

The Role Of Clover In Our Swards

Diarmuid Murphy
Germinal

germinal.ie



Why Clover?

- Absorbs N from the atmosphere
- Fixes up to 250 kg N/ha
- Feed quality – improved intakes
- Reduces demand for artificial N
- New rule for derogation farms when reseeded
- Potential to reduce greenhouse gas emissions by optimising soil pH and introducing clover

LO 2.2.3 b

CCT: Sustainability, Environment,
Policy and Economics

germinal.ie

Red clover

- *Trifolium pratense*
- Tap root
- Fix up to 250 kg N/year
- 3-5 year persistency
- Less tolerant of grazing
 - But a focus of breeding
 - AberChianti, AberClaret
- Silage (16-20% CP content)



Conservation

- Graze swards lightly in the autumn of sowing year
- First Cut 20th May – 1st June
- 50% flower buds
- 4 cuts at 6 to 8 week intervals
- Target 25 – 35% DM to minimise wilting losses
- Graze autumn regrowth
- Avoid crown damage by low cutting
- Allow plant to flower once a year

Potential Pit Falls

- Major Pest and Diseases:
 - Clover Rot (Sclerotinia)
 - The most common, fungal disease seen in winter months, rots the crown, leaves and stems – plants don't recover
 - Stem Nematode
 - The most important/common pest
- Solution - 5 years rotation extend to 7 years if major pests or disease are encountered
 - White clover can be used as a break crop
 - ety selection - plant breeding

White clover



- *Trifolium Repens*
- Tap root – Year 1 dies back
- Roots form at stolons
- Fix up to 150 kg N/ year
- Tolerant of grazing
- Leaf size
 - Medium e.g. AberHerald
 - Small e.g. AberAce

Requirements for derogation farms

1. Minimum 1kg/acre pel (0.6 kg ordinary)
2. White or red clover or mixture of both
3. Can sow grass, apply weed control and oversow clover subsequently (within reasonable time frame)
4. Must keep all labels

1st January 2020

Getting the balance right

- Ideally sow late April/May but up to mid-August
 - Small leaf varieties – sheep
 - Medium leaf varieties - cattle
- Use clover-safe herbicides ***
- 25-30% clover is optimum in established sward
- To reduce dominance by clover
 - avoid silage cutting
 - use small/ small-medium leaved varieties
 - tactical application of N to enhance grass growth

LO 3.3.1 a - c

germinal.ie

Sowing white clover Full reseed

- Spray off old sward
- Allow up to 3 weeks prior to tilling
- 0.6-2.0 kg/acre (min. 0.6 kg for derogation farms or 1kg coated)
- Roll post sowing
- Graze frequently at low covers



Sowing white clover Overseeding

- Weed control prior to sowing – adhere to withdrawal periods
- Soil visibility
- Sow 2.5 kg coated clover/acre
- Spread with P:K product (0 N)
- Mix clover with fertiliser in the field
- Apply watery slurry
- Skip N for 2 rounds
- Graze frequently

Weed control – in advance of sowing

Product	Clover Safe	Wait period to sowing clover
Thistlex	No	Min. 6 weeks
Pastor Trio	No	3 months
Forefront T	No	4 months
Envy	No	3 months after application
Dockstar Pro	No	Min. 6 weeks
Hurler	No	12 Months @ 2 L/ha

N fertilizer strategy

Rotation/ Date	250 kg N/ha	Grass-Clover 150 kg N/ha
Mid-late January	28	28
Mid March	28	28
2 nd rotation (April)	33	28
3 rd Rotation (May)	30	-
4 th Rotation (May)	30	18
5 th Rotation (June)	17	-
6 th Rotation (July)	17	18
7 th Rotation (July)	17	-
8 th Rotation (August)	17	-
Mid-September	33	30



Issues with white clover

- Poor growth in spring
- Dominating swards & smothering grass
 - avoid silage cutting
 - use small/ small-medium leaf varieties
 - tactical application of N to enhance grass growth
- Inconsistency from field to field
- Bloat

