EXTENSIVELY REVISED & EXPANDED EDITION

Sinclair McGill

# GRASS AND FORAGE CROPS HANDBOOK






LG Animal Nutrition

Now with additional LGAN Mixtures

Limagrain

# INTRODUCTION

**"Welcome to the latest edition of the Sinclair McGill Grass and Forage Crops Handbook. This version is brimming with ideas and products designed to enhance the profitability of your livestock enterprise.**

Following the popularity of our Lambtastic multi-species mixture, we have introduced another 'herbal ley', this time aimed at beef and dairy young-stock, as well as lamb production. Not only do these types of mixtures provide very economical grazing, they also provide many health benefits for livestock and have wide-ranging environmental attributes.

Talking of the environment, we also have a choice of mixtures for greening, wildlife, pollinators and bird feeding crops. These options can help ensure that your farm is environmentally sound, eligible for the current Countryside Stewardship grant and is 'future-proofed' for new schemes.

Our range of LGAN (LG Animal Nutrition) accredited grass and clover mixtures continues to expand and improve as more digestible grass and clover varieties are introduced. A rapidly increasing number of farmers are discovering the real benefits of LGAN accredited mixtures such as Turbo® and Prosper®. The supermarket chain Sainsbury's have also successfully introduced the concept to their dairy producers.

We hope that you will find this handbook useful and we look forward to receiving any suggestions for future editions.

**Ian Misselbrook**
Grass Seed Product Manager,
UK & Ireland

# INDEX

# 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** | **HVS** | **Sinclair McGill Target** |
| Perennial Ryegrass | 80% | 80% | 90% |
| Italian Ryegrass | 75% | 75% | 85% |
| Hybrid Ryegrass | 75% | 75% | 85% |

| POSSIBLE WEED CONTENT IN AN OFFICIAL SAMPLE OF PERENNIAL RYEGRASS (60g of seed) | | | |
|---|---|---|---|
| **Weed** | **EU** | **HVS** | **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 60gm so the figures quoted are an estimate based on our laboratory experience.*

| POSSIBLE INERT MATERIAL IN 10 ACRES OF PERENNIAL RYEGRASS | | | |
|---|---|---|---|
| **Inert Material** | **EU** | **HVS** | **Sinclair McGill** |
| Dead Seed | 30 kilos | 30 kilos | 7 kilos* |
| Impurities | 6 kilos | 3 kilos | 1 kilo* |

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

| PURITY STANDARDS | | | |
|---|---|---|---|
| **Species** | **EU** | **HVS** | **Sinclair McGill** |
| Perennial Ryegrass | 96% | 98% | 98% + |
| Italian Ryegrass | 96% | 98% | 98% + |
| Hybrid Ryegrass | 96% | 98% | 98% + |

# FORAGE QUALITY & ANIMAL NUTRITION

### What is LG Animal Nutrition?

The LG Animal Nutrition accreditation is used to denote varieties and mixtures that deliver superior nutritional value, whilst maintaining excellent agronomic qualities and yield. Independent trials conducted by leading scientific institutes have shown clear increases in animal performance using LG Animal Nutrition products.

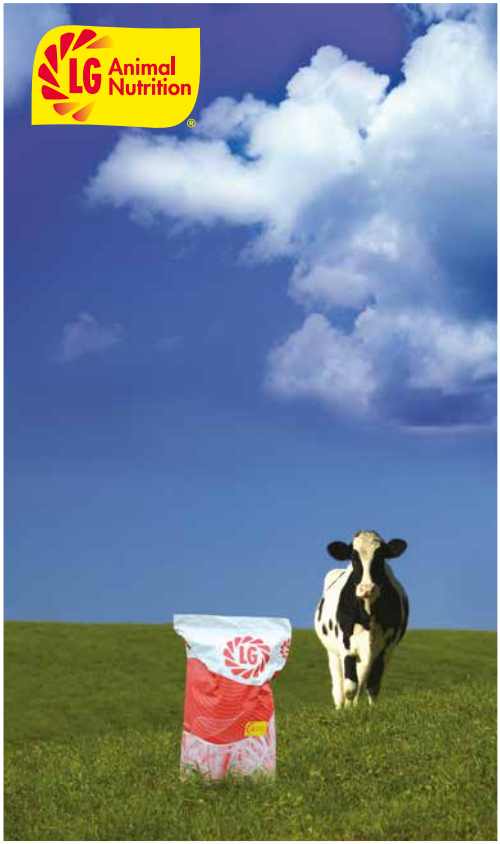
### More Efficient Production

Feeding grass with improved quality allows producers to maximise efficiency and reduce production costs. Animal feed, whether in the form of bought-in concentrates or home grown forage, makes up a significant proportion of production costs. Increasing the nutritional quality of this feed helps increase milk and meat production.

Sinclair McGill has always been at the forefront of bringing the benefits of mixtures with enhanced nutritional attributes to our customers. So we were pleased to introduce LG Animal Nutrition (LGAN) accredited mixtures to the market.

LGAN offers a 'holistic' approach to mixture formulation; balancing the important attributes of WSC (sugars) with digestible fibre (DNDF), balanced protein, energy and D value. LGAN mixtures will exceed expectations for yield, ground cover, winter hardiness, disease resistance and most importantly: palatability.

As explained in previous editions of this handbook, the use of NIRS (Near Infrared Spectroscopy) has enabled us to evaluate the nutritional attributes of a huge number of varieties. Having this knowledge at our fingertips enables us to make much more informed choices when formulating grass and clover mixtures. Although many mixtures will not achieve LGAN accreditation due to other agronomic attributes taking precedence, such as persistency in long term leys, it does ensure that we can make vital tweaks to improve the nutritional quality of all of our mixtures.



## Proof of Concept

Work carried out at the Schothorst Research Institute in the Netherlands in 2013, compared a group of cows fed a diet including a high quality LGAN grass mixture, with a second group fed a dual purpose control mixture. The group of animals being fed the LGAN mixture produced **an additional 1.4 litres of milk per day**. This increase in production is worth **an additional £84 a year, per cow**, at a milk price of 20 pence per litre.

**LGAN BENEFITS**

- 5% HIGHER FEED EFFICIENCY
- 5% MORE MILK
- AN EXTRA £84 PER COW

| SCHOTHORST INSTITUTE ANIMAL FEEDING TRIALS 2013 | DUAL PURPOSE CONTROL MIXTURE | LG Animal Nutrition DUAL PURPOSE MIXTURE |
|---|---|---|
| **Feed Efficiency**<br>Milk production per kg fed | 1.24 | 1.30 |
| **Milk Yield**<br>Litres per cow per day | 28.5 litres | 29.9 litres |
| **Extra Milk Per Cow Per Year**<br>Assuming 300 milking days | – | **+420 litres** |
| **Extra Profit Per Cow Per Year**<br>Assuming 20p per litre | – | **+£84** |

# FORAGE QUALITY TRIALS

**Not only do we measure the forage quality of individual grass varieties, but we also test our mixtures to ensure that the balance of characteristics we aim for when formulating a mixture are carried through to in-field performance.**

The table below shows the average difference in feed quality between Sinclair McGill Turbo and a "Low Quality" mix formulated using recommended varieties shown to be of poor nutritional value.

At first glance, the differences may appear minor, but a small change in quality can have a big impact. An increase of 1% dNDF, for example, has been shown to increase milk yield by 0.25kg per day and intakes by 0.17kg per day (Oba and Allen, 1999).

| | LOW QUALITY MIX | LG Animal Nutrition TURBO MIXTURE | DIFFERENCE |
|---|---|---|---|
| **ME (MJ/KG)** | **13.78** | **13.91** | **+0.13** |
| **Protein (%)** | **16.14** | **16.89** | **+0.75** |
| **Sugar (%)** | **20.94** | **21.15** | **+0.21** |
| **dNDF (%)** | **81.49** | **82.71** | **+1.22** |

**Source:** Limagrain Trials 2014-2016

### Dartington Mixture Trials

In 2014 and 2015, grass mixture trials were carried out at NIAB TAG in Dartington, Devon. LGAN grass mixtures were tested to determine their forage quality under conservation and simulated grazing regimes, compared with a control mixture consisting of varieties selected from the Recommended List, shown to be of poor nutritional value in Limagrain forage quality trials.

The results clearly show that there can be a huge difference between the energy value of different grass mixtures, and that using recommended varieties is not a guarantee of forage quality. The LGAN mixture produced significantly more energy per year than the low feed value control mix. An additional 23,518 MJ/Ha is equivalent to **an additional 4,437 litres of milk worth £887/Ha,** at a milk price of 20 pence per litre.

- 17% HIGHER ENERGY YIELD
- MORE SUGAR AND DIGESTIBLE FIBRE
- AN EXTRA £887 PER HA

| 2014/15 MEAN RESULTS | LOW FEED VALUE CONTROL MIX | TURBO MIXTURE | TURBO BENEFIT, COMPARED TO CONTROL MIX |
|---|---|---|---|
| Dry Matter Yield (T/Ha) | 9.81 | 11.46 | 1.65 |
| Energy Content ME (MJ/Ha) | 13.69 | 13.8 | 0.11 |
| Energy Yield (MJ/Ha) | 134,508 | 158,026 | 23,518 |

# MIXTURE SELECTION CHART

| **Short Term** 1-4 years | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| COLOSSAL® SILAGE | | | Page 10 |
| COLOSSAL® RED | | | Page 11 |
| SCIMITAR® | | | Page 12 |
| ADMIRAL'S CHOICE | | | Page 13 |
| POLYCROP® | | Page 14 | |
| EARLY START | Page 15 | | |

| **Medium Term** 4-8 years | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| TURBO® | Page 16 | | |
| SCOTSWARD® | | | Page 17 |
| PROSPER® | | Pages 18 & 19 | |
| EXTRA LAMB | | Page 20 | |
| PROGRESS® | | Page 21 | |

| **Matrix** Medium Term 4-8 years | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| MATRIX 40 ENHANCED® RYEGRASS | Page 24 | | |
| MATRIX 70 ENHANCED® RYEGRASS | Page 25 | | |
| MATRIX ENHANCED® RYEGRASS WITH TIMOTHY | Page 26 | | |
| MATRIX ENHANCED® SHEEP AND LAMB MIXTURE | Page 27 | | |

| **Long Term** 8-12 years | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| CASTLEHILL® | | Page 28 & 29 | |
| CASTLEHILL® RED | | Page 30 | |
| LAMBHILL | Page 31 | | |
| CASTLEPARK | | Page 32 | |
| EMERALD HILL | Page 33 | | |

| **Multi Species Mixtures/ Herbal Leys** | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| CASTLEHERB | Page 35 | | |
| LAMBTASTIC | Page 35 | | |

| **Pasture Renovation Mixtures** | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| PASTURE RENOVATION SHORT TERM MIXTURE | | Page 36 | |
| PASTURE RENOVATION MEDIUM TERM MIXTURE | | Page 37 | |
| PASTURE RENOVATION LONG TERM MIXTURE | | Page 37 | |
| PASTURE RENOVATION LONG TERM MIXTURE (WITHOUT CLOVER) | | Page 37 | |

| **Specialist Mixtures** | PREDOMINANTLY GRAZING | DUAL PURPOSE | MAINLY CUTTING |
|---|---|---|---|
| MEADOW MIXTURE | | Page 38 | |
| DROUGHT BUSTER | | Page 38 | |
| POWER GRASS | | Page 39 | |
| SMALLHOLDER | | Page 39 | |

# SHORT TERM MIXTURES

## COLOSSAL® SILAGE:
Mainly Cutting

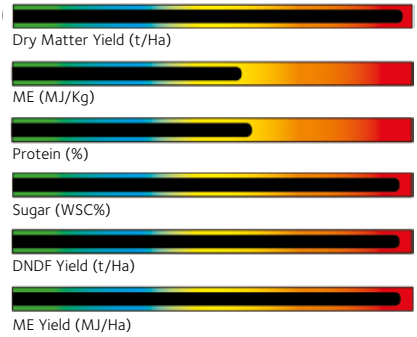
This mixture is treated with HEARTSTART

- Protein rich 3 year ley
- Close 'D' Value cutting dates make this a very easy mixture to manage
- The high sugars and high fibres stimulate rumen activity and maximise conversion to milk
- COLOSSAL SILAGE outyields Perennial Ryegrass based leys in the autumn
- Includes the new generation of Italian Ryegrass varieties, with improved digestibility

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

**Guide cutting height:**
10cm (4 inches)

### LG ANIMAL NUTRITION PERFORMANCE




| | |
|---|---|
| 66% | ITALIAN RYEGRASS |
| 17% | HYBRID RYEGRASS (TET) |
| 17% | ITALIAN RYEGRASS (TET) |

## COLOSSAL® RED:
Mainly Cutting

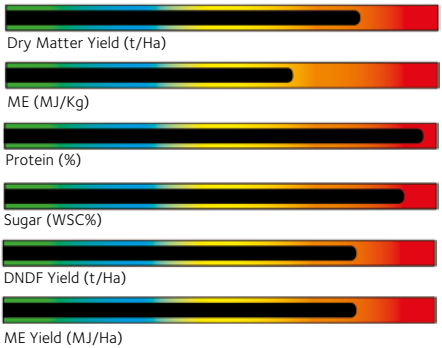
This mixture is treated with HEADSTART

- Protein rich 3 year ley
- A powerful combination of high yielding Tetraploid Hybrid Ryegrasses and our Red Admiral Red Clover blend
- In a 3 year farm scale trial in Devon, Red Admiral blend gave consistently higher yields over all cuts in all 3 years, than single varieties
- Predominantly a cutting mixture but it can also be grazed by lambs and ewes in the late summer

