



AGRONOMY UPDATE SPRING 2024

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INTRODUCTION



Welcome to another Spring edition of our annual Agronomy Updates. It feels like our seasons have deserted us since harvest commenced last July. We have witnessed a record long harvest followed by a difficult Autumn and Spring sowing season and have seen eight consecutive 'wet' months with growers moral being tested. The Autumn planting area is significantly back with fertilizer and spraying plans having to be changed time and again. We hope for a break in the weather and some good fortune for the Spring crops. It is encouraging to see winter oil seed rape crops in bloom as a reminder that we must always have a positive mindset when it comes to our farming enterprises. I was recently reminded that in 2014, there were late sown spring barley crops in May that delivered four ton yields.

The challenging 2023 harvest and Autumn has forced us and all the other merchants and Co-ops to source a significant quantity of spring seed from Europe to fill the shortfall. It is a pity that this seed has yet to be sown as I write this introduction. The favourable weather window we got last spring saw record area for beans but the challenge now is to sow this crop before it is too late. Thankfully we have good information and advice from the seed houses to encourage the sowing of this crop, coupled with the governments protein aid incentive scheme I feel it is still a crop that can deliver for growers this year. The three crop rule has been suspended for this year which will help growers adjust their cropping plans as required but the use of beans and oil seed rape should be considered an integral part of each growers cropping plans into the future. Legume crops have nitrogen reduction benefits, lowering overall fertilizer costs on farms and OSR has soil fertility benefits along with yield increases to the subsequent crop.

In this issue of our agronomy brochure we honour the success of our 2023 grain award winners, in what was a difficult harvest there were excellent quality grain supplied by many growers, we highlight the success of the growers that received the 2023 overall awards for their categories. Barry Purcell focuses on spring beans and agronomy advice on the growing of this crop. James Hickey has produced a comprehensive listing of the crop protection programmes you might consider for your cereal crops this season. Donal Moloney discusses the Spring crops and contract choices to consider for this Spring. We also look at our recent work on finding out the carbon footprint of our grains that you supply to us. I would like to thank again the growers who contributed to this significant piece of work that is an important step in identifying Irish grain as having strong sustainability credentials and low carbon footprint relative to other countries that compete for our products worldwide.

I wish you all the best for the season ahead. If the pressure is getting to you and are experiencing anxiety or depression, please reach out to support services such as Aware, their helpline is 1800 80 48 48 and it is a free service open from 10am to 10pm daily. Please take care of yourself and seek help from contractors or family, neighbours and friends where you can to spread the workload and focus on what you can do today/tomorrow rather than thinking about the total workload ahead of you.

Our agronomy team are here to help with technical advice and crop protection requirements. As always, we thank you, our growers for your continued support.

Fintan Treacy
Agronomy Team Manager

CARBON FOOTPRINT OF IRISH GRAIN



Written by Fintan Treacy

Tirlán in conjunction with Teagasc, carried out Ireland's first ever Grain Life Cycle (LCA) Assessment on a commercial scale. Teagasc have developed a modelling tool to calculate the Carbon Footprint of grains. This tool is currently in development so that it may be used on a large scale to accurately assess the LCA of Irish grains. The purpose of Tirlán carrying out this work is to help grow our plant ingredients premium grain business's.

We would like to share the findings of the work carried out so that you may become familiar with terminology, figures and information required to complete a LCA on your own crops. The carbon footprint is the amount of carbon released into the atmosphere during grain production. In the case of grain, it is measured in kilograms of carbon per tonne of grain (kg CO₂e/t).

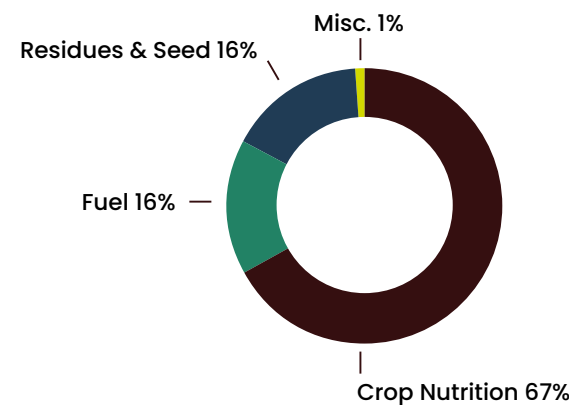
Harvest 2022 Average Carbon Footprint Results for Tirlán Growers

- 242kg CO₂e/t Barley
- 256kg CO₂e/t Wheat
- 232kg CO₂e/t Oats
- 413kg CO₂e/t Oil Seed Rape

In this study there was over 46,000 Farm and Crop Specific Data points used to calculate these results, across 48 Growers and 11,500 Hectares with 14 crops calculated. The 8 most significant crops were - Winter Wheat, Spring Malting Barley, Winter Barley, Spring Oats, Winter Oats, Winter Oilseed Rape, Spring Feed Barley and Winter Beans.

Winter Oats Summary

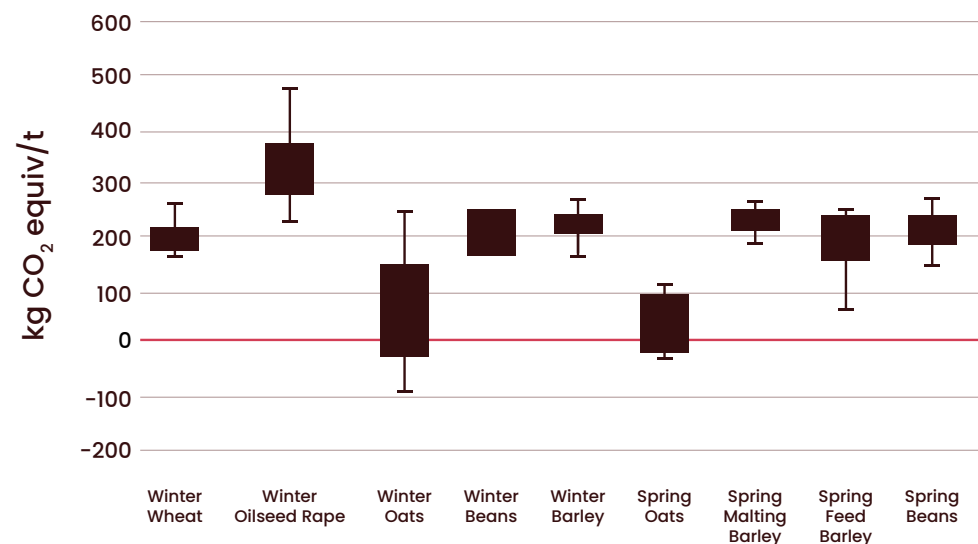
This graphic shows the percentage of the key categories that have the biggest impact on LCA calculations. Crop nutrition represented two thirds of the overall figure, fertiliser, liming and fuel had the biggest contribution to the LCA calculations. The farm data collected was across the following categories - fuel, soil type, cultivation, fertiliser, liming, sprays, yield, straw and cover crops.



Carbon Sequestration

associated with Straw Incorporation shows that some crops are close to Net Zero Carbon. In some cases the volume of straw incorporated into the soil was equal to, or greater than the amount of carbon used to grow the grain.

Straw Incorporation can bring the Carbon Footprint to Net Zero as evidenced by our Oats in particular

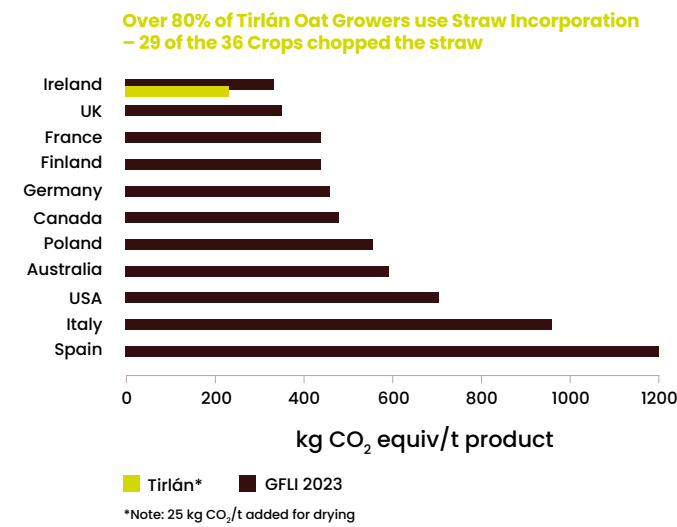


International Carbon Footprint Comparison

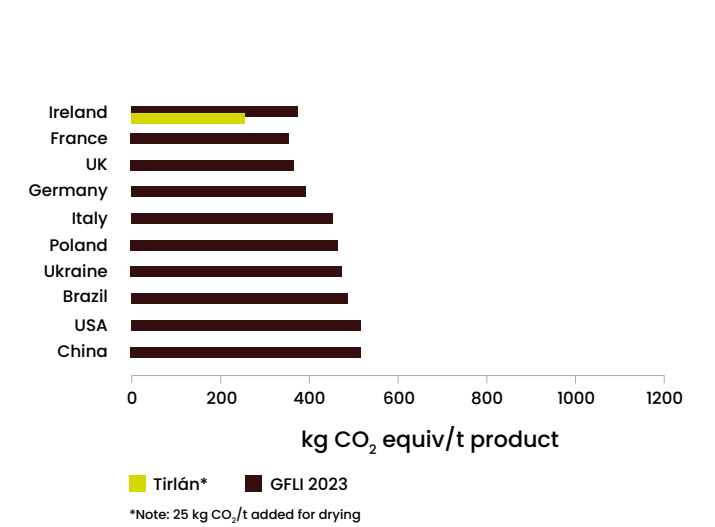
The Global Feed Lifecycle Institute (GLFI) is the international database that records the environmental impact of crops and feed ingredients. It uses assumed average emission factors on different crops. We can use GLFI to compare Irish Crops against other countries. However, the results of this study reveal a carbon footprint even lower than what GLFI reported, this is due to having more data points.

