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HYBRID RYE
AGRONOMY GUIDE 2023
KWS TAYO | KWS SERAFINO

Rotation & Soil Type

Hybrid Rye can grow very well in high take-all situations (like oats), so allows growers extend cereal rotations. Rye should not follow rye due to the risk of building up ergot.

Cereals drilled after rye should be managed for Take-all as in a continuous cereal rotation but there is anecdotal evidence that rye does not 'maintain' take-all levels like wheat or barley so maybe of benefit to the following cereal.

Hybrid Rye has no specific pH requirements and grows well from pH 6.0-7.5

Hybrid Rye grows well in a wide range of soil types (light to heavy) but needs to be well established before winter dormancy in heavier soils.

On heavier soils drill before October 15th and not too deep (< 4 cm).

Sowing Date, Rate & Depth

Drilling Date	Seed Rate** (seeds/m2)	Ha per big bag*	Ac per big bag*
September 15th - 30th (Optimum)	**200**	**6**	**15**
October 1st - 15th (Optimum)	**200 - 250**	**6 - 5**	**15 - 12**
October 15th – 31st (Late)	250 - 300	5 - 4	12 - 10
November (Late)	300	4	10

* Big bag contains 12 million seeds

**Suggested seed rate for KWS Hybrid Rye varieties

Drill Rye 2-4 cm deep
Rye needs 6 weeks from drilling to winter dormancy

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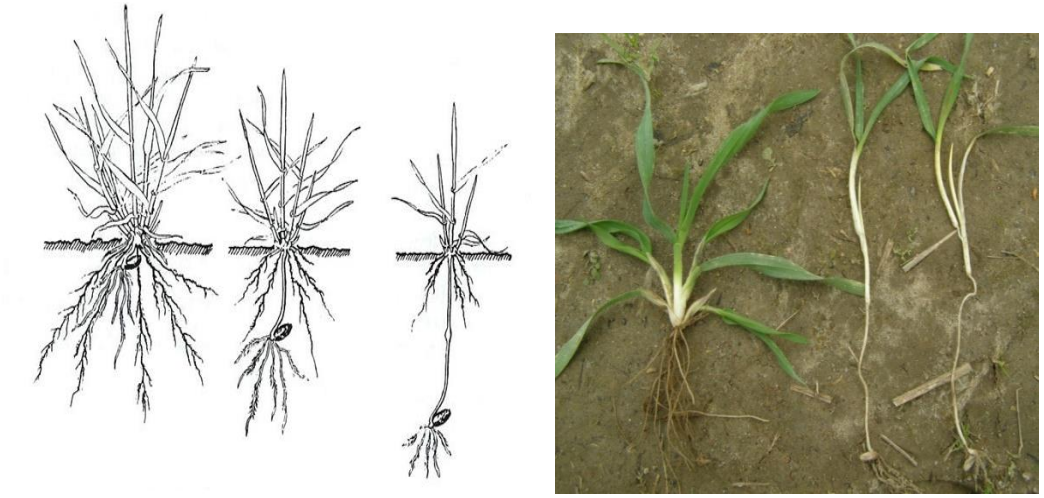


Rye seed drilled at varying depths and the effect on seedling growth.

Note: reduced tiller production at greater seed drilling depths. Graphic courtesy KWS

Weed management

Hybrid rye is very competitive against weeds, especially grass weeds such as sterile brome. Apply an autumn herbicide and a spring follow-up if needed.

Monolith and Broadway Star are the wild oat herbicide options for rye in springtime.

Timing	Example products cleared for use on winter rye*
Autumn	Diflanil, Navigate, Stomp Aqua, Tower etc
Spring	Ally SX, Broadway Star, Duplosan Super, Galaxy, Monolith, Starane etc

* info taken from www.pcs.agriculture.gov.ie on 19/10/22
* please consult an IASIS approved agronomist for advice

Pest management (Slugs & BYDV)

Slugs need to be monitored very closely at drilling time and during establishment and appropriate control is necessary to prevent plant losses.

