



Sinclair M^cgill

IRELAND 2023

GRASS AND FORAGE CROPS HANDBOOK



Now with additional
LGAN Mixtures

Limagrain

WELCOME



Welcome to our 2023 Sinclair McGill Handbook.

The Sinclair McGill brand and mixtures have long had the reputation for quality and delivering for the requirements of Irish farmers.

This year's product range again highlights our core vision for our brand, which

is to formulate the best mixtures that will deliver high dry matter tonnage, highest rates of utilisation and inclusion of clover in swards for nitrogen fixation to reduce the need for chemical nitrogen but not compromising on yields. Our product range have something for every soil type and farm system that will help you maximise your productivity. With our attention to detail on the breakdown of our carefully selected mixtures we are confident we can deliver a combination of nutritional and agronomic quality. When it comes to all Sinclair McGill products the old adage rings through "Performance you can rely on."

Tom Dowling – Sinclair McGill Business Manager



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SINCLAIR MCGILL MONITOR FARM, CO. GALWAY



FARM INFO

Farmer Manager: Brendan Fahy
Type: Beef farm with sheep used on reseeded
Location: Corofin, Tuam, Co. Galway
Total Area Farmed: 93 ac
Stock Numbers: 100
Main Forages: Grass and silage
Soil type: Predominantly sandy free draining - clay
 Soil index 1 & index 2
 2.5t – 3t of lime per acre
Plan for Future: 60 acres reseeded in 2021, 23 acres reseeded in 2022. Remaining 10 acres to be reseeded in 2023.

ABOUT THE FARM:

This farm is currently undergoing a full reseed with Sinclair McGill. The farm manager, Brendan Fahy has used Sinclair McGill on his own suckler farm and would not use anything else for performance.

Advance grass mixture from Sinclair McGill was specifically developed for the Irish market and in 2023 it includes 5 star grass varieties, **Nashota**, **Aspect** and 4 star variety **Meiduno** making this the best grass mixture to graze out with the highest utilisation figure of any mixture on the market.

Turbo is an intensive grazing mixture and suits this farms requirements and soil structure needs. 18 – 20 kg per acre sowing rate was applied by the farm manager, as the farm has never been reseeded and **Turbo** can offer great speed of regrowth combined with highly palatable tetraploid ryegrasses. **Turbo** is also a great mixture for productivity on a dairy farm.

Castlehill the flagship mixture for Sinclair McGill



throughout the country was sown on the monitor farm in spring 2021. **Castlehill** is a rock solid mix known for its fast recovery, its long term persistency and of course it is a dual purpose mix, for both grazing and cutting!

We look forward to their progress over the next few years.

SEED QUALITY



LESS WEED SEEDS AND MORE LIVE SEEDS IN EVERY BAG!

When it comes to grass seed quality, our no-compromise approach is simple - we aim to deliver less weed seeds and more live seeds than any other company. By specifying the **Sinclair McGill** brand, you really can make a significant difference to the performance of your new ley mixture.

THE CORNERSTONE OF A SUCCESSFUL LEY IS A TOP QUALITY SEED MIXTURE FROM THE SINCLAIR MCGILL RANGE

GERMINATION STANDARDS

Species	EU Standard	Higher Voluntary Standard	Sinclair McGill Target
Perennial Ryegrass	80%	80%	90% +
Italian Ryegrass	75%	75%	85% +
Hybrid Ryegrass	75%	75%	85% +

POSSIBLE INERT MATERIAL IN 10 ACRES OF PERENNIAL RYEGRASS

Inert Material	EU Standard	Higher Voluntary Standard	Sinclair McGill Target
Dead Seed	30 kilos	30 kilos	7 kilos*
Impurities	6 kilos	3 kilos	1 kilos*

* Based on the laboratory analysis of our own contract crops and 10 acres being equivalent to 150 kilos of seed.

POSSIBLE WEED CONTENT IN AN OFFICIAL SAMPLE OF PERENNIAL RYEGRASS (60g of seed)

Weed	EU Standard	Higher Voluntary Standard	Sinclair McGill Target
Docks*	5	5	Less than 1
Couch*	120	10	Less than 1
Blackgrass*	100	10	Less than 1

* Note: There is no EU standard or test for blackgrass or couch in 60g so the figures quoted are an estimate based on our laboratory experience.

PURITY STANDARDS

Species	EU Standard	Higher Voluntary Standard	Sinclair McGill Target
Perennial Ryegrass	96%	98%	98% +
Italian Ryegrass	96%	98%	98% +
Hybrid Ryegrass	96%	98%	98% +

FORAGE QUALITY & ANIMAL NUTRITION

LG Animal Nutrition (LGAN) is a stamp of approval given to carefully selected grass mixtures, which can deliver a proven combination of nutritional and agronomic qualities.



LGAN accredited mixtures have been formulated to provide a careful balance of sugars (WSC) with digestible fibres (dNDF), protein, energy, and D value. These nutritionally enhanced mixtures offer farmers and growers increased efficiency which in turn has the potential to drive profitability.

LG Animal Nutrition - the proof

The agronomic and feed values attributed to LG Animal Nutrition mixtures are supported by independent trials at national research institutes as well as trials at Sinclair McGills own research sites.

The principles of LGAN grass mixtures formulation were first tested at the Schothorst Research Institute in the Netherlands. Animal feeding trials compared the performance of a group of cows fed a diet based on a high quality LGAN mixture with a control group fed a conventional dual purpose grass mixture.

Cows on the LGAN grass-based diet averaged 1.4 litres of milk per cow more than the control group.

LG ANIMAL NUTRITION BENEFITS

- IMPROVEMENT IN FEED EFFICIENCY OF 5%
- MILK YIELD INCREASE OF 5%
- ADDITIONAL INCOME €247.66

Feeding trials comparing grass mixtures in dairy diets

	MIXTURE	CONTROL MIXTURE
Feed Efficiency (milk kg feed)	1.30	1.24
Milk Yield (litres/day/cow)	29.9	28.5
Additional milk yield in 305 days (litres)	427	
Milk value (based on €0.58c/l)	€247.66	

Schothorst Research Institute feed trials 2013

FORAGE QUALITY TRIALS

We measure the forage quality of individual grass varieties as well as our mixtures to ensure that the balance of characteristics we aim for are carried through to the field.

The first independent forage mixture trials to demonstrate the LGAN principal were carried out in 2014 at NIAB TAG in Dartington, Devon. Since then we have continued to test our LGAN grass mixtures in trials in Ireland and the UK under both conservation and simulated grazing regimes.

Long term trials at the SMG Innovation site in Lincolnshire between 2017 and 2022 have shown clear benefits of all LGAN mixtures over the controls. The grazing mixture TURBO performed particularly well, with excellent yields, sugar content and energy. But perhaps most noteworthy was the mixtures average dNDF content over the 4 years tested as shown in the table below

	dNDF (%)
TURBO	83.0
Control Mix	80.6
Difference	+2.4

Source: Limagrain Trials 2014-2016

Increasing dNDF levels in the diet is beneficial to dry matter intakes and can have a significant impact on milk yield. Each 1% increase in dNDF can result in an increased milk production of 0.25l per cow per day. So the 2.4% increase shown by Turbo could contribute as much as 0.6l per cow per day worth around €104 per cow (300 milking days and €0.58c/l).

TURBO BENEFITS

- INCREASED YIELDS, SUGAR AND ENERGY
- IMPROVED DIGESTIBLE FIBRE EQUIVALENT TO INCREASED MILK YIELDS WORTH €104 PER COW PER YEAR

HOW TO ESTABLISH A NEW GRASS LEY



- Lime the field if necessary so that seed is sown into soil with a pH as close to 6.5 as possible. Try to maintain a stable pH in the future.
- Check the drainage status as undesirable weed grasses will invade waterlogged fields. Consider sward lifters, mole ploughs and other means of relieving compaction if you discover that this is a problem. Digging a few deep holes in the field to check soil structure is a worthwhile investment of your time and effort.
- Analyse the soil and correct any obvious nutrient imbalances.
- Prepare a fine, firm and weed free seedbed.
- Timing of the sowing is important. Spring sowing from March to mid-May and Autumn from July until late September – depending on where you are located and the altitude. Mixtures with clovers are best sown when soil temperatures are higher; from April through May and July and August. Clovers require soil temperatures of at least 8-10°C to germinate and higher temperatures to achieve satisfactory growth.
- Ensure the seedbed is sufficiently moist and if possible, avoid mid-summer sowings to reduce the risk of drought impacting establishment.
- Ring roll prior to seeding to close any gaps and again after sowing to ensure close contact between the seed and the soil.
- Broadcast or cross drill and then roll or very lightly harrow. Ensure that the seed is placed no deeper than 6mm.
- If you use a cover crop, make sure that it is suitable to establish a grass ley and that the seed rate is not too heavy or the grass may get crowded out.
- Watch for any signs of pest attack and consult your agronomist if you see anything.
- Specify a Sinclair McGill mixture treated with **HEADSTART® GOLD** to improve establishment, increase plant stand and get your new ley off to a vigorous start.