The below charts clearly show that Irish grain has some of the lowest Carbon Footprint results in the world.

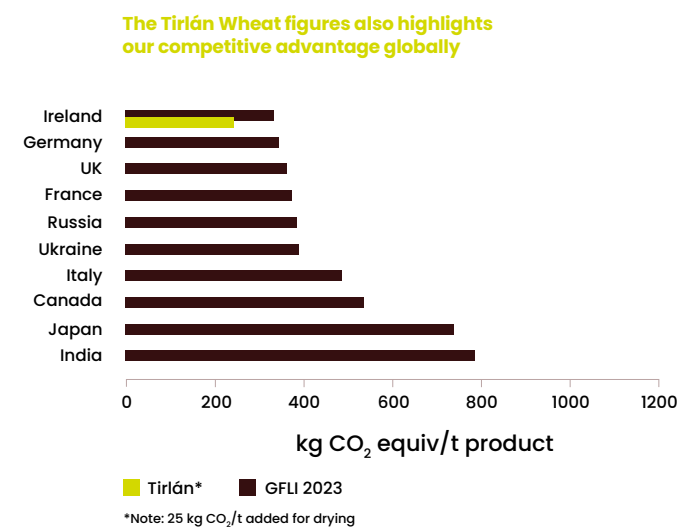
International Comparison of Carbon Footprint of Oats



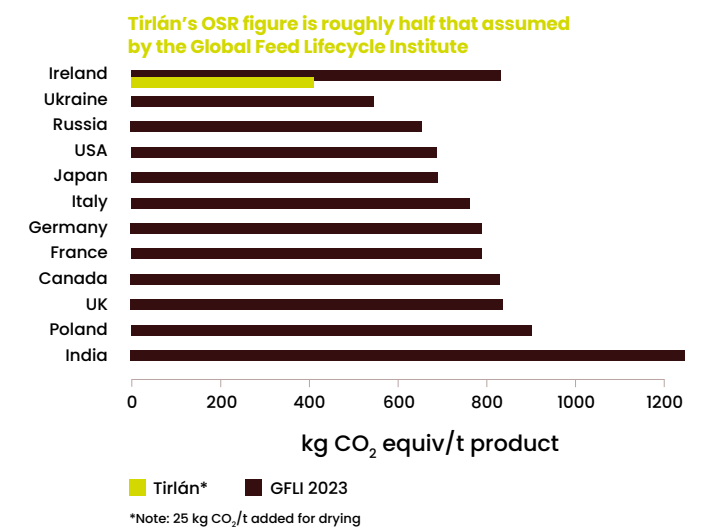
International Comparison of Carbon Footprint of Barley



International Comparison of Carbon Footprint of Wheat



International Comparison Carbon Footprint of Oilseed Rape



The Carbon Footprint of Irish Grain is low by International Standards. Carbon Sequestration using Straw Incorporation means Net Zero is achievable on oats in particular. Influencing Crop Nutrition and Grain Yield are the two most significant factors in reducing the LCA figure. Tirlán would like to thank the 48 growers who participated in this study and Teagasc for creating the modeling tool for this data.

AGROCHEMICAL OPTIONS - WINTER WHEAT 2024



WINTER WHEAT

WINTER WHEAT - T0 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Arizona/ Mirror	1.5	Folpet 500g/L. Needs to be used @ 1.5L/ha. Max 3.0 L/ha of each individual product permitted per crop.
Tebucur + Amistar	0.75 – 1.0 + 0.5	Triazole plus Strobilurin mix. Should only be used in a high risk rust situation Tebucur @ 0.75 L/ha will deliver 175g of Tebuconazole. This is the minimum rate needed to knock down rust. Amistar @ 0.5 = 50% strobilurin loading.
Tebucur + Comet	0.75 – 1.0 + 0.5/ha	Triazole plus Strobilurin mix. Should only be used in a high risk rust situation. Tebucur @ 0.75 L/ha will deliver 175g of Tebuconazole. This is the minimum rate needed to knock down rust. Comet @ 0.5 = 50% strobilurin loading.
Thiopron + Comet	2.0 – 3.0	3.0L/ha Thiopron = 2,475 g/ha sulphur Comet @ 0.5 = 50% strobilurin loading.

GENERAL COMMENTS

1. T0 on Wheat should be applied at GS 30 – 32.
2. Triazole should only be considered @ T0 in severe Rust cases.
3. For **Mildew control** add Tern @ 0.3 – 0.5 L/ha. Tern is a strong option on wheat.
4. For **Mildew prevention** add 0.15 – 0.25 L/ha Talius or 0.5 L/ha Flexity (will not control established mildew). This could be beneficial with Mildew prone varieties.
5. For **Mildew prevention / control** add Midas at 0.3 L/ha – 0.4 L/ha. Midas is beneficial for both prevention and curative.
6. Max overall total dose of any individual 500g/L Folpet product, i.e. Mirror / Arizona is 3.0 L/ha.

PRODUCT	ACTIVE INGREDIENT	RATE
GS 30 – 32 Scitec/ Moddus +/- CeCeCe 75% / Holdup	0.2 +/- 1 – 2.0	Use 0.2L/ha rate Moddus/Scitec + CeCeCe @ GS30 – 31. Use only 0.3L/ha rate Moddus/Scitec@ GS32. The use of Moddus/Scitec will also help plant rooting. Moddus/ Scitec = 250g/L Trinexapac.
GS 30 – 32 CeCeCe 75% / Holdup	1.5 – 2.0	Trinexapac can be hard on crops. Straight CCC is much kinder and is still very effective, particularly on good standing varieties like Costello.
GS 30 – 32 Medax Max +/- CeCeCe 75% / Holdup	0.2 – 0.32 Kg/ha +/- 1.0	Medax Max @ 0.32 kg/ha = 25g Moddus + 15g Prohexadione. Works well in cool conditions. Very safe product with extended GS label.

GENERAL COMMENTS

1. Growth Regulation can be combined with the T0 Fungicide.
2. Do not mix CeCeCe with Alister Flex, Monolith or Pacifica Plus. Rate of PGR should be reduced following heavy post-em herbicides.
3. Follow up PGR, in the form of Terpal and Cerone should not be applied to Wheat destined for the mushroom trade.
4. Medax Max is approved for use on crops where the straw is destined for the mushroom trade.



WINTER WHEAT

WINTER WHEAT - SPRING HERBICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Zypar	0.65 – 1.0	(Zypar = Boxer + Arylex mix). An excellent spring clean-up option. Very good on Vol Beans, Cleavers, Fumitory, Groundsel and Chickweed. Application rate depends on weed pressure at time of application. Will not control Wild Oats, Bromes and AMG. Up to GS 45 only. Can be mixed with Axial Pro. Arylex based chemistry works well in cool conditions.
Pixxaro	0.25 – 0.5	(Pixxaro = Hurler + Arylex mix). Rate depends on target weed and size of weed. Keep rate at 0.5 L/ha to control Poppy and Chickweed. Good on Cleavers, Fumitory and Shepard Purse also. An alternative option to Zypar. Can be mixed with Axial Pro.
Alister Flex	0.7 – 1.0	(Alister Flex = DFF + Meso + Iodo). Very good option if no Autumn herbicide applied. Will control AMG, Bromes and Wild Oats. Narrow spectrum on broad leaf weeds. Mix with Zypar or SU to broaden control of broad leaf weeds. Aim to use early. Up to GS 29 only. Can be hard on crops if used in poor conditions.
Pacifica Plus	0.3 – 0.5 Kg/ha	(Pacifica Plus = Meso + Iodo + Amido). Very good option if no Autumn herbicide applied. Excellent on AMG, Bromes and Wild Oats. Better on strong grass weeds than Alister Flex. Mix with Zypar, Galaxy or SU to broaden control of broad leaf weeds. Apply during good growth weather. Hot product. Mix with Bio Power @ 1.0 L/ha. Up to GS 39 only.
Monolith	0.2 – 0.33 Kg/ha	(Monolith = Meso + Propoxy). Excellent on Blackgrass, AMG, Bromes and Wild Oats. Narrow broad leaf label. Should be mixed with Zypar to broaden control of broad leaf weeds. Hot Product. Mix with Bio Power @ 1.0 L/ha. Up to GS 33 only.
Broadway Star	265 g/ha or (1.06Kg/4ha)	(Broadway Star = Boxer + Pyroxulam). Excellent product on Bromes and Wild Oats. Will not control AMG. Very good spectrum on BLW such as Poppy, Cleavers and Speedwell. Apply during good growth weather. Mix with Torpedo @ 0.25 L/ha. Up to GS 32 only.