Bloat

- Cows selecting white clover
- Wet weather – low DM in grass
- High clover content fields
- Good grazing management
- Grass allocations in high clover fields
- Bloat oil in water
 - 30-60 ml/cow/day
 - Day prior to entering risk field
 - Issue in wet weather (reduced water consumption)



White Clover Varieties

- White clover varieties on Recommended List
- AberHerald (medium leaf)
- AberSwan (medium leaf)
- AberAce (small leaf)
- AberLasting (T. ambiguum)



White Clover

Pros

- ✓ Can make 100-150 kg N/ha utilisable
- ✓ Highly digestible feed
- ✓ Improve animal intakes and animal performance
 - ✓ +58 kg MS/cow in Teagasc Clonakility
 - ✓ +1.9 t DM/ha pasture yield
- ✓ Root system can improve soil structure

Cons

- Can outcompete grass
 - Open swards
 - Poaching risk
- Seasonal growth pattern –soil temp. $>8^{\circ}$
 - Poor over winter growth
- Risk of bloat
- ~30% clover in sward for benefits

Summary

- Clover is now a requirement on derogation farms when reseedling
- Potential to reduce GHG from agriculture
 - Higher digestibility sward
 - Reduce use of N (and associated losses)
- Increases animal performance

Multispecies swards

germinal.ie



Sowing future seeds



LO 3.1 a, 3.2 a, 2.2.2 a,
CCT: Sustainability, Environment

germinal.ie

Why grow a multispecies sward?

- Improve soil structure and increase OM
- N fixation by legumes
- Increased biomass yield from lower N input
- Improve protein content of sward with legumes
- Increased animal intakes
- Biodiversity
- Sustainable