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

**Guide cutting height:**
10cm (4 inches)

### LG ANIMAL NUTRITION PERFORMANCE




30% RED CLOVER BLEND

70% HYBRID RYEGRASS (TET)

## SCIMITAR®:
Mainly Cutting

This mixture is treated with HEADSTART

- Highest yielding mixture in our portfolio
- Contains LOFA; a Festulolium cross between Italian Ryegrass and Tall Fescue
- Good forage quality and high in sugars
- Higher yields than conventional Italian and Hybrid based mixtures with more leafy regrowth
- Scimitar® gives best results with liberal applications of nitrogen

**Suggested seed rate:**
13-18kg/acre (32-45kg/ha)

**Guide cutting height:**
10cm (4 inches)

| | |
|---|---|
| 36% | FESTULOLIUM LOFA |
| 36% | HYBRID RYEGRASS (TET) |
| 14% | MID SEASON PERENNIAL RYEGRASS |
| 7% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 7% | LATE PERENNIAL RYEGRASS (TET) |

## ADMIRAL'S CHOICE:
Mainly Cutting

This mixture is treated with HEADSTART

- Formulated to produce high yields of protein rich silage
- Slightly later than Colossal® Red
- High sugars to complement the protein in the clover
- Late Tetraploid Perennial Ryegrasses are more persistent than Hybrid Ryegrasses, matching the better persistency of some of the newer Red Clover varieties such as Maro
- Red Admiral blend contains both early and later flowering Red Clovers, Diploid and larger leafed Tetraploid varieties for more even yields over 3 or more cuts and better persistency

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

**Guide cutting height:**
10cm (4 inches)

| | |
|---|---|
| 70% | LATE PERENNIAL RYEGRASS (TET) |
| 30% | RED CLOVER BLEND |


## POLYCROP®:
Dual Purpose

This mixture is treated with HEADSTART

LG Animal Nutrition

- High sugar mixture
- High Tetraploid content (80%) makes Polycrop® very palatable and extremely productive
- Expect improved liveweight gain in beef and lambs
- Multiple cutting potential with excellent aftermath grazing
- True dual purpose mixture with a productive lifespan of at least 3 years
- Includes Late Tetraploid Ryegrasses to enhance grazing potential
- Also available with White Clover

**Suggested seed rate:**
13-18kg/acre (32-45kg/ha)

**Guide to first cut:** 20th May (70D)
26-31st May (67D)

**Guide cutting height:** 10cm (4 inches)

| | |
|---|---|
| 47% | HYBRID RYEGRASS (TET) |
| 20% | LATE PERENNIAL RYEGRASS (TET) |
| 13% | MID SEASON PERENNIAL RYEGRASS |
| 10% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 10% | LATE PERENNIAL RYEGRASS |

## EARLY START:
Mainly Grazing

This mixture is treated with HEADSTART

- 3-4 year ley with exceptionally early spring growth for spring lamb production
- Also suitable for early turnout with cattle or dairy cows
- After spring grazing, the ley can be closed up for a late silage or hay crop
- Early Start is the ideal complement to Lambhill for lowest cost lamb production

**Suggested seed rate:**
13-18kg/acre (32-45kg/ha)

**Guide to first cut:**
20th May (70D) 26-31st May (67D)

**Guide cutting height:**
10cm (4 inches)

| | |
|---|---|
| 14% | HYBRID RYEGRASS (TET) |
| 15% | EARLY PERENNIAL RYEGRASS |
| 5% | EARLY PERENNIAL RYEGRASS (TET) |
| 20% | HYBRID RYEGRASS (TET) |
| 10% | MID SEASON PERENNIAL RYEGRASS |
| 17% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 14% | LATE PERENNIAL RYEGRASS |
| 5% | WHITE CLOVER BLEND |

MEDIUM TERM MIXTURES

**Neville and Suzanne Loder, winners of the Farmers Weekly Dairy Farmer of the Year Award 2017 use Sinclair McGill, they say:**

'Turbo keeps growing throughout the season. The cows do well on it and if grass growth gets ahead of the cows in spring, we close off a few paddocks and make round bales silage.

## **TURBO®:** Mainly Grazing

This mixture is treated with

- New formulation using LG Animal Nutrition to optimise production of milk and meat
- Fast growing grazing mixture with potential for one cut of top quality silage
- Tweed White Clover Blend fixes atmospheric nitrogen and provides minerals and protein
- Grazing TURBO® can reduce costs of milk production
- Suitable for both paddock grazing systems and set stocking

**Suggested seed rate:**
13-18kg/acre (32-45kg/ha)

**Guide to first cut:** 20th May (70D)
26-31st May (67D)

**Guide cutting height:** 10cm (4 inches)

### LG ANIMAL NUTRITION PERFORMANCE


| | |
|---|---|
| 7% | MID SEASON PERENNIAL RYEGRASS |
| 6% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 30% | LATE PERENNIAL RYEGRASS |
| 44% | LATE PERENNIAL RYEGRASS (TET) |
| 7% | MATRIX ENHANCED® RYEGRASS |
| 6% | WHITE CLOVER BLEND |


## SCOTSWARD®:
### Mainly Cutting with Quality Grazing

This mixture is treated with

- A later heading mixture capable of producing high ME silage
- Particularly well adapted to the harsher climates of Scotland & Northern Ireland
- Two or more cuts of high quality silage plus aftermath grazing
- The inclusion of Timothy enables Scotsward to stand up to the mower
- White Clover contributes to quality aftermath grazing

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

**Guide cutting height:**
7.5cm (3 inches)

| | |
|---|---|
| 19% | MID SEASON PERENNIAL RYEGRASS |
| 11% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 23% | LATE PERENNIAL RYEGRASS |
| 30% | LATE PERENNIAL RYEGRASS (TET) |
| 12% | TIMOTHY |
| 5% | WHITE CLOVER BLEND |

## PROSPER®:
Dual Purpose | **England & Wales**

This mixture is treated with

- Balanced nutritional formulation to produce more milk and meat
- Two cuts of top quality silage plus palatable grazing
- The perfect mixture for beef and dairy units

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

**Guide cutting height:** 7.5cm (3 inches)

### LG ANIMAL NUTRITION PERFORMANCE

DM Yield (t/Ha)

ME (MJ/Kg)

Protein (%)

Sugar (WSC%)

dNDF Yield (t/Ha)

ME Yield (MJ/Ha)

| | |
|---|---|
| 17% | MID SEASON PERENNIAL RYEGRASS |
| 41% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 16% | LATE PERENNIAL RYEGRASS |
| 21% | LATE PERENNIAL RYEGRASS (TET) |
| 5% | WHITE CLOVER BLEND |

## PROSPER®:
Dual Purpose | **Scotland & N Ireland**

This mixture is treated with

- Potential to reduce silage making costs by £20 per tonne of dry matter
- Production is concentrated on intermediate heading varieties to produce the highest forage quality
- Includes Timothy for early bite and improved mid-summer grazing

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

**Guide cutting height:**
7.5cm (3 inches)

| | |
|---|---|
| 17% | MID SEASON PERENNIAL RYEGRASS |
| 38% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 13% | LATE PERENNIAL RYEGRASS |
| 20% | LATE PERENNIAL RYEGRASS (TET) |
| 7% | TIMOTHY |
| 5% | WHITE CLOVER BLEND |

**Jeremy West, a client of Bodle Bros, Sussex uses Extra Lamb mixture, he says:** 'We get early grass growth from the Extra Lamb with plenty for ewes and lambs in the spring - and it's persistent – it keeps growing through spring and summer.'

## **EXTRA LAMB:** Dual Purpose

This mixture is treated with

- Ideally suited to intensive sheep enterprises
- Combines early spring growth for lambing outside
- Very persistent under close 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

| | |
|---|---|
| 13% | MID SEASON PERENNIAL RYEGRASS |
| 30% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 40% | LATE PERENNIAL RYEGRASS |
| 10% | TIMOTHY |
| 7% | CHEVIOT WHITE CLOVER BLEND |

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

## **PROGRESS®:** Dual Purpose

This mixture is treated with

- Versatile and dependable dual purpose mixture for all classes of livestock
- Excellent spring growth for early turnout
- A fail-safe mixture which is also highly suitable for extensive systems
- Produces a succession of fresh herbage for palatable grazing, silage or quality hay
- If you require a source of herbage from early spring until late autumn, this is the mixture for you

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

| | |
|---|---|
| 13% | EARLY PERENNIAL RYEGRASS |
| 15% | EARLY PERENNIAL RYEGRASS (TET) |
| 9% | MID SEASON PERENNIAL RYEGRASS |
| 11% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 21% | LATE PERENNIAL RYEGRASS |
| 20% | LATE PERENNIAL RYEGRASS (TET) |
| 6% | TIMOTHY |
| 5% | WHITE CLOVER BLEND |

# MATRIX MIXTURES

Matrix shown here on the left showing superior spring growth, adjacent to a conventional perennial ryegrass.

## WHAT IS MATRIX ENHANCED® RYEGRASS?

**Matrix was developed by Cropmark® in New Zealand and it is a complex inter-generic hybrid consisting of 80% diploid pasture Perennial Ryegrass and 20% Meadow Fescue.**

Matrix was bred as a high quality grazing grass with an extended grazing season and very rapid regrowth. This makes it especially suited to paddock management or rotational grazing systems, but it can also be used for set stocking.

## BENEFITS OF MATRIX ENHANCED® RYEGRASS

- Grows at lower temperatures than Ryegrass, giving up to 3 weeks extra growth in the spring!
- Matrix also grows much later in the autumn than Ryegrass, giving up to another 3 weeks extra grazing!
- Very rapid regrowth, particularly when defoliated at the 3 leaves per tiller stage
- Very dense fine-leaved sward resists poaching and treading
- Complex genetic make-up enhances forage quality and digestibility. For best results, graze when there are 3 true leaves per tiller

Matrix 70 mixture

# MATRIX ENHANCED® RYEGRASS MIXTURES MANAGEMENT GUIDELINES

## SOWING RATE

We recommend a sowing rate of 12.5kg/acre but Matrix can be sown at higher seeding rates. The pack size is 25kg.

## SOWING TIME

Treat as you would any conventional grass/clover mixture. Depending on where you are located, the clover may not germinate if sown too late in the autumn when soil temperatures are falling. Spring to mid-August is ideal.

## SOWING METHOD

Treat as any grass mixture; drill or broadcast into a fine, firm seed bed and roll in afterwards.

If drilling, we recommend that Matrix Enhanced® Ryegrass mixtures are cross drilled.

## GRAZING

Mixtures are more easily managed on a paddock grazing system as pioneered in New Zealand, where Matrix was developed. When the Matrix in the mixture has 3 true leaves per tiller, it is ready for grazing. At this point, it is likely to yield between 2500 to 2800 kg DM/ha. After grazing, the residual grass should be 1400 to 1600 kg DM/ha for cattle and 1000 to 1200 kg DM/ha for sheep. If grass gets beyond the 3 leaf stage prior to grazing, quality will drop and regrowth will be slower. If you are using a rising plate meter, you will need to make allowances for the improved density of a Matrix based mixture.

On a typical New Zealand system, every paddock will be grazed 10 to 12 times a year.

**Matrix should be grazed hard or cut low late in the autumn, before the onset of winter, to avoid winter kill.**

## MATRIX 40 ENHANCED® RYEGRASS MIXTURE

This mixture is treated with

- Our most popular Matrix Enhanced® Ryegrass mixture
- Suitable for most areas in England, Wales and southern Scotland
- Best suited to intensive grazing
- Inclusion of conventional grasses help protect the Matrix from winter damage
- High (10%) White Clover content helps to feed the grass with clover nitrogen and increases the protein and mineral content of the sward

| | |
|---|---|
| 40% | MATRIX ENHANCED® RYEGRASS |
| 35% | LATE PERENNIAL RYEGRASS (TET) |
| 15% | LATE PERENNIAL RYEGRASS |
| 10% | WHITE CLOVER BLEND |

## MATRIX 70 ENHANCED® RYEGRASS MIXTURE

This mixture is treated with

- Only recommended for the warmer parts of the UK (not Scotland or Northern Ireland) unless overseeding an existing pasture
- For overseeding, we recommend a minimum rate of 8 kilos per acre
- Enables farmers in mild winter areas to exploit the value of the long season production of Matrix to the full

| | |
|---|---|
| 70% | MATRIX ENHANCED® RYEGRASS |
| 20% | LATE PERENNIAL RYEGRASS (TET) |
| 10% | WHITE CLOVER BLEND |

## MATRIX ENHANCED® RYEGRASS MIXTURE WITH TIMOTHY

This mixture is treated with

- Early to grow in the spring - both Matrix and Timothy will grow at lower temperatures than Perennial Ryegrass, thus making a greater contribution to early turnout
- This mixture was very high yielding in our trials
- The inclusion of Timothy also makes this mixture more winter hardy

| | |
|---|---|
| 40% | MATRIX ENHANCED® RYEGRASS |
| 15% | TIMOTHY |
| 20% | LATE PERENNIAL RYEGRASS (TET) |
| 15% | LATE PERENNIAL RYEGRASS |
| 10% | WHITE CLOVER BLEND |

