yellow Rust	9
Brown Rust	5
Net Blotch	6
Rhyncho	6
Resistance to Lodging	7

SYNGENTA BAZOOKA

HYBRID | UK Yield 106% | East 107% | North 105%

Just shaded into second place in terms of hybrid sales, Bazooka has been extremely popular with growers due to its nice combination of yield, straw strength, spt wt and disease resistance.

Specific wt kg/hl	68.9
Maturity	-1
Untreated Yield %	87
Straw Height with PGR cm	107
Light Soils %	105
Heavy Soils %	107

Mildew	6
Yellow Rust	-
Brown Rust	5
Net Blotch	6
Rhyncho	5
Resistance to Lodging	7

High Performance Barley Options

Barley growers now have two high-yielding two row feed varieties to choose from depending on their particular requirements, says Dr. Kirsty Richards of KWS.

"**KWS Gimlet** is established as one of the highest yielding two-row varieties available with good resistance to both Rhynchosporium and net blotch with scores of 6 for both plus it is resistant to Barley Yellow Mosaic Virus (BYMV).

"At about 92cm, (with PGR) **KWS Gimlet** is taller than its parents, while being earlier to mature than **KWS Glacier** and is higher yielding than **KWS Orwell**. Straw strength is good though experience suggests the use of a structured programme PGR is advised."

If straw length is an issue for growers then they should consider the new variety **KWS Hawking**, she suggests.

"**Hawking** is a logical step forward for many producers as with PGR it offers the same short straw length as **Orwell** to provide security of harvest, but with yields on par with **Gimlet**. It's the best of both worlds.

"It's a really good-all-round two-row feed variety with a strong set of agronomic features, no disease weaknesses and resistance to BYMV."

According to the RL, **KWS Hawking** scores a 6 for rhynchosporium, brown rust and net blotch, which should help give growers some reassurance and flexibility in terms of disease control, she adds.

"It's a mid-length strawed type which has good resistance to lodging and is also an earlier maturing type. In our own **KWS** UK trials for the past two seasons, the variety is significantly ahead its stablemates in reaching ear emergence in May."

Growers who like varieties such as **Orwell** and **Cassia** are likely to find comfort within **KWS Hawking**, she concludes.

"It's a low-risk variety, with no real weaknesses. For growers that like varieties such as **Orwell**, but are looking for something new, this seems like a natural progression."

Grower Comment

"I've grown most of the new **KWS** 2 row barleys over the years and last year I tried **KWS Gimlet** for the first time.

"I was pleased with the yield it delivered on our farm, it was a match for **KWS Hawking**.

"The other valuable attribute was that it provided us with a lot of really good quality straw for the bedding market, not unlike **Cassia**."

Derek Cornforth, North Yorkshire

AHDB RECOMMENDED

FALL IN LOVE WITH

LG FLYNN

WINTER BARLEY

- 2-row feed barley
- Stiff straw
- Very high specific weight

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Give Your Crops the Best Possible Start with Vibrance

Now treats Barley!

Just because winter wheat and barley seed can no longer be protected against BYDV and other problems with a combined neonicotinoid + fungicide seed treatment, doesn't mean it should be left undressed.

Getting crops established before the winter can already be a stressful time, says Kate Cobbold, Seed and Seed Treatment Key Account Manager at **Syngenta**. She adds that leaving seed unprotected against seedling diseases that threaten establishment can make it even worse.

"There's a range of diseases that can jeopardise winter wheat establishment," says Kate, "the chief ones being Microdochium and Fusarium.

"Even if you know that seed isn't infected, you can't be sure these and other diseases aren't present in the soil. Many of these important establishment diseases have been kept at bay because seed treatments that contain fungicides have been used widely in the past. Without treatment, there's a very real risk that these diseases will once again strike."

This risk is further exacerbated if planting into colder, wetter soils, says Kate, and a further unknown factor is how kind the weather will be to the crop after planting and heading into winter.

"Harsh conditions hinder the crop's ability to develop decent root structures before the winter, and all these risks are further exacerbated if crops are drilled later.

"By contrast, if you achieve better crop establishment, plants will be more resilient against these challenges. For example, crops that are better established are better able to tolerate weather stresses and attack by slugs."

