

Multi-Species Agronomy Guide 2022



Multi-Species Swards

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

With constant fluctuation in the price of inputs like fertiliser and feed many farmers are looking at multi-species swards as an option to reduce their reliance on expensive inputs and increase their profitability. Furthermore, multi-species swards produce a greater volume of quality forage in summer than grass alone and incorporating them into the grazing platform can lead to a steadier supply of grazed forage throughout the year. Some farmers are even sowing these mixtures as a buffer against drought.

As the uptake of multi-species swards among dairy, beef and sheep farmers steadily grows, DLF receives many calls from farmers looking for advice on how to best implement and manage this type of sward.

Apart from seeking advice on general management, there are three concerns among farmers that are repeatedly highlighted;

1. How to manage weeds?
2. Can it preserve as silage?
3. Is spring growth an issue?

Throughout this agronomy guide DLF will guide you through everything you need to know about incorporating multi-species swards into your system and address the main issues you may face along the way.



Why sow a Multi-Species

- Multi-species swards can produce similar DM yields to perennial ryegrass swards at significantly lower rates of inorganic N fertiliser. This could be worth up to 6 bags CAN/acre per year.
- Multi-species swards are a source of highly digestible, high protein forage and can maintain their high quality throughout the growing season.
- The inclusion of warm-season species like chicory and red clover means multi-species swards have strong summer production compared to a grass sward.
- These deep-rooting species make the sward much more tolerant of drought than a grass sward.
- The inclusion of mineral-rich herbs provides a more balanced diet than grass alone with species like chicory also providing some anthelmintic benefits to grazing livestock.
- The use of multi-species swards compared to grass-only swards in agriculture can also provide a wide range of environmental benefits including:
 - Reduced N₂O emissions and nitrate leaching associated with reduced fertiliser use.
 - Higher rates of carbon sequestration due to deeper root-depths.
 - Enhanced biodiversity, particularly pollinators feeding on the variety of flowering plants in multi-species swards.

What Mixture to Sow?

When deciding on a mixture, soil type and local climate are important as some species are better suited than others to particularly wet or dry conditions.

Species suitable for wetter soils include timothy, birdsfoot trefoil and burnet, while species like cocksfoot, lucerne and chicory will thrive in light, dry soils.

Depending on your soil-type a mixture of the specialist species above and some all-rounders like perennial ryegrass, white clover and ribwort plantain would make for a very productive sward.



A diverse mixture of species means a more resilient sward to extreme weather events like drought

DLF's 6-Species Herbal Ley contains perennial ryegrass, timothy, red and white clover, ribwort plantain and chicory. This mixture will provide a good balance of productivity and diversity across a range of soil types.

A more diverse sward can provide additional benefits including forage quality, weather resilience and biodiversity. DLF 14 species Herbal Ley offers a wider range of a wider range of grasses, legumes and herbs for maximum diversity effects.

Herb Focus

Ribwort plantain and chicory are two commonly used herb species in a multi-species sward.

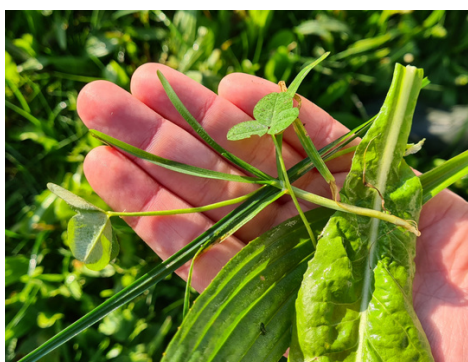
Below are some of the advantages these herbs can bring to a sward.

Ribwort plantain

- High-yielding throughout the year
- Excellent source of copper, calcium and selenium
- Thrives in a range of soil-types
- Drought tolerant

Chicory

- Highly digestible, highly palatable forage
- Excellent summer growth
- Has anthelmintic properties
- Drought tolerant



NEW

This year we have added Ecotain plantain to our 6 Species Herbal Ley.

Research from New Zealand has shown mixtures that include Ecotain can reduce nitrate losses by over 80%.

This happens via 4 mechanisms:

- > Delay: slows nitrate release from ammonium to allow greater plant uptake
- > Restrict: restricts nitrification rate in soil
- > Dilute: diuretic effect of Ecotain increases the volume of urine produced, thus reducing urine N concentration
- > Reduce: Reduces total N concentration of urine

Ecotain retains all the benefits of plantain being highly productive on a range of soils and an excellent source of copper, calcium and selenium.

What's in your Multi-Species Sward?

A snapshot of the benefits some of the popular species can bring to a multi-species sward

What's in your Multi-species Sward?