## MATRIX SHEEP AND LAMB MIXTURE

This mixture is treated with

- This Matrix Enhanced® Ryegrass mixture has been specially formulated for grazing by sheep and lambs
- In addition to Matrix it contains Perennial Ryegrass varieties that will tolerate very close grazing
- Stoloniferous, small leaved White Clovers persist well under sheep grazing and help finish lambs faster
- Grasslands Choice Chicory can also be supplied separately to mix in the drill or for sowing in strips through the field to help maintain your livestocks' health and nutrition

| | |
|---|---|
| 40% | MATRIX ENHANCED® RYEGRASS |
| 10% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 10% | MID SEASON PERENNIAL RYEGRASS |
| 10% | LATE PERENNIAL RYEGRASS (TET) |
| 20% | LATE PERENNIAL RYEGRASS |
| 10% | WHITE CLOVER BLEND |

LONG TERM MIXTURES

## CASTLEHILL®:
Dual purpose | **England & Wales**

This mixture is treated with

**Castlehill® is the long term ley with rock solid performance.**

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

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

**Guide cutting height:** 7.5cm (3 inches)

| | |
|---|---|
| 12% | MID SEASON PERENNIAL RYEGRASS |
| 23% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 20% | LATE PERENNIAL RYEGRASS |
| 24% | LATE PERENNIAL RYEGRASS (TET) |
| 16% | TIMOTHY |
| 5% | WHITE CLOVER BLEND |

## CASTLEHILL®:
Dual purpose | **Scotland & N Ireland**

This mixture is treated with

- Proven high performance on farms from the Orkneys, to the borders
- Palatable grazing, silage and hay for all classes of livestock
- Winter-hardy and persistent with good longevity
- Offers a seriously significant return on your investment
- A failsafe mixture

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

**Guide cutting height:** 7.5cm (3 inches)

| | |
|---|---|
| 12% | MID SEASON PERENNIAL RYEGRASS |
| 20% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 10% | LATE INTERMEDIATE PERENNIAL RYEGRASS (TET) |
| 20% | LATE PERENNIAL RYEGRASS |
| 12% | LATE PERENNIAL RYEGRASS (TET) |
| 5% | MEADOW FESCUE |
| 16% | TIMOTHY |
| 5% | WHITE CLOVER BLEND |

## CASTLEHILL® RED:
Dual purpose

This mixture is treated with

**A long term ley with Red Clover as well as White Clover blends for special applications**

- The inclusion of Red Clover has been proven to increase liveweight gain in lambs, particularly in upland situations
- Red Clover contains oestrogen which helps finish lambs, but ewes should be kept off Red Clover six weeks prior to and post tupping, to avoid fertility problems and miscarriages
- Like White Clover, Red Clover is rich in protein, minerals and trace elements, essential to the health and performance of your livestock
- The high clover content in Castlehill® Red will allow savings on your fertiliser bills through the fixation of atmospheric nitrogen

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

| | |
|---|---|
| 12% | MID SEASON PERENNIAL RYEGRASS |
| 20% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 19% | LATE PERENNIAL RYEGRASS |
| 20% | LATE PERENNIAL RYEGRASS (TET) |
| 13% | TIMOTHY |
| 5% | MEADOW FESCUE |
| 4.5% | WHITE CLOVER BLEND |
| 6.5% | RED CLOVER BLEND |

## LAMBHILL:
Mainly Grazing

This mixture is treated with

- Formulated for harsh environments and marginal land
- Suitable for upland reseeds and bogs
- Excellent long term sheep grazing mixture
- Lambhill is 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)

| | |
|---|---|
| 8% | EARLY PERENNIAL RYEGRASS |
| 5% | MEADOW FESCUE |
| 8% | EARLY PERENNIAL RYEGRASS (TET) |
| 13% | TIMOTHY |
| 29% | LATE INTERMEDIATE PERENNIAL RYEGRASS (TET) |
| 7.5% | CREEPING RED FESCUE |
| 21% | LATE PERENNIAL RYEGRASS (TET) |
| 3% | ALSIKE CLOVER |
| 5.5% | CHEVIOT WHITE CLOVER BLEND |

## CASTLEPARK:
Dual Purpose

This mixture is treated with

- Dual purpose mixture for drought prone areas
- Excellent early bite followed by reliable production throughout the season
- Includes TWEED White Clover blend to fix 'free' nitrogen and provide nutritional benefits to stock
- Now includes Tall Fescue which is widely used in Northern Europe for its tolerance to drought and heat

**N.B:** Castlepark should be grazed hard to prevent Cocksfoot from forming clumps

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

**Guide cutting height:**
10cm (4 inches)

| | |
|---|---|
| 9% | EARLY PERENNIAL RYEGRASS (TET) |
| 7.5% | MID SEASON PERENNIAL RYEGRASS |
| 10% | LATE PERENNIAL RYEGRASS |
| 27% | LATE PERENNIAL RYEGRASS (TET) |
| 16% | TALL FESCUE |
| 5% | MEADOW FESCUE |
| 10% | TIMOTHY |
| 8.5% | COCKSFOOT |
| 7% | WHITE CLOVER BLEND |

## EMERALD HILL:
Mainly Grazing

This mixture is treated with

- Developed specifically for Ireland
- A later heading mixture for 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

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

| | |
|---|---|
| 12% | MID SEASON PERENNIAL RYEGRASS |
| 7% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 48% | LATE PERENNIAL RYEGRASS |
| 28% | LATE PERENNIAL RYEGRASS (TET) |
| 5% | WHITE CLOVER BLEND |

# MULTISPECIES MIXTURES - HERBAL LEYS

**Could this be the future for low cost, environmentally friendly and sustainable livestock production?**

Well formulated multi-species mixtures really represent a win-win solution for farmers wishing to produce livestock on the lowest possible cost platform, as they also improve soil fertility and the overall environment.

**Multi-species advantages:**

- Faster liveweight gain in beef and potential to finish lambs one week earlier than grass and clover mixtures, and two weeks earlier than ryegrass only mixtures.
- Improved voluntary intake in dairy cows and overall production can equal grass leys receiving 250kg of N/ha.
- Legumes fix atmospheric nitrogen and provide protein, trace elements and minerals. A good legume content can reduce, or even eliminate the requirement for applied nitrogen.
- Deep rooting herbs draw up the minerals from the soil that are vital for animal health. Most herbs also exhibit high resistance to drought. At low nitrogen levels, weed ingress is reduced too.
- Multi-species mixtures improve carbon sequestration and the ability of the soil to retain moisture.

## CASTLEHERB : Mainly Grazing

- Scientifically formulated mixture containing 40% grasses and 30% each of legumes and herbs
- Four year ley, suitable for all classes of livestock
- For lowest cost livestock production, improved animal health coupled with huge benefits to the soil and environment
- Rich in minerals, protein and trace elements
- Excellent tolerance of drought

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

- 10% MATRIX ENHANCED® RYEGRASS
- 5% TIMOTHY
- 15% LATE PERENNIAL RYEGRASS (TET)
- 5% INTERMEDIATE PERENNIAL RYEGRASS
- 5% MEADOW FESCUE
- 6% RED CLOVER
- 5% CHEVIOT WHITE CLOVER BLEND
- 5% ALSIKE
- 4% BIRD'S-FOOT TREFOIL
- 11% FORAGE CHICORY
- 10% SAINFOIN
- 11% FORAGE PLANTAIN
- 4% SHEEP'S BURNET
- 2% YARROW
- 2% SHEEP'S PARSLEY

## LAMBTASTIC®: Mainly Grazing

This mixture is treated with

- This mixture is an adaptation of work done in New Zealand to exploit the lamb finishing attributes of deep rooting Forage Chicory and Plantain, combined with the well understood complementary properties of White Clover
- The inclusion of Matrix Enhanced® Ryegrass, combined with Timothy and Early Perennial Ryegrass, all ensure that the sward gets a sprint start in the spring, making it ideal for early lambing
- Lambtastic remains very productive throughout the summer and well into the autumn, and it can be utilised by all classes of livestock

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

- 5% EARLY PERENNIAL RYEGRASS
- 10% MID SEASON PERENNIAL RYEGRASS
- 22% MID SEASON PERENNIAL RYEGRASS (TET)
- 22% LATE PERENNIAL RYEGRASS
- 8% TIMOTHY
- 10% MATRIX ENHANCED® RYEGRASS
- 11% FORAGE CHICORY – GRASSLANDS CHOICE
- 5% FORAGE PLANTAIN – TONIC
- 7% CHEVIOT WHITE CLOVER BLEND


PASTURE RENOVATION

## PASTURE RENOVATION:
Short Term

This mixture is treated with

- This mixture will really "pep up" your pasture and give it a new lease of life
- Best cut for silage or hay but will also give useful aftermath grazing
- Designed to perform for 12-18 months after sowing

| | |
|---|---|
| 18.75% | ITALIAN RYEGRASS |
| 31.25% | ITALIAN RYEGRASS (TET) |
| 50% | HYBRID RYEGRASS (TET) |

## PASTURE RENOVATION:
### Medium Term

This mixture is treated with 

- Perfect renovation mixture to boost the quality and production of your pastures for at least three years
- Contains high yielding Tetraploid Hybrid Ryegrasses

| | |
|---|---|
| 70% | HYBRID RYEGRASS (TET) |
| 20% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 10% | LATE PERENNIAL RYEGRASS (TET) |

## PASTURE RENOVATION:
### Long Term

This mixture is treated with 

- A longer term solution to pasture renovation
- White Clover will fix free nitrogen to feed your ley and provide nutritional benefits to your livestock
- All the grasses are larger seeded Tetraploids which compete better in the existing swards and improve both yields and forage quality

| | |
|---|---|
| 50% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 43% | LATE PERENNIAL RYEGRASS (TET) |
| 7% | WHITE CLOVER BLEND |

## PASTURE RENOVATION:
### Long Term without Clover

This mixture is treated with 

- This mixture is the same as the above but excludes clover on the assumption that there is sufficient clover in the existing sward

| | |
|---|---|
| 50% | MID SEASON PERENNIAL RYEGRASS (TET) |
| 50% | LATE PERENNIAL RYEGRASS (TET) |

# SPECIALIST MIXTURES

## MEADOW MIXTURE

| | |
|---|---|
| 45% | Meadow Fescue |
| 10% | Rough Stalked Meadowgrass |
| 7.5% | Smooth-Stalked Meadowgrass |
| 7.5% | Creeping Red Fescue |
| 17% | Timothy |
| 2% | Crested Dog's Tail |
| 0.5% | Meadow Foxtail |
| 2.5% | Bird's Foot Trefoil |
| 2% | Alsike |
| 3% | Small-leaved White Clover |
| 3% | Medium-leaved White Clover |
| 100% | |

A traditional mixture without ryegrass for farmers wishing to recreate the meadows of the past.

Meadow mixture is well suited to low fertility situations, flood meadows and conservation areas.

Mixed herbs or chicory can be supplied separately for mixing in the drill, to enhance the nutritional benefits of the sward.

**Sowing rate:** 12.5kg/acre (31kg/ha)

**Packed in 25kg LG bags**

*Seed is natural & untreated.*

## DROUGHT BUSTER

This mixture is treated with

| | |
|---|---|
| 28% | Tall Fescue |
| 22% | Matrix Enhanced ® Ryegrass |
| 22% | Intermediate Perennial Ryegrass (tet) |
| 14% | Late Perennial Ryegrass (tet) |
| 9% | Late Perennial Ryegrass |
| 5% | White Clover Blend |
| 100% | |

This mixture is designed to withstand drought and maintain production.

Tall Fescue is widely used in Europe and is tolerant of both heat and drought. Matrix has proven ability to recover rapidly from drought and the Tetraploid Ryegrasses have deep roots that can search for available moisture.

Our Ensign Plus White Clover blend grows well in the mid-summer period, when grass growth slows down, thus helping to fill this gap in production.

**Sowing rate:**
12.5 – 16kg/acre (31 – 40kg/ha)

**Packed in 25kg LG bags**

## POWER GRASS

This mixture is treated with

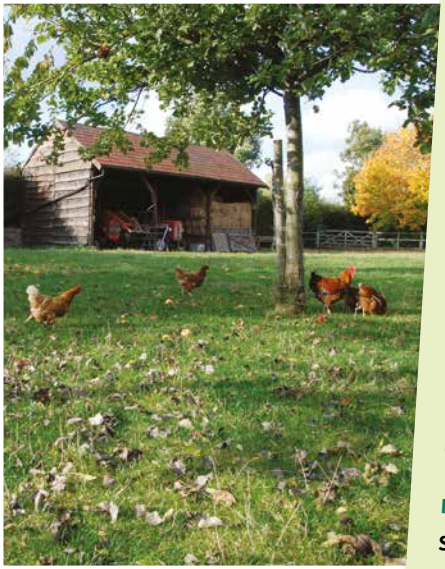
| | |
|---|---|
| 15% | Westerwolds Ryegrass |
| 15% | Westerwolds Ryegrass (tet) |
| 35% | Italian Ryegrass |
| 35% | Italian Ryegrass (tet) |
| 100% | |

Power Grass is designed for the biogas market but could equally be useful for after maize, after potatoes or any catch crop situation.

This mixture has a life span of 12 months to two years.