A modern approach to give winter wheat a rapid start during this vulnerable period, says Kate, is to protect it with the new-generation fungicide seed treatment, **Vibrance Duo**.

Containing two active ingredients – fludioxonil (as in Beret Gold) and a specialist SDHI active ingredient, sedaxane – as well as controlling important seed-borne diseases, trials have shown it to give excellent crop establishment in soils inoculated with Microdochium and Fusarium. It also controls loose smut in winter wheat.

In addition, a further major benefit seen from protecting winter wheat with **Vibrance Duo** is improved rooting, Kate adds.

"Good root growth is important for establishment, as well as for access to water and nutrients, and improved plant resilience.

"**Vibrance Duo** gives reassurance across a wide range of drilling situations, but can also be particularly useful in more challenging conditions.

"Results on **Vibrance Duo** have shown clear improvement in yields – with its yield benefit over a standard azole fungicide seed treatment actually increasing from 0.21 t/ha for crops drilled before the first week of October to 0.34 t/ha for crops drilled later."

As well as having approval for use on seed of winter wheat, winter triticale, winter rye and spring oats, **Vibrance Duo** has also recently received approval for use on winter and spring barley.

Take-all in 2020

Due to an unprecedented drilling season, far more spring crops are in the ground than normal, the largest proportion of this area is made up of spring barley.

Looking ahead to Autumn 2020, many growers will be keen to return to wheat as their majority crop area. With this in mind, the take-all risk shouldn't be overlooked. The take-all inoculum will still be carried over to winter wheat from a spring cereal, in the same way it would be from a previous winter wheat crop.

Whilst it would be correct to consider the long winter break between the previous crop and spring barley it is also worth considering the soil conditions during that time. Not only was the winter of 2019/20 exceptionally wet but it was also very mild. The lack of colder temperatures meant that the take-all fungus had ideal conditions for surviving on what hosts remained.

These hosts may be cereal trash from the previous crops but also volunteer cereals or grass weed roots.

Any field with a history of take-all infection should be considered at high risk of take-all when sowing winter wheat after spring barley and **Latitude** seed treatment should be considered.

Latitude works by being absorbed from the treated seed into the soil around it after sowing and therefore forming a zone of protection around the developing root system. The active ingredient, silthiofam will kill the take-all fungus in that zone and therefore ensures the young plant has a much better chance of avoiding this yield and grain quality robbing disease.

Trials have been conducted to prove the usefulness of **Latitude** in wheat sown after spring barley and the results can be seen in the below graph. It is clear that across the 12 trials in the UK and northern France there is an obvious yield benefit to using **Latitude** in this situation.

The average yield response to **Latitude** seed treatment was 0.78t/ha across the 12 trials.

The manufacturer of **Latitude**, **Certis Europe** provide a handy cost benefit calculator for working out the potential return on investment from using this proven seed treatment (*see below*).

The online tool can be found here **https://www.certiseurope.co.uk/latitude** and generates the return on investment based on the results of hundreds of trials over the course of 20 years.

Use your own figures for what you believe your crop will be worth and the seed rate you may use.

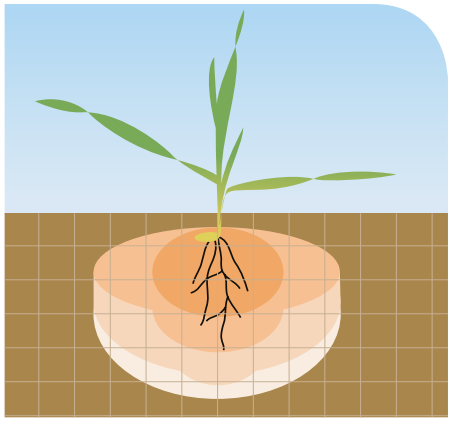
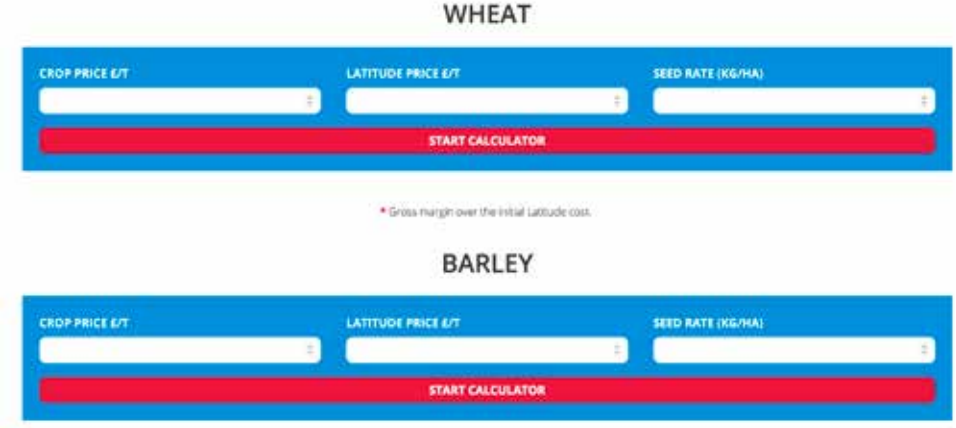


