Yearbook 2017/2018

Winter Barley, Oats and Rye
Your Seed Contacts

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Seed On Time
Confidence in the delivery of seed to farm is crucial to fit in with farm workloads. Seed companies are often judged on their ability to deliver in the heat of the drilling season.

Agrii has a proven track record for delivery over many years and runs state-of-the-art distribution networks. Cereals are distributed from the four regional production sites direct to farm. Most deliveries are made using dedicated hauliers. Approved pallet-shippers are sometimes used for urgent deliveries or to more remote areas.

Small seeds including oilseed rape, Master Leys and Cover Crops are delivered via the UK’s largest agrochemical distribution hub based in Cambridgeshire.

Most deliveries are made in Agrii Saturday deliveries are standard to variety availability, region and farm location).

Growers have direct access to both regional seed managers and crop specialists and contact details are published on Agrii’s website. www.agrii.co.uk/products-services/seed-forage/

Technical Backup
There is a large dedicated team supporting Agrii’s seed business.

Order processing, planning and tracking systems are constantly being improved to give confidence to growers that seed will be delivered in line with the Master Seeds standards.

Agrii employs over 280 agronomists and technical support staff to provide customer support where necessary. It offers buy-backs and grain marketing opportunities through its collaboration with Glencore Grain UK Ltd in England and Scotgrain in Scotland.

Agrii’s agronomists gain an additional insight into variety performance based on extensive R&D trials. Supplementing the publicly available AHDB lists, the agronomists have developed a much stronger case for positioning varieties on-farm using their Agrii Advisory Lists.

These draw on inputs from both the trials and industry experts on the robustness of disease resistance, crop competitiveness against key weeds and suitability for regions, sites, soils and markets.

Increasingly it is not just what is in the bag that counts, it is also what surrounds it in terms of customer support and delivery.

AGRII PRODUCE HYBRID BARLEY IN THEIR OWN PLANTS TO MASTER SEEDS STANDARDS, UTILISING COLOUR SORTERS TO REMOVE ERGOT AND SUPPLY THE BEST QUALITY SEED.

Today strict certification rules must be followed by all UK seed companies but Agrii goes further by adopting even more stringent safeguards.

Most certified cereal seed sold in the UK meets C2 certification standards and some seed is sold at a higher, C1, standard for crop multiplication. Both standards set thresholds for crop, weed and disease contaminants. Master Seed has a much lower tolerance and particular care is taken to ensure pernicious weeds like Blackgrass are never present.

All wheat lots are embryo-tested for vigour. This increases confidence around indicative germination tests and is particularly important in winter cereals where crops are processed before full germination tests are available. A higher minimum of 90% germination is set for Agrii’s indicative tests giving more confidence around the final germination results. 95% of Master Seeds lots are supplied at greater than 90% final germination.

A specialist ‘Bardex’ device, using the ‘Velco’ principle, assesses freedom from wild-oats on a 20 kg sample. The risk of contamination is of an order of magnitude lower than the standard certification test, but absolute freedom can never be guaranteed.

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All imported certified oilseed rape seed is tested for impurities. It is usually imported under lower European standards and re-testing and cleaning where necessary ensures that the UK Master Seeds standard is maintained.

Ergot contamination is tolerated at less than under C1 or C2 standards. Agrii have made a £400k investment in colour sorters to reduce Ergot to a minimum.

Certification samples are retained for a minimum of 2 years, longer than officially required, to cover the period where the produce is likely to be marketed. In addition, samples are held for every treatment within a certification lot.

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Seed sample standards: Wheat, Barley, Oats

<table>
<thead>
<tr>
<th>Seed sample standards</th>
<th>Master Seeds</th>
<th>C1 HVS</th>
<th>C2 HVS</th>
<th>C2 EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germination level</td>
<td>90%</td>
<td>85%</td>
<td>85%</td>
<td>85%</td>
</tr>
<tr>
<td>on preliminary germ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vigour tests carried out on…</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>winter wheat</td>
<td>no test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>spring wheat</td>
<td>required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analytical purity (inert matter) % weight</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Loose smut in barley</td>
<td>treated for</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.5%</td>
</tr>
<tr>
<td>control</td>
<td>or treated</td>
<td></td>
<td>or treated</td>
<td>or treated</td>
</tr>
<tr>
<td>Embryo testing for loose smut in barley</td>
<td>treated for control</td>
<td>not compulsory</td>
<td>not compulsory</td>
<td>not compulsory</td>
</tr>
</tbody>
</table>

Maximum impurities allowed: Wheat, Barley, Oats

<table>
<thead>
<tr>
<th>Impurity</th>
<th>Master Seeds 2kg sample</th>
<th>C1 HVS equivalent 2kg sample</th>
<th>C2 HVS equivalent 2kg sample</th>
<th>C2 EU equivalent 2kg sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds of other cultivated cereal species</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>Seeds of brome or couch species</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>no standard</td>
</tr>
<tr>
<td>Seeds of other weed species</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Maximum species impurities allowed</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Ergot pieces</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Wild oats</td>
<td>Bardex tested nil in 20kg</td>
<td>nil in 1kg sample</td>
<td>nil in 1kg sample</td>
<td>nil in 1kg sample</td>
</tr>
<tr>
<td>Sample size inspected</td>
<td>2kg</td>
<td>1kg</td>
<td>1kg</td>
<td>500g</td>
</tr>
</tbody>
</table>

NOTE: Agrii is currently working towards a new Master Seeds standard for Hyvido barley. This will be slightly different from conventional barley for technical reasons but it aims to be an improvement over C2 HVS standards.
Hyvido Bazooka

HYBRID BARLEY, 6-ROW FEED

The highest yielding winter barley variety on the Recommended List and has quickly taken over from Volume. An opportunity to maximise yield particularly on lower potential sites and lighter soils, and with grass-weed competition on heavier soils. The earliest possible entry for oilseed rape. Hybrids are increasingly being considered for use in Anaerobic Digestion alongside hybrid rye.