**Sowing rate:**
**12.5 - 16kg/acre (31 - 40kg/ha)**

**Packed in 25 kilo LG bags**



## SMALLHOLDER

| | |
|---|---|
| 15% | Mid-Season Perennial Ryegrass |
| 15% | Late Perennial Ryegrass |
| 8% | Late Perennial Ryegrass (tet) |
| 20% | Amenity Perennial Ryegrass |
| 15% | Meadow Fescue |
| 15% | Creeping Red Fescue |
| 7% | Timothy |
| 5% | White Clover |
| 100% | |

A blend of dense and hard-wearing grasses suitable for all classes of stock; including pigs and poultry.

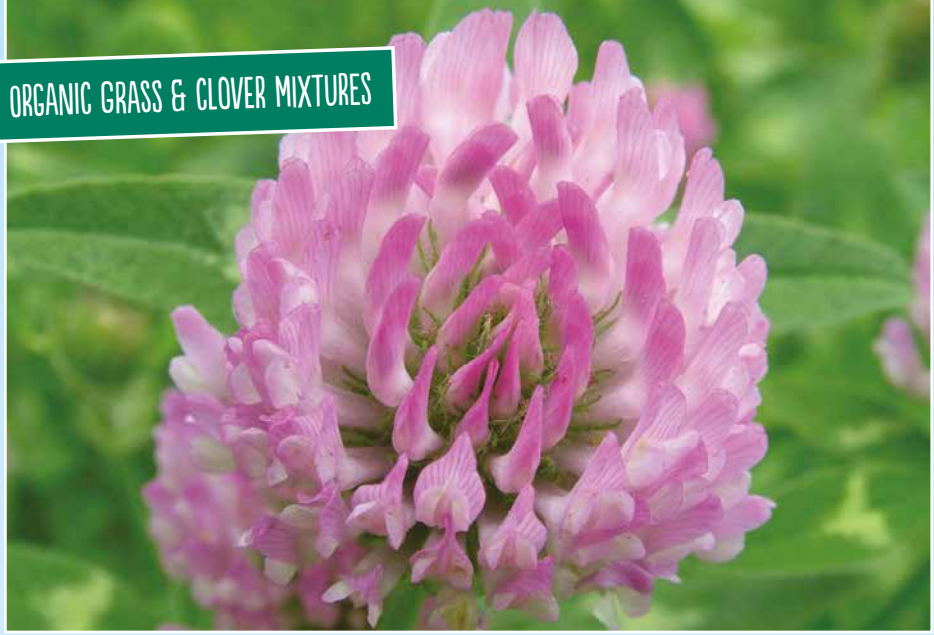
- Offers long season grazing over a number of years
- If closed off, a high quality hay cut can also be achieved
- Ideal for pigs and poultry or for low stocking rates of sheep and cattle
- Includes White Clover for nitrogen fixation
- A fail-safe mixture designed especially for low input systems
- For horse only paddocks, use Equipaddock Original mixture (see pages 56-57)

**Packed in 15kg LG bags**

**Sowing rate: 15-18kg/acre (37-40kg/ha)**

*Seed is natural & untreated.*

# ORGANIC GRASS & CLOVER MIXTURES



**This mixture range contains the requisite amount of organically produced seed to satisfy the demands of the organic certification authorities. Further details are available on request.**

### Mixture 1
**SHORT TERM FERTILITY BUILDER**

This is for farmers converting to organic or seeking a fertility building mixture which can also provide high protein hay or silage. Contains Red Clover, Italian Ryegrass and Tetraploid Hybrid Ryegrass. Similar to Colossal® Red, (see page 11).

### Mixture 2
**GRAZING MIXTURE**

This grazing mixture differs from conventional mixtures in that it has a high White Clover content and a more open sward which enables the clover to thrive. The mixture also contains mid and late season perennials – including some very palatable Tetraploids.

### Mixture 3
**CUTTING MIXTURE**

Intensive silage regimes tend to put high pressure on the longevity and performance of a mixture and thus the fertiliser requirement is particulary high. Our organic cutting mixture contains a high proportion of a clover blend to ensure optimum fixation of atmospheric nitrogen so the ley does not prematurely 'run out of steam'. The optimum blend of several mid and late season Perennials includes a number of high performance Tetraploids.

### Mixture 4
**DUAL PURPOSE MIXTURE**

Similar to Progress® (see page 21), but with a higher content of White Clover. Very good early bite and the ability to adapt to different management conditions and diverse livestock enterprises.

### Mixture 5
**LONG TERM, LOW INPUT MIXTURE**

A traditional mixture that harks back to the days when all livestock farms were organic. It includes Meadow Fescue and Timothy, both of which have the potential to outyield Perennial Ryegrass in lower fertility conditions. The inclusion of a high proportion of White Clover seed enables the ley to rapidly achieve maximum clover levels for optimum fixation of atmospheric nitrogen.

# ORGANIC FORAGE CROPS

**We can offer the following range of crops to produce high quality feed for a range of animals and systems.**

**Stubble Turnip *Dynamo***
An excellent variety for finishing lambs from November to January. Dynamo is very leafy (good protein content) and also has good root anchorage that helps reduce grazing wastage. To add extra winter hardiness and to extend the period of use, Dynamo can be mixed with forage rape.

**Forage Pea *Magnus***
Forage peas deliver a high crude protein feed which is ready for harvest 12-14 weeks from sowing. Magnus is a semi-leafless type which prevents the crop lodging and reduces soil contamination. Magnus is an excellent break crop between grass leys and will also fix an amount of 'free' nitrogen.

**Lucerne**
This underrated crop is extremely productive, rich in protein and exhibits good resistance to drought. It begs the question why is it not more widely grown? Lucerne fits well into organic farming systems. Derogation should be sought to use Marshal or Mezzo Lucerne varieties.

**Swede *Lomond***
Ideal for finishing lambs in the post-Christmas period. Lomond has top rated yields and a disease package that's ideally suited for growing organically.

## CASTLEHILL® ORGANIC MIXTURE

**This is the organic version of our best selling long term mixture. It differs from the conventional version by having a higher White Clover content and containing the requisite organic seed content to conform to the current regulations.**

# KEY VARIETIES IN SINCLAIR MCGILL MIXTURES

| Early Perennial Ryegrass | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Moyola**<br>Exceptionally high yielding for both grazing and cutting. | **G** | **1** | **Rec.** |
| **Anaconda (tet)**<br>Early heading with high yields. | **S** | **1** | **NA** |
| **Carraig (tet)**<br>High yields, later heading. Intermediate in Ireland. | **S** | **1** | **Rec.** |

| Intermediate Perennial Ryegrass | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Moira**<br>High yields and good disease resistance. | **PS** | **1** | **Rec.** |
| **Nifty**<br>High yields and good ground cover. | **PG** | **1(P)** | **Rec.** |
| **Solomon**<br>Solid, all-round performance. | **S** | **1** | **Rec.** |
| **Boyne**<br>Good all-round performance with high ground cover. | **S** | **1** | **NA** |
| **Elyria**<br>One of the later varieties enabling it to maintain quality. | **PG** | **1** | **NA** |
| **Fintona (tet)**<br>Very high yields under both managements. | **PG** | **1** | **Rec.** |
| **Eurostar (tet)**<br>High yields - particularly for silage. Good disease tolerance. | **G** | **2** | **NA** |
| **Pensel (tet)**<br>High yields, good forage quality and disease resistance. | **PS** | **1** | **NA** |
| **Federer (tet)**<br>Later heading with good yields and good quality crown rust resistance. | **PG** | **3** | **NA** |

| Late Perennial Ryegrass | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Toddington**<br>Good grazing yields especially in early summer. | **G** | **1** | **Rec.** |
| **Romark**<br>Good forage quality and winter hardiness. | **G** | **2** | **NA** |
| **Drumbo**<br>Good grazing yields and forage quality. | **G** | **1** | **Rec.** |
| **Timing**<br>High yields and good all-round disease resistance. | **PG** | **2** | **NA** |
| **Cancan**<br>Persistent variety with good yields and ground cover. | **G** | **2** | **NA** |
| **Meiduno (tet)**<br>Very high yields, excellent disease resistance and quality. | **PG** | **1** | **Rec.** |
| **Aspect (tet)**<br>High yields and good distribution of production. | **G** | **1** | **Rec.** |
| **Drift (tet)**<br>Good yields and winter hardiness. High forage quality. | **NA** | **1** | **NA** |
| **Novello (tet)**<br>High grazing yields and good forage quality. | **G** | **2** | **NA** |
| **Xenon (tet)**<br>Very dense sward. Best grazing variety with high forage quality. | **S** | **2** | **Rec.** |
| **Solas**<br>High yields but poor crown rust. For use in Scotland and Ireland only. | **PS** | **2** | **Rec.** |

| Hybrid Ryegrass | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Enduro**<br>High total yields from a variety that leans to its perennial parent. | **G** | **2** | **NA** |
| **Amalgam**<br>Very high conservation and good grazing. | **G** | **3** | **NA** |
| **Hymer**<br>More “Italianate” with extra year. | **NA** | **1** | **NA** |

| Italian Ryegrass | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Meribel**<br>High yields especially in the first harvest year. | S | 1 | NA |
| **Melprimo**<br>New high yielding variety in first and second year. | PG | 1(P) | NA |
| **Davinci**<br>High yields in both harvest years. | G | 1 | Rec. |
| **Belluna**<br>Similar to Davinci in most respects. | G | 1 | NA |
| **Udine (tet)**<br>Good yields and exceptional disease resistance. | G | 3 | NA |
| **Gemini (tet)**<br>Leafy variety with high yields. | S | 1 | NA |
| **Messina (tet)**<br>Very high yields and spring growth. Best yet! | PG | 1 | NA |

| Timothy | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Comer**<br>High yielding variety with good winter-hardiness. | G | 1 | NA |
| **Comtal**<br>Good D values from this variety. | G | 1 | NA |
| **Motim**<br>Later heading with very good ground cover. | S | 2 | NA |

| Festuloliums | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Matrix Enhanced® Ryegrass**<br>A cross between Perennial Ryegrass and Meadow Fescue that grows on the "shoulders" of the year, extending the grazing season. | NA | NA | NA |
| **Lofa**<br>A cross between Italian Ryegrass and Tall Fescue with massive yields for two full years and good drought tolerance. | NA | NA | NA |

| Red Clover | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Maro (tet)**<br>Very high yields and good persistency. | **G** | **NA** | **NA** |
| **Merviot**<br>Still the highest yielding diploid variety in LG trials. | **G** | **NA** | **NA** |
| **SW Ares**<br>Very hardy variety from Sweden. | **NA** | **NA** | **NA** |

| White Clover | England & Wales | Scotland | Ireland |
|---|---|---|---|
| **Aberystwyth S.184**<br>Very small-leaved variety. Good for sheep grazing. | **G** | **1** | **NA** |
| **Grasslands Demand**<br>Small-leaved persistent variety. | **G** | **1** | **NA** |
| **Coolfin**<br>Small-leaved variety with good grazing yields. | **In trial** | **RL** | **Rec.** |
| **AberVantage**<br>Medium leaf with excellent grazing qualities. | **NA** | **1** | **NA** |
| **Grasslands Bounty**<br>High yielding, medium leaf. | **G** | **2** | **NA** |
| **Crusader**<br>Former NIAB cup winning medium-leaved clover. | **G** | **1** | **Rec.** |
| **Violin**<br>Largest of the medium-leaved varieties. Good grazing. | **G** | **1** | **NA** |
| **Barblanca**<br>Large leaf with good silage yields. | **G** | **1** | **Rec.** |
| **Alice**<br>Slightly smaller leaf than Barblanca. Good cutting yields. | **G** | **1** | **Rec.** |

## KEY

**RL England & Wales**
G = Fully Recommended for general use
S = Recommended for specific use
P = Provisionally Recommended

**SRUC Scotland**
1 = 1st Choice 2 = 2nd Choice
3 = 3rd Choice (P) = Provisional
* = Downgrading

**DAFM Ireland (Republic)**
Rec = Fully Recommended
In Trial = In Trial
N/A = Not on Recommended List

# SPECIALIST CROPS & FORAGE HERB MIXTURES

**Lucerne**
The realisation that lucerne offers such a high protein content, good drought tolerance and is relatively long-lived, has prompted a revival of interest in this very underrated crop.

Lucerne can be baled for hay or made into big bale silage and its potential yield will be in the region of 14-15 tonnes of DM/ha/year. The crop can provide excellent yields for three full years (following a summer sowing).

We offer two high-yielding varieties; Marshal with very narrow stems, ideal for baling and Mezzo, which can be grown further north.

*Contact your Authorised Distributor if you would like more information on lucerne and the range of varieties we have available. You will also find more information about lucerne online at:*
***www.lgseeds.co.uk/sinclairmcgill***

**Agricultural Mustard**
Depending on soil fertility and soil moisture, a good crop of mustard for ploughing-in can be obtained from applying 30-40 units of N. You can expect around 15 tonnes of green manure/acre which can be achieved from 80 units of N.

**Vitaro Mustard**
Vitaro can also help to reduce sugar beet nematode (Heterodera schachtii).

# FORAGE HERB MIXTURES & CHICORY

### Forage Herb Mixtures

These mixtures offer an improved variation in diet for your stock as well as significant agronomic and nutritional properties.

**Agronomic benefits** include improvements in drought tolerance and soil structure.

**Nutritional benefits** derive from the mixtures' high mineral content and palatability. Chicory has been shown to increase liveweight gain in lambs even faster than White Clover.

**Health benefits** aid the natural expulsion process and create a hostile gut environment.

The following mixtures are best sown in distinct strips or small open paddock blocks freely accessible to stock. Allow sufficient time for the herbs to fully establish before allowing access to stock. Once fully established, the mixtures should be grazed hard to prevent the herbs running to seed or becoming "woody".