OVERSEEDING

Criteria for reseeding may include; grass species content, low production, animals not grazing out properly due to poor varieties for low grazing utilisation scores or weed issues.

- Do a soil test on the field.
- Address any fertility and lime requirements from the soil test. This will ensure the new grass mixture has the optimum chance of reaching its full potential in both establishment and overall production terms.
- Timing is essential.
- What is the intended end use of the field i.e., grazing or cutting or perhaps both. Ideally choose tetraploid varieties as they compete more aggressively with the existing sward
- Scarify pre drilling to remove thatch as this lets in sunlight & moisture to the seedlings.



- Use the correct drilling method. For younger open swards a scarifying rake, for denser swards a disc drill
- Cross drilling can improve ground cover
- Roll after drilling for good seed to soil contact. Use a Cambridge roll if possible
- Be aware of Frit fly and Leatherjacket attack (consult your agronomist)

Stock can continue to graze up to seedling emergence. This is a very important point and if managed correctly it will add significantly to the potential of the new sward to establish fully.

RUN A HEALTH CHECK ON YOUR GRASS

Take a good look at all your grass fields this year and if you can answer 'yes' to any of these questions then you need to think very seriously about the various options that are open to you.

- Q: **Are your leys struggling to support the numbers of livestock they did in the past?**
- Q: **Is the speed of re-growth after silage cuts slower than it was?**
- Q: **Have your fields been attacked badly by pests and/or diseases in recent years?**
- Q: **Do you see more and more patchy areas on some fields?**
- Q: **Is the population of weeds and weed grass much higher than you thought?**
- Q: **Have your fields been badly poached in recent years?**
- Q: **Do you detect a reduction in the amount of silage being taken off each field every season?**
- Q: **Has the level of broad-leaved weed infestation been rising?**
- Q: **Could you make better use of the high feeding value of legumes like White Clover?**

You have various options if you have answered 'yes' to any or all of these questions. It may be that in some cases you will be able to bring the ley back up to speed by close attention to the control of weeds and pests. Alternatively, it may be necessary either to consider a complete re-seed or perhaps an overseeding operation.

The key point to remember is that it is important not to look at the cost of reseeding but instead consider the cost of not reseeding!

PELLETED WHITE CLOVER BLEND

Benefits of Cloverplus

CLOVERPLUS is the perfect product to add white clover into an existing grass ley.

Very often grass mixtures are sown without clover or the clover has been taken out with the control of broad-leaved herbicides.

CLOVERPLUS is a blend of white clover varieties, coated in a pellet and treated with HEADSTART® GOLD

This unique product has several benefits:

- Increased seed size and weight makes equipment calibration easier and distribution more even if broadcast
- Increased weight ensures seed is able to get down through the existing sward to ensure good soil/seed contact
- In dry conditions, the pellet protects the seed until there is sufficient moisture for germination
- HEADSTART® GOLD seed treatment speeds up germination giving young plants the best opportunity to successfully establish



KEY INFO - CLOVERPLUS

SOWING PERIOD	April - Aug
SOWING RATE	5kg/Ha (2kg/acre)
PACK SIZE	5kg

WHY CHOOSE CLOVERPLUS

- MORE SUCCESSFUL CLOVER ESTABLISHMENTS
- EASY TO SOW
- HEADSTART® GOLD TREATED
- CONTAINS A BLEND OF VARIETIES, SUITED TO ALL CLASSES OF LIVESTOCK



CLOVERPLUS
pelleted
clover seed

Untreated
clover seed



What are the benefits of White Clover

White clover is an excellent source of both protein and minerals for all livestock.

This high feed quality combined with high digestibility has been shown to lead to improved intakes and performance.

White clover is also capable of fixing over 180kg/Ha of Nitrogen reducing the need for artificial fertilisers.

WHITE CLOVER

The use of white clover in a mixture with perennial ryegrass has the potential to significantly increase the efficiency of grass-based livestock production systems.

This is achieved in two ways. Firstly, herbage production can increase and N fertiliser requirement decrease due to biological nitrogen fixation associated with white clover. White clover can fix the equivalent of 100-150kg N/ha per year for free. Secondly, the high protein content and digestibility of white clover can lead to increased animal performance.

@25% white clover in the sward

- +800kg DM/ha
- Opportunity to reduce N fertiliser

@20% white clover in the sward

- Dry matter intake +1.5kg/cow per day
- Milk solids +30kg MS/cow per year

OVERSOWING WHITE CLOVER

No matter what sowing method is used, the 4 key principles of successful establishment and management of white clover should always be considered.

Soil

- Ensure adequate soil P, K and pH status
- Sow seed no more than 1cm deep
- Roll to ensure soil-seed contact

Timing

- Sow when soil is warm (+10°C) and there is some moisture – ideally, April to May

Seed

- Oversow at a rate of 2 – 2.5kg/acre
- Use small and medium-leaf varieties for grazing and large-leaf for cutting

Light

- Oversow after a tight grazing or silage cut so light can stimulate seedling growth
- After sowing, graze at 1,100kg DM/ha for the following 3 rotations to establish adequate white clover content
- Once established, graze white clover swards at low covers (max 1,600kg DM/ha) down to 4cm to avoid competition from grass and allow light to reach the clover plants

CLOVER CONTENT SCORECARD

The clover content scorecard is a tool that farmers can use to identify the level of clover in their grass swards.



Source: Michael Egan, Teagasc Moorepark

Tips to Avoid Bloat

- Introduce animals to high-clover swards slowly.
- Make sure animals are full entering high-clover sward.
- Do not graze clover with a heavy dew.
- The use of bloat oil in water troughs will reduce the risk of bloat.

CAN MULTI-SPECIES SWARDS HELP IMPROVE FARM EFFICIENCY?

Multi-species swards (MSS) are a sustainable source of high-quality forage. As well as producing high yields of quality forage, sowing a MSS can lead to a reduced N fertiliser requirement, and increased animal performance health.

A MSS contains a number of species from the grass, legume and herb families with different species bringing different qualities to the mixture. These complementary traits can improve farm efficiency by increasing profitability and reducing its impact on the environment. For example, legumes like red and white clover in a



mixture can fix up to 150kg N/ha per year from the atmosphere. This equates to around 5 bags of CAN. Furthermore, the inclusion of deep-rooting species like Chicory improve growth rates during the summer and even lead to drought tolerance of the sward.



How to establish a multi-species sward

- Multi-species swards can be sown from late spring through to early autumn when soil temperatures are ~10°C.
- As with any forage crop, optimum levels of soil pH, P and K should be established before sowing. Soil fertility requirements are similar for a grass sward and a MSS.
- Once done correctly, any of the conventional reseeding methods can be used for sowing a MSS. Spraying off the old sward, ploughing etc... is the most effective way to establish an even MSS with less weeds.
- Careful rolling of the seedbed is vital to ensure good soil to seed contact especially for the small seeds of clover, plantain and chicory.
- Post-emergence herbicide cannot be used on a MSS. Where weeds are of concern it may be best to direct drill into a sprayed off stubble to avoid germination of dormant weeds in the seedbed.



Environmental benefits of multi-species swards

- Reduced N fertiliser application leads to lower greenhouse gas emissions (GHG).
- Improved animal performance can lead to reductions in GHG emissions per unit of product.
- Deep rooting species like chicory and red clover enhance the drought tolerance of a MSS.
- Greater productivity and a greater root mass leads to increased carbon sequestration under MSS.
- The inclusion of ribwort plantain is associated with significantly lower rates of nitrate leaching from MSS to water courses.



