



KWS PALLADIUM

Grower's Guide

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Introduction

KWS Palladium is the new and exciting addition to the UK domestic bread markets. It is a super clean variety with one of the highest untreated yields on the market today, thanks to its scores for *Septoria* (7.3), mildew (8), yellow rust (9) and eyespot 6. Importantly, its *Septoria* resistance has a different genetic basis to that of other commercialised Group 2 varieties.

If you are looking for an early to mature variety that is short and stiff with great resistance to sprouting KWS Palladium is the variety for you. KWS Palladium has good yield potential across all the regions and performs well in both the first (100%) and second wheat (99%) slots.

With the ever-increasing pressure on-farm to get everything done in time, fewer resources and cost top of mind, the need to add flexibility at as many points as possible into the farm business is as important as ever.

By choosing the right variety, your decision at drilling will deliver the possibilities for flexible crop management through out the season.

This guide is intended to give growers and KWS Palladium advisers the latest information to get the most out of their crop of KWS Palladium this growing season. Rather than being a stringent protocol, this guide aims to provide sufficient technical information, covering aspects such as varietal characteristics, regional performance and crop management strategies so that grain quality, yield potential and agronomic performance can be specifically tailored to your farming situation.

If you have any questions, or would like further information on our varieties, please do not hesitate to contact the KWS UK team (see back page for details).

All data is sourced from AHDB Winter Wheat RL 2024/25 unless otherwise stated.



Varietal Characteristics

KWS Palladium in a nutshell

The number of varieties growers must choose from is sometimes daunting. In terms of quality wheats, the lack of new Group 1's to the market is leaving farmers with a question to ask themselves, do I stick with the Group 1's and spend the money on chemistry to control disease? Or do I switch to a Group 2 with a more robust disease package and still get a premium? Because of this, Group 2's have increased in popularity, first with KWS Extase and now with a great partner, KWS Palladium.

What makes KWS Palladium different?

KWS Palladium is a Group 2, it is short and stiff, with good grain quality. This variety is early to mature (-1) and has a great resistance to sprouting, giving growers security at harvest. Suited to earlier drilling than KWS Extase, KWS Palladium and KWS Extase make good partners on farm for growers targeting the Group 2 market sector or adding quality grain to the feed heap. In addition, those looking to harness a milling premium, KWS Palladium is a good choice out of the current Group 2's, thanks to its ability to produce protein as a result of its decent root structure and scavenge for nutrients.



KWS Palladium, the ideas behind the cross

KWS Palladium is, in our eyes the perfect combination of both of its parents KWS Zyatt and KWS Trinity.

KWS Zyatt

KWS Zyatt, a Hereford cross, is the highest yielding Group 1 on the market. Commercial experience in the mill and bakery has shown the variety delivers excellent protein functionality. KWS Zyatt's 2nd wheat performance is what really makes it stand out in the quality wheat sector. KWS Palladium has certainly taken this rooting structure from its parent as is demonstrated on pages 10 and 11.

KWS Trinity

KWS Trinity, a Timaru cross, was once a solid Group 1 in the middle of the pack in terms of yield, it was a fantastic partner to Skyfall being slightly later maturing. It had very good resistance to yellow rust, brown rust and mildew, excellent resistance to sprouting and the highest Hagberg Falling Number of all its peers in the market.