GENERAL COMMENTS

1. **Do not mix Alister Flex, Pacifica Plus and Monolith with CeCeCe or PGR.**
2. For best results, herbicides should be applied early and during periods of good growth.
3. Pacifica Plus and Monolith are hard on crops. Delfan Plus or Phylgreen @ 1.5 – 2.0 L/ha can be mixed with these products during applications to help reduce stress on crop and aid recovery.
4. SU products like Taxi, Cameo Max or Presite Max can be used where BLW tidy up is required.
5. Axial Pro can be used @ 0.5 L/ha – 0.6 L/ha as a selective Wild Oat herbicide.

AGROCHEMICAL OPTIONS - WINTER WHEAT 2024



WINTER WHEAT

WINTER WHEAT - T1 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Elatus Era + Mirror/Arizona etc.	0.8 - 1.0 + 1.5	Elatus Era @ 1.0 L/ha = 75% Proline + 100% Solatenol. Excellent product for Rust control. Proline will help with Mildew control and offer a level of control for Eyespot.
Peacoq + Pontoon + Mirror/Arizona etc.	2.0 + 1.0 + 1.5	Peacoq @ 2.0 L/ha = 100% Inatreq (100g of Fenpicoxamid) Pontoon contains 63% Proline + 50% Tebuconazole. Inatreq is a new mode of action for high Septoria and high Rust situations.
Revystar XL + Mirror/Arizona etc.	1.5 + 1.5	Revystar @ 1.5 = 100% Mefentrifluconazole and 60% Xenium. Class leading azole combined with a strong SDHI to offer excellent Septoria control.

GENERAL COMMENTS

- T1 fungicide application on Winter Wheat should be made at GS 31-32 when the 3rd last leaf is fully emerged. It is **critically important to wait until the 3rd last leaf is fully emerged.**
- Folpet (**Arizona / Mirror**) at 1.5 L/ha should be added to all treatments above as stated.
- For **Mildew control** add Tern @ 0.3 - 0.5 L/ha. 15 metre buffer zone for Tern.
- For **Mildew prevention** add 0.15 - 0.25 L/ha Talius or 0.3 - 0.5 L/ha Flexity. Very little effect on established Mildew. Midas can be used at 0.3 L/ha - 0.4L/ha that can give some prevention / curative properties.
- Elatus Era can only be used once in programme.**
- Max overall total dose of any individual 500g/L Folpet product, i.e. Mirror / Arizona is 3.0 L/ha.

WINTER WHEAT - T2 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Peacoq + Pontoon + Mirror/Arizona etc.	2.0 + 1.0 + 1.5	Peacoq @ 2.0 L/ha = 100% Inatreq (100g of Fenpicoxamid) Pontoon contains 63% Proline + 50% Tebuconazole. Inatreq is a new mode of action for a high Septoria and high Rust situations.
Revystar XL + Mirror/Arizona etc.	1.5 + 1.5	Revystar @ 1.5 = 100% Mefentrifluconazole and 60% Xenium. Class leading azole with a string in SDHI to offer excellent Septoria control.
Elatus Era + Mirror/Arizona etc.	0.8 - 1.0 + 1.5	Elatus Era @ 1.0 L/ha = 75% Proline + 100% Solatenol. Excellent product for Rust control. Proline will help Mildew control and offer a level of control of Eyespot.

GENERAL COMMENTS

- T2 application in Winter Wheat should be made at GS 39 when the flag last leaf is fully emerged. **Timing is crucial.**
- Folpet (**Arizona / Mirror**) at 1.5 L/ha should be added to all treatments above as stated.
- Max overall total dose of any individual 500g/L Folpet product, i.e. Mirror / Arizona is 3.0 L/ha.
- For Mildew control @ 0.3 - 0.5 L/ha of Tern (if available) @ 0.3 - 0.5 L/ha. 15 metre buffer zone for Tern. Midas can be used at 0.3 L/ha - 0.4 L/ha, that can give some prevention / curative properties.
- For **Mildew prevention** add 0.15 - 0.25 L/ha Talius or 0.3 - 0.5 L/ha Flexity. Very little effect on established Mildew.

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AGROCHEMICAL OPTIONS - WINTER WHEAT 2024



WINTER WHEAT

WINTER WHEAT - T3 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Prosaro/ Protendo Extra +/- Comet / Amistar	1.0 + 0.5/0.5	Prosaro @ 1.0 L/ha = 63% Proline + 50% Tebuconazole. +/- 50% Strob loading.
Innox Pro + Comet	0.5 + 0.5	Innox Pro @ 0.5 L/ha = 63% Proline + 50% F500. Alternative option to Tebuconazole and may suit crops where late rust infection is an issue.

GENERAL COMMENTS

1. T3 application on Winter Wheat should be applied between at GS59 - GS69 when the ear is flowering.
2. For Mildew control Tern @ 0.3 - 0.5 L/ha. 15 metre buffer zone for Tern.



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AGROCHEMICAL OPTIONS - WINTER BARLEY 2024



WINTER BARLEY

WINTER BARLEY - T1 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Innox Pro + Comet	0.5 + 0.6	Innox Pro @ 0.5 = 63% Proline. Comet @ 0.6 = 60% F500. Robust T1 delivering strong control of Rhynchosporium, Net Blotch and Brown Rust.
Elatus Era	0.8 - 1.0	Elatus Era @ 1.0 L/ha = 75% Proline + 100% Solatenol. Excellent on Rust, and Ryncho. Good option on hybrid and 2-row varieties.
Flexure +/- Comet	0.8 - 1.0	Flexure @1.0 = 52% Proline +240 grams Spiroxamine. Strong control on Ryncho and Mildew. Addition of Comet. Will give higher control of Net Blotch and Brown Rust.

GENERAL COMMENTS

1. Rates should be adjusted depending on disease pressures and conditions.
2. T1 on barley should be applied at the beginning of stem extension (GS 30).
3. For **Mildew control** add 0.3 - 0.5 L/ha if Tern.
4. For **Mildew prevention** add 0.15 - 0.25 L/ha Talius or 0.5 L/ha Flexity.Midas can be used at 0.3l/ha - 0.4l/ha, that can give some prevention / curative properties.
5. Watch SDHI and Strob usage throughout program. FRAC guidelines permitting the use of two strob and two SDHI applications should not be exceeded.

WINTER BARLEY - PGR OPTIONS (GS 30 - 32)

PRODUCT	RATE (L/HA)	COMMENT
GS 30 - 32		Use 0.1 - 0.2 L/ha rate Moddus/Scitec + CeCeCe @ GS30 - 31.
Moddus/Scitec +/- CeCeCe 75% / Holdup	0.2 +/- 1.0	Use only 0.3 L/ha rate Moddus/Scitec@ GS32. Correct PRG is critical for hybrid barley. For tiller manipulation, CCC needs to be applied mid-tillering (GS 23 - 25).
GS 30 - 32		Medax Max @ 0.32 kg/ha = 25g Moddus + 15g Prohexadione. Works well in cool conditions. Medax Max is soft on crops and has a wide GS label.
Medax Max +/- CeCeCe 75% / Holdup	0.3 - 0.35 Kg/ha +/- 1.0	

GENERAL COMMENTS

1. Growth Regulation can be combined with the T1 Fungicide.
2. Be careful when mixing with wild oat herbicides and/or winter clean up herbicides as these can heat up mix.
3. Follow up PGR, in the form of Terpal / Medax Max, should be applied between growth stages 32 - 37. Late applied growth regulators at wrong timing can induce Ramularia.

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AGROCHEMICAL OPTIONS - WINTER BARLEY 2024



WINTER BARLEY

WINTER BARLEY - T2 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Innox Pro + Comet +/- Mirror/Arizona	0.5 0.6 1.25	Innox Pro @ 0.5 = 63% Proline. Comet @ 0.6 = 60% F500. Robust T1 delivering strong control of Rhynchosporium, Net Blotch and Brown Rust. Non SDHI option.
Elatus Era +/- Mirror/Arizona	0.8 - 1.0 +/- 1.25	Elatus Era @ 1.0 L/ha = 75% Proline + 100% Solatenol. Excellent on Rust, and Ryncho. Good option if timings get stretched with 2-row varieties. Be conscious of SDHI loading throughout programme.
Flexure +/- Comet +/- Arizona/Mirror	0.8 - 1.0 +/- 0.4-0.6 1.25	Flexure @1.0 = 52% Proline +240 grams Spiroxamine. Strong control on Ryncho and Mildew. Addition of Comet will give higher control of Net Blotch and Brown Rust.

GENERAL COMMENTS

- T2 on barley should be applied at GS 32-37 (2nd node - flag leaf emerging). The T2 should be applied earlier if the T1 was applied towards the end of tillering or if timings are stretched.
- For **Mildew control** add Tern @ 0.3 - 0.5 L/ha. 15 metre buffer zone applies to Tern.
- For **Mildew prevention** add 0.15 - 0.25 L/ha Talius or Flexity @ 0.5 L/ha (will not control established Mildew).
- Folpet (Arizona/Mirror etc.) should be included at T2 on all varieties to protect against an early onset of Ramularia.
- Folpet should be used in situations where the threat of Ramularia is high or where the crop has suffered from stress early on.