KEY VARIETIES IN SINCLAIR MCGILL MIXTURES

	DAFM Ireland (Republic)	TGU	PPI
Mid Season Perennial Ryegrass (Diploid)			
Moirá Excellent spring growth and silage yield. Good persistence and ground cover	Rec	***	209
Mid Season Perennial Ryegrass (Tetraploid)			
Dunluce Good summer and autumn growth. Very good digestibility. Latest heading tetraploid variety in the intermediates group. Ground cover is moderate with good persistence.	Rec	****	184
Fintona Very high yielding Tetraploid bred in Northern Ireland	Rec	****	190
Late Heading Perennial Ryegrass (Diploid)			
Bowie Ultra late heading diploid The highest quality Diploid on the PPI, (16th June) extending grass quality into the season	Rec	-	170
AstonKing Very good spring growth. Good silage yield. Good persistence. Has one of the best late diploid TGU scores.	Rec	***	141
Late Heading Perennial Ryegrass (Tetraploid)			
Aspect High yields for silage and grazing of excellent forage quality. Good disease resistance package.	Rec	*****	136
Nashota A DLF NxGen tetraploid variety 5* Grazing variety providing early spring growth and high quality	Rec	*****	214
Meiduno A new variety with high yields under both managements. Erect habit makes it look open but the forage yields are excellent and forage quality is very good too. Excellent resistance to all the major grass diseases.	Rec	****	195

	DAFM Ireland (Republic)	TGU	PPI
Enhanced® Ryegrass (Grazing Festulolium)			
Matrix A unique New Zealand bred Festulolium with the potential to extend the grazing season by up to 3 weeks both in the spring and the autumn.	N/A	-	-
Timothy			
Comtal High grazing yields of good digestibility. Has very good conservation yields.	N/A	-	-
White Clover			
Violin A large leaved variety (0.75). Very good annual yield. Considered suitable for silage production and cattle grazing. Unsuitable for hard grazing.	Rec	-	-
Crusader Medium leaved variety with high yields especially under lighter defoliation.	Rec	-	-
Coolfin A small leaved variety (0.51). Very good annual yield. It competes well with the accompanying grass. Considered suitable for grazing.	Rec	-	-
Red Clover			
Maro A tetraploid variety with very high yields and good persistency.	N/A	-	-
Merviot Benchmark Diploid variety yields.	N/A	-	-
SW Ares Good yields and persistency in our own trials.	N/A	-	-

KEY

PPI Pasture Profit Index (2023)

TGU Teagasc Grazing Utilisation (2023)

DAFM Ireland (Republic 2023)

Rec = Fully Recommended

N/A = Not on Recommended List

- = No available data

MIXTURE SELECTION CHART

PREDOMINATELY GRAZING

ADVANCE	100% late heading mixture, with unparalleled graze out, ground cover and quality	4-8 years	Page 14
TURBO®	Intensive grazing mixture with high digestibility and rapid regrowth	4-8 years	Page 15

DUAL PURPOSE

CASTLEHILL®	Traditional, long term pasture, utilising modern grass varieties	8-12 years	Page 16
EMERALD HILL	Late heading mixture designed for Irish conditions	8-10 years	Page 17

PREDOMINATELY CUTTING

ADMIRAL'S CHOICE	Later heading, high protein Red Clover mixture	2-4 years	Page 18
PROSPER®	High digestibility, intensive silage mixture	4-8 years	Page 19
SCOTSWARD®	Flexible and reliable, with an excellent heading date spread	4-8 years	Page 20

SPECIAL USE MIXTURES

EXTRA LAMB	Especially designed to support economic lamb production	6-10 years	Page 21
LAMBHILL	Versatile mixture especially formulated for harsh environments found in Ireland	8-12 years	Page 22
CASTLEHERB	Complex multispecies sward that exploits the attributes of deep rooted herbs	6-10 years	Page 23

PREDOMINATELY GRAZING



Patsy Wilson
John Dalton & Sons

"Advance is a highly palatable mixture, with exceptional ground cover."

ADVANCE

100% late heading mixture, with unparalleled graze out, ground cover and quality

- Advance encompasses the latest trends and ideas from with Irish Agricultural Research
- LGAN accredited mixture
- High tetraploid content with highest ground cover scores on RL
- All late mixture with 4 day heading date spread
- Highly palatable mixture with High DMD
- High on Teagasc PPI List and also very high quality variety
- Now includes AstonKing a highly rated grazing Diploid

Suggested seed rate:
14-18kg/acre (34-44kg/ha)

Advance is designed to provide grazed forage of the highest quality.

The varieties for this mixture have been specifically selected to provide forage of the highest nutritional value. This is achieved through both high water soluble carbohydrate content (sugars) and high digestible fibre content (dNDF), both of which are required for improved animal performance.



TEAGASC GRAZING UTILISATION SCORES 2023

23%	ASTONKING LATE PERENNIAL RYEGRASS (DIP)	***
25%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
20%	MEIDUNO LATE PERENNIAL RYEGRASS (TET)	****
25%	NASHOTA LATE PERENNIAL RYEGRASS (TET)	*****
7%	COOLFIN WHITE CLOVER	

PREDOMINATELY GRAZING



Cian O Sullivan
Kelliher's Feeds & Agri Supplies Ltd.

"Turbo has consistently delivered high yields for intensive farmers. Good dense sward with exceptional graze out."

TURBO®

Intensive grazing mixture with high digestibility and rapid regrowth

- Suitable for both paddock grazing systems and set stocking
- If you have not grown TURBO® before, you might well be surprised by the speed of regrowth after grazing
- Now includes Matrix for an even longer grazing season
- Turbo contains the new generation of highly palatable tetraploid ryegrasses that are grazed more efficiently
- An LG Animal Nutrition mixture for more milk or meat from every bite

Suggested seed rate:
13-16kg/acre (32-40kg/ha)

Turbo® is designed primarily to produce grazed forage of the highest quality. If required, Turbo® has the ability to provide a high quality cut of silage.

The varieties for this mixture have been specifically selected to provide forage of the highest nutritional value. This is achieved through both high water soluble carbohydrate content (sugars) and high digestible fibre content (dNDF), both of which are required for improved animal performance.



TEAGASC GRAZING UTILISATION SCORES 2023

7%	MOIRA INTERMEDIATE PERENNIAL RYEGRASS (DIP)	***
6%	FINTONA INTERMEDIATE PERENNIAL RYEGRASS (TET)	*****
14%	BOWIE LATE PERENNIAL RYEGRASS (DIP)	
15%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
21%	MEIDUNO LATE PERENNIAL RYEGRASS (TET)	***
20%	NASHOTA LATE PERENNIAL RYEGRASS (TET)	*****
10%	MATRIX ENHANCED® RYEGRASS	
7%	CRUSADER WHITE CLOVER	

DUAL PURPOSE MIXTURES

Ciaran Murphy
Quinns of Baltinglass

“Year after year, Castlehill consistently performs, producing a good quality grazing sward and a cut of silage.”

“AMAZED WITH PRODUCTION”

DUAL PURPOSE MIXTURES

JJ Breen, Lisrobin, Co Cork with Noel Fealey
Kelliher's Feed & Agri
Co. Kerry

“Excellent establishment on one of the softer and colder paddocks on the farm. Good growth throughout the year.” JJ Breen.

LATE HEADING MIXTURE DESIGNED FOR IRISH CONDITIONS

CASTLEHILL® Rock solid Castlehill

Castlehill® is the long term ley with rock solid performance

- Suitable for most soil types and climate
- Excellent feed for all classes of livestock
- Superb disease resistance
- Delivers the performance of a medium term ley, combined with the persistence of a long term ley
- Reliable top quality grazing and cutting
- Invest in Castlehill® for the ultimate in long term productivity

Suggested seed rate:
13-18 kg/acre (33-45 kg/ha)
Guide cutting height:
7.5cm (3 inches)

Castlehill® is a dual purpose mixture with a strong leaning towards grazing.

TEAGASC GRAZING UTILISATION SCORES 2023

12%	MOIRA INTERMEDIATE PERENNIAL RYEGRASS (DIP)	***
12%	FINTONA INTERMEDIATE PERENNIAL RYEGRASS (TET)	*****
12%	DUNLUCE INTERMEDIATE PERENNIAL RYEGRASS (TET)	****
11%	ASTONKING LATE PERENNIAL RYEGRASS (DIP)	***
13%	BOWIE LATE PERENNIAL RYEGRASS (DIP)	
12%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
15%	NASHOTA LATE PERENNIAL RYEGRASS (TET)	*****
7%	COMTAL TIMOTHY	
3%	COOLFIN WHITE CLOVER	
3%	CRUSADER WHITE CLOVER	



EMERALD HILL Designed to cope

- Developed especially for Ireland
- A later heading mixture of stem free production for much of the season
- Very dense sward for maximum resistance to poaching and treading
- Easy to manage and reliable mixture
- Suits both extensive and intensive livestock systems
- Mostly for grazing but it can be closed off for a late silage cut or hay

Suggested seed rate:
13-18 kg/acre (33-45 kg/ha)

Emerald Hill is a dual purpose mixture with a strong leaning towards grazing.