Grass species	structure	Soil type	Persistence	Highlights	Notes
Perennial ryegrass	Shallow	Grows well on light and heavy soils	6+ years	Highly productive grass species bred for high yields and quality. Equally suited to	Provides early season yield and quality in a multi-species sward
Timothy	Shallow	Grows well on most soil types but especially suited to heavy soils	Very persistent	A very versatile grass with excellent yield, quality and winter-hardiness	Winter-hardiness allows for a very early start to the growing season
Cocksfoot	Deep	Grows well in both free-draining and heavy soils	Very persistent	A deep-rooting grass with excellent drought tolerance	Important to graze regularly to maximise quality
Meadow fescue	Shallow	Grows on almost any soil type	Very persistent	An excellent option for low fertility soils	Very winter hardy resulting in strong early
Legume species					
White clover	Medium	Grows well on light and heavy soils	7-8 years	Can fix ~150kg N/ha per year. High protein forage	Does not like low pH. Beneficial to pollinators
Red clover	Deep tap root	Grows well on a range of soil types	4-5 years	N fixer best suited to cutting systems. Produces high	Lower persistence under grazing than
Lucerne	Very deep tap root	Best suited to light, free-draining alkaline soil	3-4 years	Extremely drought tolerant. Produces excellent quality silage and hay. High in	Will not survive in waterlogged conditions
Birdsfoot trefoil	Shallow	Grows well in low fertility soils	3-4 years	Natural anthelmintic rich in protein	Best used in rotational grazing system. Can
Sainfoin	Very deep tap root	Requires high soil pH. Suitable for limestone soils	3-4 years	High yielding legume with excellent drought tolerance. A natural anthelmintic that	Protein rich forage. Best suited to cutting systems.
Herb species					
Chicory	Deep tap root	Prefers lighter soils	3-4 years	Natural anthelmintic. Provides excellent quality	Key component of multi-species swards
Ribwort plantain	Deep tap root	Suitable to a range of soil types	Perennial - will persist with	High mineral forage with excellent tolerance of	Highly palatable to livestock
Yarrow	Deep tap root	Prefers lighter soils	Perennial - will persist with	Excellent drought tolerance. Soil improver	Good source of minerals
Burnet	Deep tap root	Prefers lighter soils	Perennial - will persist with	Excellent drought tolerance with high mineral content	Low yielding species but an excellent soil
Sheeps parsley	Deep tap root	Prefers lighter soils	Perennial - will persist with	Great source of vitamins and minerals. Very drought	Excellent soil conditioner



Dont take short cuts when choosing your grass varieties

It is the grass component that will provide the bulk of forage between February and May when livestock demand is high. It is therefore important to use perennial ryegrass varieties with proven spring growth and quality potential to help meet demand. Our Herbal Leys include Nashota, Nifty and Triwarwic to boost spring growth.

Establishing a Multi-Species Sward

When to Sow Your Multi-Species Sward?

Multi-species swards should be sown into a warm (~10°C), moist seedbed between April-September for optimal establishment.

Reseed

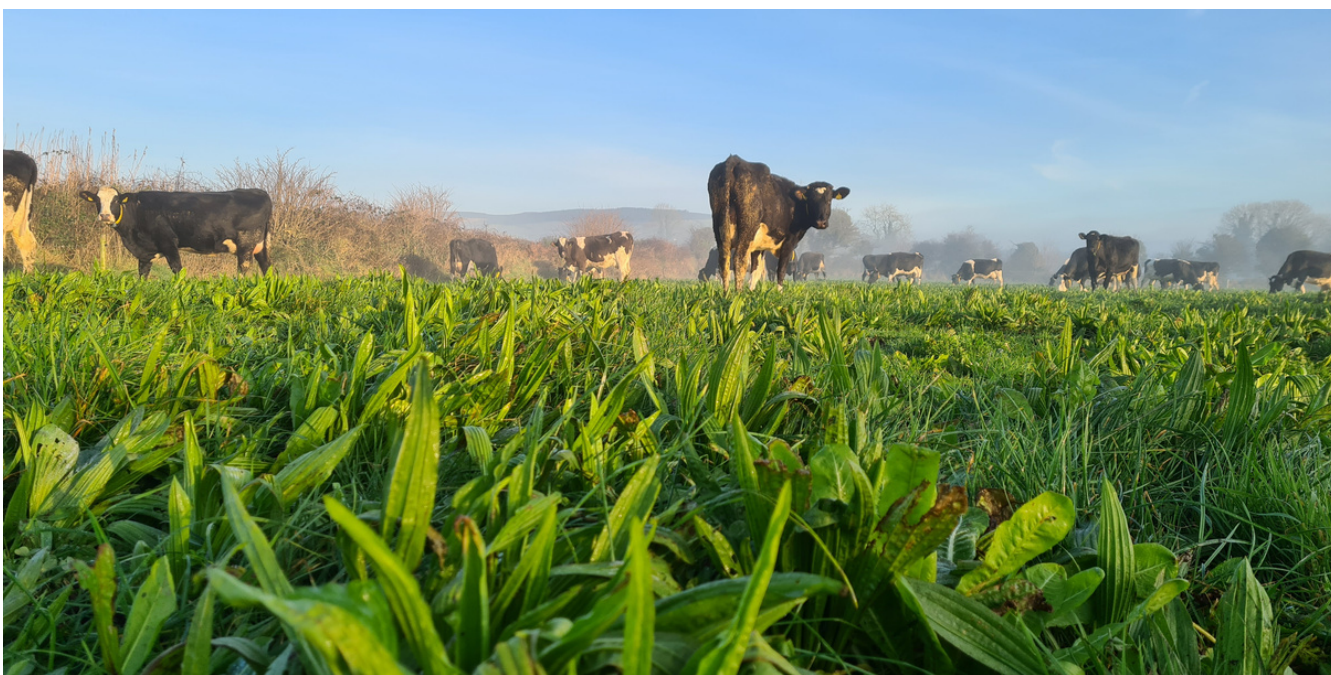
A conventional reseed will give the best results in establishing your new multi-species sward, but the following points should be remembered when sowing:

- Ensure soil fertility (pH, P and K) is adequate as per recommendations for grass swards.
- Address any weed issues with herbicide before sowing as an herbicide cannot be applied to a multi-species sward. This is crucial.



The similarity in the growth habit of herbs like plantain and chicory to common grassland weeds like docks, means that once these species get established, there is no space in the sward for docks and other broadleaf weeds. Small outbreaks of weeds can be spot-sprayed if necessary.

- Cultivate to form a fine, firm seedbed.
- Apply lime and seedbed fertiliser as required.
- Roll the seedbed before sowing to ensure it is firm.
- Seed can be direct drilled no more than 1cm deep or broadcast.
- Sow seed at a rate of 27-32kg/ha or 13-15kg/ac.
- Roll again! A firm seedbed and soil contact is vital for the small seeds of legumes and herbs.
- Allow 8 weeks before the first grazing to let herbs establish strong tap roots.



Establishing a Multi-Species Sward

Oversowing to Diversify an Existing Grass Sward

Clover and herb species can also be oversown into existing grass swards to achieve the benefits of a multi-species sward. White clover, plantain and chicory should each be oversown at a rate of 1.5-2kg/acre.

Stitching in with a seed drill will help ensure soil-seed contact which will improve germination rates. Remember, we want to allow light to penetrate the sward to reach the new seedlings and reduce competition from the existing sward.

- Oversow after a silage cut or tight grazing
- Roll to ensure soil-seed contact
- Graze lightly shortly after oversowing to knock back the existing grass

DLF have developed a specially designed oversowing mixture to help diversify existing grass swards. See page 9 for details.

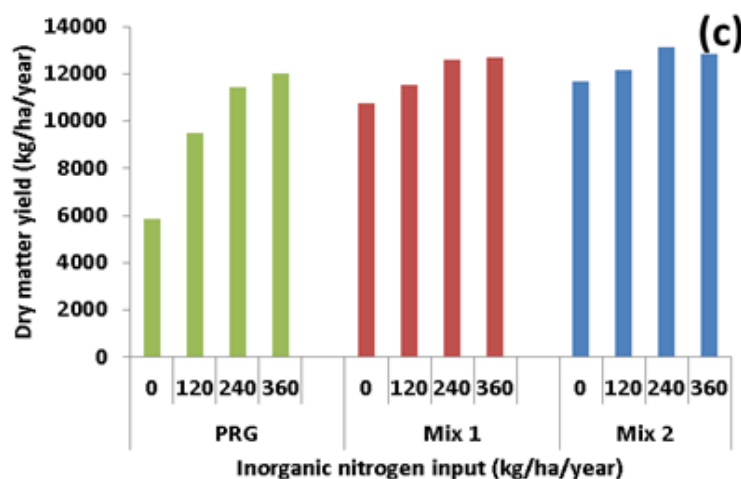


Nitrogen Fertiliser for Multi-Species Swards

One of the biggest attractions of multi-species swards is their potential to reduce the requirement for nitrogen fertiliser.

Many studies have reported multi-species swards receiving little or no nitrogen achieving similar yields to grass swards receiving ~300kg N/ha per year.