WINTER BARLEY - FOLLOW UP PGR OPTIONS (GS 32 - 49)

PRODUCT	RATE (L/HA)	COMMENT
GS 32 - 39 Terpal	0.8 - 1.0	Optimum timing for Terpal = GS 32 - 37. Use 0.8 - 1.0 L/ha where an earlier PGR was applied. Use 1.5 - 2.0 L/ha where no PGR was applied previously. Do not apply where awns are emerging.
GS 41 - 49 Medax Max	0.3 - 0.5 Kg/ha	Medax Max @ 0.32 Kg/ha = 25g Moddus + 15g Prohexadione. Can be applied up to 0.75 Kg/ha between GS 41 - 49. Max total dose of Medax Max on Winter Barley = 1.5 Kg/ha.
GS 32 - 49 Cerone	0.6 - 1.0	Optimum timing for Cerone is GS 37. Hot product, should only be considered in fire brigade situations. Add to spray tank last.

GENERAL COMMENTS

- Not all crops will require a follow up PGR. Decision based on lodging assessment.
- Can be combined with T2 fungicide. Do not leave late and get caught out with awns emerging.
- Max total dose of Medax Max on Winter Barley = 1.5 Kg/ha.
- Max total dose of Terpal on Winter Barley = 2.0 L/ha up to GS 39.
- Be conscious of applying late PGRs to barley, as these can induce crop stress and Ramularia. A multisite should be used with PGRs at this timing.



WINTER BARLEY

WINTER BARLEY - T3 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Mastercrop Barley Pack Elite Imperis + REVCARE +/- Mirror/Arizona	1.0 1.0 1.0 1.0	Barley Pack Ultra = 5L Imperis @1.0 L/ha = 50% Xemium. 5L Revycare @1.0 L/ha = 66% Revysol + 50% F500. Very strong option on all key diseases, particularly Ramularia. Alternative azole to Proline with strong straw characteristics.
Elatus Era +/- Mirror/Arizona	1.0 +/- 1.25	Elatus Era @ 1.0 L/ha = 75% Proline + 100% Solatenol. Strong and robust option on Ryncho and Rust.

GENERAL COMMENTS

- For Mildew control add 0.3 - 0.5 L/ha Tern. 15 metre buffer zone applies to Tern.
- Be careful not to exceed max total overall doses of specific products throughout Programme.
- Only 2 SDHI's permitted on Barley. Only 2 application timings of Strobs permitted on Barley.
- Folpet (Arizona/Mirror etc.) should be included at T2 and T3 on all varieties to protect against Ramularia.
- T3 on Winter Barley should be applied at GS 39 - 49 (awns emerging).

AGROCHEMICAL OPTIONS - WINTER/SPRING OATS 2024



WINTER/SPRING OATS

WINTER / SPRING OATS - T0 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Flexity +/- Tern	0.5 - 1.0 +/- 0.75 - 1.0	Mildew prevention is critical. Flexity @ 0.5L/ha = 50% rate. Add Tern if Mildew present in crop. Increase rate depending on Mildew pressure.
Talius +/- Tern	0.15 - 0.25 +/- 0.3 - 0.6	Mildew prevention is critical. Talius @ 0.2L/ha = 80% rate. Add Tern if Mildew present in crop. Increase rate depending on Mildew pressure.
Midas	0.3 - 0.5	50g/L Cyflufenamid at max 0.5L/ha rate. 2 per crop maximum number of applications. Has both curative/prevention properties.

GENERAL COMMENTS

- Rates should be adjusted depending on disease pressures and conditions.
- T0 on Oats should be applied at GS 30-31 (1st node).
- The T0 on Oats should be combined with the 1st PGR and herbicide.
- Max overall total dose rate of Talius = 0.25 L/ha. Flexity can be used as an alternative at a rate of 0.5 L/ha for Mildew prevention. Max overall total dose rate of Flexity = 1.0 L/ha.**

WINTER / SPRING OATS - PGR OPTIONS (GS 30 - 32)

PRODUCT	RATE (L/HA)	COMMENT
GS 30 - 31(1st Node) Moddus/Scitec + CeCeCe 75% / Holdup	0.2 + 1.0	Use 0.2 L/ha Moddus/Scitec + 1.0 L/ha CeCeCe @ GS30 - 31. Optimus can be used as an alternative to Moddus or Scitec.
GS 32 (2nd Node) Moddus/Scitec + CeCeCe 75% / Holdup	0.2 + 1.0	Use 0.2 L/ha Moddus/Scitec + 1.0 L/ha CeCeCe @ GS31 - 32. The interval between the first and second PGR could be as close to a week in some cases.
GS 30 - 39 Ceraide	1.0 - 2.3	2.3 L/ha = max single application dose rate. 1.4 L/ha = 868 g/ha CCC (Chlormequat). Good option at GS 37 / 39. Be conscious of Chlormequat loading throughout program due to residues. Important for Oats destined for human consumption.
GS 30 - 39 Medax Max	0.3 - 0.5 Kg/ha	Medax Max @ 0.32 Kg/ha = 25g Moddus + 15g Prohexadione. Works well in cool conditions. Medax Max offers a wide GS label.

GENERAL COMMENTS

- Growth regulation can be combined with the T1 fungicide.
- Manganese should be included with these timings T0/1st PGR (GS 30 - 31), T1/2nd PGR (GS 31 - 32).
- Be conscious of late applications of CCC (Chlormequat) due to residue detections.
- Medax Max @ 0.2 - 0.5 Kg/ha can be used as a 3rd PGR up to GS 39.



WINTER/SPRING OATS

WINTER / SPRING OATS - HERBICIDE OPTIONS (GS 30 - 31)

PRODUCT	RATE (L/HA)	COMMENT
Cameo Max + Galaxy	1 pack / (3 - 5/ha) + 1.0	(Galaxy = Boxer + Hurler + Clopyralid mix). This mix is more suited to Wexford or where resistant Corn Marigold is an issue. Rates depend on weed pressure at time of application. Max individual dose of Galaxy = 1.0 L/ha. For resistant Corn Marigold, mix with Generic Galaxy (Kingston) @0.5 L/ha can be added to 1.0 L/ha of Galaxy. Excellent mix and will control Cleavers, Chickweed, Speedwell and Furnitory. Cameo Max and Ally Max are the only SUs cleared on Oats.
Ally Max + Hurler	1 pack- (2 - 2.5/ha) + 0.75 - 1.0	Not as good on Furnitory as Cameo Max. Fluroxypyr will offer good control of cleavers. Rates depend on weed pressure at time of application.
Cameo Max + Hurler	1 pack- (3 - 5/ha) + 0.75 - 1.0	Better weed spectrum than above. Control's most common weeds found in Oats. Rates depend on weed pressure at time of application. Spring Oats max rate of Hurler 0.75 L/ha, Winter Oats max rate of Hurler 1.0 L/ha.

GENERAL COMMENTS

- Rates should be adjusted depending on weed pressures and conditions.
- Cameo Max and Ally Max are the only SU herbicides cleared on Oats.
- Herbicides can be mixed with T0 and 1st PGR. Aim to apply between GS 30 - 32.
- PGR / Fungicide / Herbicide / Trace Element mix can be hard on Oat crops. Delfan Plus @ 1.0 L/ha - 2.0 L/ha can be mixed with combined tank mix applications to help reduce stress on crop and aid crop recovery.
- Manganese should be included with the above mix.

AGROCHEMICAL OPTIONS - WINTER/SPRING OATS 2024



WINTER/SPRING OATS

WINTER / SPRING OATS - T1 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Innox Pro + Comet +/- Talius	0.5 0.6 0.25	Innox Pro @ 0.5 = 63% Proline. Comet @ 0.6 = 60% F500. Talius @ 0.2 L/ha = 80% rate. Add Tern if Mildew present in crop.
Elatus Era +/- Talius	0.75 - 1.0 + 0.25	Elatus Era @ 0.75 L/ha = 56% Proline + 75% Solatenol. Excellent Oat product. Excellent on Rust. Prothioconazole will also help on Mildew. Add Tern if Mildew present in crop.
Flexure +/- Comet	0.8 - 1.0 +/- 0.4 - 0.6	Innox Pro @ 0.5 = 63% Proline. Comet @ 0.6 = 60% F500. Talius @ 0.2 L/ha = 80% rate. Add Tern if Mildew present in crop.

GENERAL COMMENTS

1. Rates should be adjusted depending on disease pressure and conditions.
2. The T1 on Oats should be applied at GS 31-32 (2nd node).
3. The T1 on Oats can be combined with the 2nd PGR.
4. **A holding spray between the T1 and T2 may be required.** This will depend on weather conditions and if Rust or Mildew takes hold within crops.
5. **Max overall total dose rate of Talius = 0.25 L/ha. Flexity can be used as an alternative at a rate of 0.5 L/ha for Mildew prevention. Max overall total dose rate of Flexity = 1.0 L/ha.**
6. Manganese should be included at this timing if not already completed.
7. Midas can be used at 0.3 L/ha - 0.4 L/ha, that can give some prevention / curative properties.

WINTER / SPRING OATS - T2 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Elatus Era +/- Talius / Midas	0.5 - 0.8 + 0.25 / 0.35	Elatus Era @ 0.5 L/ha = 38% Proline + 50% Solatenol. Excellent Oat product and excellent on Rust. Proline will also help on Mildew. Ideally suited to the T2 slot.
Innox Pro + Comet +/- Talius / Midas	0.5 + 0.6 +/- 0.25 / 0.35	Innox Pro @ 0.5 = 63% Proline. Comet @ 0.6 = 60% F500. Excellent Oat product and excellent on Rust. Proline will also help on Mildew. Will suit if SDHI used in T0/ T1 Timing.