### Cheviot Chicory Mixture

| | |
|---|---|
| **35%** | Forage Chicory |
| **20%** | Timothy |
| **20%** | Intermediate Perennial Ryegrass |
| **10%** | (tet) |
| **15%** | Late Perennial Ryegrass (tet) |
| **100%** | White Clover Blend |

*Sow at 14 kilos per hectare (5.7 kilos per acre)*

White Clover, Timothy and Tetraploid Ryegrasses make excellent companions for Chicory and this mixture provides a complete summer diet for finishing lambs.

### Forage Herb Mixture

| | |
|---|---|
| **30%** | Forage Plantain |
| **20%** | Forage Chicory (Chico or Choice) |
| **20%** | Intermediate Perennial Ryegrass (tet) |
| **15%** | Timothy |
| **15%** | White Clover Blend |
| **100%** | |

*Sow at 14 kilos per hectare (5.7 kilos per acre)*

Similar attributes to Cheviot Chicory mixture but the inclusion of Tonic Forage Plantain elevates the mineral content.

### Stock Finisher

| | |
|---|---|
| **30%** | Forage Chicory |
| **40%** | Red Admiral Red Clover Blend |
| **15%** | Cheviot White Clover Blend |
| **15%** | Intermediate Perennial Ryegrass (tet) |
| **100%** | |

*Sow at 14 kilos per hectare (5.7 kilos per acre)*

Up to three year mixture for intensive finishing of livestock. A very high source of protein which is ideal for finishing early lambs. Full season production.

### Lamb Tonic

| | |
|---|---|
| **25%** | White Clover |
| **12.5%** | Plantain Tonic |
| **62.5%** | Chicory |
| **100%** | |

*Sow at 10 kilos per hectare (4 kilos per acre)*

## GRASS MARGINS

**Farmers are being urged to sow 6 metre grass margins adjacent to crops of Oilseed Rape and Winter Beans and along water courses. This has been shown to reduce herbicide leaching by as much as 50%. It also creates the opportunity to enhance the wildlife and game value of your farm.**

## WILDLIFE CONSERVATION MIXTURES

Our FWAG co-designed "BASIC HABITAT" mixture was the first affordable conservation mixture to be introduced to encourage farmers to make their set-aside more attractive to wildlife. It still provides you with the most value to wildlife for your money.

Why not consider enhancing the value of Basic Habitat further with the addition of native wild grasses or "islands" of wildflowers from one of our wildflower supplementary mixtures?

Alternatively, we also offer a range of ready-mixed grass and wildflower mixtures specifically designed for a variety of soil types and habitats. For those of you who miss the poppies and corn marigolds, we even offer a Cornfield Annuals mixture!

**Basic Habitat** Co-designed by FWAG. This mixture contains low maintenance grass, combined with clump-forming species to provide maximum benefit to wildlife. Contains Red Fescue (Chewings), Sheeps Fescue, Common Bent, Rough-stalked Meadowgrass, Smooth Stalked Meadowgrass, Meadow Fescue, Tall Fescue, Timothy, Cocksfoot and Crested Dog's Tail. Updated to include Red Clover as a nectar source.

**Grass/Wildflower Mixtures**

| | |
|---|---|
| **AWF No. 1** | Shaded Areas |
| **AWF No. 2** | Wetland Soils |
| **AWF No. 3** | Lime/Chalk Soils |
| **AWF No. 4** | Clay Soils |
| **AWF No. 5** | Acid Soils |
| **AWF No. 6** | Loam / Alluvial Soils |
| **AWF No. 7** | Hedgerows & Semi-shade |
| **AWF No. 8** | Sandy/dry soils mix |
| **AWF No. 9** | Flowering Lawn |
| **AWF No. 10** | Pollinators Mix |

**Cornfield Annuals** 100% Traditional cornfield annual wildflowers.

**Beetle Bank** A mixture of tufted grasses for nesting game birds, skylarks etc. Also makes a useful beetle bank.

**2 WBF** A mixture of Kale, Triticale, Linseed and Radish. Quinoa is best sown in minimum 6 metre margins for a succession of food for wild and game birds.

**Pollen and Nectar Mixture** A mixture of nectar and pollen-rich plants for foraging insects and wild birds.

# BIRD FEEDING MIXTURES

### Linnet
Will produce an abundance of small seeds.
Also suitable for tree sparrow and grey partridges.

**Contains:** Kale, Oilseed Rape, Red Millet, White Millet, Linseed, Mustard and Oilseed Radish.

**Supplied in 20kg one hectare units**

### Bunting
Cereal based mixture.
Seed use from September to February.
Also suitable for house sparrows, yellow hammers and skylarks.

**Contains:** Triticale, Spring Wheat, Spring Barley, Quinoa, Red and White Millet.

**Supplied in 20kg half hectare units**

### Bird Feeder
A mixture of small seed bearing crops which provide an excellent feed. Spring sown with 2 year potential.

**Contains:** Kale, Sunflower, Linseed, Fodder Radish, Mustard and Millet Blend.

**Supplied in 10kg one acre units**

### Bumblebird Mixture
Produces an abundance of small seeds during the winter. Very suitable for tree sparrows and corn buntings.

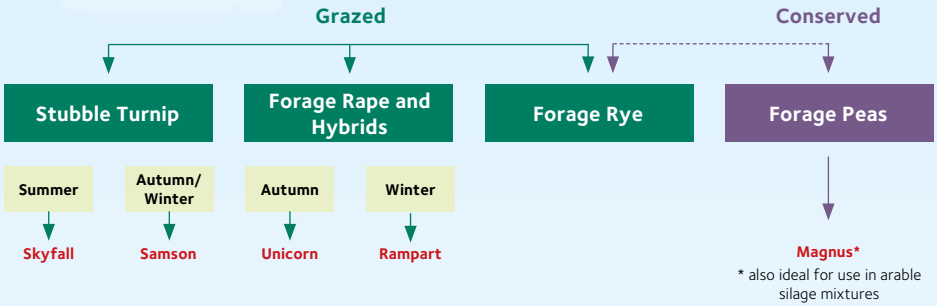
**Supplied in 10kg one acre units**

For the full formulation of this mixture please ask for our HiBird catalogue or find it at lgseeds.co.uk/hibird

# CATCH CROPS

**Catch crops 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) | 4-6 | 6-7 | 185 | 125-150 |
| **Utilisation Period** | June - Dec | July-Jan | Feb - April | Mid June - early Oct |
| **Fresh Yield** (tonnes/ha) | 40-50 | 24-35 | 20-24 | 20-25 |
| **% DM** | 8-9 | 12-13 | 25 | 20-25 |
| **Total DM** (tonnes/ha) | 4.5-5 | 3.5-4.0 | 5-6 | 8-10 |
| **Crude Protein % of the DM** | 17-18 | 19-20 | 11-12 | 18-20 |
| **D Value** | Bulb 80 Leaf 70 | 65% | 67% | 65% |
| **Metabolisable Energy MJ/kg DM** | 11 | 10-11 | 10 | 10 (silage) |



## Stubble Turnip

**Samson**
Very palatable to both sheep and cattle. High intakes and liveweight gains.

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

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

**Delilah**
An excellent variety with increased yield potential and utilisation.

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

## Forage Rape/Hybrids

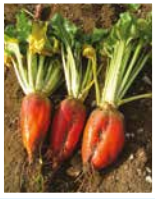
**Hobson**
Tried and tested throughout the UK and exhibits excellent resistance to powdery mildew. Very fast to establish and highly palatable.

**Interval - Rape/Kale hybrid**
Bred by the James Hutton Institute, Dundee. 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.

**Rampart NEW**
A new high-yielding variety that can provide a quality feed for autumn and winter grazing.

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

## Your Opportunity to Profit from Forage Crops

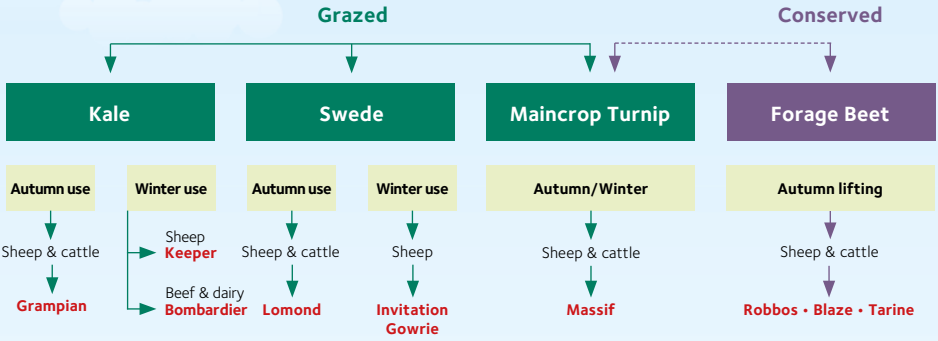


Forage crops are now playing an increasingly important role in UK agriculture. The feeding of livestock economically and efficiently puts ever greater pressure on producers to consider all cost saving options available to them. Crops can be fed all year round to reduce reliance on bought in concentrates. By selecting the correct species and varieties, livestock farmers can look forward to maximising their home grown feed production and enhancing their profitability. Home grown feeds can help to produce an excellent part of a mixed forage diet. Understanding the feed requirements of your animals will ensure maximum returns and healthier cows!

# FULL SEASON CROPS

**These crops require a full season production cycle but can offer high yield potential.**

| Crop Data | Kale | Turnips | Swede | Fodder Beet |
|---|---|---|---|---|
| **Sowing Date** | April-July | Late May-early June | Sept - Oct | March - late July |
| **Sowing Rate** (kg/ha) | Nat. 2-4 | Nat. 2-3 | Nat. 3-4 | 100,000 seeds |
| **Utilisation Period** | Sept-March | Oct-Feb | Oct-March | Nov-April |
| **Fresh Yield** (tonnes/ha) | 60-70 | 59-69 | 70-90 | 90-100 |
| **% DM** | 14-16 | 8-10 | 10-13 | 15-22 |
| **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** | 68% | 80% | 82% | 78-80% |
| **Metabolisable Energy MJ/kg DM** | 10-11 | 11 | 12.8-13.1 | 12.5-13.0 |



## KALE

### Caledonian
The first Kale bred for club root resistance. Caledonian's 'huge' yields make it ideal for utilisation by dairy and beef cattle.

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

### Grampian
An improved marrow stem type with huge yields, good standing ability. Well-suited for strip or zero grazing.

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

## SWEDE

### 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.

## MAINCROP TURNIP

### Massif
A yellow fleshed variety with a very high yield. Ideal for pre and post Christmas utilisation.

## FODDER BEET

### Blaze
Blaze combines very high dry matter yields with an excellent clean root. Its bright red roots are ideally lifted with leaf lifting equipment and can be fed whole, due to their medium dry matter content.

### Robbos
Very high DM yields. It has a clean, yellow root and medium DM content - an ideal variety for feeding cattle.

### Tarine
This is a new pink skinned variety with the potential to produce high dry matter yields. Tarine is Rhizomania tolerant.

## 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 UK farmers to exploit the use of cheaper home grown forages.

# FODDER MIXTURES

## Autumn Keep
### MIXTURE COMPOSITION

| | |
|---|---|
| Rampart Forage Rape | 1.00 kg |
| Samson Stubble Turnip | 0.50 kg |
| Rondo Stubble Turnip | 0.75 kg |
| Kale | 0.25 kg |
| | **2.50 kg** |

- Very fast establishment for autumn use
- Good disease resistance to ensure quality
- Value autumn feed

**Sow at:**
2.5 kg/acre

**Sowing Time:**
Summer/early Autumn

## Late Lamb
### MIXTURE COMPOSITION

| | |
|---|---|
| Interval Rape/Kale Hybrid | 1.00 kg |
| Rondo Stubble Turnip | 1.00 kg |
| Italian Ryegrass | 5.00 kg |
| | **7.00 kg** |

- Ideal for later use
- Winter hardy varieties
- Italian ryegrass improves crop density

**Sow at:**
7 kg/acre

**Sowing Time:**
Summer/Autumn

## WHOLECROP PEAS

Wholecrop peas can be sown straight or mixed with cereals and are capable of producing a heavy yielding crop that is high in both protein and starch. It can be undersown with a spring ley or will act as an excellent entry for an autumn reseed. Sown in March or April, the crop can be harvested in 16-20 weeks.

Magnus forage pea is recommended for its standing power and high yields.

## ARABLE SILAGE MIXTURE

A combination of both cereals and peas that can provide a valuable source of protein and starch. The ensiled crop can produce excellent winter feed rations for dairy, beef or sheep.

- Excellent yields in 13-16 weeks
- Can be undersown with a new grass ley
- Ideally used as part of a mixed forage diet

**Prosile**

**60%** Forage Pea
**40%** Spring Barley
**100%**

**Sow at:**
125-150 kilos/ha undersown with grass.

**Sow at:**
175-200 kilos/ha for best results.


**Our popular range of equestrian mixtures continue to satisfy the demands of a diverse range of requirements from horse hay to herbs.**

All our mixtures (which are packed in 10 kilo bags) have been specifically formulated after extensive consultation with Equine Nutritionists. They therefore avoid high sugar grasses, popular in agriculture, because they can increase the risk of Laminitis in horses and induce "stroppy" temperaments in mares.