A very stable hybrid that delivers consistent performance across all regions and soil types. Drill no earlier than 20th September and no later than the end of October. Low seed rates are needed to achieve 180 plants/m² to maximise specific weight. As with all hybrids bring nitrogen use forward (30% at GS25, 50% at GS30/31, 20% at GS35/37) to support the early spring vigour and increase tillering, rooting and grain number set.

Medium erect with high tiller production and very high vigour. It is the tallest of all the hybrids and straw management can be an issue on arable farms unless it is baled and led away. More competitive than winter wheat and being increasingly adopted on farms with Blackgrass problems. Significant improvement in lodging resistance compared with Volume but it will still benefit from a good PGR programme to manage the straw using a trinexapac-ethyl based PGR programme (e.g. Alatrin Evo).

A major step forwards in terms of disease resistance. Solid ratings against Rhynchosporium, Brown Rust and Net blotch but Mildew resistance has slipped to 4. The adoption of isopyrazam-based fungicides (e.g. Zula) allows the grower to lock into the guarantee scheme. Resistant to Barley Yellow Mosaic Virus.

Breeder: Syngenta

NEW VARIETY

Hyvido Sunningdale

HYBRID BARLEY, 6-ROW FEED

The most recent hybrid to join the Recommended List but it does not add much other than its Northern yield performance where it is the highest yielding barley variety. Intermediate in height between Bazooka and Belfry and slightly weaker in the stem and equivalent to Volume. Its excellent all round disease resistance is reflected in the high untreated yields. While specific weight is slightly lower than Bazooka it is still respectable and screening losses are significantly lower than Volume.

Good yield stability across seasons and its best performance is in the North but it shouldn’t be niche this region. Evidence suggests that its best performance is on the medium or lighter soils where it performs better than any other barley variety. Drill up to the end of October. High tillering capacity, relatively tall and with early maturity.

Similar lodging resistance to Volume so it is best suited to lighter or less fertile soils. Continue to manage inputs the same way as Volume and use a good PGR programme to manage the straw using a trinexapac-ethyl-based PGR programme (e.g. Alatrin Evo).

A good set of disease resistance ratings which are similar to Bazooka but with slightly better Mildew resistance. Use isopyrazam-based fungicide inputs to stay within the yield guarantee scheme. Resistant to Barley Yellow Mosaic Virus.

Breeder: Syngenta

Hyvido Belfry

HYBRID BARLEY, 6-ROW FEED

Hyvido Belfry came on to the Recommended List at the same time as Bazooka. Not as big and bulky as Bazooka, it offers a step up in performance for the existing hybrid grower or those looking to change out of conventional barley. Excellent all round disease resistance is reflected in its high untreated yields. While specific weight is slightly lower than Bazooka and screening losses are significantly lower than Volume.

High yield stability and like Bazooka it performs consistently well across all regions, sites and soil types. Likely to be grown on farms in preference to Bazooka where the sheer quantity of straw is a concern. Drill up to the end of October. High tillering capacity and semi-prostrate growth habit and straw of similar height to Volume.

Competitive against Blackgrass which will continue to be a key driver for hybrid barley in many parts of the country as well as its early maturity. The breeder has delivered better lodging resistance which has been a concern with Volume especially on heavy or more fertile land. Continue to manage inputs the same way as Volume.

An outstanding set of disease resistance ratings and could set the standard for hybrid barley with no real weakness. A real opportunity to modify fungicide inputs although some form of isopyrazam-based fungicide inputs will still be required to stay within the yield guarantee scheme. Like Bazooka also resistant to Barley Yellow Mosaic Virus.

Breeder: Syngenta

NEW VARIETY

Funky

CONVENTIONAL BARLEY, 6-ROW FEED

A conventional six-row winter barley with great potential. Not only does it have excellent all-round disease resistance, it yields at a similar level to the leading hybrids together with a relatively high specific weight which is unusual in conventional six-row types. Consequently, Funky is likely to be the first conventional six-row to truly perform south of the Border and may prove to be a good alternative to hybrids in the Blackgrass affected areas of England.

High yield stability across seasons, regions and soil types. Its only downside appears to be the very high screening losses and a relatively low thousand grain weight. High tillering capacity and while it is relatively tall it is not quite as tall as the hybrids. It is also very still and does not lodge even where conventional seed rates are used. Agri seed rate trials suggest that there is no specific benefit from reducing seed rates. Trials at Stow Longa also suggest that it is as equally competitive against Blackgrass as the hybrids.

Excellent all round disease resistance and this is reflected in high untreated yields. Rhynchosporium is the principal disease of barley and Funky has shown strong resistance to this as well as Net blotch. Resistant to Barley Yellow Mosaic Virus.

Breeder: KWS Momont, France  |  Parentage: Gigga x KWS Meridian
**KWS Tower**

2-ROW FEED

Introduced only four years ago from the same stable as KWS Glacier and sharing a common parent in Retriever. Slightly higher yields in the North and with stiffer longer straw than KWS Glacier it established itself quickly in the livestock areas. It produces a nice bold sample with the lowest screenings of any winter barley.