GENERAL COMMENTS

1. Rates should be adjusted depending on disease pressure and conditions.
2. Sometimes it is advantageous to "split" the T2 head spray in order to manage head emergence.
3. T2 Oats should be applied at GS 52 - 59 (head emerging).
4. **Max overall total dose rate of Talius = 0.25 L/ha. Flexity can be used as an alternative at a rate of 0.5 L/ha for Mildew prevention. Max overall total dose rate of Flexity = 1.0 L/ha. Midas can be used at 0.3 L/ha - 0.4 L/ha, that can give some prevention / curative properties.**
5. **Only 2 SDHI's permitted on Oats. Only 2 application timings of Strobs permitted on Oats.**
6. **Only 1 application of Elatus Era per crop permitted.**
7. Mastercrop Final K @ 2.5 - 4.0 L/ha should be combined with T2 fungicide to help increase Kph levels.

The information provided is a guide only; always check product label before applying any pesticide.

ELATUS™ Era

ONE PRODUCT, EXCEPTIONAL PERFORMANCE, FOUR KEY CROPS

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AGROCHEMICAL OPTIONS - SPRING BARLEY 2024



SPRING BARLEY

SPRING BARLEY – T1 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Innox Pro + Comet +/- Mirror/Arizona	0.4 - 0.5 + 0.5 - 0.6 1.25	Innox Pro / Comet mix = 2.5L Innox Pro in Can 1 and 3.0L Comet in Can 2. Sold as one unit within the same box. Decoy @ 0.5L/ha = 63% Prothio. Comet @ 0.6L/ha = 60% F500. A very robust option where Rhyncho, Net Blotch and Brown Rust are considerations.
Elatus Era +/- Mirror/Arizona	0.75 - 1.0 1.25	Elatus Era @ 0.75 L/ha = 56% Proline + 75% Solatenol. Excellent option on Net Blotch and Ryncho. Be conscious of SDHI loading throughout program.
Flexure +/- Comet	0.8 - 1.0 +/- 0.4 - 0.6	Flexure @1.0 = 52% Proline +240 grams Spiroxamine. Strong control on Ryncho and Mildew. Addition of Comet. Will give higher control of Net Blotch and Brown Rust.

GENERAL COMMENTS

- Rates should be adjusted depending on disease pressures and conditions.
- T1 on Spring Barley should be applied at GS 25-31 (1st node).
- For Mildew control add Tern @ 0.3 - 0.5 L/ha. Please be conscious of the 15 metre buffer zone associated with Tern and Winger.
- For Mildew prevention add 0.15 - 0.25 L/ha Talius or 0.5 L/ha Flexity (will not control established mildew). Midas can be used at 0.3 L/ha - 0.4 L/ha, that can give some prevention / curative properties.



SPRING BARLEY

SPRING BARLEY – HERBICIDE OPTIONS (GS 13 - 31)

PRODUCT	RATE (L/HA)	COMMENT
Presite Max + Zypar	1 pack / (2 - 4/ha) + 0.65 - 1.0	(Zypar = Boxer + Arylex mix) (Presite Max = Harmony Max) An excellent mix which will take almost all weeds. Rate depends on weed pressure at time of application. Very good on Vol beans. Can be mixed with Wild Oat herbicide, aphicide and T1 fungicide. This mix will take all weeds that Cameo Max will take.
Presite Max + Pixxaro	1 pack / (2 - 4/ha) + 0.375 - 0.5	(Pixxaro = Hurler + Arylex mix) An excellent mix. Very good on Cleavers, Fumitory and Chickweed. The 2 Litre pack size and application rate may suit field sizes. Can be mixed with Wild Oat herbicide, aphicide and T1 fungicide.
Presite Max + Galaxy + Reaper / Hurler	1 pack / (2 - 4/ha) + 1.0 + 0.75	(Galaxy = Boxer + Hurler + Clopyralid mix) This mix is more suited to Wexford or where resistant Corn Marigold is an issue. Rates depend on weed pressure at time of application. Also, with thistles present Galaxy has to be choice of partner. Max individual dose of Galaxy = 1.0 L/ha. For resistant Corn Marigold, Use 1 L/ha of Galaxy and top up with 0.5 L/ha of Kingston (Generic Galaxy). Excellent mix and will control Cleavers, Chickweed and Speedwell. Presite Max can be swapped for Cameo Max where Fumitory is an issue.
Hiatus + Reaper / Hurler or Galaxy/Kingston	1 pack- (3 - 5/ha) + 0.75 or 1.0	Hiatus has a very broad weed range. Excellent on Vol Potatoes, Fumitory and Speedwell. Not effective on resistant Corn Marigold. Can be mixed with Wild Oat herbicide, aphicide and T1 fungicide. Do not use Hiatus on Oats.
Cameo Max + Hurler / Reaper or Galaxy/Kingston	1 pack- (3 - 5/ha) + 0.75 or 1.0	A good option but weed spectrum narrower than the options above. Cameo Max has the advantage of controlling Fumitory but will not control resistant Corn Marigold and resistant Chickweed. Can be mixed with Wild Oat herbicide, aphicide and T1 fungicide.

GENERAL COMMENTS

- Herbicide can be included with T1 fungicide, Wild Oat Herbicide and Aphicide. Do not mix Wild Oat herbicides with any CMPP or MCPA type products. **Do not mix Wild Oat herbicide with Hormones.**
- Presite Max can be swapped for Cameo Max and vice versa.
- Rates should be adjusted depending on weed pressures and conditions.
- Trace elements can be included at this timing.
- Delfan Plus or Phylgreen @ 1.0 L/ha - 2.0 L/ha should be considered to help reduce stress and aid recovery of crops.
- Axial Pro can be used at this point to control Wild Oats (0.6L/ha) or Canary Grass / Ryegrass (0.82L/ha). Avoid mixing any Hormone partner with Axial Pro.
- At 3 - 4 leaf stage add in Aphicide, Ninja / Karate Zeon @50 ML/ha.

AGROCHEMICAL OPTIONS - SPRING BARLEY 2024



SPRING BARLEY

SPRING BARLEY – WILD OAT OPTIONS (GS 13 – 39)

PRODUCT	RATE (L/HA)	COMMENT
Axial Pro	0.6 – 0.82	Axial Pro is the new formulation of Axial. It is a pre-formulated mix containing Axial and Adigor. 0.30 L/ha old form of Axial = 0.6 L/ha Axial Pro 0.25 L/ha old form of Axial = 0.5 L/ha Axial Pro 0.20 L/ha old form of Axial = 0.4 L/ha Axial Pro. If using Axial Pro at 0.4 L/ha, Adigor must be included at 1.0 L/ha. Do not mix Axial Pro with MCPA or CMPP based products. 0.82 L/ha rate required if targeting Canary Grass and Rye-Grass.
Foxtrot	0.68 – 1.0	Foxtrot is the same formulation as Cheetah Extra. Foxtrot should be used as a standalone application and should not be used as part of a multi-product tank mix.

GENERAL COMMENTS

1. Herbicide can be included with T1 fungicide, Wild Oat Herbicide (**Axial Pro only**) and Aphicide.
2. Do not mix Axial Pro with MCPA and CMPP based products.
3. Delfan Plus or Phylgreen @ 1.0 L/ha – 2.0 L/ha can be added to a combined T1 Fungicide, Herbicide, Wild Oat mix to reduce crop stress and help aid recovery.

SPRING BARLEY – WILD OAT OPTIONS (GS 12 – 24)

PRODUCT	RATE (L/HA)	COMMENT
Ninja / Karate Zeon / LS Tarak	50 ml/ha	Ninja / Karate Zeon / LS Tarak = 100 g/l Lambda. Aphicide should be applied to Spring Barley crops at the 2 – 3 leaf stage (GS 12 – 13) where the threat of BYDV is at its highest.

GENERAL COMMENTS

1. Herbicide can be included with T1 fungicide, Wild Oat Herbicide (**Axial Pro only**) and Aphicide.
2. Do not mix Axial Pro with MCPA and CMPP based products.
3. Delfan Plus or Phylgreen @ 1.0 L/ha – 2.0 L/ha can be added to a combined T1 Fungicide, Herbicide, Wild Oat mix to reduce crop stress and help aid recovery.



SPRING BARLEY

SPRING BARLEY – PGR OPTIONS (GS 30 – 39)

A ROBUST PGR PROGRAM WILL BE ESPECIALLY IMPORTANT WITH VARIETIES LIKE PLANET AND LAUREATE

PRODUCT	RATE (L/HA)	COMMENT
GS 30 – 32 Moddus OR Scitec +/- CeCeCe 75% / Holdup	0.1 – 0.2 +/- 1 – 1.25	Use 0.15 L/ha – 0.2 L/ha rate Moddus/Scitec @ GS 30/31. This is especially important for varieties like Planet and Laureate. Timing is critical for successful growth regulation. For tiller manipulation, CCC needs to be applied mid-tillering.
GS 29 – 41 Medax Max	0.3 – 0.35 Kg/ha	Medax Max @ 0.32 Kg/ha = 25g Moddus + 15g Prohexadione. Works well in cool conditions. Very kind product on spring barley.
GS 32 – 39 Terpal	0.6 – 0.8	This should only be considered as a final option. Optimum timing @ GS 32 – GS 37. Care needs to be taken when applying Terpal to Spring Barley as it can be hard. Be very careful not to get caught with awns emerging.