TEAGASC GRAZING UTILISATION SCORES 2023

12%	MOIRA INTERMEDIATE PERENNIAL RYEGRASS (DIP)	***
15%	DUNLUCE INTERMEDIATE PERENNIAL RYEGRASS (TET)	****
21%	ASTONKING LATE PERENNIAL RYEGRASS (DIP)	***
27%	BOWIE LATE PERENNIAL RYEGRASS (DIP)	
9%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
10%	NASHOTA LATE PERENNIAL RYEGRASS (TET)	*****
3%	COOLFIN WHITE CLOVER	
3%	CRUSADER WHITE CLOVER	



PREDOMINATELY CUTTING



ADMIRALS CHOICE

Later heading, high protein Red Clover mixture

- A powerful combination of high quality late heading perennial ryegrass and our Red Admiral Red Clover blend
- High sugars delivered by the grasses complement the high protein content of the clover
- Late heading Tetraploid Perennial Ryegrass is more persistent than Italian or Hybrid ryegrass, matching better with the persistence of newer Red Clover varieties such as Maro which features in our Red Admiral blend
- Red Admiral Blend contains both Diploid and Tetraploid varieties; both early and late flowering varieties; as well as both vigorous and persistent varieties, for more even yields across 3 or more cuts per year

Suggested seed rate:
10-12kg/acre (25-30kg/ha)

Guide cutting height:
10 cm (4 inches)

Although Admiral's Choice is designed primarily as a cutting sward, it can provide useful grazing for growing or fattening livestock.

The varieties for this mixture have been specifically selected to provide forage of the highest nutritional value. This is achieved through both high water soluble carbohydrate content (sugars) and high digestible fibre content (dNDF), both of which are required for improved animal performance.

TEAGASC GRAZING UTILISATION SCORES 2023

35%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
35%	MEIDUNO LATE PERENNIAL RYEGRASS (TET)	****
30%	RED ADMIRAL RED CLOVER BLEND	



PREDOMINATELY CUTTING



REALLY HIGH QUALITY SILAGE

Cian O' Sullivan, Kelliher Feeds & Agri Suppliers Ltd.

"Prosper's regrowth pace after grazing, you would have to see it to believe it. Great addition to any grazing block with 2 good cuts of silage."

PROSPER®

High digestibility, intensive silage mixture

- Potential to reduce silage making costs per tonne of dry matter
- Production is concentrated on intermediate heading varieties to produce the highest forage quality
- Best suited to well drained soils where optimum fertility is maintained for best results
- Excellent forage quality from this LG Animal Nutrition mixture ensures more milk or meat for your money

Suggested seed rate:
13-16kg/acre (32-40kg/ha)

Guide cutting height:
7.5cm (3 inches)

Prosper® is a high yielding mixture, designed to produce both quality silage and grazing.

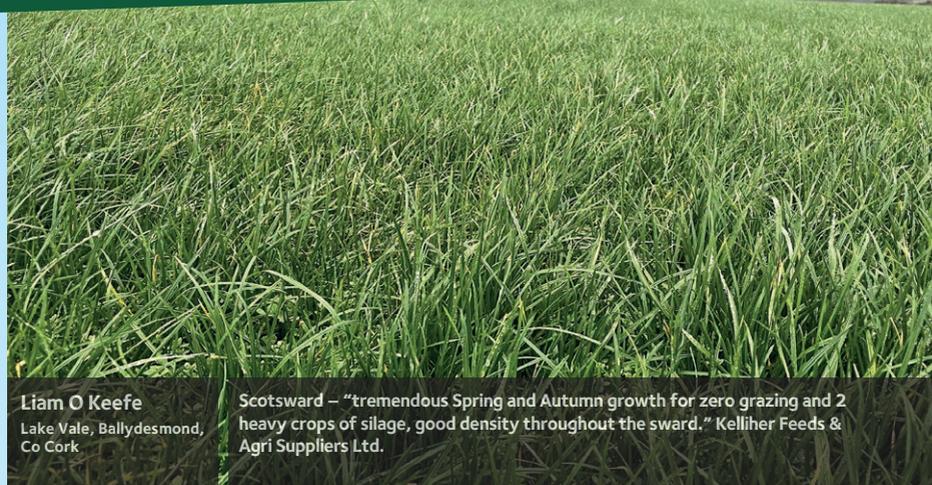
The varieties for this mixture have been specifically selected to provide forage of the highest nutritional value. This is achieved through both high water soluble carbohydrate content (sugars) and high digestible fibre content (dNDF), both of which are required for improved animal performance.

TEAGASC GRAZING UTILISATION SCORES 2023

17%	MOIRA INTERMEDIATE PERENNIAL RYEGRASS (DIP)	***
25%	FINTONA INTERMEDIATE PERENNIAL RYEGRASS (TET)	*****
15%	BOWIE LATE PERENNIAL RYEGRASS (DIP)	
11%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
25%	MEIDUNO LATE PERENNIAL RYEGRASS (TET)	***
3%	CRUSADER WHITE CLOVER	
4%	VIOLIN WHITE CLOVER	



PREDOMINATELY CUTTING



Liam O Keefe
Lake Vale, Ballydesmond,
Co Cork

Scotsward – “tremendous Spring and Autumn growth for zero grazing and 2 heavy crops of silage, good density throughout the sward.” Kelliher Feeds & Agri Suppliers Ltd.

SCOTSWARD®

Scotsward for harvest security

- A late heading mixture with a good heading date spread which ensures flexibility on silage cutting dates
- Consistently higher ME, quality silage
- Timothy inclusion enables Scotsward to stand up to the mower
- White Clover contributes to quality aftermath grazing
- Now includes AstonKing one of the highest rating Diploids on the Teagasc Grazing Utilization list

Suggested seed rate:
13-16kg/acre (32-40 kg/ha)

Guide cutting height:
7.5cm (3 inches)

Scotsward®, although predominantly a cutting mixture, has excellent aftermath grazing qualities.

**TEAGASC
GRAZING
UTILISATION
SCORES
2023**

16%	MOIRA INTERMEDIATE PERENNIAL RYEGRASS (DIP)	***
8%	FINTONA INTERMEDIATE PERENNIAL RYEGRASS (TET)	*****
10%	ASTONKING LATE PERENNIAL RYEGRASS (DIP)	***
24%	BOWIE LATE PERENNIAL RYEGRASS (DIP)	
10%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
20%	MEIDUNO LATE PERENNIAL RYEGRASS (TET)	****
5%	COMTAL TIMOTHY	
3%	CRUSADER WHITE CLOVER	
4%	VIOLIN WHITE CLOVER	



SPECIAL USE MIXTURES



EXTRA LAMB

Especially designed to support economic lamb production

- Ideally suited to intensive sheep enterprises
- Combines early spring growth for lambing outside
- Very persistent under tight grazing
- Cheviot White Clover blend has been specially developed for sheep and lambs and has been proven to increase liveweight gain
- Rich in protein, minerals and trace elements essential for healthy livestock
- Extra lamb can be closed off for a high yielding cut of quality silage, if desired

Extra Lamb is the ideal mixture for the production of lamb on lowland farms. Capable of producing high yields of early grass to support economic meat production.

Suggested seed rate:
13 -17kg/acre (32 - 42kg/ha)

13%	BOYNE INTERMEDIATE PERENNIAL RYEGRASS (DIP)
15%	FEDERER INTERMEDIATE PERENNIAL RYEGRASS (TET)
15%	PENSEL INTERMEDIATE RYEGRASS (TET)
16%	DRUMBO LATE PERENNIAL RYEGRASS (DIP)
24%	TIMING LATE PERENNIAL RYEGRASS (DIP)
10%	COMTAL TIMOTHY
7%	CHEVIOT WHITE CLOVER BLEND



SPECIAL USE MIXTURES



Noel Fealy
Kelliher's,
Co. Kerry

"Ewes and lambs back in grazing late February. Very impressed with the multiple grazings and a quality cut of silage in July from Lambhill."

VERY THICK BASE,
WITH GREAT COVERS

LAMBHILL

Versatile mixture especially formulated for harsh environments found in Ireland

- Formulated for harsh environments and marginal land
- Suitable for upland reseeds and bogs
- Excellent long term sheep grazing mixture
- Lambhill is also perfectly suited to extensive farming systems and all classes of livestock
- Despite the name, Lambhill is also suitable for both beef cattle and dairy cows!

Suggested seed rate:
13-18 kg/acre (33-45 kg/ha)

Lambhill is a grazing mixture designed to cope with harsh environments, but this is no reason not to include high scoring grazing varieties of perennial ryegrass.

TEAGAS
GRAZING
UTILISATION
SCORES
2023

16%	MOIRA INTERMEDIATE PERENNIAL RYEGRASS (DIP)	***
28%	BOWIE LATE PERENNIAL RYEGRASS (DIP)	
11%	ASPECT LATE PERENNIAL RYEGRASS (TET)	*****
11%	NASHOTA LATE PERENNIAL RYEGRASS (TET)	*****
5%	PETRARCA MEADOW FESCUE	
5%	MATRIX ENHANCED® RYEGRASS	
8%	COMTAL TIMOTHY	
7.5%	CORAIL CREEPING RED FESCUE	
3%	ERMO ALSIKE	
5.5%	COOLFIN WHITE CLOVER	



SPECIAL USE MIXTURES



"Multispecies swards have the potential to produce high yields of quality forage at greatly reduced rates of nitrogen fertiliser input."
Dr Thomas Moloney

For more on Multi-species go to page 10

CASTLEHERB

Complex Multispecies Sward that exploits the attributes of deep rooted herbs

Exploits the attributes of deep rooted herbs

- Contains a diverse range of legumes, herbs and grasses
- Can out-yield pure grass swards that are receiving up to 200kg/ha of nitrogen
- Will improve organic content of soil

Suggested seed rate:
11 -13kg/acre (27 - 32kg/ha)

Castleherb is a complex 14 species blend of grasses, legumes and forage herbs. Scientifically formulated, based around research published by University College Dublin.