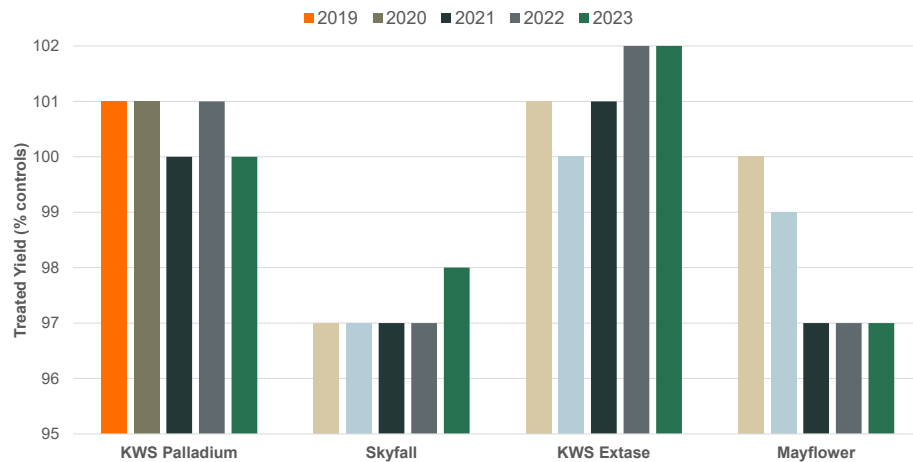




Yield Potential

KWS Palladium is a high yielding wheat from two strong milling wheat parents. The yield level is high in both the early sown window (before 25th September) and the mainstream window (end of September- end of October). This flexible sowing window makes it a great partner to KWS Extase where early drilling isn't advised. KWS Palladium has a very different Septoria resistance to KWS Extase, helping to spread that risk. This makes both varieties incredibly useful on farm as changeable weather patterns mean the autumn is unpredictable and more flexibility is needed in the system, what better place to start than with the seed.

Yield performance over very contrasting seasons



Data Source: 2023/24 AHDB Recommended List 2021/22 AHDB Winter Wheat, Table C 4 Year Report



Matt Fuller, Arable & Trials Manager, Heathcote Farms Ltd.

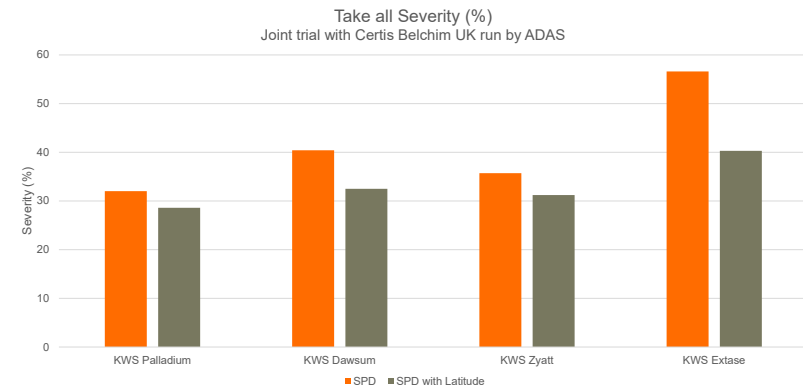
Just like KWS Extase, KWS Palladium has a very high untreated yield and this brings real flexibility to management too.



Rotation Position

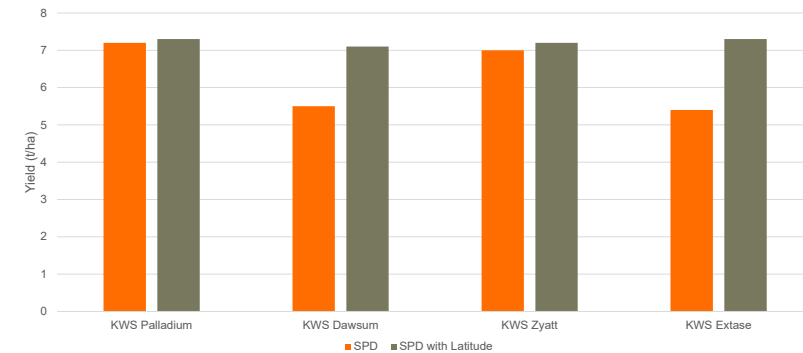
KWS Palladium is very versatile when it comes to where you position it in the rotation, performing at 100% of controls in both the first cereal and second cereal slots. From internal small plot trials and strip trials, we have seen KWS Palladium perform extremely well as a 2nd wheat against its parent KWS Zyatt, a very well established high performing 2nd wheat. The trial below was carried out by ADAS, with Belchin and KWS looking at the performance of varieties in a 2nd wheat slot with a high take all pressure. The trial was located in the West where KWS Palladium yields 101% of controls, it had 6 reps, and all 4 varieties were planted with and without latitude.

Yield Performance 2019 T/ha



The severity score was taken assessing take all infection in the roots. The graph shows KWS Palladium having the least amount of take all treated with a single purpose dressing and with latitude.

Yield graph (t/ha) – 2nd Wheat With and without Latitude seed treatment



KWS Palladium shows least difference in yield comparing SPD and SPD + latitude. Similar yielding to KWS Zyatt, a well-known 2nd wheat.

A glance at root structure



In addition to the yield results and take-all severity scores, we also took photographs of the take-all infected roots for comparison.