Diagram showing Silthiotham in the soil profile around a **Latitude** treated seedling



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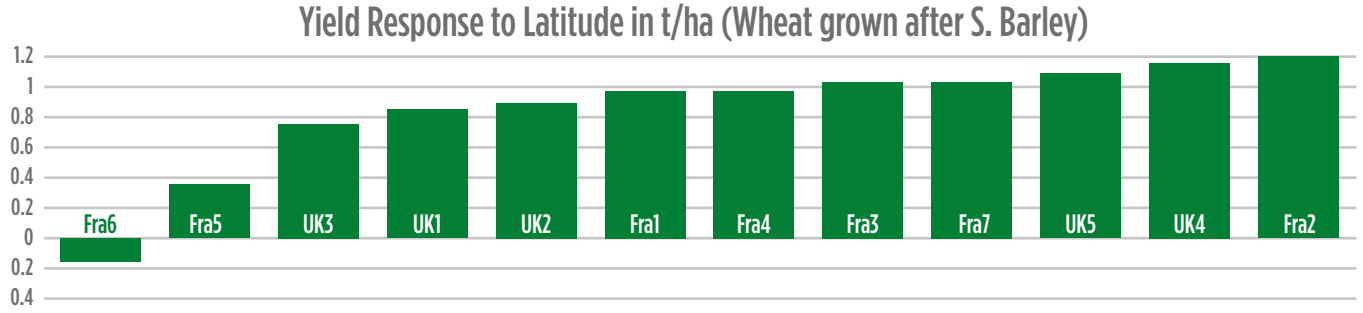

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Seed- and soil-borne diseases

identification guide

In the modern age of highly effective single purpose dressings (SPDs) such as Redigo Pro (prothioconazole and tebuconazole), and Raxil Star (prothioconazole, tebuconazole and fluopyram), it can be easy to forget some of the seed-and soil-borne diseases that used to devastate crops. Extreme weather conditions and the sowing of undressed seed have seen a resurgence in some of these diseases, making vigilantly checking and protecting crops all the more important. So now's the time to make sure you know your bunt from your ergot.

Barley and wheat SPD seed treatment comparisons

	REDIGO PRO		Raxil star
	Wheat, oats, durum wheat, rye and triticale	Barley	Winter barley only
Bunt (seed-borne)	★★★	N/A	N/A
Bunt (soil-borne)	★★★	N/A	N/A
Leaf stripe	N/A	★★[1]	★★★
Ergot (reduced germination)	★★★	★★★	★★★~
Microdochium-nivale	★★★	★★★	★★(★)
Loose smut	★★★	★★★	★★★
Seed-borne net blotch	★★★	★★★~	★★★
Covered smut	N/A	★★★	★★★
Blue mould	★★★[2]	★★★	N/A

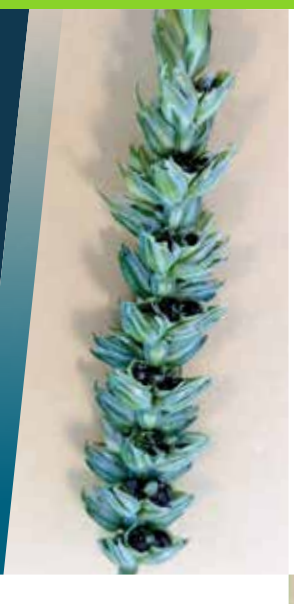
[1] Partial control in winter barley and spring barley. [2] Reduces the effects caused by blue mould on the germinating cereal seeds. ~ Not a label claim, ratings based on trials data and field experience.
Note: 3 stars refers to full control and 1 star refers to partial control.