Produces forage rich in minerals, protein and trace elements.

Excellent summer growth and drought tolerance.

Reduces the reliance on fertilisers.



10%	FESTULOLIUM
5%	COMTAL TIMOTHY
15%	LATE PERENNIAL RYEGRASS
5%	TALL FESCUE
5%	MEADOW FESCUE
10%	RED CLOVER
5%	WHITE CLOVER
5%	ALSIKE
4%	BIRDSFOOT TREFOIL
10%	SAINFOIN
10%	FORAGE CHICORY
10%	FORAGE PLANTAIN
4%	SHEEP'S BURNET
2%	YARROW

ECOTAIN

Ecotain Environmental Plantain has been proven to reduce nitrate losses to water by up to 90%

Almost half of Ireland's waterways are in an unsatisfactory condition, particularly where land use is dominated by ruminant production systems (Source: EPA).

The continued reduction in water quality comes despite improvements in N-use efficiency on farms across the country.

One part of the N cycle we have yet to tackle is the urine patch, especially from bovines.

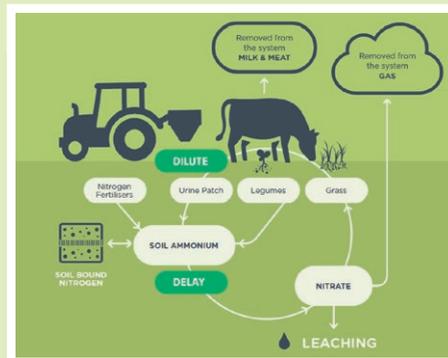
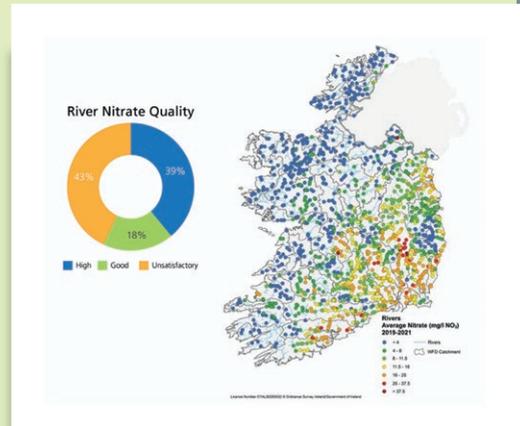
- It is estimated that the equivalent of ~700kg N/ha is produced every time a cow pees. This is far too much for a grass sward to utilise at once, and much of this N is lost as leachate, ending up in surface and groundwater
- Ecotain Environmental Plantain was developed in New Zealand, where it is now an option in many environmental schemes as a nitrate-reducing measure
- Incorporating Ecotain into grass swards in Ireland could reduce nitrate losses by up to 90% and enhance sward productivity too
- Keeping N in its more stable ammonia form means more N for plant uptake and less nitrate available for leaching

DILUTE AND DELAY NITRATE LOSS WITH ECOTAIN ENVIRONMENTAL PLANTAIN

Advantages:

- DILUTE N concentration via the diuretic effect of plantain – more urine produced means a more even application of urine N across a paddock
- DELAY the rate of ammonia nitrification to nitrate in both urine and soil

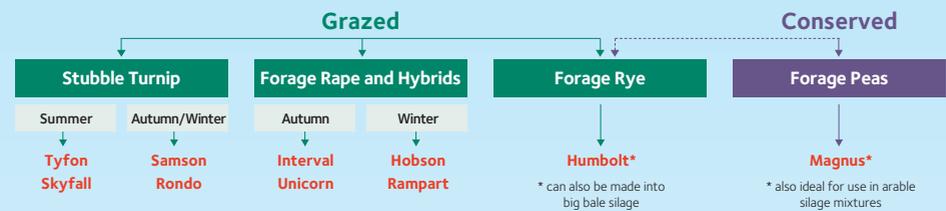
Ecotain can be added to Advance and Castlehill Mixtures. Contact Tom Dowling 087 1601984 for more information.



CATCH CROPS

These are ideal for maximising the use of your crop rotations as they can produce 'fast food' from a short growth cycle

Crop Data	Stubble Turnip	Forage Rape & Hybrids	Forage Rye	Forage Peas
Sowing Date	April - August	May - August	Sept - Oct	March - late July
Sowing Rate (kg/ha)	5-8	6-8	185	125-150
Utilisation Period	June - Dec	July-Jan	Feb - April	Mid June - early Oct
Fresh Yield (tonnes/ha)	38-40	24-35	20-24	25-37
% DM	8-9	12-13	25	20-25
Total DM (tonnes/ha)	3.5-5.0	3.5-4.5	5-6	5-8
Crude Protein % of the DM	17-18	19-20	11-12	15-20
D Value	Bulb 80 Leaf 70	65%	67%	65%
Metabolisable Energy MJ/kg DM	11	10-11	10	10 (silage)



Tyfon

Dairy or beef cattle. Very palatable leafy crop within 10-12 weeks from sowing. Re-growth potential.

Skyfall NEW

A fast-growing, hybrid brassica which produces a palatable, leafy forage that can bounce back after grazing.

Samson

Very palatable to both sheep and cattle. High intakes and live weight gains.

Rondo

For cattle or sheep. Excellent disease resistance. Increased intakes.

Interval - Rape/Kale hybrid

Interval has outyielded some varieties by 20% DM yields over 5 years of UK trials. Interval is very palatable and is suitable for cattle and sheep.

Unicorn NEW

A new, high-yielding hybrid with fast growth and the ability to produce quality feed quickly.

Hobson

Tried and tested throughout Ireland and exhibits excellent resistance to powdery mildew. Very fast to establish and highly palatable.

Rampart

A new variety bred for high yields and excellent disease resistance. Ideal for autumn sowing.

Humbolt

Superb tillering capacity and early vegetative growth enables early turnout. The ability to recover quickly after grazing/cutting. Top yield potential and proven field performance on a wide range of soils. The crop can also be zero grazed and several farmers have made big bale silage out of their Humbolt crops.

Magnus

The first semi-leafless variety of forage pea to be marketed in Ireland. The interlocking tendrils on this variety ensure that it resists lodging – particularly when sown as a pure stand. Magnus can also be supplied as part of a high yielding arable silage mixture incorporating Spring Barley/or Oats. More details on request. Organic seed also available.



Benefits of Forage Crops

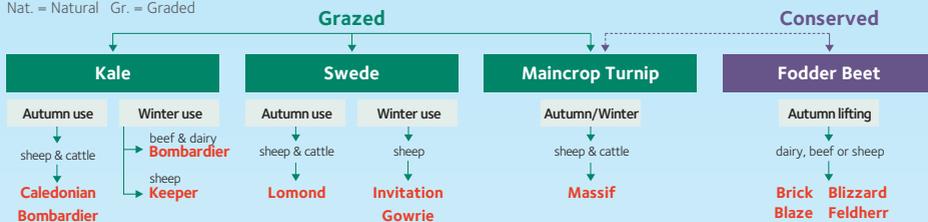
- Improved profitability
- Reduced reliance on purchased feed
- Full traceability
- Flexible cropping options
- An excellent break crop

FULL SEASON CROPS

These crops require a full season production cycle but can offer the highest yield potential

Crop Data	Kale	Turnips	Swede	Fodder Beet
Sowing Date	April-July	Late May-early June	Early May-mid June	Early March-April
Sowing Rate (kg/ha)	Nat. 4-5 Gr. 1-2	Nat. 2.5-5 Gr. 0.6-0.85	Nat. 3-5 Gr. 0.6-0.85	100,000 seeds
Utilisation Period	Sept-March	Oct-Feb	Oct-March	Nov-April
Fresh Yield (tonnes/ha)	60-70	59-69	70-90	80-90
% DM	14-16	8-10	10-13	15-23
Total DM (tonnes/ha)	8-10	5.50-6	7-10	15-18
Crude Protein % of the DM	16-17	15-17	10-11	12-13
D Value	70-75%	80%	82%	78-80%
Metabolisable Energy MJ/kg D	10-11	11	12.8-13.1	12.5-13.0

Nat. = Natural Gr. = Graded



Caledonian

The highest yielding variety in LG trials, it is clubroot tolerant, which enables growers to continually sow kale on clubroot infected land, suitable for dairy and beef cattle.