Discard plot

Group 2 variety single purpose dressing, high take all infection. The roots in this variety have not compensated for the stresses of take-all.

KWS Palladium

Single purpose dressing, high take-all infection. The roots of KWS Palladium have compensated for the high infection of take-all.

Discard plot

Group 2 variety single purpose dressing plus **latitude**, high take-all infection. Even with the addition of Latitude, it hasn't made much of a difference to the rooting structure and it's ability to cope with the stress.

KWS Palladium

Single purpose dressing plus **latitude**, high take all infection. The addition of Latitude to KWS Palladium has made a huge difference for the variety to cope with high levels of take-all infection.





Grain Quality



KWS Palladium offers growers security at harvest with good resistance to sprouting and excellent HFN. It has delivered excellent baking performance in our private trials over a number of seasons. Extensive end-user testing over the past 4 contrasting seasons have shown that KWS Palladium produces a good white loaf with good gluten strength and loaf volumes.

It's this reason that the variety has been selected by Warburtons as a variety on their contracts for harvest 2024.

KWS Palladium	
Grain Quality	
Protein content (%) - Milling spec	12.2
Hagberg Falling Number	305
Specific Weight (kg/hl)	77.6



Extensive end-user testing over the past 4 contrasting seasons have shown that KWS Palladium produces a good white loaf with good gluten strength and loaf volumes.

	Harvest 2018 Excellent baking year		Harvest 2019 Low protein baking year	
	KWS Zyatt	KWS Palladium	KWS Zyatt	KWS Palladium
Miller A	Control Gp 1	A*	Control Gp 1	Good
Miller B	Control Gp 1	1/2	Control Gp 1	2
Miller C	Control Gp 1	2/1	Control Gp 1	2/4
Miller D	Control Gp 1	1	Control Gp 1	-
Miller E	Control Gp 1	1/2	Control Gp 1	2/4



Crop Management Strategies

Sowing Information

KWS Palladium can be grown on a range of soil types, when looking at the recent AHDB results it suggests that KWS Palladium performs just as well on light soils as it does on heavier ones, showing the versatility of the variety. KWS Palladium was selected around the medium soils of Cambridge so we would back up its performance but there may be other specific varieties that are higher yielding in those extreme soil types. If your farm has varying soil types then you know KWS Palladium will stay consistent across farm.

Time Of Sowing And Seed Rates

KWS Palladium is not suited to early drilling. It can be sown from the 4th week of September through to mid November, depending on region. Optimum seed rates will be no different to standard UK wheats, where a spring plant population of 260 plants per square metre remains the target. As a vigorous developer, This early to mature variety (-1) is short and stiff with great resistance to sprouting, giving growers security at harvest.

1ST- 3RD WEEK SEPTEMBER

Not recommended to be sown at this time

KWS Palladium has a vigorous growth

4TH WEEK SEPTEMBER - EARLY OCTOBER

CONDITIONS	SOIL TYPE
Good Seed Bed 300-350	Light 300-325
Poor Seed Bed 350-375	Heavy 325-350

Main drilling window for UK milling wheats.

MID-LATE OCTOBER

CONDITIONS	SOIL TYPE
Good Seed Bed 350-375	Light 350-375
Poor Seed Bed 375-400	Heavy 350-400

KWS Palladium's early maturity and speed of growth habit makes this an ideal sowing slot for the variety.

LATE OCTOBER - EARLY NOVEMBER

CONDITIONS	SOIL TYPE
Good Seed Bed 350-400	Light 350-375
Poor Seed Bed 400-425	Heavy 400-450

Getting into the late drilled variety slots. By drilling at this time tillering numbers can decrease and so early nitrogen applications are recommended to maximise tiller numbers.

EARLY NOVEMBER - EARLY DECEMBER

CONDITIONS	SOIL TYPE
Good Seed Bed 425-500	Light 425-475
Poor Seed Bed 500 +	Heavy 500 +

Potentially tough position for winter crops. Early nitrogen is key to push for a successful crop.



Disease Resistance

KWS Palladium has a fantastic yellow rust score, along with juvenile resistance, the highest score of the Group 2s on the Recommended List (9). Other diseases with good resistance are Septoria (7.3) and Mildew (8). Brown rust can be considered its weaknesses, scoring a 5. Mildew levels can be worse in later sown crops but the score of a 5 is acceptable.