Bunt/Stinking Smut

(Tilletia tritici)

A disease specific to wheat, bunt is well-known for smelling of rotting fish. The disease replaces the grain in infected ears with balls of spores. When these balls are ruptured by the combine, the spores are released as a sooty cloud, contaminating not just the seed in the combine but also the soil, nearby crops and the grain store.

To spot bunt, you need to look for yellow streaks on flag leaves, and stunted plants with dark grey-green ears and slightly open glumes. Cases of bunt are rare, but usually occur when farm saved seed has been repeatedly sown without a single purpose dressing. The disease spreads very quickly as each bunt ball contains millions of spores. As well as contaminating grain, bunt can also contaminate any machinery or equipment it comes into contact with.



Leaf Stripe

(Pyrenophora graminea)

This is one of the most serious seed-borne diseases of barley. Infected seed and poor soil conditions may see the disease kill seedlings as they emerge, but more commonly the disease causes a loss of green leaf area and may even result in there being no harvestable grain at all in infected tillers. It can build up rapidly to cause complete crop loss in repeatedly home-saved seed.

To identify the disease, look for long stripes on leaves that often start out pale green, before becoming yellow and finally turning to brown.

Covered Smut

(Ustilago hordei)

Covered smut primarily occurs in barley. It is usually only found in crops that are grown repeatedly from home-saved, untreated seed.

There are no identifiable symptoms of covered smut until ear emergence. At this time, ears look normal except the grains appear to be covered by a thin membrane. However upon breaking open the membrane it will be apparent that the grains have been replaced by masses of black spores.

These black spores are either released from the membrane and carried by the wind to neighbouring plants, or remain under the membrane, to contaminate surrounding seeds after harvesting. In either case, the spores are then dormant on the exterior of the seed until germination, when they will infect the developing seedling.

Seed-borne Net Blotch

(Pyrenophora teres)

Seed-borne net blotch only affects barley. With this barley seed-borne disease, the first leaf becomes infected as it emerges. Spores produced from the first leaf then spread the disease to other leaves and to surrounding plants.

Net blotch is often mistaken for leaf stripe, which looks very similar in infected young seedlings. To tell the difference, later leaves infected with net blotch will have short brown blotches, or 'nets', that have a network of random darker lines on the leaves.

Ergot

(Claviceps purpurea)

Ergot is known well by many growers, likely due to the risk associated with this disease and grain rejections. Ergot replaces the grain in spikelets of wheat, barley, oats, rye or triticale with a hard, dark purple sclerotium. It is the diseased sclerotia themselves that are known as ergots.

Ergots fall to the ground at harvest time, germinating in the spring to give spore producing structures. The spores they produce are released into the air, getting into the open flowers of nearby cereals.

Microdochium-nivale

As part of the *Fusarium* group of fungi causing seedling blight, *Microdochium nivale* can cause a significant reduction in crop establishment which can lead to a reduction in yield. The disease is most commonly seen in wheat but can infect other cereals too. Infection may be from the soil, but the disease is also seed-borne.

Losses are most pronounced when untreated seed is sown with high levels of infection into poor seedbeds, and with late sown crops. On surviving infected seedlings, the disease splashes up the plant and can cause infection of the ear. Wet weather at flowering can lead to high levels of infected seed.

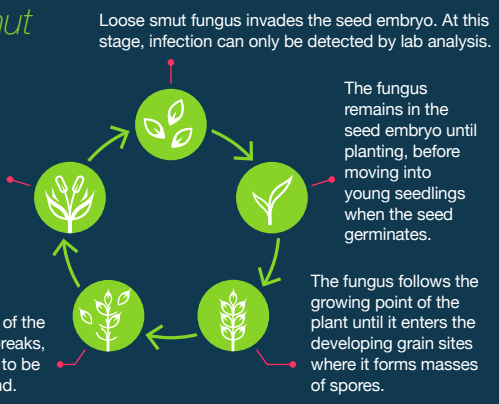
Loose Smut *(Ustilago nuda* – wheat f.sp. *tritici;* barley f.sp. *hordei;* oats *U. avenae)*

Loose smut is a monocyclic ear disease (i.e. one infection a year) caused by the fungus *Ustilago nuda* and is most commonly found in barley in the UK. However, loose smut can also infect wheat and oats.