Bombardier

Bred to produce a quality feed for beef, sheep and outwintering systems. Exceptional yield and soft, easily eaten stems.

Keeper

A medium/shorter type ideal for finishing store lambs and providing high quality winter keep.

Lomond

A high yielding variety with both powdery mildew and club root resistance.

Invitation

A very uniform variety which is resistant to most races of club root. Ideal for utilisation after Christmas. Invitation also has excellent resistance to powdery mildew.

Gowrie

A very high yielding variety ideal for post Christmas grazing.

Massif

A new yellow fleshed variety with a very high yield, and is ideal for pre and post Christmas utilisation. Massif is a first class replacement for Aberdeen Green Top Scotch.

Brick

High yielding variety, ideal for growers looking to produce a high quality feed with a higher DM content %.

Blaze

Blaze has the potential to produce excellent dry matter yields with very clean, bright red roots.

Blizzard

Blizzard has been bred specially to produce very high dry matter yields. Its growth habit makes it ideally suited for harvesting with sugar beet machinery.

Feldherr

Feldherr will produce a huge fresh yield of low drying matter roots that are ideal feeding for dairy cows and broken toothed ewes.

The Importance of Mixed Forage Crops

Mixed forage diets will help increase intakes and ensure optimum rumen stability, improved feed utilisation and animal performance.

Many forages are now better understood leading to improved intake predictions, and accurate assessments for both energy and protein requirements.

As milk yields have risen, so has the drive to increase the amount of food the cow will eat, allowing the opportunity for Irish farmers to exploit the use of cheaper home grown forages.

SKYFALL BOUNCE BACK BRASSICA

3 big bites from one crop!

Skyfall is a palatable leafy brassica with a high protein content suitable for livestock feeding.

Skyfall is a bounce back brassica (BBB) with a deep rooting system, which can regrow quickly and tolerate dry soil conditions. Skyfall's regrowth potential offers the possibility of producing 3 grazings from one crop.

The large strap leaves are soft and very easily eaten by dairy beef or sheep livestock. Skyfall can be fed either in the summer, when grass growth might be limited, or sown later, to enable the crop to be grazed in the autumn.

Establishment

You can expect that plant establishment will take place in 5-10 days from sowing and should be ready for grazing within 5-7 weeks. Our demonstration plots averaged 6 weeks from sowing to grazing.

Crop Utilisation

Skyfall (BBB) will produce a very leafy, highly palatable crop in a short period of time. The leafy forage should be grazed to a height of approx. 10 cm (below this height, the bounce back regrowth will take longer). Fencing should be used to ensure efficient use of the crop. Back-fencing will allow the grazed areas to begin to regrow quicker.



You can expect bounce back regrowth in approx. 4 - 6 weeks from your first grazing. An application of 30-35 kg N per hectare will encourage faster growth and recovery. We have seen that Skyfall (BBB) has the potential for up to 3 grazings from crops sown in end May/early June.

TIMETABLE FOR SOWING AND GRAZING

April/May	5-7 weeks	Early/Mid July	4-6 weeks	Mid-End August	4-6 weeks	September/October
Sow	Growth	1st Graze	Bounce Back	2nd Graze	Bounce Back	3rd Graze

Skyfall (BBB) Rotation Suggestions

Skyfall works well in rotation with other forage crops. This hybrid brassica is an ideal crop to use as part of a grass reseed programme, sown after first-cut silage or spring grazing.

"Rather than reseed immediately, Skyfall can be sown and grazed through summer and autumn, and then followed with a grass reseed. This will provide a break in the grass crop that disrupts the pest cycle and provides a natural control system. Skyfall's deep roots will penetrate compacted soils, helping improve aeration and soil condition," Ned Kehoe.

YIELD

	1st Graze	2nd Graze	3rd Graze	4th Graze	TOTAL
Fresh Yield (tonnes/hectare)	33.58	19.25	12.50	13.85	79.18
Dry Matter Content (%)	10.2	15.2	12.6	11.8	12.4

Skyfall (BBB) can grow 9-10T DM / HA across 3 grazings in the summer months while replenishing the soil for reseeding. Skyfall technical guide available. Call Ned Kehoe 087 3980053

What Yield Can I Expect?

Our demonstration trial plots, which were drilled on the 19th May, produced the following fresh yields table above.

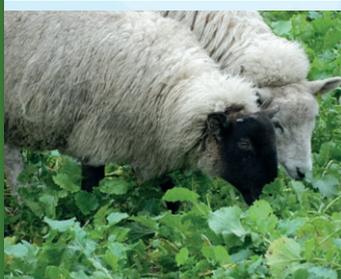
This equated to 9.55 tonnes of dry matter per hectare, over the 4 grazing periods.



Sinclair M^cgill

IRELAND

TECHNICAL HANDBOOK



GRASSLAND PESTS, WEEDS AND DISEASES

Infestations of pests, weeds and diseases can cause major losses in the productivity of grassland. Not only are yields suppressed, but sward longevity can be affected and, equally important, the feed value of the crop will be severely reduced. This has a knock-on effect on business efficiency.

PESTS MANAGEMENT IN NEWLY SOWN LEYS

Risk factors

Pests – such as frit fly, leatherjackets, slugs and wireworm – can cause serious losses in grassland and are a particular problem in new leys. **Frit fly** and **Leatherjackets** pose a particular threat where:

- The new ley follows established grass, or is sown into grassy cereal stubbles
- The area is predominantly grass or mixed arable land
- Leys are sown in mid- to late-August, or even later if conditions are warm and damp
- There is a very short period between cultivation and drilling
- There has been a history of damage

Slugs are most active in wet conditions and are a particular problem on heavy soils or if drainage is not adequate. Damage is usually worst in the Autumn and grass reseeds following cereals tend to be at higher risk.

Wireworms are often found in permanent pasture and pose a threat to new leys that follow old pasture. The damage caused can get progressively worse in year two or three of the ley's life. Attacks by this pest will have more serious consequences if the crop is already under stress, for example, acidic or poor condition soils.

DAMAGE AND IMPORTANCE

Leatherjackets

Leatherjacks are crane fly larvae. They feed on the roots and stems of grass at or below soil level. Yield losses of more than 5 tonnes of dry matter per hectare are possible in severe attacks, with crop failure possible in newly sown leys.

Frit fly

Frit fly produces three generations of larvae a year and are found in almost all grass swards. The larvae feed on the plant's central shoot and cause tiller death, which reduces yield and persistency in established leys. In younger leys this can lead to plant death.

Slugs

The most significant damage by slugs occurs when newly germinated and young seedlings are attacked. Fast growing or more established plants can tolerate slug grazing but the seed itself can also be destroyed leading to patchy emergences.

Wireworms

This pest chews the base of grasses, typically just below ground level, causing the plant to turn yellow. Although similar, the damage caused by wireworm will be more 'ragged' than that caused by frit fly.

INTEGRATED PEST CONTROL

Control of grassland pests, in the absence of chemicals, includes some or all these measures:

- Soil sample prior to sowing to check pH and nutrient status
- Clear crop residues from the soil surface, break up clods of old turf and produce a well consolidated seedbed to help minimise slug damage
- Plough in July before reseedling. This can reduce leatherjackets by 50%
- Leave at least two weeks between cultivation and sowing in consecutive grass crops to allow birds to eat the pests
- Increase seed rate to between 15kg and 20kg per acre (38-50kg per Ha) to compensate for any losses
- Reseed in spring
- Use seed treated with **HEADSTART® GOLD** to promote rapid establishment and vigorous early growth
- Establish a brassica break crop between grass crops to remove the pests' food source.
- Implement longer breaks between grass crops of 3 years or more if wireworms are a major issue
- Overseed into an existing ley so that pests have an alternative feed source whilst new seedlings establish



Example Crop Rotations

May	June	July	Aug	Sept	-	March	April
	2nd cut Silage	Cultivate - leave fallow for >2 weeks Forage Rape	Sow Dellilah Stubble Turnip or Interval	→		Plough - leave fallow for >2 weeks	Sow Sinclair McGill grass ley
1st cut silage	Cultivate - leave fallow for >2 weeks	Sow Gowrie Swede or Grampian Kale	→			Plough - leave fallow for >2 weeks	Sow Sinclair McGill grass ley
1st cut silage	Cultivate - leave fallow for >2 weeks	Sow Tyfon Stubble Turnip	→			Sow Sinclair McGill grass ley	



PEST MANAGEMENT IN WELL-ESTABLISHED LEYS

It's not just newly sown grass that is impacted by pests, well-established leys are also subject to pest attack. In addition to those pests causing damage in new leys, aphids and chafer grubs can also be problematic in older grass. Damage may be in patches and will cause a reduction in desirable grasses.

Grass Aphids

Several species of aphid can be found on established grassland, but only one causes damage, particularly after a mild winter. Aphid damage can cause the grass to turn brown and look scorched. Aphid damage is not usually significant enough to warrant control.