Performs well in all regions and has taken a similar proportion of the acreage to KWS Glacier. Consistent performance across soils and there is evidence to suggest better performance on lighter soils than its stable-mate. This may be attributed to its longer straw length. On lighter soils and lower potential sites it remains an alternative to Volume but the newer hybrids and six-row Funky are beating it on yield.

Prostrate over winter it has a vigorous growth habit and goes on to produce a medium tall but stiff straw. A standard PGR programme will normally be adequate. Similar maturity to KWS Cassia and an ideal entry for oilseed rape.

Improved disease resistance against Mildew and Rhynchosporium will continue to move growers out of KWS Cassia. However, its weakness on Net Blotch needs attention particularly in the mild and wetter areas of the West and reasonable Rhynchosporium resistance is paying dividends further North.

**KWS Glacier**

2-ROW FEED

Recognised for its consistent high yield, bold grain, relatively low screenings and good agronomic profile. Brings together the best of both parents, the vigour and yield potential of Retriever and big bold grains of KWS Cassia.

It has a wide geographical appeal and its highest yields have been in the East where it has become a significant variety helping growers to extend their rotations. It has taken a significant acreage in the North and West too. Its best performance is on heavy land and it can sometimes match the hybrids on higher potential sites. Best drilled from mid-September onwards through to early October. Unsuitable for early drilling.

A high tillering variety with a prostrate growth habit. It is relatively short, moderate stem stiffness and relatively early in its maturity. Lodging has been an issue on some farms and where this has been an issue growers have moved to KWS Tower. Ensure that a robust PGR is used especially on high potential or fertile sites.

A reasonable disease package but weak on Mildew and Rhynchosporium where it is weaker than other leading varieties and needs monitoring. Resistant to Barley Yellow Mosaic Virus.

**KWS Orwell**

2-ROW FEED

The leading two-row barley that offers a step up in disease and Brackling resistance. The breeder claims that KWS Orwell is the first of a new generation of winter barley crosses from their market-leading programme but time will decide if the benefits are big enough to encourage farmers to move away from what they are already growing.

It was the highest yielding two-row in both official and Agri’s national trials network and in the latter it was only 3% behind Bazooka. It has average grain quality and screenings that are similar to those of Tower.

A highly consistent variety across years and regions. It is the highest yielding two-row variety on lighter soils but equally it performs well on heavier soils too. With excellent stem stiffness and medium height it may appeal most to existing KWS Glacier and KWS Tower growers although it is not quite as early to mature.

A strong disease package against the two key diseases Rhynchosporium and Net Blotch but relatively weak on Mildew so this needs monitoring. Resistant to Barley Yellow Mosaic Virus.

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**California**

2-ROW FEED

Continues to meet the requirements of the feed barley grower with its combination of high grain yield, good all-round disease resistance and good grain quality. It has an official recommendation for the West where the majority of feed barley is grown but it performs equally well across in the East and not a lot different in the North. With its good specific weight it may be accepted for pearling.

Performs well across sites and locations and some evidence to suggest that its best performance is on medium to heavier soils. It is the only two-row feed that is suitable for early drilling. It can be drilled from early September onwards but take care on fertile sites where PGR inputs may need to be adjusted.

A moderate tillering variety with a semi-erect growth habit. It develops to a similar height to KWS Cassia and has similar early maturity. With very stiff straw and good disease resistance, it continues to attract growers as a really straightforward variety to grow.

A better and more balanced disease profile that KWS Cassia. With nothing rated below a “5”, it has better resistance than KWS Cassia to Mildew, Rhynchosporium and Net Blotch – all important diseases in the wetter regions of the UK. Also resistant to the commonly occurring strains of Barley Yellow Mosaic Virus.
Other Winter Barley varieties in production

**Hyvido Volume**

HYBRID 6-ROW FEED

Now outclassed on yield by the new hybrids, Bazooka and Belfry, but will continue to have a following on farm. Very vigorous, competes strongly against Blackgrass and with very early maturity it still serves as an ideal entry for oilseed rape. It produces a tall canopy that is prone to lodging and responds well to both PGR and fungicide inputs. Suitable for early drilling.

**Carat**

2-ROW FEED

Still popular with growers. Carat produces a grain of a good specific weight that can sometimes fetch small premiums in the pearling market. Short stiff straw and of early maturity. Disease resistance is good for *Rhynchosporium* and Net Blotch but Brown Rust resistance is moderate. Resistant to Barley Yellow Mosaic Virus.

**KWS Cassia**

2-ROW FEED

Outclassed on yield but retains a strong following across the UK for its excellent straw characteristics and lovely bold grain. It still delivers the highest specific weight of any winter barley. Growers know it, it is straightforward to grow and remains an ideal choice for many mixed enterprises.

**NEW VARIETY**

**KWS Cresswell**

2-ROW FEED

Newly added to the Recommended List, KWS Cresswell appears of particular interest in the North of the country where it is the highest two-row feed type. Specific weight could be a bit better. Relatively early to mature and reasonable resistance to Mildew, Brown Rust and *Rhynchosporium* but Net Blotch resistance is poor.

**KWS Infinity**

2-ROW FEED

Produces yields that are not significantly different from KWS Orwell and KWS Glacier but slightly taller in the straw. Of average maturity and a reasonable disease profile with scores for *Rhynchosporium* and Brown Rust rated at 6. Net Blotch is a bit below par at 5.

**SY Venture**

2-ROW MALT

Remains the biggest malt variety. Performs best on heavier soils and has excellent tolerance to drought. Short and stiff so it doesn’t lodge, lean or neck. But it is quite susceptible to *Rhynchosporium* and responds well to fungicide inputs.
Winter Oats

Oats can be used as a Take-all break and as such can be a useful alternative to winter barley, often out-yielding it.