The disease takes hold when air-borne fungal spores from infected plants land on the open flowers of healthy plants infecting the developing embryo. At this stage, infection can only be detected by lab analysis. Once the diseased seeds are sown, the fungus will move into the developing seedlings, and follow the growing point of the plant until it enters the developing grain site. Loose smut is easily recognised at this stage as each grain is replaced by a mass of black fungal spores.

The below diagram explains the lifecycle of loose smut in more detail:

Loose smut lifecycle



Good practice at drilling

When it comes to seed treatments, good practice at drilling is vital to try to safeguard those products available now, and those to come in the future. When drilling remember these eight tips to ensure good practice:

1. Use personal protective equipment (PPE) whenever handling treated seed
2. Check the drill and cultivators are set up correctly to ensure no seed is left on the surface
3. Reduce dust by minimising movement of the seed bag and vent precision vacuum drills downwards to reduce emission of abraded seed treatment particles
4. Carry a spill kit – a spade, spare bag and canvas sheet for when calibrating the drill. Clean up any spills as soon as possible
5. Ensure the seed mechanism is shut off a metre before the row ends when drilling to ensure all seed is covered at the headlands
6. Store seed properly in a safe, dry location away from animals
7. Send any empty seed bags to a licensed waste contractor
8. Wash your hands immediately after handling treated seed – even if PPE has been worn

If you'd like to find out more about identifying these diseases in your crop you can find information on the Bayer website: **https://cropscience.bayer.co.uk/forgotten-diseases**

Growing Oil Seed Rape – Persistance Pays!

The 2019/20 season has not been a good year for any crop. In fact, through a combination of wind, flooding, the coronavirus and political uncertainty, it has proved to be one of the most challenging years British farmers have ever had to endure.

Certainly, crop damage and destruction from flea beetle has been extensive in some places and been an issue compounded by the ban on the use of neonicotinoids. But, as Simon Kightley, Cereals and Oilseeds Expert at NIAB TAG points out: "We had no neonics in 2017, yet the rapeseed crops established with few problems." So, clearly flea beetle is not necessarily set to be a constant challenge for all UK growers.

For sowing in 2020, I believe that growers should choose a variety with a vigorous trait, which will help the plant to grow away from flea beetle attack and establish quickly.

It is also important to remember that oilseed rape can still offer the best gross margins of any break crop.

Further, the UK market demand for oilseed rape far exceeds supply. We calculate that the shortfall in home grown oilseed rape will mean that following the 2019 harvest, the UK will need to import around 300,000 tonnes or more from abroad in order to meet demand and a further 750,00 tonnes after the 2020 harvest. Absurdly, much of this imported oilseed rape will have been treated with neonics, as it will come from countries outside the EU where the chemical's use is still permitted.

This is a farcical situation and grotesquely unfair to British farmers. However, it does mean that, as ever, there is a ready and eager market for UK oilseed rape, which means your OSR crop will always find a home.

Seed Variety Choice

There is an extensive choice of rapeseed varieties available for sowing this autumn, including conventional, hybrid, **Clearfield**, HEAR and HOLL. However, there are two varieties that really stand out which you may wish to consider:

ACACIA – No.1 Variety AHDB RL 2020/21

Acacia, a conventional, is the number one variety on the new AHDB Recommended List 2020-21, in both the E/W and the North. It has the highest UK gross output (109%) and also in the North (108%) of any variety, whether conventional or hybrid.

In addition to its high gross output, the variety demonstrates robust autumn and spring vigour which, vitally, helps it to grow away from potential flea beetle attack and establish. Oil content is also high at 45.7%, which creates the opportunity for impressive additional oil bonuses. With a strong stiff straw and a strong disease resistance package, **Acacia** is durable in field conditions and is suitable for both the main rapeseed drilling window and a late sown slot.