LO 3.1 a, 3.2 a, 2.2.2 a,
CCT: Sustainability, Environment

Biodiversity & root structure

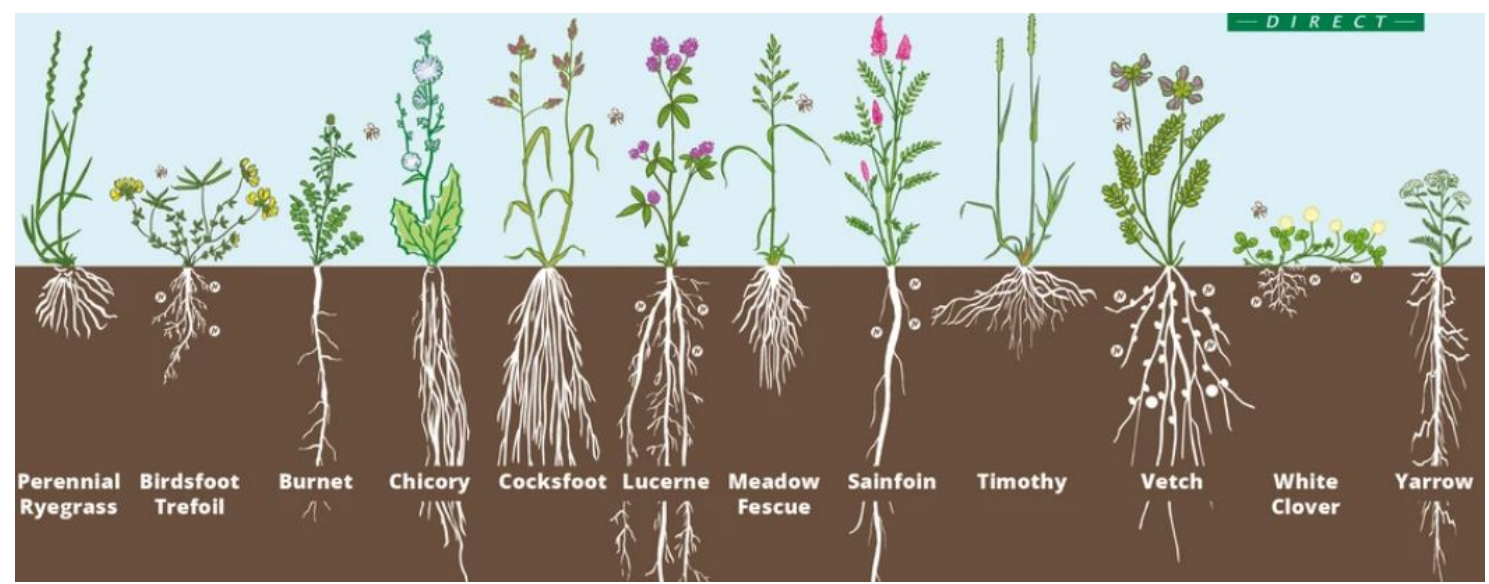
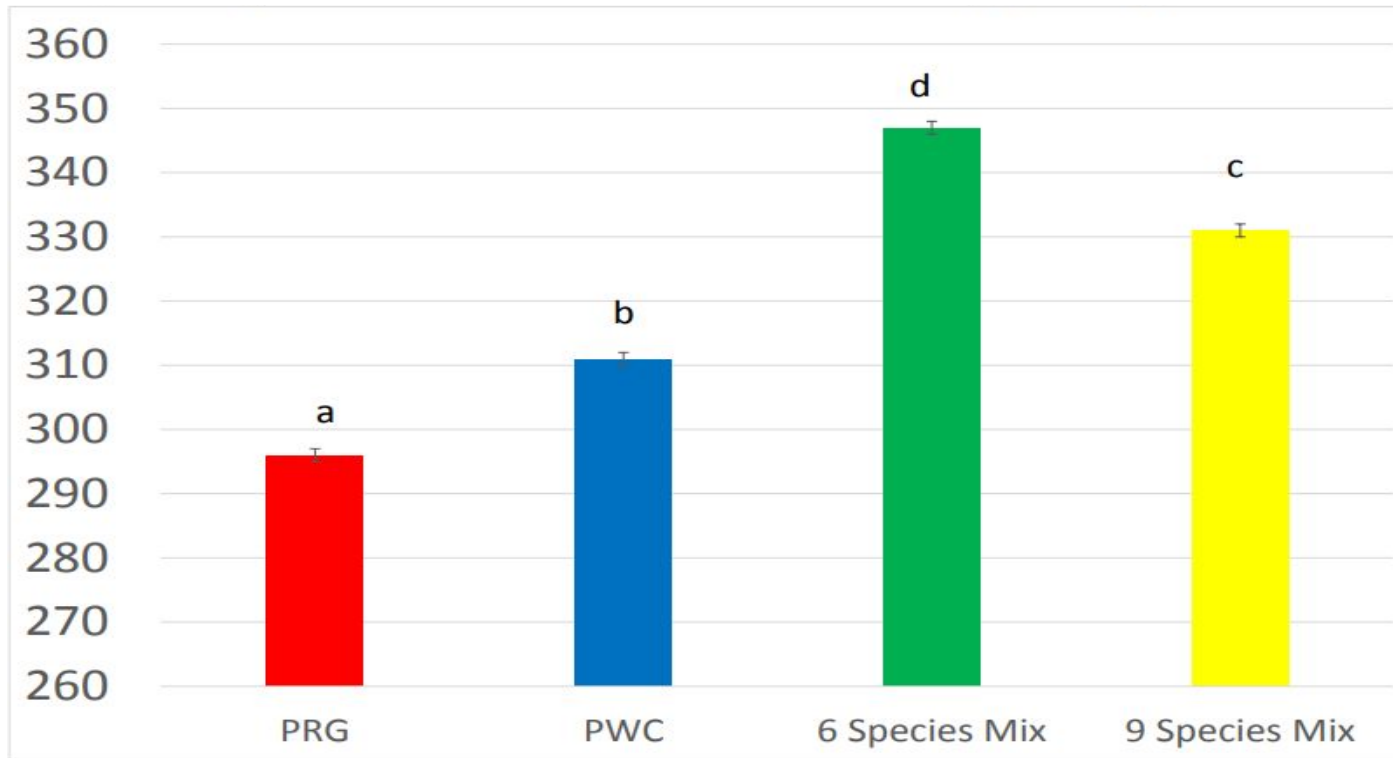