Do not grow more than one year in four. Later drilled crops can be susceptible to BYDV.

It is important to be aware that some buy-back contracts exclude the use of plant growth regulators.

Eagle

WINTER OATS – CANDIDATE

A candidate variety that has produced yields above Gerald and Mascani in official trials. Good kernel content and specific weight.

Tall and does need a full PGR programme, but earlier to mature than other varieties on the Recommended List. Both Mildew and Crown Rust resistance are rated at ‘4’.

Breeder: Saatzucht Firlbeck, Germany | UK Agent: Trevor Cope Seeds

Gerald

WINTER OATS

Remains a popular variety with both growers and end users and particularly so in the North of the country.

The variety has good winter hardiness and low screenings. Yields are a bit behind the best but its consistent performance will keep it in the market for a few more years.

Breeder: Institute of Biological, Environmental and Rural Sciences | UK Agent: Senova

Mascani

WINTER OATS

The leading variety across the UK and well-liked by end users. The best kernel content means it will continue to be the variety of choice despite relatively low yields. Good specific weight too.

Good standing ability and reasonably early to mature. Disease resistance is slightly better than others on the list.

Breeder: Institute of Biological, Environmental and Rural Sciences | UK Agent: Senova

Fusion

WINTER NAKED OATS

Currently yielding 2% above Grafton. Fusion is a semi dwarf line so produces short very stiff straw which does not require a PGR. Both Mildew and Crown Rust need monitoring.

Breeder: Institute of Biological, Environmental and Rural Sciences | UK Agent: Senova

Grafton

WINTER NAKED OATS

The earliest to mature of the varieties, Grafton does require a PGR programme as the straw is of moderate strength. Better screenings than Fusion and a good specific weight. Weak on Mildew but average for Crown Rust.

Breeder: Institute of Biological, Environmental and Rural Sciences | UK Agent: Senova

Beacon

WINTER NAKED OATS

Very limited availability for Autumn 2017. Beacon is a new variety that is currently 2% above Grafton in trials. Improved disease resistance with a very good rating for Mildew but average for Crown Rust. Screening levels and specific weight are good. Straw height and strength are very similar to Grafton.

Breeder: Institute of Biological, Environmental and Rural Sciences | UK Agent: Senova

Naked Oats

Naked Oats as the name implies, are harvested free from husk. The Naked Oat grain is naturally higher in oil and protein which provides it with a greater nutritional density than any other cereal. This has led to particular demand from the animal feed industry, including poultry and wild bird food. Demand currently outweighs supply.

GB Seeds are the specialist seed business of Agrii and are the leading company in the marketing and trading of Naked Oats in the UK. We are continuing to develop both new varieties and new end markets for Naked Oats.

Naked Oats are exclusively on buy-back contracts and can be grown where traditional oats are grown. They do require a little more care and attention particularly at establishment and harvesting, as with any niche crop.

However, because of the strong demand and end market value there are some very attractive premium contracts available.

Please contact Skye van Heyzen at GB Seeds on 01284 729200 or skye.vanheyzen@agrii.co.uk for more information.
Rye has become increasingly important for biogas production to complement maize in the South and beet in the North.

**Forage rye**
Drill in August to early October.
Livestock farmers have for years squeezed in a winter crop of forage rye before drilling maize the following spring. Forage rye is drilled in autumn at around 150 kg/ha. It can be grazed over winter or cut in April/May.
Yields of 6 t dm/ha have been achieved although as the name suggests this tends to be leafier than the new grain hybrids grown for wholecrop. It can also be used as a cover crop scavenging N, maintaining soil structure and suppressing weeds.

**Winter rye**
Drill from September to December.
Winter rye varieties for AD production are mostly hybrids although conventional varieties exist. Autumn drilling and summer harvesting sit easier with arable rotations and are regularly used for Blackgrass reduction.
Varieties recommended by Agrii are available with Take Off and Deter except Performer which is Deter only.

- **Helltop**
  The stiffest variety and fastest to develop in autumn and spring. Drill at lower seed rates in September but clearly the best variety for later drilling.

- **KWS Progas**
  Benefits from a higher input system. Tall like Helltop but not as stiff. Brown Rust needs watching. Not a prolific tillerer so keep seed rates up.

- **KWS Daniello**
  The best of the KWS varieties for grain / silage production. Development time is similar to Magnifico which it outyields. Use instead of Magnifico and Progas in the North.

- **SU Performer**
  The best of the SU varieties. Stiffer than Drive having a lot of shorter tillers.

**Spring Rye**
Drill from February to April.

- **Arantes**
  Arantes is a conventional variety which is drilled at 100kg / ha and used really if you have a failure with winter rye or you failed to get your winter rye crop in. Harvest is about four weeks later than winter rye and yields are like spring barley 8-9 t dm / ha.

**The issues which you should consider when selecting a rye variety:**

1. **When do I want to drill?**
   There is a big difference in the autumn and spring speed of development of varieties. Don’t drill a slow developer late. See guide below.

2. **How low can I take my seed rate?**
   Hybrid rye seed is expensive and should not be wasted. However, all things considered we think 1.8m seeds / ha should be the minimum if drilling is early and conditions good. Increase for later drilling towards 2.7m seeds / ha for late October drilling.

3. **Should I use Deter?**
   Most crops in England and Wales are treated with Deter to reduce aphid numbers and thereby BYDV. Deter cannot be applied in Germany so treatment must be done here in the UK. This will mean that Deter treated seed will not normally be available until mid/late September.