AURELIA – Trait Loaded Hybrid

Among hybrids in the AHDB trials, **Aurelia** emerged as a clear stand-out variety. Like **Acacia**, it is the product of seed breeder **Limagrain's** innovative breeding programme and is one of the new varieties the company refers to as "trait loaded".

This means it provides a range of key traits that have been bred in to help

secure yield, such as: resistance to Turnip Yellows Virus (TuYV), RLM7 protection against stem canker and gene specific pod shatter resistance. It also has the highest gross output of any hybrid on the AHDB Recommended List.

Like its stablemate **Acacia**, **Aurelia** offers outstanding spring and autumn vigour – notably achieving the highest rating for early vigour of any variety. It possesses excellent disease resistance with two "8" ratings for both stem canker and light leaf spot.

TuYV resistance is a particularly significant trait, as Turnip Yellows virus is a disease that has become more prevalent in recent years. Further, the EU has banned the Biscaya pesticide, which is effective against aphids, forbidding its use after 30 April 2020. Having genetic resistance is therefore an excellent insurance policy against TuYV infection for growers.

Both of these varieties are the results of **Limagrain's** long term and extensive breeding development programme Based at Rothwell in Lincolnshire. This breeding programme focuses on rigorously testing genetics under the conditions in which they will be grown on farm. The result is consistent varieties like **Acacia** and **Aurelia** with traits that offer solutions to the specific challenges and conditions now being faced by UK farmers.

"Growers cannot possibly know what conditions the next season will bring, so my advice is to minimize risk by choosing the right variety and making the most of the agronomic features available," says Vasilis Gegas, **Limagrain's** Oilseed Rape European Portfolio Manager.

"Farmers pay for the AHDB harvest trials so it makes sense to buy from their 2020-21 Recommended List, which is based on their own independent harvest trials."

AURELIA WINTER OILSEED RAPE

AHDB RECOMMENDED

AGRONOMICS	AURELIA	DK EXPANSION	DK EXSTEEL
Gross Output **(North)**	108%	104%	103%
Oil Content	45.2%	45.5%	45.5%
Lodging Resistance	(8)	8	8
Stem Stiffness	8	8	8
Shortness of Stem	6	5	5
Earliness of Flowering	7	6	6
Earliness of Maturity	5	5	5
Height cm	155	165	165
Disease Resistance			
Light Leaf Spot	8	6	7
Stem Canker	8	7	8
TuYV Resistance	YES	NO	NO

ACACIA WINTER OILSEED RAPE

AHDB RECOMMENDED

AGRONOMICS	ACACIA	BLAZEN	ANASTASIA
Gross Output **(North)**	108%	105%	101%
Oil Content	45.7%	44.8%	44.6%
Lodging Resistance	(8)	(8)	8
Stem Stiffness	9	9	8
Shortness of Stem	7	6	7
Earliness of Flowering	6	6	6
Earliness of Maturity	5	5	5
Height cm	150	152	149
Disease Resistance			
Light Leaf Spot	6	6	7
Stem Canker	5	7	5

Advice and guidance on the best varieties to sow this autumn are available from GrainCo.

Oil Seed Rape Variety Comments

	NEW	NEW					NEW
PLANT TYPE	CONVENTIONAL	HYBRID	CONVENTIONAL	CONVENTIONAL	CONVENTIONAL	RL CLUB ROOT RESISTANT VARIETIES	
VARIETY	ACACIA	AURELIA	ASPIRE	BARBADOS	ANASTASIA	CROME	CROCODILE
Gross Output **(North)**	108%	108%	105%	103%	102%	104%	95%
Gross Output **(East/West)**	110%	107%	106%	98%	97%	102%	105%
Lodging Resistance	8	8	8	8	8	8	8
Stem Stiffness	9	8	9	8	8	8	8
Shortness of Stem	7	6	7	6	7	6	6
Earliness of Flowering	6	7	7	6	6	7	6
Earliness of Maturity	5	5	5	4	5	5	5
Oil Content %	45.7	45.2	45.7	45.0	44.6	46.4	45.0
Light Leaf Spot	6	8	7	8	7	6	6
Stem Canker	5	8	6	7	5	4	4
TuYV Resistance	NO	YES	YES	NO	NO	NO	NO
Pod Shatter	–	YES	–	–	–	–	–
Plant Height (cm)	150	155	147	154	149	154	153

Acacia
The highest GO of any variety, this conventional variety sits top of the RL with short very stiff straw and a high oil content. Excellent autumn and spring vigour, best suited to main drilling window and late sown slot.