GENERAL COMMENTS

1. Growth Regulation can be combined with the T1 Fungicide.
2. Be careful when mixing with Wild Oat Herbicides or BLW Herbicides as these can heat up mix.
3. Follow up PGR of Terpal / Medax Max, should be applied between growth stages 32 – 37 if lodging pressure high.
4. Max total dose of Medax Max on Spring Barley = 0.75 Kg/ha up to GS 39.
5. Max total dose of Terpal on Spring Barley = 1.5 L/ha up to GS 49. Be careful not to apply if awns emerging.

SPRING BARLEY – T2 FUNGICIDE OPTIONS

PRODUCT	RATE (L/HA)	COMMENT
Mastercrop Barley Pack Elite IMPERIS + REVCARE + Mirror/Arizona	1.0 + 1.0 + 1.0	Barley Pack Ultra = 5 L IMPERIS @1.0 L/ha = 50% Xemium. 5L Revycare @1.0 L/ha = 66% Revysol + 50% F500. Very strong option on all key diseases, particularly Ramularia. Alternative azole to Proline with strong straw characteristics.
Elatus Era +/- Mirror/Arizona	1.0 +/- 1.25	Elatus Era @ 1.0 L/ha = 75% Proline + 100% Solatenol. Strong and robust option on Ryncho. Performed well over the last two seasons.

GENERAL COMMENTS

1. For **Mildew control** add Tern @ 0.3 – 0.5 L/ha. 15 metre buffer zone applies to Tern.
2. **Max overall total dose rate of Talius = 0.25 L/ha. Flexity can be used as an alternative at a rate of 0.5 L/ha for Mildew prevention. Max overall total dose rate of Flexity = 1.0 L/ha. Midas can be used at 0.3 L/ha – 0.4 L/ha that can give some prevention / curative properties.**
3. Be careful not to exceed max total overall doses of specific products throughout programme.
4. **Only 2 SDHI's permitted on Barley. Only 2 applications of Strobs permitted on Barley.**
5. Arizona/Mirror should be included at T3 on all varieties to protect against Ramularia.
6. T2 on Spring Barley should be applied at GS 39 – 49 (awns emerging).

SUGGESTED SOWING RATES FOR SPRING CEREALS



SPRING BARLEY

Aim to establish between 300 - 330 plants/m²



SPRING OATS

Aim to establish between 325 - 350 plants/m²



SPRING WHEAT

Aim to establish between 300 - 350 plants/m²

Suggested Spring Barley seed rates for 2024

SOWING DATE (WEEK)	4TH WEEK FEBRUARY	1ST WEEK MARCH	2ND WEEK MARCH	3RD WEEK MARCH	4TH WEEK MARCH	2ND WEEK APRIL	4TH WEEK APRIL
TARGET PLANTS M ²	300	305	310	320	330	330	330
SOWING SEEDS M ²	400	380	390	380	390	370	370
% ESTABLISHMENT	75%	80%	80%	85%	85%	90%	90%

Suggested Spring Oat seed rates for 2024

SOWING DATE (WEEK)	4TH WEEK FEBRUARY	1ST WEEK MARCH	2ND WEEK MARCH	3RD WEEK MARCH	4TH WEEK MARCH	2ND WEEK APRIL	4TH WEEK APRIL
TARGET PLANTS M ²	325	325	335	335	340	345	350
SOWING SEEDS M ²	430	410	420	395	400	385	390
% ESTABLISHMENT	75%	80%	80%	85%	85%	90%	90%

Suggested Spring Wheat seed rates for 2024

SOWING DATE (WEEK)	4TH WEEK FEBRUARY	1ST WEEK MARCH	2ND WEEK MARCH	3RD WEEK MARCH	4TH WEEK MARCH	1ST WEEK APRIL	2ND WEEK APRIL
TARGET PLANTS M ²	300	310	320	330	340	350	350
SOWING SEEDS M ²	400	388	400	390	400	390	390
% ESTABLISHMENT	75%	80%	80%	85%	85%	90%	90%

CEREAL SEEDING RATE CALCULATOR (KG/HA)

Seeds / m ²	THOUSAND GRAIN WEIGHT - GRAMS															
	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62
50	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
75	24	26	27	29	30	32	33	35	36	38	39	41	42	44	45	47
100	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62
125	40	43	45	48	50	53	55	58	60	63	65	68	70	73	75	78
150	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90	93
175	56	59	63	67	70	74	77	81	84	88	91	95	98	101	105	109
200	64	68	72	76	80	84	88	92	96	100	104	108	112	116	120	124
225	72	77	81	86	90	95	99	104	108	113	117	122	126	131	135	139
250	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155
275	88	94	99	105	110	116	121	127	132	138	143	149	154	160	165	171
300	96	102	108	114	120	126	132	138	144	150	156	162	168	174	180	186
325	104	111	117	124	130	137	143	150	156	163	169	176	182	189	195	202
350	112	119	126	133	140	147	154	161	168	175	182	189	196	203	210	217
375	120	128	135	143	150	158	165	173	180	188	195	203	210	218	225	233
400	128	136	144	152	160	168	176	184	192	200	208	216	224	232	240	248
425	136	145	153	162	170	179	187	196	204	213	221	230	238	247	255	264
450	144	153	162	171	180	189	198	207	216	225	234	243	252	261	270	279
475	152	162	171	181	190	200	209	219	228	238	247	257	266	275	285	294
500	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310

SPRING CEREAL RECOMMENDED LISTS 2024

SPRING WHEAT 2024

AGRONOMIC & QUALITY CHARACTERISTICS*	RECOMMENDED		PROVISIONALLY RECOMMENDED	
	KWS FIXUM	KWS HELIUM	WPB DUNCAN	WPB ESCAPE
RELATIVE YIELD†	104	100	100	102
STRAW HEIGHT (cm)	68.8	73.9	66.6	61.6
RESISTANCE TO LODGING	6	5	5	7
EARLINESS OF RIPENING	5	6	5	5
RESISTANCE TO:				
MILDEW	(6)	(7)	(7)	(6)
SEPTORIA SPP	5	5	6	5
YELLOW RUST	6	5	7	7
SPROUTING	(7)	(7)	(7)	(5)
QUALITY:				
GRAIN PROTEIN CONTENT (%)	10.8	11.4	10.6	11.0
HAGBERG FALLING NUMBER‡	280	275	309	327
1000 GRAIN WEIGHT (g)	50.1	50.4	46.3	48.8
HECTOLITRE WEIGHT (kg/hl)	78.5	81.3	79.3	78.2
HARDNESS INDEX	Hard	Hard	Hard	Hard
YEAR FIRST LISTED	2023	2022	2022	2023

* Based on trial results from 2021, 2022 and 2023.

† Yields are expressed as a percentage of the yield of WPB DUNCAN. (100 = 9.05t/ha @ 15% moisture content).

‡ Based on results from 2020, 2021 and 2022.

SPRING OATS 2024

AGRONOMIC & QUALITY CHARACTERISTICS*	RECOMMENDED	
	HUSKY	WPB ISABEL
RELATIVE YIELD†	99	101
STRAW HEIGHT (cm)	98.9	102.9
RESISTANCE TO LODGING	6	7
STRAW BREAKDOWN	5	8
EARLINESS OF RIPENING	8	6
RESISTANCE TO:		
MILDEW	5	5
CROWN RUST	4	5
QUALITY:		
1000 GRAIN WEIGHT (g)	40.3	43.9
KERNEL CONTENT (%)	69.9	69.7
HECTOLITRE WEIGHT (kg/hl)	58.0	59.3
YEAR FIRST LISTED	2009	2019

* Based on trial results from 2021, 2022 and 2023.

† Yields are expressed as a percentage of the mean of Husky and WPB Isabel. (100 = 7.75t/ha @ 15% moisture).

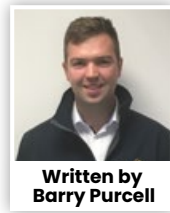
SPRING BARLEY 2024

AGRONOMIC & QUALITY CHARACTERISTICS*	RECOMMENDED							PROVISIONALLY RECOMMENDED		
	GANGWAY	GERALDINE	GRETCHEN	RGT PLANET	ROCKWAY	SKYWAY	SY AMITY	FLORENCE	LG MERMAID	SPINNER
RELATIVE YIELD†	100	105	104	100	104	105	104	106	105	105
STRAW HEIGHT (cm)	74.7	71.4	73.6	74.4	77.6	77.1	75.3	69.8	70.8	71.6
RESISTANCE TO LODGING	6	7	7	5	6	5	7	(7)	(5)	(6)
STRAW BREAKDOWN	7	6	6	4	6	4	6	(6)	(4)	(6)
EARLINESS OF RIPENING	5	6	6	5	5	5	5	(6)	(5)	(5)
RESISTANCE TO:										
MILDEW	8	8	8	8	8	8	8	(8)	(8)	(8)
RHYNCHOSPORIUM	5	7	7	5	7	7	6	(7)	(7)	(7)
BROWN RUST	6	6	6	5	6	6	6	(5)	(6)	(6)
NET BLOTCH	8	8	8	4	7	6	8	(7)	(8)	(8)
QUALITY:										
1,000 GRAIN WEIGHT (g)	50.7	52.5	55.0	52.7	52.7	52.6	55.9	53.6	53.5	53.1
HECTOLITRE WEIGHT (kg/hl)	69.8	67.8	67.8	67.6	68.6	68.6	68.0	67.8	68.9	68.1
SCREENINGS % (<2.2 mm)	1.2	1.1	0.9	1.2	0.8	0.9	0.7	1.2	1.5	1.2
GRAIN PROTEIN %	10.3	10.3	10.5	10.3	10.3	10.1	10.3	10.3	10.1	10.2
YEAR FIRST LISTED	2018	2022	2023	2017	2023	2022	2022	2024	2024	2024

* Based on trial results from 2021, 2022 and 2023.