Brown rust is not only regional but seasonal. Quite a lot of the RL suffers from increased brown rust weakness. Brown rust can be well controlled in a normal farm programme utilising available chemistry groups such as triazoles, SDHI and strobilurins. If the program is pared back to remove rust active chemistry due to the lower yellow rust risk then the brown rust threat will be increased later in the season. It may be wise to monitor risk and address this at later spray timings such as T2. Yellow rust and Septoria are the key talking points for disease at present along with juvenile resistance - all of which KWS Palladium has good resistance to, with an excellent score of 7.3 for Septoria. This is a good place to start and significantly reduces the risk of disease and therefore the mindset around fungicide programmes and increased flexibility.

	Untreated Yield (% treated)	Mildew	Yellow Rust	Brown Rust	Septoria tritici	OWBM
KWS Palladium	90	8	9	5	7.3	-
Skyfall	66	6	3	9	5.8	R
KWS Extase	93	7	7	6	7.4	-
Mayflower	91	7	9	6	8.9	-

Stem stiffness

KWS Palladium is exceptionally early to harvest offering harvest security. It is a short and very stiff variety.

	Earliness (Days +/- Skyfall)	Lodging - PGR (%)	Lodging + PGR (%)	Height (cm)
KWS Palladium	-1	3	2	83
KWS Extase	-1	4	3	91
Skyfall	0	1	3	85
Mayflower	-1	9	8	89

Fertiliser Requirements and Application Timing

Fertiliser recommendations should always be based around R209 and not exceed nitrate vulnerable zones (NVZ) crop max limits. Recommendations should be received from a FACTS qualified advisor. The aims of the fertilizer strategy should be a balance for the crops needs about crop structure, soil nitrogen availability and total crop requirements to achieve the aims. Total amounts applied would vary between site, season, and soil reserves.

When meeting the crop's nutrient requirements, the intention should always be to ensure a steady but consistent supply through the growing period. Whatever product you choose to apply, KWS suggest a three-way split of nitrogen to meet crop needs. Early spring management should target a plant population of 260 plants/m². Each plant may be carrying between 3 and 4 tillers, giving a total of just under 1000 tillers in early spring. More than this number creates a structure which is hard to support and this level is adequate to achieve the targets set. From GS31 back tillers start to die off.

The AHDB wheat growth guide indicates 30% of final nitrogen will be taken up at this point. This is the time when temptation is greatest to apply a large dose. While there are good arguments for this in some years and areas due to the weather patterns, it will increase the retention of unnecessary tillers and lead to increased lodging risk. There is no substitute for spring tiller counting to justify decisions. 50% of total nitrogen is taken up in the period between first node and flag leaf. A further 20% is taken up between flag leaf and flowering GS61. Roughly 70% of the final nitrogen demand of the crop should be in the plant inside this construction phase. Only a small amount of nitrogen is taken up by plants after flowering (30kg/ha).

Most grain protein will come from redistribution from stems, leaves, and roots. Crops that are too thick may not have enough reserves in each tiller to achieve 13% proteins. Crops that are too thin, sub 400 ears/m² may reach high proteins but yield has been missed. Final ear numbers should aim to reach around 500 ears/m². Ear counts completed around flowering time are easily carried out before ears start to neck over making counting more difficult.

PGR Strategy

Stiff straw reduces the potential for lodging and yield loss. It provides the insurance of standing crop when it comes to harvesting efficiently. Stiff straw also allows for lower crop inputs depending on drilling date, soil fertility and weather related lodging risks. KWS Palladium is the stiffest Group 2 variety and therefore a good tool to have on farm in adverse conditions.

Source: RB209



Nick Peters, Kent based Agronomist

Grower's Testimonial



Fenland Arable Farmer, Mat Smith, farms with his brother Lloyd, in Ramsey, Huntingdon. The pair grow KWS Palladium for Dalton Seeds. We visited Mat on the 20th July 2023 to have a look at his crop of KWS Palladium and discuss his thoughts on the variety.

“ We drilled Palladium in the last week of October, it went into perfect conditions, survived the dry winter we had, and it has looked well ever since. It's had a lot of rain in the spring obviously, it's a relatively low input crop for us, we're only putting around 80KG of nitrogen on through the season and it is standing well compared to other crops we've got on the farm.”

Mat Smith, F Smith and Sons, Ramsey



Further Information

If you need any further information or advice on growing KWS Palladium, 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

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