Rye yields better than barley or wheat in high BYDV situations, especially September drilled crops. However best practise is to use normal BYDV agronomy as for autumn cereals.

Nutrient management

Hybrid rye has a very high yield potential with subsequent high nutrient removals. Its root structure mean it can 'scavenge' for nutrients and therefore it can out-yield winter wheat or barley in low fertility sites. Fertiliser demand is highest in early spring due to its early growth and hybrid vigour.

Hybrid Rye nutrient requirements (10 t/ha grain crop; straw baled, N Index 1)

Growth Stage	N kg/ha	P kg/ha	K kg/Ha	Suggested fertiliser
GS 25 - 30	80 kg	50 kg	200 kg	5 X 50 kg bags/ac 0:7:30 2.5 X 50 kg bags/ac CAN + S
GS 31/32	70 kg			2 X 50 kg bags/ac CAN + S
GS 37	30 kg			1 X 50 kg bags/ac CAN
Total	**180 kg***	**50 kg**	**200 kg**	

*please consult an agronomist for advice

Plant Growth Regulators

Hybrid Rye is 30 – 40 cm taller than winter wheat (see yield graph). This gives a greater yield of straw (at least 2 extra 4' x 4' bales/ac more than wheat or barley) but requires increased lodging management.

Ensure the crop potash requirements are met and apply a robust plant growth regulator programme. Rolling in early spring (before gs 30) can help also, especially if not done in autumn.

Note: In Seedtech trials 2017-2022, there was no lodging in the hybrid rye plots. This crop received a standard PGR programme as below.

Example of a PGR programme are below:

	Growth Stage and most likely date	Suggested PGR*
PGR 1	GS 25 - 30 End March	CCC +/- Moddus/Medax/Canopy
PGR 2	GS 31 – 32 Mid-April	CCC + Moddus/Medax/Canopy
PGR 3	GS 37 – 39 Early May	Cerone

* consult an IASIS approved agronomist for advice

Disease Management

The main leaf diseases that affect hybrid rye are brown rust and powdery mildew, however these are easily controlled by foliar fungicides. Rhyncho can be seen on lower leaves at early stem extension but is easily controlled and rye is not significantly affected by it as barley is.

Rye is not affected by Septoria or Ramularia.

Hybrid rye has better sprouting resistance and fusarium resistance than winter wheat based on Seedtech trial observations over the past 7 years.

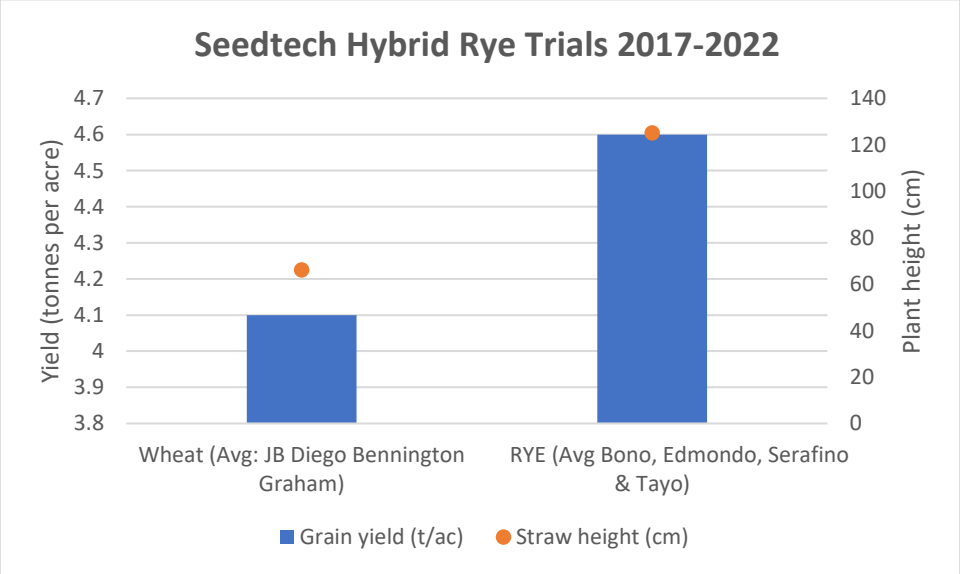
Rye is susceptible to ergot, however, KWS have virtually eliminated the risk of ergot through Pollen Plus© technology bred into their Hybrid Rye varieties. The risk of ergot is increased by grass weeds within the crop, especially along headlands and later flowering tillers along wheel tracks and growing rye in successive years, especially if min-tilled.