Chafers

Several species of chafer beetle can cause damage, but the most serious is the garden chafer (*Phyllopertha horticola*). Adults are eight to nine millimetres long with a metallic green head and thorax and reddish-brown wing cases. The grubs are white and up to two centimetres long. Affected fields tend to get re-infested every year and the chafer will sever the roots and restrict growth, with grass turning brown in dry weather. Most damage is done in September and October. Excessive bird activity may be a tell-tale sign that the grass is infested with chafers. Controlling chafers in established grassland presents a challenge. Rolling the ground to restrict grub movement may have limited success. Taking a break from grass in the affected area is the only way to reduce populations significantly.

WEED MANAGEMENT IN GRASS LEYS

Weeds compete with both established grass and newly sown leys for water, nutrients and light. Hampering establishment and restricting productivity.

All agricultural soils carry a weed-seed burden and levels can be as high as 100 million viable seed per hectare. So it is to be expected that newly sown grass will show some degree of weed infestation.

It's estimated that 25% of grassland has some level of broad-leaved weed infestation and that the ground cover of that infestation in long-term leys could amount to 15%. This represents a significant loss in grass yield and quality.

Tackling any weed problems early is key to keeping them in check. Chemical control using herbicides will be more successful when weeds are smaller and prevents them reaching a point where weed seed is shed.

The presence of weeds in grassland can be indicative of other underlying issues in the field. Addressing these will improve the performance of the sown species and reduce the impact and competitiveness of the weeds present. The table below lists some common potential problems.

Herbicide considerations

It is essential that any herbicide application is carried out under the recommendation of a BASIS qualified agronomist and that the manufacturers instructions are adhered to.

There are also some key tips to help achieve optimum weed control and avoid any crop damage.

- Always try to spray when the weed plants are at their most vulnerable

- Ensure grass is at a sufficient growth stage to avoid chemical damage
- Avoid spraying when the grass is under stress, such as in very dry conditions

A sound spray program can be supported by:

- Using the correct stocking rates to avoid under or over grazing
- Topping grass when required to remove unpalatable grass or other species
- Alternating between cutting and grazing to discourage weeds that favour one management type
- Applying fertiliser as appropriate
- Spraying any patches of weeds at the earliest opportunity.

Soil pH

A pH of 6.5 is required for grassland. Lower pH soils should be treated with lime with 'little and often' applications rather than large amounts every few years.

Drainage

Wet areas will encourage weed growth, be prone to poaching, and limit grass growth.

Phosphate and Potash

Analyse soil to identify the P and K status. Any corrective dressing should be worked into the seed bed before drilling.

Soil compaction

Regular sub-soiling to avoid soil compaction – or a soil pan that will prevent root growth and access to water in dry summer conditions



DISEASE MANAGEMENT IN NEW GRASS LEYS

Damping-Off

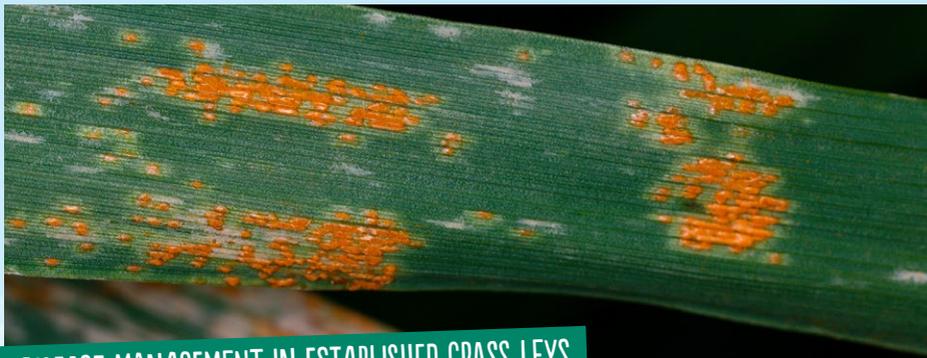
Pre-emergence damping off can result in high numbers of seeds failing to produce a viable plant. This is caused by soil borne fungi (usually *Pythium* and *Fusarium* species). These fungi have a short time span for attack, but they will typically – but not exclusively – be more successful in cold and wet conditions or very soon after sowing.

Post-emergence, the fungi *Pythium* and *Fusarium*, along with several other species, such as *Rhizoctonia solani*, *Cylindrocarpon radicola* and *Drechslera*, can cause root

damage and rotting stem bases in seedlings. This typically occurs after the second or third leaf has emerged. Damage is more prevalent in dry, warm conditions.

Control: Good seedbed preparation and correct sowing depth will increase the proportion of viable seedlings. Adequate fertiliser will reduce the risk of damage.

Using Sinclair McGill seed treated with **HEADSTART® GOLD** will prove valuable in giving seeds the best start.



DISEASE MANAGEMENT IN ESTABLISHED GRASS LEYS

Major diseases

Winterkill is often associated with northern areas, but it can lead to problems across the Ireland.

Attack by *Fusarium culmorum* and *Fusarium nivale* (snow mould) are among the main causes of plant death at this time. Damage is usually worst when a cold spell is followed immediately by mild conditions.

Snow mould causes patches of yellow grass, which will turn whiteish-grey, typically seen in February and March. Pinkish white mycelium can be seen in the matted turf.

Control: Ensure swards don't enter winter with too much growth. Consider topping if pre-winter grazing is not viable. Select mixtures with hardy grass varieties in areas prone to this damage

Crown Rust is a serious leaf disease in grasses and can devastate swards. Tillering and root growth is reduced, and badly infected swards appear very yellow and shiny, black overwintering spores can be seen on both sides of the leaf from mid-autumn. Palatability is affected with livestock refusing to eat heavily infected areas. Re-growth and response to fertiliser is limited.

Crown Rust affects grass in late summer and autumn, when conditions are warm and dry, with cooler, moist nights. It is predominantly a disease often found in the south and west of Ireland but has been recorded further north.

Control: Frequent grazing is one of the best methods but if stock are rejecting the crop then top the grass to remove infected herbage. Then fertilise to encourage new growth and graze regularly, ideally at intervals of less than three weeks.

Some grass varieties are more resistant than others, so select mixtures with those known to be more resistant, particularly in areas where Crown Rust is known to be a problem.

Mildew is seen in lush dense crops of ryegrass in spring and early summer. It is encouraged by excessive soil nitrogen, shade, and high humidity. Conservation swards are particularly vulnerable. Mildew infestations affect grass yields and quality.

Oval, fluffy pustules, mainly on the upper side of leaves, are signs of mildew. These pustules have whitish coloured mycelium. Over time the leaf will turn yellow and die.

Control: Select mixtures with resistant varieties.

Drechslera – also called Leaf Spot – is found throughout the UK. It is most prevalent in autumn, in wet and cloudy weather, and can extend into winter, affecting spring silage yields by up to 18%. Livestock will reject infected grass.

Diploid ryegrasses are more prone to *Drechslera* than tetraploids. It causes small speckles on grass leaves, which develop into brown/black lesions, often with a yellow halo. The leaf eventually dies. In the worst cases, whole swards turn black.

Control: Mixtures with resistant varieties, or those with higher tetraploid content can be considered to slow down or stop the disease progressing.

Infected material is best removed by light grazing or topping to prevent spread and reduce its survival into winter.

Heavily infected swards should be sprayed with fungicide, following the advice of a crop protection specialist.

Rhynchosporium is commonly known as "Leaf Scald," or "Spring Burn," and causes yield and quality losses, particularly in Italian ryegrasses. More prevalent in wet conditions, *Rhynchosporium* is normally found in the south and west of Ireland. Scald-like blotches are typically found on the under surface of leaves, which may have browned edges, and should

not be confused with windburn. Most damage is likely to occur in the Spring before the sward has had its first cut.

Control: There is some evidence of varietal resistance which can be considered when selecting mixtures.

Ryegrass Mosaic Virus (RMV) is spread by mites and particularly affects Italian ryegrasses, causing pale, green streaks on the upper surface of the leaves that can turn yellow or brown as the plant ages. Plant height and tillering may be reduced.

RMV is predominantly found in the east as the mite prefers drier conditions but can spread rapidly, resulting in up to 30% losses in sward productivity, with reduced digestibility.

Control: Select mixtures with tolerant grass varieties in areas where RMV is known to be a threat.

Minor diseases

Bacterial Wilt is closely linked with Italian ryegrasses.

Although severe cases are rare, noticeable symptoms are a yellow-orange stripe on the flag leaf, which cause it to change to a light straw colour and wilt.

Ergot is caused by the fungus *Claviceps purpurea* and is found throughout Ireland, but particularly in wetter areas.

These ergots, which are 0.25 to 2cm in length and are hard with white or purple centre, develop in the flowers of grasses and can poison livestock.