4. **How many growth regulators should I apply?**
   Rye seems capable of getting back up again and the use of growth regulators has undoubtedly diminished since we started growing the crop. However, using them to manipulate tiller number is being studied in detail by Agrii. Ask your agronomist for the latest guidelines.

5. **How bad will the Brown Rust be?**
   Bad! And we are seeing increased Yellow Rust too. Even the best varieties are very susceptible so in practice you are going to have to be very vigilant.

6. **When do I harvest rye?**
   You will have a target dry matter in your production contract but hitting it across a large area of rye is impossible. The crop dries down very quickly in late June but also puts on a huge amount of weight as the grain hardens. Our advice is to treat rye with a specialist AD additive such as Pioneer’s 11CH4 which will preserve springy drier rye and aid lignin breakdown.

Varieties shown in order of development

- **SLOWEST**
  - Daniello
  - Magnifico
  - Cossini
  - Progas
  - Santini
  - Performer
  - Bono
  - Helltop

- **FASTEST**
Seed Treatments for Autumn 2017

**Deter** (clothianidin) for winter barley, oats and rye

Deter is the most widely used insecticide seed treatment. It can be used to take pressure off autumn workloads by reducing the need for an early aphicide spray and helping with the initial control of slugs.

With milder winters and wetter summers, BYDV is becoming a greater risk for winter barley in the UK and especially as pyrethroid resistance increases. Deter is co-applied with dust reduction agent to limit dust-off during drilling as part of Bayer’s SureStart stewardship programme and all Deter treated seed must be drilled before 1st January.

**Redigo Pro** (prothioconazole + tebuconazole) for winter oats and rye

Redigo Pro is a proven combination of two triazoles that optimise the control of Fusarium, Loose Smut, Bunt and Blue Moulds and reduces the germination capacity of Ergot.

Bayer introduced the formulation two years ago with improved handling characteristics and reduced dust. It is widely compatible with other treatments.

**Austral Plus** (tefluthrin + fludioxonil) for winter barley and oats

An insecticide seed treatment that provides a zone of protection around the seed which repels or kills wheat bulb fly or wireworm that attack crops below ground level. Attacks that occur at the soil surface may not be prevented. It also controls the most seed-borne diseases.

**Signal** (cypermethrin) for winter barley

An alternative to Austral Plus that can be co-applied with other single purpose treatments.

**Take Off** (phosphite PGA) for winter barley, oats and rye

Designed to maximise the nutrient efficacy in the soil environment. Trials have demonstrated greater root mass and greater uniformity of establishment often leading to improved yields in difficult conditions.

The specially formulated patented plant metabolite PGA (pyro-glutamic acid) ensures that the plant has an additional source of phosphorus through the critical period of the first 5 to 6 weeks of crop establishment.

Treated seed on-farm should always be handled with caution and thought for the environment. Users must handle treated seed as they would any other pesticide and should always wear the appropriate protective clothing and equipment. To manage the risk of dust, always handle treated seed with care. Avoid pouring the seed from height and ensure all seed is covered by soil and spillages are cleared away.

---

**Seed Nutrient**

Redigo Pro

Deter

Austral Plus

Signal

Take-Off PGA

i-Man (manganese)

BARLEY SEED TREATMENT

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Treatment Type</th>
<th>Treatment Type</th>
<th>Treatment Type</th>
<th>Treatment Type</th>
<th>Treatment Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redigo Pro</td>
<td>SDP</td>
<td>Deter</td>
<td>Multipurpose</td>
<td>Signal</td>
<td>Latitude</td>
</tr>
<tr>
<td>Austral Plus</td>
<td></td>
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<tr>
<td>Signal</td>
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<td>Latitude</td>
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<tr>
<td>Take-Off PGA</td>
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<tr>
<td>i-Man (manganese)</td>
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</tbody>
</table>

= Control, (✓) = Partial control or suppression

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**OATS SEED TREATMENT**

<table>
<thead>
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<th>Treatment Type</th>
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<tr>
<td>Austral Plus</td>
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<td></td>
</tr>
<tr>
<td>Signal</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Take-Off PGA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i-Man (manganese)</td>
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</tr>
</tbody>
</table>

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Farm Saved Seed Processing Service

Our fleet of 32 Mobile Seed Processing Vehicles offers nationwide coverage.

Agrii’s modern high capacity mobile units are equipped with high specification batch treaters which ensure an accurate and even chemical application.

We offer the full range of seed treatments, many of which have been trialled through our nationwide network of iFarms.

We have permanent Agrii staff who are experienced, fully trained and qualified in all aspects of seed processing and seed treatment application technology.

Agrii Professional Bulk Cleaning Service

Providing a solution to many contaminant problems and increasing the marketability of your crop.

Two different cleaning systems:

1. Bulk Cleaning
   Cleans and grades all combinable crops whilst leaving valuable screenings on farm. Speciality is achieving screening and retention specifications for malting barley and large scale cleaning operations.

2. Bulk Colour Separation
   Screening and precise digital colour separation of contaminants. Primarily used for ergot removal from cereals and cleaning discoloured peas and beans. Both machines are supplied with very experienced and qualified operators.

Please contact Richard Hill at our Stafford office for prices and availability.

For any further information on how Agrii’s Farm Saved Seed team can assist you please call your local Agrii specialist or:

Mark Taylor
National Farm Saved Seed Business Manager
Mobile: 07836 527251
mark.s.taylor@agrii.co.uk

Hugh Boswell
Farm Saved Seed Sales Coordinator
Tel: 01227 753723
Mobile: 07740 926119
hugh.boswell@agrii.co.uk
Grain Marketing

The marketing of feed and malting barley, oats and rye is significantly more difficult than marketing wheat. There are no UK based futures markets and consumers are fewer, as a consequence the market may be discontinuous and erratic.