Suggested fungicide program

Growth Stage	Target disease	Product*
GS 31/32 with PGR 2	Brown rust, mildew, *rhyncho*	Mildewicide/strobilurin/triazole
GS 37/39 with PGR 3	Brown rust, mildew	Mildewicide/strobilurin/triazole
GS 59 (avoid applying during pollination)	Fusarium, brown rust, mildew	Mildewicide/strobilurin/triazole

* consult an IASIS approved agronomist for advice

Yield Potential



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Hybrid rye has out-yielded winter wheat in Seedtech trials (2017-2022) by 0.5 tonne per acre.

Farm experience 2017-2022 has shown that hybrid rye produces 20-40 % more straw than winter barley and at similar quality.

Harvesting

Rye harvest occurs around the same time as winter wheat but can be hastened by drilling in September.

As straw volumes are large, combining is typically slower than wheat or barley and is best done in good harvesting weather.

Irish farm experience has shown hybrid rye to be very resilient at harvest from a sprouting, grain quality and straw breakdown perspective.

Rye volunteers are very visible in following crops so ideally drill rye before a spring cereal or non-cereal break crop. Rye seed shed during combining is very slow to chit and best control of volunteers is when the rye stubble is shallow cultivated post-harvest to encourage rye seed to chit.

2020 Seedtech Rye Trials – growth benchmarks

The following table is from hybrid rye plots at the Seedtech trials site. Detailed assessments were made during the growing season and the plots were brought to yield with grain quality analysed. See notes over.

	Plants/m2 in Feb 2020	Plants/m2 in March 2020	Tillers/Plants /m2 in March 2020	Shoots /m2 in March 2020	Heads /m2 in June 2020	Grains/ head	Yield t/ac)	Bushel (Kg/Hl)
Bennington (Wheat)	**208**	**210**	**2.7**	1100	630	45	3.9	74.9
Graham (Wheat)	**202**	**207**	**2.7**	1330	800	39	3.4	74.4
KWS Propower (Rye)	**200**	**198**	**3.3**	1170	1000	76	4.8	71.5
H 203 (Rye)	**198**	**195**	**4.7**	970	800	72	4.5	71.1
Kws Bono (Rye)	**168**	**163**	**5.3**	1100	730	69	5.4	71.6
Kws Tayo (Rye)	**175**	**173**	**6.3**	930	750	65	4.6	71.2
Kws Silylor (Rye)	**168**	**172**	**5.7**	1100	750	62	4.8	72.2

Thanks to Stephen Gill, WIT for skilled technical assistance of plant assessments.

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Markets

Rye is a relatively new grain to Ireland and growers should secure an end user/market before drilling the crop. Teagasc pig research has valued rye grain like barley, but the final market value will be determined by supply and demand.

More information on pig feeding trials on Seedtech website

Notes on 2020 Seedtech Rye Trials – growth benchmarks

- These plots were drilled into sub-optimal seedbeds on 15th Nov 2019 due to poor autumn 2019 weather.
- The wheat was drilled at 400 seeds/m2 and the hybrid rye was drilled at 250 seeds/m2.
- Harvest date was delayed until 23rd Aug 2020 due to storms in August and significant grain shedding pre-harvest was noted.
- An adjacent winter wheat trial (incl. Graham and Bennington as controls) harvested on 12th Aug 2020 yielded an extra 1.0 t/ac indicating the losses due to the storms.

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