Ensure grass is cut or grazed before flowering to prevent the formation of ergots.

Plough swards known to carry infections before reseeding to bury the ergots to at least 10cm and prevent them from germinating.

Barley Yellow Dwarf Virus (BYDV) is spread by aphid vectors. In severe cases, up to 85% of the sward can be infected, leading to dwarfing of plants and yellowing or reddening of infected leaves. Infections can be identified in late spring and are often confused with nutritional or environmental stress.



SEED & HERB MIXTURE SOWING RATES



Type of Seed		Quantity (kilos/acre)	Sowing Date
Ryegrass (Hybrid)	(Hybrid))	13-16 (32-40)	March-September
	(Italian)	13-16 (32-40)	March-September
	(Perennial)	13-18 (32-45)	
	(Westerwolds)	13-16 (32-40)	March-September
Clover, Red		3.5-5 (9-12.5)	March-August
Clover, Tetraploid Red		4.5-5.5 (11-14)	March-August
Lucerne		8-12 (20-30)	April-August
Forage Peas		40-60 (125-150)*	March-late July
*(Sowing rate is reduced in arable silage blends)			
Forage Rye		75 (190)	September-October
Forage Maize		45k seeds (112.5k seeds)	Mid April-mid May
Mustard		5-10 (12.5-25)	May-August
Fodder Rape		2.5-4 (6-8)	May-August
Tares (Vetches)		75 (190)	January-April or Sept
Stubble Turnips		2-3 (5-7.5)	April-August
Full Season Turnips	(Natural)	2-3 (5-7.5)	Late May-early June
Fodder Beet	(Monogerm) (Pelleted)	50k seeds (125k seeds)	April-early May
Kale	(Natural)	1-3 (4-8)	April-June
Swedes	(Natural)	1-2 (3-5)	Early May-mid June (N)
	(Graded)	150g-350g (350g-850g)	Late May-mid June (S)
Chicory	Straight	2-6 (5-15)	
	Grass/Chicory mixture	1-4 (2.5-10)	
Plantain	Straight	3-4 (8-10kg)	
	Grass/Plantain mixture	1-2 (2.5-5)	

(N) North (S) South

KEY SPECIES FOR PRODUCTIVE GRASSLAND

Ryegrasses are the most commonly used species in Sinclair McGill grass mixtures but are often complemented with other grassland species, such as Timothy, Cocksfoot and fescues. These offer additional benefits to suit specific situations.

Perennial Ryegrasses (Lolium perenne)

This is the cornerstone species of UK grass seed mixtures due to its persistency, adaptability, longevity and high yield characteristics. There are many perennial ryegrass varieties, usually subdivided into 3 groups categorised by the date at which they reach maturity. Early varieties typically produce a seed head in England and Wales in Mid-May, Intermediate varieties towards the end of May, and Late varieties in early June. In Scotland heading dates will on average be 2 weeks later due to the different climatic conditions.

Early Perennials

These varieties grow well and bulk up in early spring, making them ideal for early grazing and for conservation cutting.

Intermediate (Mid Season) Perennials

A denser, more prostrate growth habit than early perennials, these varieties have a longer production season with high persistency and yield potential in grazing and cutting systems. Mid-season perennials can be used to increase ground cover and forage quality in short-term mixtures and to boost yields in long-term mixtures.

Late Perennials

These varieties are extremely persistent and used in long-term mixtures, particularly those designed for intensive grazing. They offer excellent forage quality as they remain leafy and palatable for longer than other types, with good mid and late season growth and a good yield potential.

Italian Ryegrasses (Lolium multiflorum)

Italian ryegrass is the highest yielding of the ryegrass species lasting 18 to 24 months so is typically a mainstay short term conservation mixture. An excellent species to provide bulk but lower in forage quality than perennial ryegrasses. Their fast germination and establishment make them ideal for sowing as a catch crop. Italian ryegrasses need frequent grazing or cutting to maintain their quality. They grow vigorously and respond well to nitrogen fertiliser but produce relatively few tillers so the sward can be fairly open. Surplus growth in autumn is best removed to promote winter hardiness.

Hybrid Ryegrasses (Lolium hybridum)

These carefully bred hybrids offer the benefits of both Perennial and Italian species. They are more persistent than Italian Ryegrass, lasting for between two and four years, and have higher yields than Perennial Ryegrass. They will typically offer better ground cover than Italian ryegrasses increasing their suitability to grazing and are used successfully in mixtures with red clovers to make high-protein sward mixtures.

Tetraploid Ryegrasses

There are tetraploid varieties of both Italian and perennial ryegrasses. Tetraploids have a similar plant size but tend to have broader leaves, a more erect growth habit and deeper root systems compared with diploids. Tetraploids offer several advantages over the diploids, including:

- Increased palatability
- Higher sugars (Water soluble carbohydrates)
- Increased winter hardiness
- Increased tolerance to drought conditions

Timothy (Phleum pratense)

Timothy brings many advantages to grass seed mixtures and is often included in grazing and cutting mixtures for use where conditions can be colder and wetter. Timothy grows at lower temperatures than ryegrasses which makes for excellent early Spring growth. It is very persistent and winter hardy, coping with wetter conditions and poorer soils. It will also continue to maintain palatability in mid-summer when other grasses may be past their peak production. Timothy is a good variety choice in swards for grazing sheep.

Cocksfoot (Dactylis glomerata)

Cocksfoot has an extensive root system and is used in mixtures grown on lighter or drought prone soils. It has rapid regrowth and good summer production when other species may be affected by lack of moisture. However, Cocksfoot is lower in digestibility and sugars than ryegrasses and it can easily become 'tussocky' and unpalatable for livestock if managed incorrectly.

Westerwolds (Lolium westerwoldicum)

These are annual grasses with vigorous growth giving very high yields. Their short life span of a single year, but rapid growth potential, means that Westerwold varieties are predominantly sown straight as a catch crop rather than being used in mixtures. They are well suited to bulk up silage production and zero grazing but need regular defoliation to prevent a fast decline in forage quality.

Creeping Red Fescue (Festuca rubra)

Winter hardy and early growing, on acidic soils and in wet and cold conditions if necessary, makes red fescue an option in specific situations. It is used sparingly in grass seed mixtures.

Meadow Fescue (Festuca pratensis)

Meadow fescue is a nutritious leafy species and traditionally grown with Timothy in grass/clover swards. It is often included in mixtures designed for extensive grazing due to its good performance in low fertility or low input situations.

HEADSTART® GOLD



HEADSTART® GOLD

HEADSTART® GOLD

HEADSTART® was originally developed in response to pleas by groundsmen to give them something that would speed up the renovation of winter sports pitches in the short "window" between the end of one season and the start of play and training. HEADSTART® proved to be so successful that it is now used by about 60% of football clubs in the English Premiership as well as rugby clubs and famous pitches throughout Europe. Growers of cultivated turf also took to it, finding it not only improved cover, but rooting as well, enabling both faster establishment and earlier harvesting of the turf.

We recognised that the many benefits of HEADSTART® translated to forage grass as well, and in difficult seasons farmers have often found that seed applied with HEADSTART® established well, when untreated seed has struggled.

The introduction of HEADSTART® GOLD retains all the advantages of the original formulation but adds a scientifically balanced package of minerals and trace elements, essential for the successful establishment of seedlings; further insurance that your grass seed gets off to a flying start.

Biostimulants

- Promotes the supply of nutrients
- Ensures efficient use of nutrients
- Prevents deficiency of trace elements

Enzyme Activity

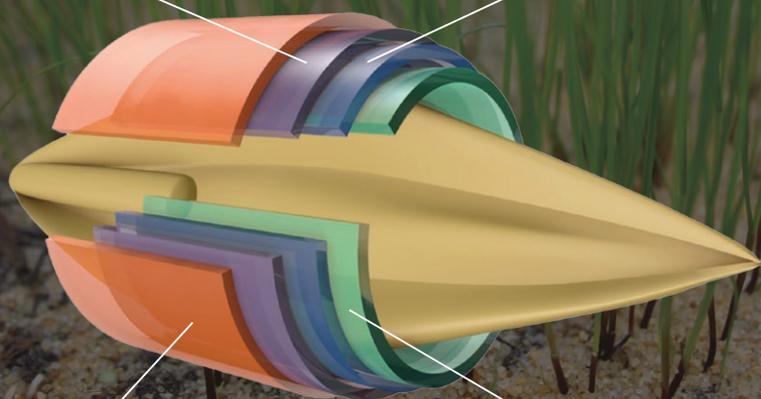
- Stimulates growth of roots/shoots
- A catalyst for photosynthesis

Trace Elements

- Copper, Molybdeum, Phosphorous and Sulphur - all essential for rapid rooting and initial seedling growth

Seaweed Extract with High Cytokinin Content

- Promotes cell division & metabolism
- Leads to faster germination



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