The requirement in a mixture can vary depending on the type of horse involved and these mixtures cover the range of requirements we have had over the years, from racing gallops to pony paddocks.

### Horse Paddock Mixture

7% Smooth Stalked Meadowgrass
14% Creeping Red Fescue
17% Timothy
62% Late Perennial Ryegrass
**100%**

- Formulated to provide grazing for horses and ponies with intermittent rests from grazing, to produce a hay crop.
- Depending on any herbs present, we would recommend the addition of a minimum of 250 grams of mixed herbs per acre (either mixed with the grass or preferably sown in strips in the sward) to improve the nutritional aspects of the sward.
- Designed to perform well with moderate inputs of nitrogen, but a good application before closing off for hay will produce the best results.

**All natural seed**
**Sow at 10-15kg per acre**

### Gallops & Schooling Area Mixture

4% Crested Dogstail
20% Slender Creeping Red Fescue
10% Smooth Stalked Meadowgrass
10% Creeping Red Fescue
28% Late Perennial Ryegrass
28% Turf Type Perennial Ryegrass
**100%**

- Designed to produce a very dense, springy sward, capable of withstanding very heavy wear and is also suited to racecourses and polo pitches.
- Naturally the regular maintenance of this area will pay off by ensuring the turf maintains its springy nature.

**All natural seed**
**Sow at 20-40kg per acre**

### Horse Hay Mixture

15% Timothy
5% Cocksfoot
5% Meadow Fescue
75% Late Perennial Ryegrass
**100%**

- This mixture is designed to produce high quality horse hay with that special 'nose' that can only come from a good Timothy content.
- Provides useful grazing in the early spring and during late summer and autumn. In winter, it should only be grazed lightly if a good hay crop is desired.

**All natural seed**
**Sow at 12-15kg per acre**

## Equipaddock Original Mixture

15% Early Perennial Ryegrass
30% Mid-season Perennial Ryegrass
23% Late Perennial Ryegrass
12% Timothy
4% Smooth Stalked Meadowgrass
16% Creeping Red Fescue
**100%**

- Our Equipaddock Original Mixture is available in 1/2 acre plastic buckets containing 7kg of seed and also in 10kg bags.
- A slightly amended mixture to our standard Horse Paddock, this handy pack enables you to reseed areas and at the same time leaves you a plastic container that will be useful around your stables.

**All natural seed**
**Available in 1/2 acre buckets**

## Herb Mixture

35% Chicory
25% Burnet
10% Ribgrass
30% Sheep's Parsley
**100%**

- Specially developed for horses and ponies and includes a number of deep rooting and nutritious species, which provide a good source of minerals and trace elements.
- Mixed herbs are included in selected grass seed mixtures, but are also available separately for sowing in strips or islands in the field, which often gives better establishment.

**Available in 1kg packs**
**Sow at 250-500g/acre**

## Haylage Mixture

8% Timothy
50% Italian Ryegrass
22% Mid-season Perennial Ryegrass
20% Hybrid Ryegrass
**100%**

- A short term mixture for the production of quality haylage. High in fibre, but with a good "nose".

**All natural seed**
**Sow at 12-15kg per acre**

## Stallion Paddock Mixture

6% Crested Dogstail
10% Slender Creeping Red Fescue
12% Smooth Stalked Meadowgrass
12% Creeping Red Fescue
29% Late Perennial Ryegrass
28% Turf Type Perennial Ryegrass
3% Herb Mixture
**100%**

- The Stallion Paddock mixture is formulated to withstand harder wear whilst still maintaining a dense, springy and nutritious sward.
- Contains MONDIAL turf type Perennial Ryegrass, which is rated very well for its wear tolerance and early growth.

**Available in 1kg packs**
**Sow at 250-500g/acre**

## Stud Paddock Mixture

6% Crested Dogstail
6% Smooth Stalked Meadowgrass
15% Creeping Red Fescue
48% Late Perennial Ryegrass
20% Turf Type Perennial Ryegrasss
5% Herb Mixture
**100%**

- This mixture is designed to produce a good, well balanced sward especially suitable for mares and their foals.
- The deep rooted herbs will improve the calcium and phosphorus levels; two of the more important trace elements vital for the growth and bone development in young horses.

**All natural seed**
**Sow at 15-40kg per acre**

**SOWING RATES:**
For complete re-seeds we recommend a sowing rate of 15-20kg per acre and for overseeds or improvements; 10-15 kg per acre, depending on how much the sward has deteriorated.
**Our seed is supplied in handy 10kg packs**

# AMENITY

## Economy

| | |
|---|---|
| 15% | Columbine Perennial Ryegrass |
| 35% | Double Perennial Ryegrass |
| 20% | Nagano Perennial Ryegrass |
| 30% | Corail Strong Creeping Red Fescue |
| 100% | |

For high wear utility areas and winter sports, at a competitive price. Unlike some of our competitors' products, this mixture does not contain agricultural strains of ryegrass.

Sowing Rate **25-35/m²**
Cutting Height **25mm**

## Shade

| | |
|---|---|
| 20% | Trophy Chewings Fescue |
| 10% | Smirna Slender Creeping Red Fescue |
| 35% | Corail Strong Creeping Red Fescue |
| 10% | Cocktail Smooth Stalked Meadowgrass |
| 10% | Crystal Hard Fescue |
| 10% | Dasas Rough Stalked Meadowgrass |
| 5% | Highland Browntop Bent |
| 100% | |

For partially shaded areas or dry conditions. This is a very low maintenance mixture and it is also suitable for environmental headlands.

Sowing Rate **25-35/m²**
Cutting Height **25mm**

## Stately Home

| | |
|---|---|
| 30% | Cyrena Perennial Ryegrass |
| 20% | Bocelli Perennial Ryegrass |
| 25% | Trophy Chewings Fescue |
| 20% | Smirna Slender Creeping Red Fescue |
| 5% | Highland Browntop Bent |
| 100% | |

For top quality lawns that will also take some wear and tear. The turf ryegrasses included produce a fine leaved lawn, which will give an excellent appearance.

Sowing Rate **35-50g/m²**
Cutting Height **13mm**

## Trafford

| | |
|---|---|
| 50% | Heidrun Strong Creeping Red Fescue |
| 25% | Trophy Chewings Fescue |
| 20% | Smirna Slender Creeping Red Fescue |
| 5% | Highland Browntop Bent |
| 100% | |

For ornamental lawns and high quality landscaping. Trafford produces a dense, fine leaved sward that can be mown as low as 20mm.

Sowing Rate **35-50g/m²**
Cutting Height **20mm**

## Trophy

20% Trophy Chewings Fescue
75% Corail Strong Creeping Red Fescue
5% Highland Browntop Bent
**100%**

For front lawns, landscaped areas, building surrounds and low maintenance areas.

Sowing Rate **35-50g/m²**
Cutting Height **25mm**

## Olympic

40% Himalaya Perennial Ryegrass
40% Nagano Perennial Ryegrass
20% Melbourne Perennial Ryegrass
**100%**

Winter sports renovation (Football & Rugby) and for any situation where good wear tolerance and rapid establishment are the main requirements.

Sowing Rate **35-50g/m²**
Cutting Height **20mm**

## Alderley

30% Cyrena Perennial Ryegrass
35% Himalaya Perennial Ryegrass
20% Heidrun Strong Creeping Red Fescue
15% Yvette Smooth Stalked Meadowgrass
**100%**

For recreation grounds, good hardwearing lawns and landscaped areas.

Sowing Rate **35-50g/m²**
Cutting Height **20mm**

All our amenity mixtures are treated with **HEADSTART® GOLD** and packed in 10kg bags. All varieties are subject to change.

## Putting & Bowling

55% Wagner 1 Chewings Fescue
10% Carousel Slender Creeping Red Fescue
15% Smirna Slender Creeping Red Fescue
20% Highland Browntop Bent
**100%**

For golf greens, putting greens and any other very close mown turf. Produces a fast, true green.

Sowing Rate **35g/m²**
Cutting Height **5mm**

## Anfield

45% Cyrena Perennial Ryegrass
40% Himalaya Perennial Ryegrass
15% Corail Strong Creeping Red Fescue
**100%**

For winter sports renovation, playing fields and other areas requiring rapid establishment.

Sowing Rate **35-50g/m²**
Cutting Height **20mm**

## Universal

25% Passion Perennial Ryegrass
15% Cyrena Perennial Ryegrass
15% Himalaya Perennial Ryegrass
10% Corail Slender Creeping Red Fescue
35% Trophy Chewings Fescue
**100%**

For recreation grounds, good quality hardwearing lawns and landscaped areas.

Sowing Rate **35-50g/m²**
Cutting Height **20mm**

# GRASS BREAK CROPS

- Blackgrass has become one of the most serious problems on arable farms. Break the blackgrass cycle by drilling a short term grass ley.
- Grass can also be used as a break crop after potatoes.
- Sinclair McGill's **Catchcrop** is a Ryegrass blend and is particularly suited to drilling after maize to prevent nitrates leaching into the environment.
- **Catchcrop** is a short term ley with a productive life of 12 – 18 months.
- Other options are **Colossal® Silage** which is higher yielding and has a productive life of 18 months to 2 years. For a full 2 years production and a first cut in the 3rd year consider **Scimitar**.

- One of the most valuable break crops and one that will leave valuable residual nitrogen for the following crops is **Colossal® Red**. This mixture contains the highly acclaimed **Red Admiral**, a blend of at least 3 varieties of Red Clover, which give the perfect balance of high yields at every cut, combined with very good persistency.
- **Colossal® Red** will give high yields for up to 3 years. If a 3 - 4 year Red Clover ley is required, **Admiral's Choice** has better persistency, but is lower yielding.
- If you are an all arable unit with no neighbours with livestock, consider selling the silage from your break crop to an AD plant.
- Grass seed crops for seed merchants also make useful break crops on arable farms.

# 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 5-10°C to germinate and higher temperatures to achieve satisfactory growth.
- Ensure the seedbed is sufficiently moist and if possible, avoid mid-summer seeding in drought-prone years.
- 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. (See overleaf for Integrated Pest Management (IPM).
- 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.

# INTEGRATED PEST MANAGEMENT

**The withdrawal of the pesticide Chlorpyrifos (trade names including Dursban™ and Lorsban™) means growers will need to take a more integrated approach to pest management, to ensure successful establishment of a new ley.**

Pests such as Frit Fly and Leatherjackets that could previously be controlled by Chlorpyrifos can cause serious losses in established grassland, and can be devastating to new leys if control measures are not taken.

## Damage and Importance

**Leatherjackets (Tipula paludosa)**

Leatherjackets are the larvae of Crane Flies, which feed on the roots and stems of grass plants at, or below ground level. Severe infestations in established grassland can lead to yield losses of more than 5t/DM per hectare whilst attacks in newly established leys are more likely to lead to plant death and crop failure.

**Frit Fly (Oscinella frit)**

Frit Fly produce 3 generations of larvae a year and are prevalent in almost all grass swards. The small larvae feed on the central shoot of the plant causing tiller death. Loss of tillers reduces yield and persistency in established leys. Attacks in plants at the seedling stage or with low tiller numbers leads to plant death.

## Risk Factors

Damage to newly sown grass leys by either Leatherjackets or Frit Fly are most likely in the following situations:

- Following established grass or grassy cereal stubbles
- In predominantly grassland or mixed arable/ grass areas
- In Autumn sown leys – particularly mid to late August, and if conditions are warm and damp
- In leys sown with less than a week interval between cultivation and drilling
- In fields where there is a previous history of damage

# INTEGRATED PEST MANAGEMENT

With no chemical pesticides available, damage by these pests can be reduced or avoided by carrying out some/all of the measures below:

- Ploughing in July before reseeding can reduce leatherjacket populations by 50%
- Establishing a brassica break crop, such as Interval Rape/Kale Hybrid or Delilah Stubble Turnips between grass crops, removes the pests' food source
- If sowing grass after grass, leave at least 2 weeks between cultivation and sowing, to allow birds to feed on the grubs
- Move to spring reseeding
- Consider overseeding - sowing into an existing ley may allow seedlings to escape attack as the cover crop provides an alternative food source (Frame et al, 1992)
- Increase seed rate to 15-20kg/acre to neutralize any seedling losses
- Use **HEADSTART® GOLD** treated seed to ensure rapid establishment and vigorous early growth
- As with any reseed – soil sample prior to seeding, to ensure pH and nutrient status is correct
- See below for examples of rotations designed to reduce the threat from grassland pests and maximise forage production

## Example Crop Rotations

| May | June | July | Aug | Sept | March | April |
|---|---|---|---|---|---|---|
| | 2nd cut silage | Cultivate – leave fallow for > 2 weeks Sow Forage Rape | Sow Delilah 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 | | |

## Wireworms

Grassland is the natural habitat for wireworms and very significant numbers of this pest will often be found in permanent pasture. Not surprisingly, when old pastures are taken out, the newly seeded grass will be especially vulnerable to attack by this pest (Agriotes spp.). The damage may become more severe in the second or third year of the new ley's life.

The wireworms will chew the base of the grass plants – typically just below ground level – and the plants will turn yellow and show signs of wilting. The symptoms can sometimes be confused with the damage seen in grass which has been attacked by frit fly. However, the very 'ragged' nature of the damage along with the presence of the wireworms themselves will confirm the initial diagnosis. Attacks by wireworm are often more serious when the grass crop is already under pressure from another problem – such as soil acidity or poor soil conditions and fluffy seedbeds.

