



KWS TARDIS

Grower's Guide

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Content

04 Introduction

06 Varietal Characteristics

06 What makes KWS Tardis different?

07 Disease resistance and agronomy of KWS Tardis

08 Standing ability

09 KWS Tardis in trials

10 Crop Management Strategies

10 PGR Strategy

11 Optimum seed rates

11 Fertiliser requirements

13 Application timings

13 Additional nutrients

14 Further Information

14 Grower testimonial

15 Key contacts

Introduction

Grower's Guide

This guide is intended to give growers and advisors the latest information to get the most out of your KWS Tardis winter barley in this growing season. Rather than being a step-by-step protocol as such, it is more of a guide, looking at the strengths of KWS Tardis and how best to use that information when tailoring it to individual needs. The guide covers regional performance, yield potential, crop management strategies and agronomic performance for you to make informed decisions.

KWS Tardis, the 2-row winter feed variety that's already become the nation's favourite 2-row. It's one of the UK's highest yielding 2-row winter feed barley, with a performance that rivals some 6-row hybrid and conventional types. It is especially

performance that rivals some 6-row hybrid and conventional types. It is especially strong in the East (104%) and, thanks to its super stiff straw, performs well on heavy land where it delivers yields of 106% controls.

But it doesn't stop there, KWS Tardis has an excellent disease package, boasting 6 for Rhynchosporium and 6 for net blotch and one of the best untreated yields available (85% treated controls). It's also early to mature (0 days +/- KWS Orwell) and delivers marketable grain with a very good specific weight (70.1 kg/hl) and low screenings.

All data from **ADHB Winter Barley Recommended List 2024/25** unless otherwise

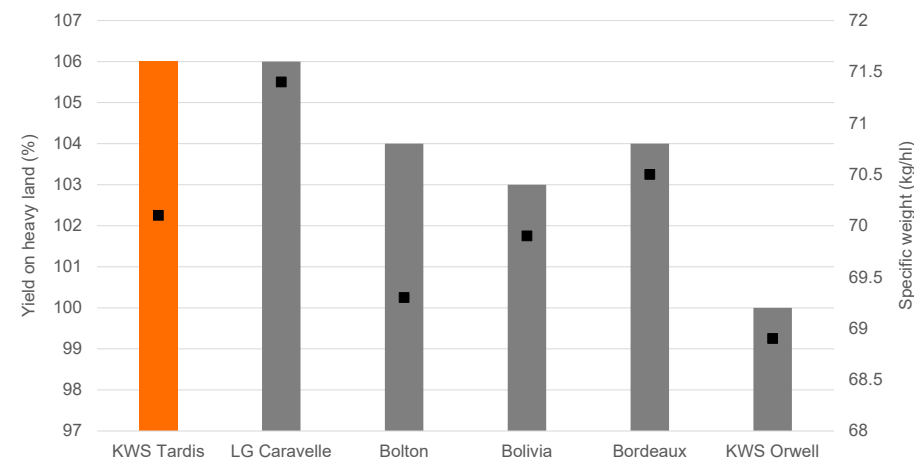


Varietal Characteristics

What makes KWS Tardis different?

KWS Tardis has really shone on heavier land, compared to many other varieties on the Recommended List, conventional and hybrids included. It has the best combination of yield on heavier soils and spec weight on the 2024/25 RL.

Barley is generally more susceptible to overwinter plant loss than wheat. Overwinter survival is site dependent. Losses can occur from frost heave, waterlogging, and direct frost effects, as well as pests. Shallow, late sowing, low seed rates and manganese deficiency increase the risk of losses. This is why KWS Tardis is a firm choice in heavier conditions.



Data Source: ADHB Winter Barley Recommended List 2024/25

Growers' View

“ KWS Tardis is an excellent 2-row feed barley. It has great early vigour. It has performed especially well on heavy land this year, despite the biblical weather challenges. It's got a good disease package, with good scores for Net blotch, Mildew and Rhynchosporium - Brown Rust is not so much of an issue in my area. KWS Tardis is a safe bet all-round, it reduces risk and gives piece of mind too. **Alexander Silverwood, Clitheroe, Bedfordshire** ”



Disease resistance and agronomy of KWS Tardis

Disease resistance is very important when it comes to Winter Barley, it helps to ensure the health and the productivity of the crop. There are lots of factors that contribute to why disease resistance is so important but the main one is yield protection, if the crop is able to withstand higher disease pressure, then this will result in higher yields.