In order to support our farmer customers and maximise returns through grain sales as well as agronomy, Agrii have well established partnerships with two leading grain marketing companies and our own in house grain company which deals in speciality crops, GB Seeds.

Scotgrain
In Scotland Agrii have a partnership with Scotgrain Agriculture, the grain procurement division of Baird’s Malt. The markets in Scotland are significantly different from that in the rest of the UK, having a partner who understands and is integrated into that market is essential to get the best returns for our farmer suppliers.

Agrii’s Scottish iFarms network allows us to select varieties best suited to the challenging climate, and quality data from Scotgrain allows us to focus on those lines suited to the needs of the Scottish consumer.

Glencore
In England and Wales, Agrii works in partnership with Glencore Agriculture, a worldwide trader and consumer of cereals, pulses and oilseeds.

Glencore have extensive links with maltsters both in the UK and Europe, highlighted by the joint Agrii / Glencore initiative as sole suppliers to Budweiser, the largest selling beer in the world. Glencore also account for a significant proportion of the feed barley market, either to feed manufacturers or exported through its network of port facilities.

Agrii’s variety selection, coupled with Glencore’s detailed knowledge of markets, gives growers a selection of low risk, high output crop options. Growers can also use the Grainman sales and account management system to obtain prices and accept bids, view samples and monitor grain movements and payments.

GB Seeds
GB Seeds, a wholly owned subsidiary of Agrii, contract oats, rye, wheat, pulses and oilseeds as well as imported exotic species such as Canary seed and Niger. GB Seeds is also known for the Superioat brand which dominates this rapidly increasing market.

Maximising returns

Feed barley
Selling feed barley correctly is one of the more challenging tasks a farmer faces, as there is no futures market and no set relationship with another crop such as wheat. Also consumers and shippers are not always keen to buy. Increases in spring barley and hybrid barley plantings have increased supply without a corresponding increase in demand.

Feed barley is an ideal crop to work with Agrii on a planned marketing campaign to maximise income, either by setting a target price or committing to a pool.

Winter Malting Barley
Winter malting barley has almost become a niche crop in recent years with producers concentrated around processors in the East. With the exception of one or two heritage varieties (where contract premiums reflect the risk), premiums tend to be lower than spring types and setting the best possible base price becomes the most important factor. As with feed barley, setting target prices and working with your Agrii grain partner or committing to a pool is the best policy.

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Grain Rye
The rye market has traditionally revolved around the Ryvita contract, but the area contracted has reduced over recent years and other markets from health foods to pig nutrition have developed. It would be speculative in the extreme to grow rye without a contract, but may be an interesting diversification for the light land farmer working with a marketing partner such as GB Seeds.

For a more personalised approach to your crop marketing make sure you talk to one of our agronomists or our Crop Marketing Department.

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Covered Oats
Increasingly the major oat millers are moving towards contracting their production with over 80% now sourced in this way, which makes growing oats without a contract a high risk strategy. Most contracts link the oat price to wheat so that the value can be easily viewed and fixed if desired. Oats grown without contract have no such relationship and can default to the export value which can be a substantial discount to the contract value.

Naked Oats
Naked oats are grown on contract for a variety of specialist users from wild bird food, horse feed, broiler rations and premium human markets. Contracted through GB Seeds, naked oats are priced at a substantial premium to covered oats to allow for the lower yield, using wheat as the base price. The contract is constructed to reward storage, with the premium increasing through the year to allow farmers to earn money from storage, both from the carry in the wheat price and from the increased premium.

Storage considerations
Contracts for premium crops frequently require extended collection periods, so when considering growing a crop with terms such as ‘October to June at Buyers call’ such as oats, plan your storage accordingly and consider whether you can condition the crop if storing for an extended period. If farm assurance expires in mid autumn, and other crops be moved to generate flow cash flow.

Specific movement requirements can often be accommodated if expressed at the point of contracting, so do not have to be prohibitive.
### Winter Barley 1
**2-ROW MALTING & 2-ROW FEED VARIETIES**

<table>
<thead>
<tr>
<th>C</th>
<th>Yield control variety</th>
<th>P1, P2 First and second year of recommendation</th>
<th>* Variety no longer in trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Craft</td>
<td>SY Venture</td>
<td>Tulliamain</td>
</tr>
<tr>
<td>P2</td>
<td>P1</td>
<td>C</td>
<td>P2</td>
</tr>
<tr>
<td>Scope of recommendation</td>
<td>UK</td>
<td>UK</td>
<td>UK</td>
</tr>
<tr>
<td>Main market options</td>
<td>IBD malting approval for brewing use</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>UK yield as % treated control (9.4 t/ha)</td>
<td>98</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Without fungicide treatment</td>
<td>79</td>
<td>72</td>
<td>77</td>
</tr>
<tr>
<td>Agronomic features</td>
<td>Resistance to lodging</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Straw height (cm) (no PGR)</td>
<td>(95)</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>Straw height (cm) (with PGR)</td>
<td>90</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Ripening ‡</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Winter hardiness*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Resistance to disease</td>
<td>Mildew</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Yellow Rust</td>
<td>(8)</td>
<td>(7)</td>
</tr>
<tr>
<td></td>
<td>Brown Rust</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Rhynchosporium</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Net blotch</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>BarMV</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Grain quality</td>
<td>Specific weight (kg/hl)</td>
<td>69.0</td>
<td>69.5</td>
</tr>
<tr>
<td></td>
<td>Screening % through 2.25mm</td>
<td>1.8</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>Screening % through 2.5mm</td>
<td>4.9</td>
<td>9.2</td>
</tr>
<tr>
<td></td>
<td>Nitrogen content (%)</td>
<td>1.64</td>
<td>1.64</td>
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</table>

‡ Days earlier or later than Cassata, where negative figures are earlier.