**Control Measures:**

A good seedbed will help your grass crop get off to a good start and will help the plants to withstand a minor attack. If the soil has been sampled and there is the risk of a serious attack then consider an appropriate insecticide, which will need to be applied in a high volume spray before drilling. A risk assessment can also be made, based on previous experience on the farm or local conditions in a specific year.

# PEST ATTACKS IN WELL ESTABLISHED GRASS

**Farmers may sometimes overlook the fact that a well established ley can still be subject to attack by pests. The damage they can cause can be significant – it may not just be the development of obvious patches in the field, but a decline in the actual population of the desirable grasses.**

## Grass Aphids

There are several species of aphid that may be found on established grass but only one species is usually responsible for any damage and this may be prevalent after a mild, open winter. If an established ley is invaded by a large number of aphids then the grass may turn brown and have a 'scorched' appearance. If you feel that there is a significant aphid population, then it might be worth considering the use of an aphicide – if in any doubt consult one of the major chemical suppliers.

## Chafers

The grubs of several species of chafer beetle may cause damage to grass in various parts of the UK. The garden chafer (Phyllopertha horticola) is likely to be the most serious. The adult is around 8-9mm long with a metallic green head and thorax and reddish-brown wing cases. The grubs are white and measure about 18-20mm when fully grown. Due to the nature of the life cycle, affected fields tend to be re-infested each summer. The feeding action by the grubs (they sever the roots) will produce patches of poorly grown grass and these may turn very brown in dry weather. The damage is most likely to be seen in September and October. There may well be a lot of bird activity on the pasture as they look for the grubs to eat. If you are concerned that you may have a very high population of chafers, contact an agrochemical company for further advice.

# WEEDS

All weeds grow at the expense of your grass crop! The broad-leaved weeds will make a serious attempt to smother out the narrow-leaved grass plants in their search for light, nutrients and water. Serious weed infestation is bad at any time, but is especially serious during the critical establishment phase when the young grass is vulnerable to competition. In particular the control of annual meadowgrass and chickweed is vital in any intensive grassland system. The most beneficial time to control them is at establishment, before they have a chance to compete for valuable nutrients and reduce both the yield and the quality of the grass.

Patches of weeds which remain uncontrolled in the early stages will, remain in the sward for the whole life of the ley. The weeds will also spread over time and inhibit grass output further.

It is probably safe to assume that a very high proportion of grass fields (perhaps 25% or more) have some level of infestation with broad-leaved weeds. In long term leys, this infestation probably means a ground cover figure in the 7 to 15% category. This means on a livestock farm with 100 acres of grass, around 15 acres could be made up of broad-leaved weeds – which represents a staggering loss of potential yield (and herbage quality).

All agricultural soils carry a weed seed burden and the levels can be as high as 100 million viable seeds a hectare! On this basis, we can't talk about getting more from grass without tackling this potential problem.

Weeds are, unfortunately, a visible sign of rather lax grassland management. Their presence is also indicative of many other problems. These include:

### Soil pH

It is important to ensure that your soil has a pH of 6.5 - if it is well below this figure then you need to consider an application of lime. Certainly, if the pH is wrong, this will mean that you are not fully exploiting the value of your fertiliser or other expensive inputs. With the application of lime, it is always better to work on a 'little and often' basis, rather than making large applications several years apart.

### Drainage

Check the drainage in your grass fields as heavy infestations of weeds can be a symptom of poor drainage. Wet areas of ground will encourage weed growth and will lead to other difficulties, such as poaching and shallow rooting in the grass.

### Phosphate & Potash

We recommend that you have a soil analysis done to determine the P and K status of your fields. If a dressing is needed, then work it into the seedbed prior to drilling.

### Soil Compaction

As with most crops, grass does not like soil compaction. Soil pans mean that the grass roots cannot grow down to where the moisture is in the dry summer months. Regular subsoiling is an important part of good grassland management.

When embarking on a weed control programme, it is vitally important to apply the spray when the plants are at their most vulnerable stage.

The stage of grass growth is also important. You may well damage the ley if sprays are applied before the grass has tillered and spraying in very dry conditions when the grass plants may be suffering from stress, should be avoided.

It is, of course, essential to follow the instructions supplied by the manufacturer whenever a herbicide is being used. Failure to do this may also lead to some very unwelcome health problems in your grass crop.

A sound back-up policy after spraying will help to ensure success. As part of this programme you need to maintain target stocking levels, so that your animals keep on top of your grass growth. Neither under, nor over-grazing is conductive to good weed control. Top the fields regularly to get rid of unpalatable grass or other species that stock have left and apply fertiliser as appropriate. Alternating mowing with grazing, will discourage the production of weeds which favour one or the other regime. If patches of weeds, become a problem, then use a knapsack sprayer to take them out at the earliest possible opportunity.

# COMMON ESTABLISHMENT DISEASES

### Pre-Emergence Damping-Off

Pre-emergence damping-off can lead to quite a high number of seeds failing to produce a viable plant. The soil borne fungi (usually Pythium and Fusarium species) only have a relatively short time span in which to make an attack. Such attacks will be more successful if the soil conditions are 'suitable' i.e. cold and wet, at or soon after, the seed has been sown. However, there can still be attacks in warm weather when the soil conditions are very dry! Seeds which fail to produce a seedling will show distinct signs of rotting after the seed coat has been broken. To increase the proportion of seeds which produce a viable seedling, it is important to ensure that careful attention is paid to the preparation of the seedbed and sowing depth. In addition, proven seed treatments represent a major breakthrough – See page 74 for more information on our unique seed treatment **HEADSTART® GOLD**.

### Post-Emergence Damping-Off

The two soil borne species mentioned previously (Pythium and Fusarium) along with several other species, notably Rhizoctonia solani, Cylindrocarpon radicola and the seedborne Dreschslera, can cause this problem. The typical symptoms include the rotting of seedlings at their stem base and damage to their roots. This damage is normally seen after the emergence of the second or third leaf and it may be more prevalent when the soil is very dry and the weather is warm. Paying careful attention to the quality of the seedbed and making sure that the grass is given a good start with adequate fertiliser will help to reduce the risk of damage. Our seed treatment, **HEADSTART® GOLD** will prove very valuable.

# DISEASE ATTACKS IN ESTABLISHED GRASS



### Overwintering Diseases

Although winterkill is recognised as a key problem in northern areas of the UK, it can also lead to problems elsewhere in the UK. Several factors contribute to the disease but major pathological causes of death, result from attack by Fusarium culmorum and Fusarium nivale (snow mould) and a number of other viruses. The damage is most severe when sudden cold spells follow periods of milder weather. Grass that has been attacked by snow mould will exhibit patches of yellow, which later turns a whitish-grey. This will be most noticeable in February and March. Pinkish white mycelium can often be seen within the matted turf, denoting attacks by Fusarium nivale. It is important to ensure that swards do not enter the winter in a long, rank state. In northern areas, avoid sowing mixtures which contain a large proportion of less winter hardy varieties.

### Crown Rust

Crown Rust is now recognised as one of the most serious leaf diseases of grass, capable of devastating pastures. Once the disease takes a hold there can be a noticeable reduction in tillering and root growth and the foliage will turn yellow. Palatability can be badly affected with stock refusing to eat a heavily infected pasture. The re-growth and response to nitrogen can also be hit by crown rust. Once confined to the south and west, the disease seems to be steadily moving northwards; possibly as a result of global warming.

The disease is often seen in late summer and during the autumn and its spread is encouraged by warm, dry days and cool moist nights. Badly infected fields will take on a very yellow appearance. If you look carefully you should see the overwintering spores on the leaves – these are shiny and black and will appear on both sides of the leaves from mid-autumn onwards.

One of the best methods of control is frequent grazing. If a pasture has already been attacked and stock are rejecting the crop then the best approach is to top the field and remove the infected herbage.

Fertiliser should then be applied to encourage new growth – but ensure that the field is then grazed regularly (ideally at intervals not exceeding three weeks). There is a degree of varietal resistance and this should be exploited in areas where the disease is known to be a regular problem.

### Net Blotch

This is probably the most damaging fungal disease of ryegrasses in this country. It can be found throughout the year in a very large number of fields and can lead to some losses in digestibility. The symptoms of net blotch are sometimes confused with nitrogen deficiency because there is a superficial similarity. The best form of defence is to ensure that grass is grazed regularly so that it does not become long and rank.

### Brown Blight

Not surprisingly, this disease may sometimes be confused with net blotch, although the former does not usually cause as much damage to the grass. If crops have been badly infected, it is worth cutting them to prevent further leaf damage.

### Leaf Scald

Also called 'spring burn', this disease (caused by two main species of Rhynchosporium) can be especially prevalent in Italian Ryegrasses and it can lead to a loss of quality and yield. In addition, palatability may also be affected. The irregular 'scald-like' blotches are commonly found on the under surface of the leaves and these may also show signs of browning of the edges (which may be confused with windburn). The greatest damage may well have occurred before the ley has been given its first cut of the season. There is evidence of some varietal resistance, so consider this when selecting a mixture.

# DISEASE ATTACKS IN ESTABLISHED GRASS

### Drechslera (Leaf Spot)

Another serious disease of grass that is increasing rapidly is Drechslera. In the autumn of 2013 there were reports of this disease from as far south-west as Cornwall and as far north as Scotland. NIAB TAG trials recorded more than 40% of the leaf area of some swards were affected by it.

The disease is encouraged by wet and cloudy weather and is most prevalent in the autumn but unlike many other diseases it can be active well into the winter months, resulting in a decrease in spring silage yields of as much as 18%. Drechslera attacks the leaves of the grass plant starting as small speckles which later develop in to brown/black lesions, often with a yellow halo. The leaf eventually dies, reducing grass yield and feed quality. Cattle and sheep will reject infected grass, which in the worst cases can devastate whole pastures, turning them black. Like Crown Rust, there is a degree of varietal resistance to Drechslera. The use of resistant varieties or complex multi-gene mixtures such as Castlehill® will stop, or at least slow down the progress of the disease. Diploid Ryegrasses are more prone to the disease than Tetraploids.

Where the disease has taken hold in established pastures, it is best to remove infected material by light grazing (if not rejected by stock) or failing that, topping, which will inhibit the spread of the disease and reduce the chances of survival into the winter.

In the worst cases, advice should be sought from your crop protection specialist and the grass should be sprayed with a fungicide.

### Mildew

Mildew (Erysiphe graminis) may be seen in lush, dense crops of ryegrass in the spring and early Summer. Incidence of the disease can lead to a loss of both yield and quality in Italian and Perennial Ryegrasses. Excessive soil nitrogen, shade and high humidity will all favour the development and spread of mildew. Crops earmarked for conservation are especially at risk.

To check for mildew, look for oval fluffy pustules on the leaves – these will mainly be seen on the upper side. There will be whitish coloured mycelium in the pustules and over time, the affected leaves will turn yellow and die.

If mildew has been a problem in the past, take a closer look at varietal resistance as a means of reducing the incidence of this disease.

### Bacterial Wilt

This was first recognised as a disease of grasses back in the mid-1970s and has been closely linked to Italian Ryegrass varieties. The symptoms are most noticeable on the flowering tillers where a yellow/orange stripe may be observed on the flag leaf. The development of the disease may lead to leaves wilting and turning a light straw colour. Severe cases are fairly rare.

### Ergot

This is caused by a fungus (Claviceps purpurea) and can be found throughout the UK but more especially in wetter areas. The main interest with this disease lies in the fungal structures which appear. These 'ergots' (which develop in the flowers of the grass) can cause poisoning in livestock. These ergots vary in length (from 0 .25 - 2cm) and are hard with a white or purplish centre.

Grass crops which are grazed or cut before flowering should have no ergots present. If you are re-seeding fields which are known to carry infestations of ergot, then ensure that they are ploughed well (so as to bury the ergots to a depth of at least 10cm and thereby prevent them from germinating).

### Barley Yellow Dwarf Virus (BYDV)

BYDV is spread by aphids and individual fields can have a very high level of infection (up to 85% or more). It may lead to the dwarfing of individual plants and the grasses which are infected will invariably show some yellowing or reddening of the leaves. The best time to make a diagnosis is in May and June but the symptoms can be readily confused with the results of nutritional and environmental stress factors.

### Ryegrass Mosaic Virus (RMV)

This is spread by mites and is most prevalent on the ryegrasses, particularly the Italians. The main symptoms are pale green streaks on the upper surfaces of leaves. As the plants get older, these streaks may be yellow or brown. Both plant height and tillering may be reduced. RMV can spread very rapidly within a field and lead to losses of up to 30%. Digestibility may also be reduced. There is some tolerance to RMV in individual grass varieties.

## SUMMARY

It is worth stressing that good grassland management is one of the major weapons that farmers have at their disposal when fighting diseases. By tight grazing, and where appropriate, regular sward topping will promote conditions that are unsuited to the majority of grass diseases. Regular re-seeding with good quality mixtures will be a major benefit. This is because it introduces newer varieties (which will have better disease tolerance) and young, vigorous grass plants will be naturally more resistant to infection.

## CLOVER BLEND TECHNOLOGY

**Sinclair McGill pioneered the development of clover blends in the 1980s in association with IBERS (Institute of Biological, Environmental and Rural Sciences). Certain principles were established that are still valid today but the varieties we now use are far superior.**

### White Clover Blends

**CloverPlus®**
This blend is for inclusion in ley mixtures designed for beef and dairy systems. It includes varieties with a range of leaf sizes that can adapt to grazing with cattle and cutting for silage.