† Yields are expressed as a percentage of the mean of RGT Planet and Gangway. (100 = 8.25 t/ha @ 15% moisture content).

AGRONOMY STEPS FOR SPRING FEED BEANS



Written by Barry Purcell

The 2023 season provided lots of challenges where growers experienced adverse weather conditions, enormous input costs and relatively low returns for their produce. However, it highlighted how essential it is to mitigate risk. One option for doing so is to avail of the protein aid scheme, where a grower will grow a protein crop such as beans or peas, and in return will be eligible to apply for a payment from the Department of Agriculture. In 2023, this payment equated to €583/ha which was a huge benefit to growers in a difficult growing season. The focus on the growth of the protein crop area highlights the Department of Agriculture's goal of reducing our reliance on bought-in protein sources with the added benefit of reducing artificial nitrogen usage. Unfortunately, 2024 is shaping up to be another difficult growing season and any options available that help farmers spread their risk are worth considering.

Crop Agronomy:

Sowing

- The target sowing rate is 35-40 seeds/m², giving an optimum establishment rate of 30-35 plants/m²
- The sowing rate can be determined by the following equation: **Seed rate = TGW x Target establishment rate / % establishment (example 550x35/85=226kg/ha)**

Beans tend to suit heavier soils with good moisture retention characteristics. This is due to their high moisture demands during the summer months when the crop is flowering and setting seed. Beans can grow very well in strip-till systems and plough-based systems. They do not like compacted soils.

Nutrition

Although beans don't require any Nitrogen fertiliser, they have a requirement for Phosphorous and Potassium. A product like 0/7/30 or 0/10/20 should be incorporated into the seed

bed pre-setting the crop to give the crop the best start. See table below for application rates based of your soil test results. Applications of trace elements such as manganese, magnesium, boron and sulphur also play an important role where deficiencies are expected.

SOIL P, K INDEX ¹	PEAS		BEANS	
	P	K	P	K
1	40	125	50 ²	125
2	25	60	40 ²	60
3	20	40	20 ³	40
4	None	None	None	None

Source: Teagasc green book

Weed Control

Beans are not a very competitive crop and do not like competition from weeds in the crops early development phase. Pre-emerge options form the best control. For best results these should be applied to level, fine seedbeds, preferably after rolling the crop where conditions allow. As these products are residual herbicides they need a certain amount of moisture in the soil to allow for best results. See the options below:

- Nirvana @ 4.5L/ha
- Stallion @ 3L/ha
- Nirvana 2.5L + Defy 4L/ha
- Stomp Aqua 2.9L + Centium 0.2L/ha

Nirvana controls the widest range of broad-leaved weeds

Common name	Nirvana 4.5 l/ha	Nirvana 3.0 l/ha	Nirvana 2.0 l/ha	Stomp Aqua 2.9 l/ha	Defy 5.0 l/ha	Emerger 3.0 l/ha	Stallion Sync 3.0 l/ha	Centium 0.25 l/ha
Chickweed	S	S	MS	S	S	S	S	S
Fat-Hen	S	S	MS	S	MR	S	S	-
Orache	S	MS	MR	S	-	R	-	-
Groundsel	MS	MR	-	R	MS	MS	S	-
Mayweeds	MS	MS	MS	MR	R	S	MS	-
Smooth sow-thistle	MS	-	-	S	-	S	S	-
Charlock	S	MS	MS	MR	S	S	-	-
Vol OSR	S	MS	MR	MR	MR	S	-	-
Annual mercury	MS	-	-	-	-	R	MS	-
Fumitory	S	MS	MS	MS	S	R	MS	-
Henbit deadnettle	S	S	R	S	-	S	S	-
Red dead-nettle	S	S	S	S	S	S	S	S
Poppy	S	-	-	S	R	S	-	-
Annual meadowgrass	S	MS	-	S	S	S	MS	MS
Black Bindweed	S	MS	MR	MR	MR	MS	MS	-
Knotgrass	S	S	S	S	MR	S	S	-
Redshank	S	MS	R	MR	MR	S	MS	-
Cleavers	MS	R	R	MR	MS	S	S	S
Common field speedwell	S	S	S	S	S	S	S	-
Ivy-leaved speedwell	S	S	S	S	S	MS	S	-
Black nightshade	MS	R	R	R	S	MS	S	-
Fool's parsley	MS	MR	R	MR	-	R	S	S

S = Susceptible (85%+ control)
MS = Moderately Susceptible (75-85%)
MR = Moderately Resistant (60-75%)
R = Resistant (<60% control)
- = No information



Pest Control

Bean Weevil: This pest can be identified by the characteristic U shaped notches on the edges of leaves as it feeds on the plant. However, this is not the problem this pest causes. The bean weevil lays its eggs on the bean plant which hatch into small larvae. These larvae move down to the root zone of the bean plant and feed on the root nodules which impact the crop by hampering its Nitrogen fixing ability. Control of this pest can be done by applying an insecticide such as Ninja @ 75ml/ha once leaf notching is noted across the field.

Black Bean Aphid: This pest targets the bean plant later in the plant's life cycle. Clusters of black bean aphids can be seen on crops when they are flowering. In most cases, the black bean aphids attack certain plants and are not widespread across the field. Treatment is not advised unless more than 5% of the plants are infected.

Disease Control

Chocolate Spot: This is one of the main diseases that affect beans in Ireland. The disease appears as dark brown spots on the leaf which can enlarge aggressively reducing green leaf area if the conditions are right. Chemical intervention is required at the first sign of the disease appearing in the crop canopy. Typical timing is at the start of flowering, however, earlier application may be required if chocolate spot is noted beforehand. A second chemical application is generally required 2-3 weeks after the first application.



Source Bayer UK

Bean Rust: This disease affecting beans typically shows up later in the season than chocolate spot. It appears as reddish pustules on the leaf. The disease favours weather where there are hot days and cool humid nights. If the disease appears during flowering or pod set chemical action is required to prevent it. There is a lesser yield penalty when the disease appears later in the season, however, severe infections can completely defoliate the crop.



Source AHDB

Diseases To Note

- **Downy Mildew:** Cool, humid conditions are favourable for the disease. A good rotation is key to reducing the occurrence of this disease. We rely on good varietal resistance as chemical control is limited.
- **Ascochyta:** This disease can affect the crop by causing it to lodge due to it weakening the stem. The disease can be prevented by using disease-free seeds and a good rotation.
- **Cercospora:** This disease can often be mistaken as Chocolate Spot. It will usually occur earlier in the season than Chocolate Spot. It is a soil-borne disease and can be common in cool, dry springs.

Take Home Messages

- Sow beans early if possible, from February to April. Ensure soil conditions are adequate.
- Calculate the seeding rate correctly, as too many plants/m² will lead to tall plants with less pod set; while too few plants/m² will allow for competition from weeds.
- Apply the correct amount of phosphorous and potassium, as per your soil test. Incorporate into the seedbed at planting.
- Apply pre-emerge herbicide as soon as possible after the crop is sown. Ideally onto a fine, firm seedbed.
- Monitor the plant for pests such as bean weevil. Take action where required.
- Apply a graminicide to remove wild oats, brome, and volunteer cereals.
- Pay close attention to crop health and take action as soon as Chocolate Spot becomes visible. Chemical action is entirely preventative.
- Beans condition the soil and offer a great break crop. They provide a great entry for winter wheat or Gluten Free Oats.

CROP AND CONTRACT CHOICES FOR SPRING 2024



Written by
Donal Moloney

After an extremely challenging harvest followed by very difficult autumn sowing conditions, the vast majority of growers would have been glad to see the back of 2023. However, 2024 has to date, proven to be equally as challenging as its predecessor and the tillage industry must again cope with a very late spring as almost incessant rain makes it virtually impossible to get field work done. In addition, while input costs, particularly fertiliser, have fallen back from the high levels seen in 2023, grain prices have fallen more sharply, putting increased pressure on crop margins. Against this background, growers must consider all crop options very carefully this spring and seek to add value and/or reduce costs wherever possible.

Tirlán can assist growers greatly in their crop choice as the company purchases a wide range of crops and has contracts available for specific crops which can add a much-needed bonus for growers in 2024. Some crop and contract choices worth considering are outlined below.