Achieving such an outcome on-farm will depend on maintaining a decent proportion (20-30%) of legumes in the sward. Regular grazing will help to encourage and maintain clover in the sward.



Research, MOLONEY ET AL, March 2021

Large nitrogen applications will have a negative effect on legume persistence; however, a small amount in spring can be useful to feed grass and herb species before legumes begin nitrogen fixation in summer. In this case, up to 90kg N/ha early in the growing season should not have a significant adverse effect on legume persistence. Alternatively, slurry can be applied during the early part of the year.



Multi-Species Swards for Silage Production

We recommend multi-species swards primarily for grazing as the range of species in the mixture can make ensiling tricky. However, the following tips will help to ensile your multi-species sward successfully:

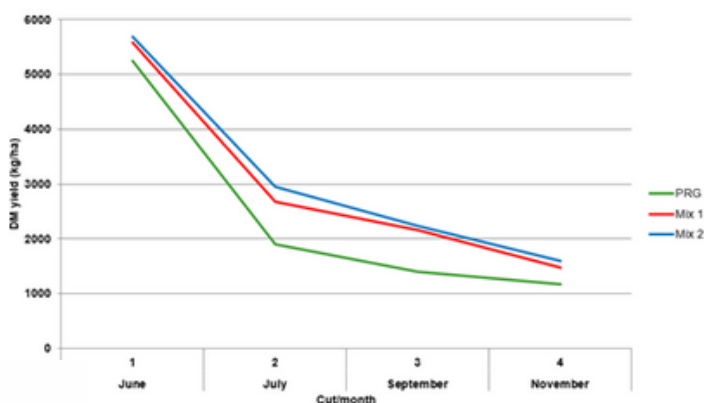
- Cut the crop to a stubble height of 6-8cm.
- Multi-species swards typically have a lower DM content than grass swards due to the presence of legumes and herbs. Therefore, the crop must be cut in dry conditions.
- Allow the crop to wilt for 24 to 48 hours in dry conditions.



Aim for a DM concentration of 25-35%

- Care must be taken when mowing and handling the crop to reduce leaf shatter.
- Silage additive application may also improve preservation.

Distribution of DM yield



*Multi-species swards produce more quality forage than grass swards during the summer months due to the inclusion of legumes and herbs



- Avoid using a conditioner mower
- Avoid overwilted and excessive handling

Multi-Species Mixtures 2022

DLF 6 SPECIES HERBAL LEY

GRAZING

FEATURES

- A versatile multi-species mixture
- Inclusion of red and white clover supply free N to the sward
- Increased minerals and vitamins from the inclusion of plantain and chicory
- Highly productive in summer and drought conditions due to deep-rooting legumes and herbs

15%	Nifty	Intermediate Perennial Ryegrass
10%	Bowie	Late Perennial Ryegrass
15%	Nashota	(T) Late Perennial Ryegrass
15%	Triwarwic	(T) Late Perennial Ryegrass
10%	Comtal	Timothy
10%	Ecotain	Ribwort Plantain
10%	Choice	Chicory
7%	Pastour	Grazing red clover
8%	Dual purpose clover	White clover blend

A versatile multi-species mixture that will perform on a range of soil types. Capable of producing high yields of excellent quality forage throughout the year with little or no N fertiliser. Clovers and herbs are extremely palatable with excellent quality leading to increased animal performance. Excellent production in summer when grass growth can be slow.

AVAILABLE IN 12KG PACKS

DLF 14 SPECIES HERBAL LEY

GRAZING

FEATURES

- Enhanced root structure gives even better nutrient use efficiency
- Mixture suitable for a range of conditions from heavy soils to drought conditions
- Boosted mineral and trace element content from herbs like yarrow, burnet and parsley
- Compounds in sainfoin and birdsfoot trefoil can reduce the risk of bloat and are natural wormers

13%	Nifty	Perennial ryegrass
13%	Triwarwic	Perennial ryegrass (T)
7%	Timothy	
7%	Meadow fescue	
5%	White clover	
10%	Red clover	
2%	Lucerne	
3%	Birdsfoot trefoil	
9%	Sainfoin	
10%	Chicory	
10%	Ribwort plantain	
2%	Yarrow	
2%	Burnet	
5%	Alsike clover	
2%	Sheeps parsley	

AVAILABLE IN 12KG PACKS

DLF MULTISPECIES OVERSOWING BLEND

24%	Choice Chicory	
24%	Tonic Plantain	
32%	Iona White Clover	
20%	Pastour Grazing Red Clover	

AVAILABLE IN 12KG & 14kg PACKS



For more information on selecting the right mixture for your farm, call Thomas Moloney, DLF, 087 396 1265



Multi-Species Mixtures 2022

Sinclair McGill Castleherb

A scientifically formulated multi-species mixture or herbal ley consisting of 40% productive forage grasses and 30% each of forage herbs and legumes. CastleHerb is a diverse mix with 15 species.