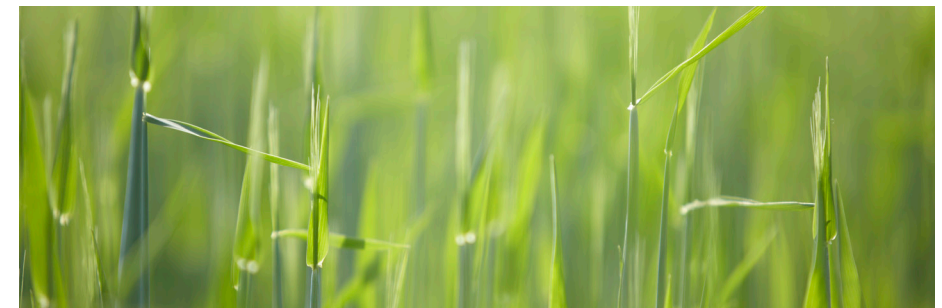
Another important factor is risk management, when you have a variety with high disease resistance you can reduce dependency on chemicals. With more chemicals being banned as we go forward, KWS continue to try hard to build resistance into our winter barley varieties.

KWS Tardis has an excellent disease package, boasting 6 for Rhynchosporium and 6 for net blotch and one of the best untreated yields available (85% treated controls). It's also early to mature (0 days +/- KWS Orwell).

	Untrt Yield (% Untrt Controls)	Mildew	Brown Rust	<i>Rhynchosporium</i>	Net Blotch	BaYMV
KWS Tardis	85	5	6	6	6	R
Bolton	86	6	7	5	5	R
Bordeaux	82	6	6	4	5	R
LG Mountain	84	6	7	5	4	R

Data Source: ADHB Winter Barley Recommended List 2024/25

In summary, disease resistance in winter barley is a multifaceted advantage that encompasses yield protection, crop health, environmental sustainability, risk management, and market considerations. As the agricultural industry continues to prioritize sustainable practices, disease-resistant varieties play a crucial role in achieving resilient and productive cropping systems.





Standing Ability

Standing ability, or the capacity of a crop to remain upright and resist lodging, is particularly crucial in winter barley. To enhance standing ability, factors such as variety selection, fertilisation practices, and overall crop management are critical. Choosing barley varieties with strong straw and lodging resistance, managing nutrient levels appropriately, and implementing sound agronomic practices contribute to maintaining a healthy and standing crop throughout the growing season.

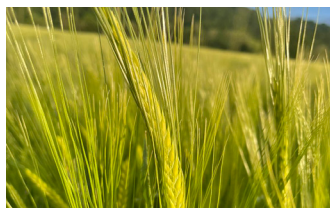
KWS Tardis follows the KWS trend of stiff varieties, like KWS Orwell it stands exceptionally well compared to other 2 row conventional barleys and also against many hybrid competitors.

	Earliness (+/- KWS Orwell)	Lodging % -PGR	Lodging % +PGR	Height -PGR (cm)	Specific Weight (kg/hl)
KWS Tardis	0	1	0	97	70.1
Bolton	0	1	1	95	69.3
Bordeaux	0	1	1	95	70.5
LG Mountain	-1	5	3	94	70.5
LG Caravelle	0	[2]	2	93	71.4