### Winter Barley 2
**2-ROW FEED & 6-ROW FEED VARIETIES**

<table>
<thead>
<tr>
<th>C</th>
<th>Yield control variety</th>
<th>P1, P2 First and second year of recommendation</th>
<th>H Hybrid variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Craft</td>
<td>KWS Glacer</td>
<td>KWS Town</td>
</tr>
<tr>
<td>P2</td>
<td>P1</td>
<td>H</td>
<td>P1</td>
</tr>
<tr>
<td>Scope of recommendation</td>
<td>UK</td>
<td>UK</td>
<td>West</td>
</tr>
<tr>
<td>Main market options</td>
<td>IBD malting approval for brewing use</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UK yield as % treated control (9.4 t/ha)</td>
<td>102</td>
<td>102</td>
<td>98</td>
</tr>
<tr>
<td>Without fungicide treatment</td>
<td>80</td>
<td>79</td>
<td>81</td>
</tr>
<tr>
<td>Agronomic features</td>
<td>Resistance to lodging</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Straw height (cm) (no PGR)</td>
<td>88</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Straw height (cm) (with PGR)</td>
<td>84</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>Ripening ‡</td>
<td>-1</td>
<td>0</td>
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<tr>
<td></td>
<td>Winter hardiness*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Resistance to disease</td>
<td>Mildew</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Yellow Rust</td>
<td>(8)</td>
<td>(8)</td>
</tr>
<tr>
<td></td>
<td>Brown Rust</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Rhynchosporium</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
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<td>1.8</td>
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<tr>
<td></td>
<td>Screening % through 2.5mm</td>
<td>8.0</td>
<td>5.6</td>
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<tr>
<td></td>
<td>Nitrogen content (%)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

† Days earlier or later than Cassata, where negative figures are earlier.

* The winter hardiness scores are taken from extreme tests in the Jura mountains of France. A high figure on the 1-9 scale indicates that a variety shows the character to a high degree. ( ) Limited data.

R Resistant to Barley Mild Mosaic Virus (BaMMV) and to Barley Yellow Mosaic Virus (BaYMV) strain 1.

Varieties no longer listed: Daxor, Escadre, KWS Meridian and Saffron.

Varieties are in order of highest UK treated yield within end-use groups. Comparisons across regions are not valid.
## Winter Barley 3
### RECOMMENDED FOR SCOTLAND

<table>
<thead>
<tr>
<th>R</th>
<th>Recommended for general use</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1, P2</td>
<td>First and second year of recommendation</td>
</tr>
<tr>
<td>O</td>
<td>Becoming outclassed</td>
</tr>
<tr>
<td>S</td>
<td>Specific use variety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Craft</th>
<th>Cassata</th>
<th>Real</th>
<th>KWS Comwell</th>
<th>KWS Zewit</th>
<th>KWS Infinity</th>
<th>KWS Tower</th>
<th>KWS Glacier</th>
<th>KWS Canada</th>
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</table>

<table>
<thead>
<tr>
<th>Malting approval assessed by the Malting Barley Committee</th>
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</table>

<table>
<thead>
<tr>
<th>Yield as % treated control (8.9 t/ha)</th>
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</thead>
<tbody>
<tr>
<td>With fungicide treatment</td>
</tr>
<tr>
<td>98</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suitability for light soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
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</table>

<table>
<thead>
<tr>
<th>Suitability for heavy soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>97</td>
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</table>

## Winter Barley 4
### RECOMMENDED FOR SCOTLAND

<table>
<thead>
<tr>
<th>P1, P2</th>
<th>First and second year of recommendation</th>
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<tbody>
<tr>
<td>O</td>
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</tr>
<tr>
<td>S</td>
<td>Specific use variety</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Funky</th>
<th>KWS Meridian</th>
<th>Sunningdale</th>
<th>Bazooka</th>
<th>Belfry</th>
<th>Volume</th>
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<tbody>
<tr>
<td>Year first listed</td>
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<table>
<thead>
<tr>
<th>Malting approval assessed by the Malting Barley Committee</th>
</tr>
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<tbody>
<tr>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield as % treated control (8.9 t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With fungicide treatment</td>
</tr>
<tr>
<td>107</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suitability for light soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>108</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suitability for heavy soils</th>
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</thead>
<tbody>
<tr>
<td>105</td>
</tr>
</tbody>
</table>

## Agronomic features

### Straw strength

<table>
<thead>
<tr>
<th></th>
<th>8</th>
<th>7</th>
<th>7</th>
<th>7</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
</table>

### Straw length (cm) with PGR

| | 90 | 88 | 87 | 90 | 91 | 84 | 91 |

### Maturity

| | 0 | -1 | 0 | 0 | 0 | -1 | 0 |

### Resistance to disease

#### Mildew

| | 6 | 5 | 4 | 5 | 4 | 4 |

#### Rhynchosporium

| | 6 | 6 | 6 | 5 | 4 | 7 | 6 |

#### Net Blotch

| | 7 | 4 | 6 | 5 | 4 | 7 | 6 |

#### Ramularia % (low % = more resistant)

| | 5 | 5 | 5 | 4 | 5 | 4 | 5 |

## Grain quality

### Specific weight (kg/hl)

| | 69.0 | - | 67.1 | 67.3 | 67.5 | 67.0 | 68.8 | 70.5 |

### Screenings < 2.5mm

| | 4.9 | - | 8.7 | 6.1 | 8.3 | 5.6 | 8.0 | 5.4 |

---

A high figure on the 1-9 scale indicates that a variety shows the character to a high degree.‡ Days earlier or later than Cassata, where negative figures are earlier.✚ Varieties no longer on the AHDB Recommended List: Cassata and Pearl.◆ P = Provisional approval.