Aurelia
The highest GO of any hybrid on the RL offers amongst other things a terrific set of disease resistance scores, coupled with Turnip yellow virus and pod shatter resistance.

Aspire
A high yielding short, stiff strawed variety with a good disease resistance package.

Barbados
A proven variety which suits early drilling and still has one of the best disease resistance packages available.

Anastasia
A popular variety which is fast out of the ground, starting to get outclassed now.

Alizze
Although no longer listed this hybrid has performed exceptionally well on most farms. It offers good levels of disease resistance, high oils with stiff straw and performs best when drilled early.

RL CLUB ROOT RESISTANT VARIETIES

Crome
Fully listed with yields and oil contents which match if not beating mainstream types.

Crocodile
Newly listed but saves its best performances for the East/West region.

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Wizard and Honey

For more information about growing beans and what GrainCo can offer please contact your representative or visit www.grainco.co.uk

Vespa Leads the Way for Winter Beans


Tom Yewbrey, Sales Manager, Senova UK

A change in the order of winter bean variety performance has seen Vespa from Senova taking top spot for yield on the latest PGRO Recommended List.

With a 5% yield advantage over **Tundra**, **Vespa** now heads the 2020 list having moved from its second year of provisional recommendation to fully recommended.

First recommended in 2018, **Vespa** has a yield of 108 and the joint highest standing ability on the list, with a score of 8. Marginally taller than **Tundra**, it also offers the bigger seed size and pale hilum favoured by the human consumption market.

A protein content of 26.2% puts **Vespa** on a par with other winter bean varieties and makes it suitable for growing on contracts where protein is rewarded.

"There were some very good results seen with winter beans in 2019," comments Tom Yewbrey of Senova. "Having been in trials for last five years, **Vespa** is now showing its true potential and has opened up quite a gap in terms of yield."

Another **Senova** variety, **Bumble**, moves into second place on the winter bean list, also ahead of **Tundra**, with a yield of 104. With moderate straw length and early ripening, it has the seed size and pale hilum that make it suitable for the export market.

"These newer varieties are now proving themselves to be better than many of the old favourites," says Tom. "With greater focus on sources of plant protein and sustainable farming systems, it seems that they have come along at just the right time for growers to benefit."

Oat Update

The winter oat market continues to be dominated by **Senova's** market-leading winter oat variety **Mascani**, thanks to its combination of superior grain quality and reliable performance in the mill.

Now the clear favourite with millers when it comes to efficiency of processing, **Mascani** also has the agronomic characteristics that make it farmer friendly and easy to grow – putting it in the frontrunner position for autumn 2020 drillings.

Bred by **IBERS** and first recommended in 2004 - the same year that oat beta-glucan was recognised for its ability to reduce blood cholesterol - **Mascani** has benefited from the increase in UK-wide oat plantings and the development work being done by researchers and food manufacturers into alternative oat markets.

"We now see oats being eaten at different times of day to just the traditional breakfast occasion," says Tom. "There is a vast array of products that use milled oats, from health and convenience foods to free-from choices and dairy substitutes."

Spring oats have risen in popularity as farmers have used spring cropping to help with weed control and deal with rotational issues, he acknowledges. "That hasn't been at the expense of winter oats, which have also seen an increase in plantings."

Kernel content is a key quality characteristic for oats and **Mascani's** 76.7% is the highest on the AHDB Recommended List. It also has the lowest screenings at 1.7% and a specific weight of 53.3kg/hl.

Agronomically, **Mascani** has a strong disease resistance package – including the best mildew score - and good straw strength, while its early maturity helps with harvest workload planning.

"There have been other winter oat varieties added to the Recommended List in the last few years," ends Tom. "For various reasons, none of them have suited the end market or been as reliable on farm as **Mascani**."