Data Source: ADHB Winter Barley Recommended List 2024/25



Adrian Jones, Clawdd Coch Farm



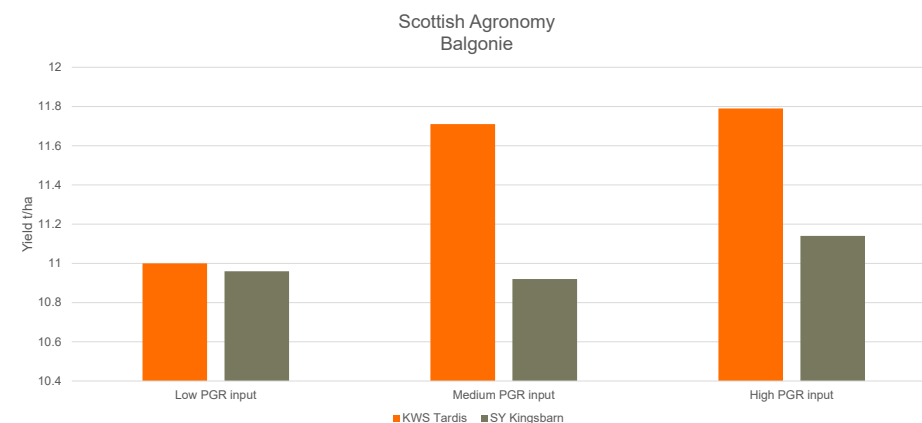
KWS Tardis is a firm farm favourite for winter barley growers. It has super stiff straw with twin 8s for standing, meaning it performs very well on heavy land where it delivers 106% controls.



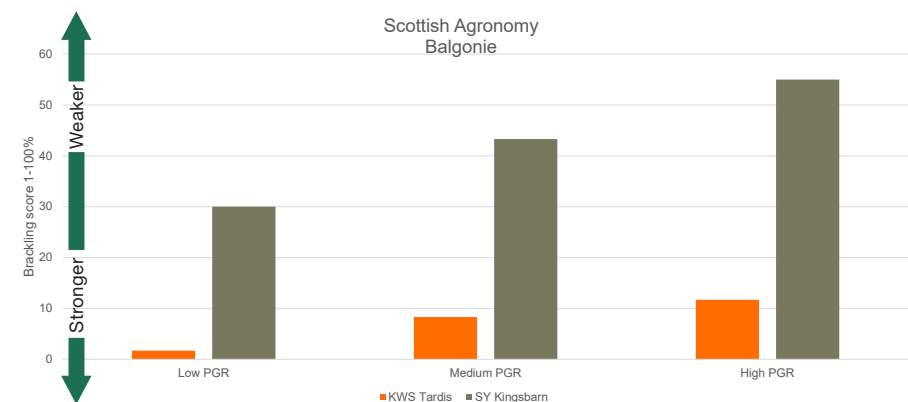
KWS Tardis in trials

KWS and Scottish Agronomy run a series of trials in Scotland every year looking at different topics. Harvest 2023 saw us comparing 2-row varieties with hybrid varieties, putting in different levels of PGR to see the reaction from them both in a potentially high brackling position. With the weather we had in 2023, it was a high brackling year with lots of crops suffering from rainfall before the harvester could get to them.

The two graphs below compare KWS Tardis to a popular hybrid variety in Balgonie, Scotland. Yield results are demonstrated in Graph 1 and brackling % in Graph 2 - all results are from the same trial.



Graph 1. Data Source: Scottish Agronomy Trials 2023



Graph 2. Data Source: Scottish Agronomy Trials 2023

Crop Management Strategies

PGR Strategy

As stated above when talking about KWS Tardis' standing power, it is one of the stiffer varieties on the Recommended List, so therefore when it comes to PGR applications, it will not be a too different approach to many other 2-row conventional winter barleys.



Adapt to growing conditions

Adjust PGR application rates and timing based on the prevailing weather and growing conditions. Weather, particularly temperature and rainfall, can influence crop growth and may require adaptation of the PGR strategy and also against many hybrid competitors.

Consider Nitrogen management



PGR effectiveness is often linked to nitrogen management. Ensure that nitrogen application is well-managed to balance crop nutrition and minimize the risk of lodging.