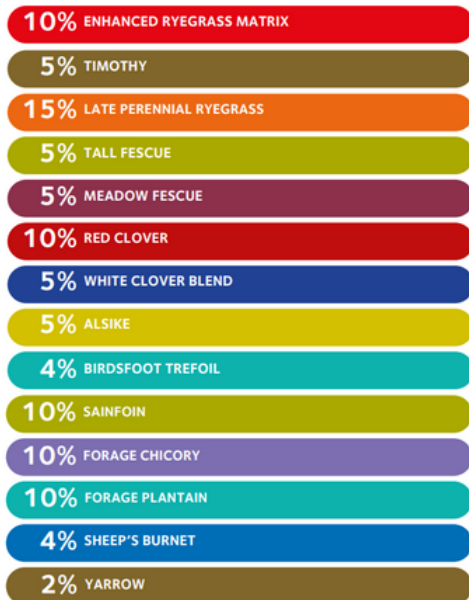
This four year mixture is suitable for sheep and lambs, beef cattle and dairy young stock.

CASTLEHERB

- Scientifically formulated mixture containing 40% grasses and 30% each of legumes and herbs
- Four year key, 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

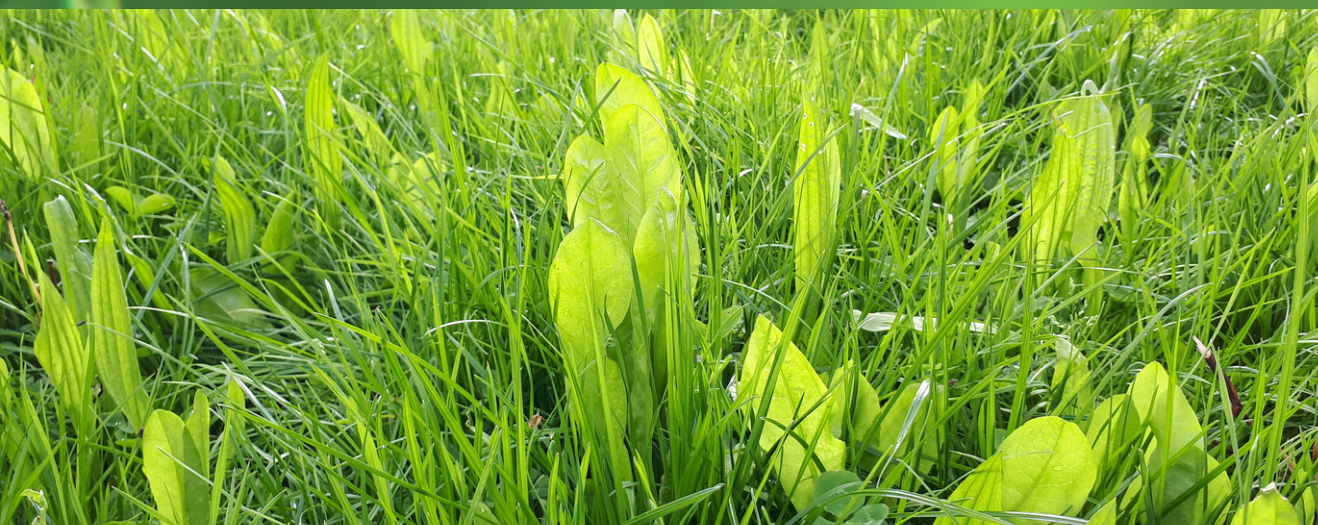
11-13kg/acre
(27-32kg/ha)



For more information on selecting the right mixture for your farm, call
Thomas Moloney, DLF, 087 396 1265

DISCLAIMER: The information given in this document is for general guidance only. Whilst every care has been taken to ensure it is accurate, it is important to check all information with your agronomist first.

Multi-Species Technical Support



For more information on selecting the right mixture for your farm, contact DLF

Dr. Thomas Moloney, PhD

Product Manager

E: tmoloney@dlfseeds.ie

M: 087 3961265

John Enright

Business Manager (ROI)

E: jenright@dlfseeds.ie

M: 086 8290765

Damian McAllister

Business Manager (NI)

E: dmcallister@dlfseeds.ie

M: +44 7774249609

Ned Kehoe

Business Manager

E: ned.kehoe@dlfseeds.ie

M: 087 3980053