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New Crop Nutrition Thinking

New ways of looking at how growers use fertilisers could help meet increasing demands for protecting environmental assets whilst potentially increasing farm profitability which together with getting the most out of bought-in fertilisers will be one of the most important management areas for UK crop producers in the coming years, says **CF Fertilisers** Dave Towse.

It's been driven from many directions, but one is the Clean Air Strategy which clearly outlines the role agriculture plays in contributing to ammonia emissions and identifies ways in which this can be reduced.

Nitrogen fertilisers contribute 25% to the total Ammonia emissions produced by agriculture and one proposed solution is a move away from straight urea, due to its higher rate of Nitrogen loss to the atmosphere at application. Fortunately for growers, many of the practices that prove beneficial for the environment also improve production efficiency on-farm. High productivity can only be realised within a functioning environment."

The term Nitrogen Fertiliser Use Efficiency (NFUE) is used to describe the recovery of Nitrogen fertiliser applied to the crop.

NFUE Explained

NFUE works by removing all other Nitrogen sources from the overall NUE calculation to show how the bought-in fertiliser is performing. Efficiency values for crops typically range between 40% to 70% (see table below).

Dave explains "NFUE gives growers a clear picture of the impact of fertiliser choice on production efficiency and can highlight where potential environmental concerns might result. There is good evidence that the higher the quality of fertiliser, the higher the NFUE achieved, especially with high grade Ammonium Nitrate such as Nitram (34.5%N)."

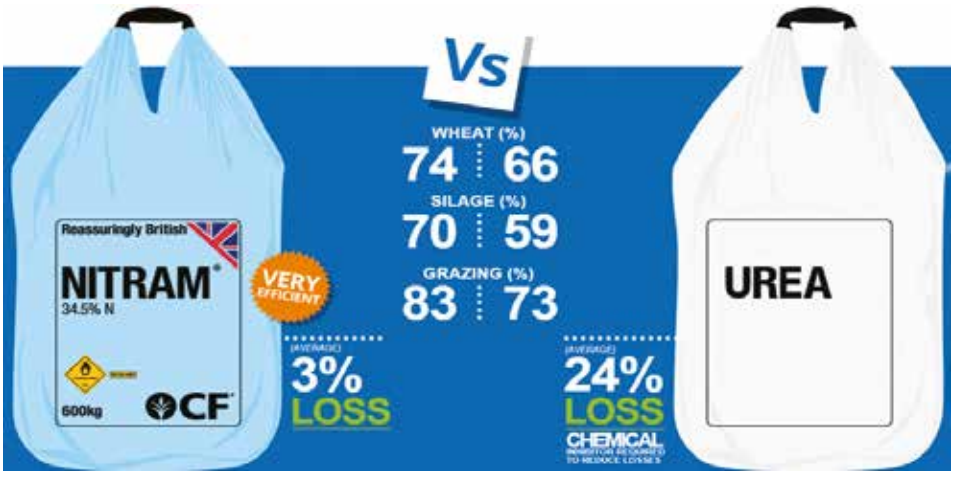
Improving NFUE and Carbon

It is clear that better quality, AN based solid fertilisers are at the top end of this scale whereas urea-based products, liquids and blends tend to be at the lower end.

For example, in milling wheat trials carried out by arable research contractors Armstrong Ltd, applying zero N to trial plots produced 4.2 t/ha whereas applying the optimum N rate of 254kg N/ha produced 10.4t/ha. The N offtake (N in the crop at harvest), was 68kg N/ha for the crop with no fertiliser added and 257kg N/ha where the optimum amount was applied giving a final equation of 257 – 68 divided by 254 which equals 74%."

"Choosing Ammonium Nitrate based fertilisers is a great start to improving NFUE but the decisions made during the application period also affect the final recovery rate".

Carbon is also topical and will become increasingly important, "This is something we have been aware of for some years now and whilst the standard European industry production figure is 6.6kg of Carbon for every 1.0kg of N you use, with **CF Ammonium Nitrate** (Nitram) it is roughly half this at 3.4kg for every 1.0kg of N used. This is a result of the investment we have made in de-carbonising the manufacturing process and through independently audited and monitored Carbon Trust accreditation." concludes Dave.



Typical NFUE values by crop

Winter Wheat	Spring Barley	Oilseed Rape	Grass Silage	Grazed Grass
70%	53%	54%	65%	70%

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