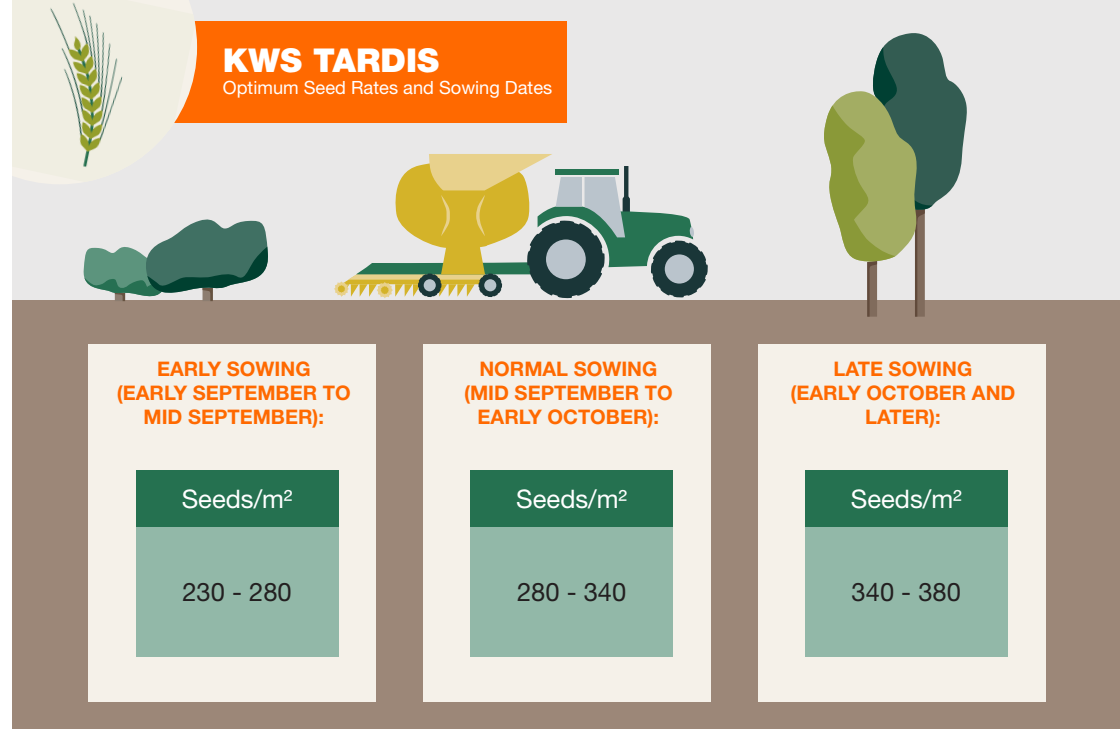


Monitor crop height

Regularly monitor crop height throughout the growing season. Adjust PGR strategies if the crop is deviating significantly from the desired height targets.

It's important to note that PGR strategies can vary based on regional conditions, specific barley varieties, and evolving research findings. Farmers should stay informed about the latest research and recommendations from BASIS qualified advisors.

Jason Brain, A D Brain & Son



KWS Tardis will be just like other winter barleys when you are thinking about when to sow and at what seed rate. The infographic above is a guideline, based on the East. What you choose to do will largely depend on personal experience, the location of your farm, soil type and weather conditions at the time of sowing.

Fertiliser Requirements and Application Timing

Nitrogen

KWS Tardis will be like any conventional winter feed barley variety in terms of nitrogen applications, so if you are familiar with growing winter barley on your farm, much the same approach should be taken with KWS Tardis. Here are some guidelines for a healthy reminder.

Fields can vary widely in the amount of nitrogen available to a crop before any fertiliser or manure is applied. This variation must be considered to avoid inadequate or excessive applications of nitrogen. There are multiple ways to calculate your Soil Nitrogen Supply (SNS). Consult your FACTS qualified advisor before applying any fertiliser.

Research has shown evidence of a correlation between yield and crop nitrogen demand, supporting the adjustment of nitrogen rates for expected yield and when site history indicates consistently below or above average yields. If you farm in an NVZ, you will be expected to have written evidence from at least two previous crops. If you don't farm in an NVZ, then a sensible approach would be to take the last five years field specific yields, discard the highest and lowest and take an average of the remaining three years.