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A high figure on the 1-9 scale indicates that a variety shows the character to a high degree.‡ Days earlier or later than Cassata, where negative figures are earlier.✚ Varieties no longer on the AHDB Recommended List: KWS Meridian.
## Winter Oats 1
### RECOMMENDED LIST

<table>
<thead>
<tr>
<th>Variety</th>
<th>P1</th>
<th>P1</th>
<th>P2</th>
<th>P2</th>
<th>C</th>
<th>C</th>
<th>C</th>
<th>P1</th>
<th>Fusion</th>
<th>Bacon</th>
<th>Graflex</th>
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<tr>
<td>Mascani</td>
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<tr>
<td>Peloton</td>
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<td>8</td>
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<tr>
<td>Fusion</td>
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<td>8</td>
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</table>

### Agronomic features
- **Resistance to lodging**: 3, 5, 6, 6, 4, 5, 5, 7, 6, 8, 6, 6
- **Straw height (cm)**: 120, 120, 110, 112, 120, 116, 115, 112, 83, 115, 116
- **Ripening**: -1, +1, -1, -2, -1, +2, 0, 0, +2, 0, -2

### Resistance to disease
- **Mildew**: 4, 5, 4, 4, 6, 4, 5, 6, 6, 3, 5, 5
- **Crown Rust**: 8, 5, 4, 6, 4, 5, 6, 6, 3, 5, 5

### Grain quality
- **Specific weight (kg/hl)**: 52.8, 50.3, 51.6, 52.7, 54.4, 53.6, 54.4, 65.9, 64.1, 65.6, 65.3
- **Screening % through 2mm**: 6.8, 2.7, 9.1, 5.0, 3.4, 3.2, 3.1, 26.4, 38.4, 16.9, 17.0
- **Kernel content (%)**: 74.2, 75.9, 76.8, 75.9, 75.8, 73.8, 78.0, - - -

<table>
<thead>
<tr>
<th>Variety</th>
<th>P1</th>
<th>P1</th>
<th>P2</th>
<th>P2</th>
<th>C</th>
<th>C</th>
<th>C</th>
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<th>Fusion</th>
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</tbody>
</table>

### Agronomic features
- **Resistance to lodging**: 3, 5, 6, 6, 4, 5, 5, 7, 6, 8, 6, 6
- **Straw height (cm)**: 120, 120, 110, 112, 120, 116, 115, 112, 83, 115, 116
- **Ripening**: -1, +1, -1, -2, -1, +2, 0, 0, +2, 0, -2

### Resistance to disease
- **Mildew**: 4, 5, 4, 4, 6, 4, 5, 6, 6, 3, 5, 5
- **Crown Rust**: 8, 5, 4, 6, 4, 5, 6, 6, 3, 5, 5

### Grain quality
- **Specific weight (kg/hl)**: 52.8, 50.3, 51.6, 52.7, 54.4, 53.6, 54.4, 65.9, 64.1, 65.6, 65.3
- **Screening % through 2mm**: 6.8, 2.7, 9.1, 5.0, 3.4, 3.2, 3.1, 26.4, 38.4, 16.9, 17.0
- **Kernel content (%)**: 74.2, 75.9, 76.8, 75.9, 75.8, 73.8, 78.0, - - -

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## Winter Oats 2
### RECOMMENDED FOR SCOTLAND

<table>
<thead>
<tr>
<th>Variety</th>
<th>R</th>
<th>P2</th>
<th>Recommended for general use</th>
<th>P2</th>
<th>Second year of recommendation</th>
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</thead>
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<td>R</td>
<td>P2</td>
<td>Recommended for general use</td>
<td>P2</td>
<td>Second year of recommendation</td>
</tr>
<tr>
<td>Peloton</td>
<td>R</td>
<td>P2</td>
<td>Recommended for general use</td>
<td>P2</td>
<td>Second year of recommendation</td>
</tr>
<tr>
<td>Fusion</td>
<td>R</td>
<td>P2</td>
<td>Recommended for general use</td>
<td>P2</td>
<td>Second year of recommendation</td>
</tr>
</tbody>
</table>

### Agronomic features
- **Straw strength**: 6, 5, 4
- **Straw length (cm)**: 112, 116, 120
- **Maturity**: -2, +2, -1

### Resistance to disease
- **Mildew**: 4, 3, 3
- **Crown Rust**: 6, 5, 4

### Grain quality
- **Specific weight (kg/hl)**: 52.7, 53.6, 54.4
- **Screening % < 2mm**: 5.0, 3.2, 3.4
- **Kernel content (%)**: 75.9, 73.8, 75.8

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A high figure on the 1-9 scale indicates that a variety shows the character to a high degree.

‡ Days earlier or later than Mascani, where negative figures are earlier.

(*) Limited data.

A race of Crown Rust has been identified which may affect Mascani.

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FINANCE

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+ Achieves better utilisation of inputs
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