Adjunct Barley for Brewing and Distilling

This contract is exclusively for spring barley crops and the aim here is to produce good quality barley with a minimum specific weight of 63 kph. Crops cannot be sprayed with glyphosate pre-harvest and should be relatively free of contamination from other cereals, wild oats, and weed seeds. This contract typically attracts a bonus of €8 per tonne above the base feed barley price.

Feed Beans

While the optimum sowing date for spring feed beans may have passed, April-sown crops can still deliver very worthwhile margins. The main driver for this is the increased funding for the EU Protein Aid Scheme which is part of the current CAP regime. This increase in funding means that there is a total budget of €7 million now available annually for the growing of high protein feed crops in Ireland; in 2023 this translated to approximately €430 per hectare. With an inevitable reduction in the area of protein crops in 2024, there will be a consequent increase in the payment per hectare. Beans are also a lower-cost crop, requiring no chemical nitrogen and potentially reduced rates of pesticides. In addition, Tirlán is committed to using whatever level of native protein crops are grown by its suppliers and is currently offering an attractive forward price for beans. We also have contracts available for the sowing of feed peas for growers who consider that their land is more suitable for peas rather than beans.

Feed Oats

After the difficult harvest across much of northwestern Europe in 2023, demand for good quality oats has increased significantly, with the result that the price of oats in recent months has exceeded that of wheat and barley. It would

appear at present that demand for oats will remain strong into the next harvest and as such, the crop is likely to command prices similar to or possibly better than feed barley, where the required specification is achieved. In general, spring oats will have a slightly lower production cost than spring barley and while there would be a strong preference for sowing the crop in March rather than April, the 2023 harvest proved that later-sown oats can perform very well, in terms of both yield and quality.

Oilseed Rape

Spring oilseed rape has a relatively low production cost and has delivered consistent yield performance in recent years, yet the area of the crop grown has tended to remain very low. In fields where sowing of spring barley is likely to run into early May, spring oilseed rape is certainly worth considering. As a break crop, it also offers the opportunity for a wider choice of succeeding crops.

When deciding on what crops to grow, a grower must know their own likely cost of production for each crop. This will vary from farm to farm depending on factors such as land cost, access to machinery, field potential, etc. The Teagasc Crop Costs & Returns 2024 booklet serves as a very useful general guide for production costs and breakeven yields for a wide range of crops. Another key piece of information for growers is output price and in this regard, Tirlán issues a price text to growers regularly detailing the prevailing market price for all crop types. This offers growers the opportunity to forward sell a proportion of their crop in advance of harvest if it makes commercial sense.

Please contact your local Tirlán representative if you require further information on this article.



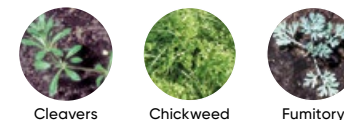
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2023 QUALITY GRAIN AWARD WINNERS



Champion Food Grade Oats growers, John and Ann Deering and their son, Mark, won the coveted overall Tirlán Quality Grain Award for 2023 and have been singled out for their exceptional attention to detail in growing top-quality grains on the family farm.

The Deering family, from Morette near Emo in County Laois, also won the individual Food Grade Oats award for harvest 2023. The champion growers were among 14 top suppliers commended at the highly competitive Tirlán Quality Grain Awards for 2023 ceremony that took place on Tuesday, February 20th 2024 in Portlaoise, Co. Laois.

John Murphy, Tirlán Chairperson, said it was one of the most challenging years in living memory for grains but commended Tirlán's 1,100 plus growers on the resilience they've shown. "The commitment to quality and passion shown by the award-winning growers, coupled with the sustainability credentials of the crops, bodes well for the future of Irish grain.

"As the largest buyer and user of premium Irish grains, Tirlán is investing in the future of Irish grain. Tirlán paid our growers almost €3 million in additional bonuses last year, specifically for premium grains. And in spite of the exceptionally challenging weather, we doubled our gluten-free oats intake last year.

"We've built strong capabilities in our Oat Mill in Portlaoise and in R&D with a view to maximising returns for our farm families. We continue to expand our plant-based offerings and we're

evolving our portfolio to meet growing global demand in key markets such as North America, Europe and Asia where demand for sustainably produced, fully traceable product made from quality Irish grains continues to grow. Our new Avonmore Oat Drinks are performing very well in Ireland and the Asian market, and we recently launched a new Truly Oat beverage range into the US market."

The winning crop

Tirlán Quality Grain Awards Overall Winners John and Ann Deering farm with their son, Mark and grow a range of crops on the family farm. The main crop grown is cassia winter barley. Break crops used on the farm are winter oilseed rape, spring beans, winter gluten-free oats and winter food grade oats. Winter wheat and contracted spring barley are also grown.

A delighted John Deering said: "We were honoured to come here today to receive the Food Grade Oats award. But to win the Overall Award for 2023 is a huge boost, particularly when last year was such a tough one for growers."

Crops on the Deering family farm are established mainly by min till and organic manures are used on some of the land. Attention to detail is a hallmark of their success in growing quality grains. The winning crop had an average specific weight of 57.8 kph at 17.6% moisture across 214 tonnes and incidentally was a crop of gluten-free oats. The Deering family's Tirlán agronomist is Tim Scott.

Winners 2023

CATEGORY	GROWER	ADDRESS
Winter (Cassia) Feed Barley	John and Ray Kavanagh	Bert, Athy, Co. Kildare
Malting Barley	R&R Farms	Deerpark, Mogeely, Co. Cork
Green Feed Barley	John Fenlon	Barraghcore, Goresbridge, Co. Kilkenny
Premium Spring Barley	John Miller	Burtown, Athy, Co. Kildare
Dried Feed Barley	B&N Madden	Kiltale, Dunsany, Co. Meath
Seed Barley	Kathleen & James Maher	Ballyspellan, Johnstown, Co. Kilkenny
Green Feed Wheat	David O'Dwyer	Heathpark, Newbawn, Co. Wexford
Dried Feed Wheat	Michael Carey	Stonefield, Newcastle, Co. Wicklow
Seed Wheat	Ballingale Farms Ltd	Ballingale, Ferns, Co. Wexford
Food Grade Oats	John Deering	Morette, Emo, Co. Laois
Green Feed Oats	Grangenolvin Farm Partnership	Kilkea, Athy, Co. Kildare
Green Feed Beans	NBCB Farms	Dunbell, Maddockstown, Co. Kilkenny
Green Oilseed Rape	P. O'Connell Farms	Ballintogher, Ballybrittas, Co. Laois
Sustainability Award	J&C Sheridan Ltd	Kilberry, Navan, Co. Meath
Overall Award	John, Ann and Mark Deering	Morette, Emo, Co. Laois

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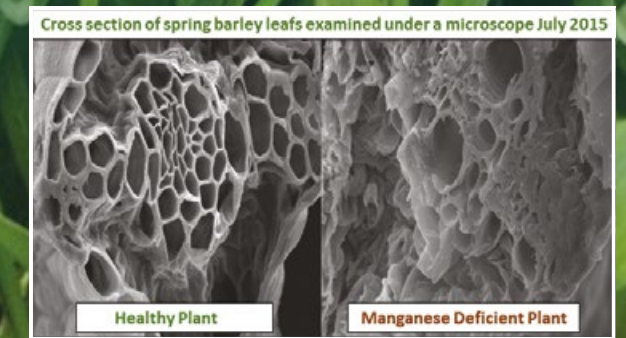
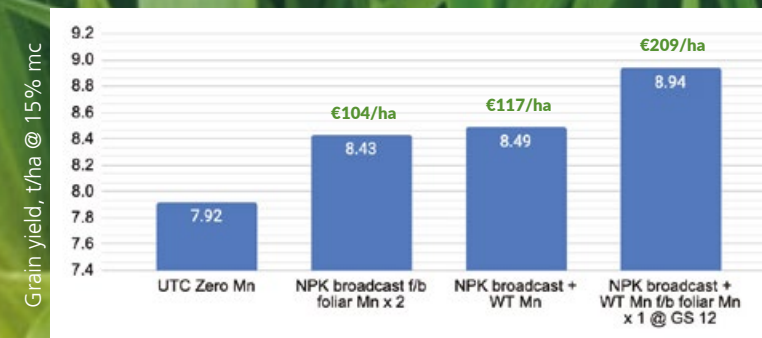
Manganese Deficiency

- When Manganese deficiency (as seen on right) appears in plants it is already robbing yield.
- Manganese deficiency will be more prevalent due to compacted soils caused by heavy rain in the back end after sowing.
- Manganese deficiency will also manifest itself when the crop is under stress after prolonged period of cold weather.
- Best results are obtained from early intervention.
- Wolf Trax manganese has been proven to increase yield by .5/tonne/Ha.



(Source NUIG trials conducted over multiple reps over 4 years in Athy co Kildare 2014-2018)

Grain yield, tonnes per ha @15% moisture @220/tonne



YOUR LOCAL TIRLÁN FARMLIFE AGRONOMIST



Head of Grains & JVs
John Kealy



Grain Manager
Donal Moloney – 087 2530566



Agronomy Manager
Fintan Treacy – 087 2541638



North East
Conor Hoey – 087 9487460



North Kildare
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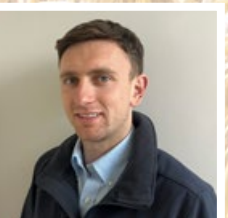
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