James Willox, Birchwood Farm

Where previous experience of growing winter feed barley indicates that yields above 6.5t/ha can be realistically expected, increasing the recommended rate by 10 kg N/ha for each 0.5 t/ha additional yield, up to a maximum of 11t/ha, could be justified. Similarly, for low-yielding crops, the recommended rate could be reduced by 10 kg N/ha for each 0.5 t/ha reduction in expected yield.

However, it is important to consider factors that limit yield e.g., soil structural condition, seedbed conditions, supply of nutrients, weed and disease pressure and growing season/climate. If any factor is limiting, a full response to nitrogen will not be obtained. (RB209, March 2022).

Timing of application

There is no requirement for seedbed nitrogen. Depending on the total nitrogen requirement and crop development, it will often be appropriate to apply nitrogen at the following timings.

Less than 100 kg N/ha: Apply as a single dressing by early stem extension (GS30-31)

Between 100 and 200 kg N/ha: Split the dressing, with half during late tillering in mid-February/early March and half at GS 30-31

200 kg N/ha or more: Apply three splits, with 40% during late tillering in mid-February/early March, 40% at GS 30-31 and 20% at GS32.

Additional nutrients

The main deficiency seen with Winter Barley is Nitrogen, so that is the most important factor to look out for. There are another 3 main deficiencies you may see in Winter Barley. These are Manganese, Magnesium and Copper.

25
Mn

Manganese

Usually not visible until the 3 leaf stage, you will typically see pale green or yellow leaves and often limp growth. If the deficiency is bad, you may see interveinal streaks along the leaf. Alkaline soils, organic soils, light sands and soils that are poorly consolidated are prone to Manganese deficiency. Soils with high levels of calcium, Iron and Magnesium can contribute to Manganese shortages.

12
Mg

Magnesium

First seen on the older leaves as paler green coloured lines running along the leaf. This symptom is easier to spot when the leaf is held up to the light. In severe cases interveinal chlorosis can coalesce at leaf margins and cause necrosis. Magnesium deficiencies occur on low pH soils, calcareous soils, light sands, and soils with a high (4+) Magnesium index.

29
Cu

Copper

Barley is the most sensitive cereal crop to Copper deficiency. It is rarely seen before May when ears are emerging and malformation can be seen. Very early copper shortages are seen first as bleaching or chlorosis (often confused with herbicide damage) of the leaf tip of cereals, severe cases result in blind grains due to reduced pollination sites. Yield is greatly reduced due to this. In severe cases barley ears are bent over – this is known as necking. The awns are bleached white in some cases. Organic alkaline soils and light sands may have copper shortage.

Growers' Testimonial



We started including winter barley into our rotation again in 2021, after a few years of not growing it. We went back to barley to spread harvest and get our rape in early. We previously grew KWS Cassia as a seed crop, but KWS Tardis looked like an ideal replacement to Cassia for us. In my experience with KWS Tardis, I have found it very vigorous, and it's very clean disease wise. It stands well and we've had zero brackling. It yielded well in 2022, and in 2023, we had a record breaker 16ha field of Tardis – dry weight of 11.2t/ha and masses of straw, we were over the moon! Lots of straw is important for us as we can sell it within the local equestrian and livestock market.

This year, despite the continual wet weather conditions, our crop of KWS Tardis looks to be coping, it's on some sandy land this time around so it's lucky!

Adrian Jones, Clawdd Coch Farm, Powys/Shropshire border



Further Information

If you need any further information or advice on growing KWS Tardis, then please email us at: info@kws-uk.com or telephone **01763 207300**.

For more about KWS UK Ltd and our other varieties, please visit our website at: www.kws-uk.com

Key Contacts

Kirsty Richards
UK Conventional Product Manager
07748 960726
kirsty.richards@kws.com

Dominic Spurrier
Commercial Lead
07776 998544
dominic.spurrier@kws.com

Olivia Potter
UK Conventional Technical Manager
07966 058875
olivia.potter@kws.com



KWS UK LTD
56 Church Street
Thriplow
Royston
Hertfordshire
SG8 7RE
www.kws-uk.com