Image credit: Cotswolds seeds

Effect of sward type on ADG - birth to 6 weeks



Grace et al., 2019

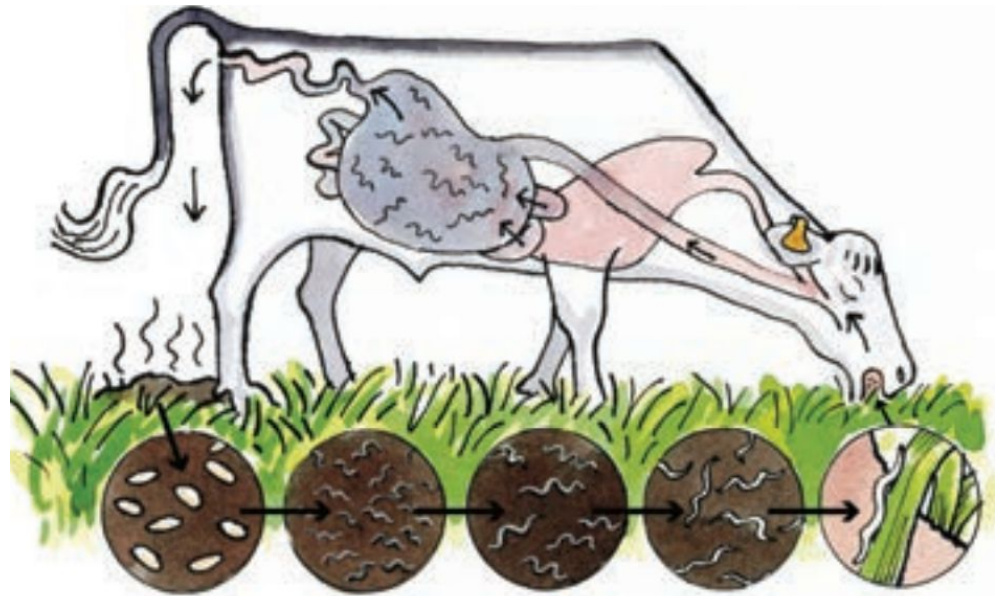
Grasses	Legumes	Herbs
Perennial Ryegrass	White Clover	Chicory
Timothy	Red Clover	Plantain
Cocksfoot	Alsike Clover	Yarrow
	Sainfoin	Salad Burnet
	Birdsfoot Trefoil	Sheeps parsley



Puna II Chicory

‘Medicinal paddock’

Substance or structure?



Puna II Chicory

- Anthelmintic properties
- Drought tolerance
- Tap root
- 3-4 year persistency



Tonic Plantain

- Also known as 'Ribgrass'
- Diuretic
- Early season growth
- Coarse root structure

Establishment

- Choose fields with low weed burden
- Control weeds prior to sowing
 - No post sowing weed control options
- Fertile soils: pH 6.3 -6.5, P & K Index 3
- Spring sowing into warm soils (12°C)
- As part of a full reseed



Management

- First grazing:
 - 6 leaves on plantain
 - 7 leaves on chicory
- Manage similar to grass swards
 - Rotational grazing
 - Rest for 25-28 days
 - Tactical application of N - Spring
 - Avoid over grazing (6-8 cm)

Environmental benefits??

- Flora and Fauna – pollination, earthworms
- Reduced poaching of soils – soil structure, rooting
- Reduced fertiliser use
- Reduced Nitrate run off
- Maintaining our green image

LO 3.2 a

Multi-Species Mixture Options

Kg	4 Species
4.5	Perennial Ryegrass (T)
4.5	Perennial Ryegrass (D)
0.75	Chicory
0.75	Plantain
1.5	Coated White Clover
12.0	

Kg	8 Species
3.5	Perennial Ryegrass (T)
2.0	Perennial Ryegrass (D)
1.0	Timothy
2.0	Meadow Fescue
0.75	White Clover (small)
0.75	White Clover (med)
1.5	Alsike clover
0.3	Red Clover
0.2	Chicory
0.5	Plantain
12.5 kg	

Thank you.

 **Germinal.**

Sowing future seeds

germinal.com

germinal.ie