**Cheviot®**
A specialist blend primarily made up of very small leaved varieties with excellent persistence to stand up to the rigours of intensive and close grazing by sheep. As sheep are selective grazers it also includes some clover with large leaves which act as a "decoy" during the establishment phase.

**Tweed®**
A highly adaptable and persistent blend, for inclusion in long term mixtures. The range of leaf sizes enables Tweed to adapt to suit all classes of livestock and most management systems.

### CloverPlus® Pelleted White Clover Blend

- Ideal for introducing clover into existing grass swards.
- Pellet increases the size and weight of the seed, enabling easier drill adjustment and more accurate distribution.
- Treated with **HEADSTART® GOLD** a biological treatment, proven to speed up germination and improve establishment.
- Pellet improves seed flow for more even distribution when broadcast.
- Suitable for broadcasting, harrows with a seed box and slot seeding.

# SEED & HERB MIXTURE SOWING RATES

| Type of Seed | | Quantity (kilos/acre) | Sowing Date |
|---|---|---|---|
| **Barley** | (Spring)<br>(Winter) | 65-75<br>50-75 | February-March<br>September-October |
| **Oats** | (Winter)<br>(Spring) | 75<br>75 | September-October<br>September-October |
| **Field Beans** | (Winter)<br>(Spring) | 75-100<br>75-100 | October<br>February-March |
| **Combining Peas** | (Marrowfat)<br>(Small Blues)<br>(Large Blues)<br>(Whites) | 100-115<br>110-125<br>100-120<br>90-110 | February-March |
| **Linseed** | | 25 | Mid March-mid April |
| **Ryegrass** | (Hybrid)<br>(Italian)<br>(Perennial)<br>(Westerwolds) | 90-110<br>13-16<br>13-18<br>16 | March-September<br>March-September<br>March-September<br>March-May |
| **Clover, Red** | | 3.5-5 | March-August |
| **Clover, Tetraploid Red** | | 4.5-5.5 | March-August |
| **Lucerne** | | 7.5 | April-August |
| **Forage Peas**<br>*(Sowing rate is reduced in arable silage blends) | | 7.5* | March-late July |
| **Forage Rye** | | 75 | September-October |
| **Forage Rye/Italian Ryegrass** | | 50/7 | September-October |
| **Forage Maize** | | 45,000 seeds | Mid April-mid May |
| **Mustard** | | 5-10 | May-August |
| **Fodder Rape** | | 2-4 | May-August |
| **Tares (Vetches)** | | 75 | January-April or Sept |
| **Stubble Turnips** | | 2-3 | April-August |
| **Full Season Turnips** | (Natural) | 1-2 | Late May-early June (N) |
| **Fodder Beet** | (Monogerm)<br>(Pelleted) | 50,000 seeds | April-early May |
| **Kale** | (Natural) | 1-3 | April-June |
| **Swedes** | (Natural)<br>(Graded) | 1-2<br>0.25-0.35 | Early May-mid June (N)<br>Late May-mid June (S) |

*(N) North (S) South*

## FORAGE MAIZE

This crop has a high energy content and its tremendous yield is achieved with a single harvest operation. With a high DM content and energy that is derived from starch, maize makes an ideal complement to grass silage in livestock rations.

Contact your authorised distributor for details on our range of top quality varieties, go to **lgseeds.co.uk/maize** to download our Growers Guide.


## 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?

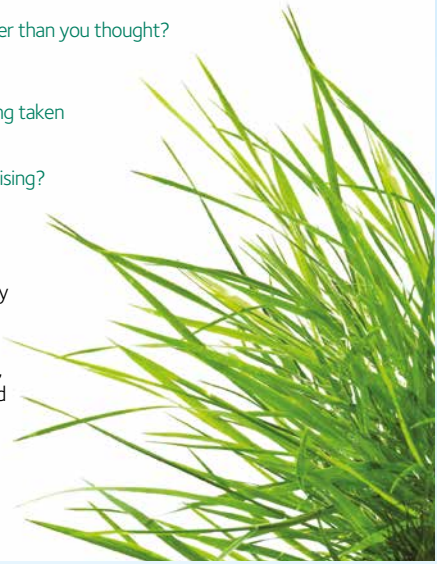
**Q**: Is the population of weeds and weed grass much higher than you thought?

**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!**

# KEY SPECIES FOR PRODUCTIVE GRASSLAND

**The grasses which are used most often when formulating mixtures for livestock farmers in the UK, are detailed below. In addition to the Ryegrasses, we also provide information on other species including Timothy, Cocksfoot and the Fescues.**

**Perennial Ryegrasses** (Lolium perenne)
This grass species is the cornerstone of the vast majority of the ley mixtures sown in the UK. Unsurprising, when you consider that it is a persistent, adaptable, long-lived species and is capable of very high yields – especially in the first harvest year. Generally speaking, the Perennial Ryegrasses also have good winter hardiness and they establish rapidly.

There are many varieties available and these are basically subdivided into three categories – Early, Mid-Season and Late Flowering. The early varieties will head in mid-May whereas the late varieties generally come into flower in mid-June.

**Early Perennials**

These early flowering varieties have an erect growth habit and the ability to bulk up rapidly in the spring for conservation cuts. The varieties also grow well in early spring, which is a valuable attribute in most grazing mixtures. Early Perennials are more persistent than Italian Ryegrasses but tend to have a lower mid-season production potential.

**Mid-Season 'Intermediate' Perennials**

These have a denser, more prostrate growth habit than the Early Perennials and boast a longer production season. Persistency is good and the yield potential under both grazing and conservation management is high. Mid-Season Perennials are sometimes used to help put some extra 'bottom' into short term mixtures, as well as in the primary role of providing good yields in long term mixtures.

**Late Flowering 'Pasture' Perennials**

Ryegrass varieties in this category should be extremely persistent and consequently provide the essential backbone of any long term ley designed for intensive grazing by cattle or sheep. The dense growth habit associated with Pasture Perennials will give a well-designed ley extremely good tolerance to treading. The yield potential is very high and Pasture Perennials generally exhibit good mid-season and end of season growth.

**Italian Ryegrasses** (Lolium multiflorum)
As Italian Ryegrasses offer the highest yields of any Ryegrass species they are the mainstay of conservation mixtures. However, Italians do not have great persistency – they last between 18-30 months – so their use tends to be in short term leys for silage. Italian Ryegrasses have an erect growth habit and are 2-3 weeks earlier than the 'Early Perennials'. The vigorously growing Italians should respond well to nitrogenous fertiliser, but as they produce relatively few tillers the sward can become rather open. Italian Ryegrasses are sometimes sown specifically to provide 'early bite' grazing in March or earlier – followed by a leafy silage cut. Note that the winter hardiness of Italian Ryegrasses will be enhanced when all the surplus growth, which is present in the autumn, is removed. To achieve the optimum level of spring growth with this species it is best to establish it in late summer or early autumn. Italian Ryegrasses need frequent cutting and tight grazing to maintain quality.

**Hybrid Ryegrasses** (Lolium multiflorum)
Carefully bred hybrids between Italian and Perennial Ryegrass parents can exhibit some very useful attributes. They should be more persistent than the Italians and last between 24-48 months, depending on the variety. They can be more productive than Perennials and offer quick recovery after cutting or grazing. Hybrids will respond well to applications of nitrogen and will help to improve the persistency of short term conservation mixtures. Hybrids normally exhibit better ground cover than Italian Ryegrass. An excellent companion to Red Clover and can make for high protein leys.

**Tetraploid Ryegrasses**
There are Tetraploid versions of both the Italian and Perennial Ryegrasses. The plant size is similar to the traditional Diploid types but the leaves of Tetraploids are normally much broader and the overall growth habit is more erect. Compared with Diploids, the Tetraploid varieties offer a number of plus points, including the following:

- **A higher palatability factor**
- **An increase in soluble carbohydrates (high sugar levels)**
- **Good winter hardiness**
- **More tolerance to drought conditions**

Traditionally, Tetraploids were less persistent but this trait has been largely eradicated by plant breeding. Tetraploids can be up to 2% higher in moisture than Diploids.

**Timothy** (Phleum pratense)
This is a very winter hardy species which will persist well in wet conditions. Timothy (sometimes called catstail) has the ability to maintain its production on poorer soils. In addition, this species provides good midsummer growth and maintains its palatability when other grasses are losing theirs. With these features, Timothy is often included in both cutting and grazing mixtures which are being sown in the north and west of the country. In cooler and wetter conditions, the Timothy will enhance the palatability of the leys and boost that all-important mid-season production. It is very good for sheep grazing pastures. Timothy commences growth at a lower temperature than Ryegrass, thus producing good early bite.

**Cocksfoot** (Dactylis glomerata)
Traditionally, Cocksfoot has been added to leys sown on lighter soils, to help improve drought tolerance and provide autumn keep in November and December. A good variety of Cocksfoot will boost the midseason production potential of ley mixtures and most varieties have good winter hardiness. Although Cocksfoot has some strong attributes, it also has a major drawback – it very easily becomes 'tussocky' and unpalatable to stock. Cocksfoot has lower digestibility and soluble carbohydrate figures than Ryegrass. Its use tends to be limited to leys which have a very specific role to play on difficult soil types.

**Westerwolds** (Lolium multiflorum westerwoldicum)
These are annual grasses and when sown in the spring or summer will flower in the same year. This is a prolific species when it comes to heading so defoliation by cutting or grazing is essential to prevent a serious decline in digestibility. The key benefit with this species is the rapid production that can be achieved within 12-14 weeks of sowing. Westerwolds are rarely used in ley mixtures – their relatively short life but fast growth potential means they are invariably sown straight. From a spring sowing of Westerwolds, one would expect a typical silage yield of 13.5 tonnes of DM/ha.

**Red Fescue** (Festuca rubra)
This winter hardy, early growing species is also used very sparingly in modern ley mixtures. Red Fescue will maintain production on poor soils with a low pH. It offers good mid-season growth and will invariably thrive when grown under cold, wet conditions. Like Cocksfoot, Red Fescue is used in mixtures which have been targeted at quite specific farming situations. It needs tight grazing to maintain leafiness and quality.

**Meadow Fescue** (Festuca pratensis)
A nutritious and leafy species which has traditionally been sown with Timothy in grass/clover leys. This species is less vigorous and has a lower yield potential than Perennial Ryegrass. It is sometimes used in mixtures which are designed for extensive, rather than intensive situations.

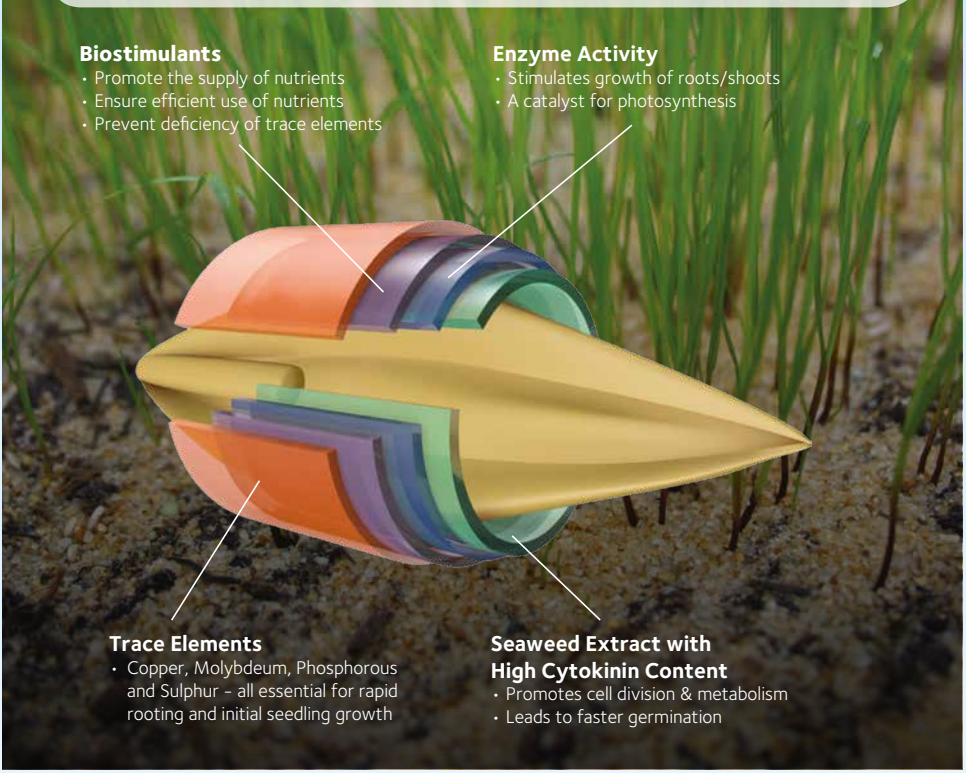

Timothy grows early in the spring

## 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.



## England & Wales

| | | | |
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| Mike Sandercock | | Mob. 07860 212568 | |
| Martyn Sands | | Mob. 07860 568560 | |
| **D. G. W. Booth** | **Rotherham (South Yorkshire)** | Tel. 0114 2465305 | Email. davidmml@sky.com |
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| | **Eastern England** | Dennis Pell<br>Tel. 01529 460021<br>E. dennis.pell@btconnect.com | Mob. 07931 105228 |
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| Catriona Bancroft | **Borders** | Mob. 07970 009372 | Catriona.Bancroft@agrovista.co.uk |
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