

Clover Agronomy Guide 2022



White Clover

White clover is the most commonly sown legume in Ireland and is primarily used for grazing in mixtures with grass. As a forage, white clover is highly digestible with crude protein content averaging over 20%. But the most significant benefit of white clover is its ability to fix N from the atmosphere for use by neighbouring grasses in the sward.

The use of white clover in grass mixtures has the potential to offset up to 150kg N/ha per year in inorganic N fertiliser. With fertiliser prices increasing all the time, the incorporation of white clover into grass swards has the potential to greatly reduce the reliance on inorganic N fertiliser and increase the financial and environmental sustainability of Irish farms.



For maximum benefit a sward white clover content of 20-30% is required

Benefits of White Clover in the Sward @ 20 - 30%

- +800kg DM/ha
- Opportunity to reduce N fertiliser
- Dry matter intake +1.5kg/cow per day
- Milk solids +30kg MS/cow per year



Establishing and Managing White Clover in the Sward

Establishing white clover takes time and some specific management. DLF recommends targeting up to 30% of the farm at a time in which to establish white clover. Achieving good white clover content across the farm should be a medium-term goal and should be carried out over a number of years.

A full reseed is the most reliable method of establishing white clover. However, as the options for post-emergence treatment become more limited, many farmers are choosing to over-sow white clover into existing swards.

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

4 Key Principles of Growing White Clover

Soil

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

Timing

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

Seed

Over-sow at a rate of 2 – 2.5kg/acre

Use small and medium-leaf varieties for grazing and large-leaf for cutting. See mixtures below

Light

Over-sow after a tight grazing or silage cut so light can stimulate seedling growth

After sowing, graze at ~1,100kg DM/ha for the following 3 rotations to establish adequate white clover content



8 Steps to Successfully Over-sow White Clover

1. Select a paddock with good soil fertility and an open sward to allow soil-seed contact
2. Broadcast or direct-drill seed at a rate of 2 – 2.5kg/acre after tight grazing or a silage cut
 - a. If broadcasting, sow 'twice' – half rate down, half rate across the paddock
 - b. Sow seed no more than 1cm deep if drilling
3. Over-sowing should take place between April and June, ideally
4. Roll after sowing to ensure seed soil contact. This will improve germination rates
5. Allow light down to establishing seedlings and reduce grass competition by grazing ~10 days after sowing. Watery slurry may be applied at this stage
6. Continue to graze at low covers (~1,100kg DM/ha) for the following 3 rotations using half rates of N after each grazing
7. Once white clover is established, continue to graze maximum 1,600kg DM/ha covers down to 4cm applying N tactically (see Figure 1)
8. Where white clover content is >20% N fertiliser can be significantly reduced from May onwards

White Clover Grazing Management

- White clover should be managed with the aim of maintaining a sward clover content of 20-30%
- Pre-grazing covers should be ~1,400kg DM/ha and no more than 1,600kg DM/ha
- Graze down to 4cm to allow light reach the clover stolons at the base of the sward
- Early spring grazing will allow light into the sward and stimulate growth
- Graze every 18-21 days throughout summer
- Final grazing should be left until later in the autumn. This will reduce high accumulations of grass over winter that can smother clover plants
- N fertiliser application on high clover content swards should be reduced to achieve the full benefit of white clover and prolong persistence. The fertiliser planner in Figure 1 below is a helpful guide to N application on high clover swards



Nitrogen Fertiliser Application Strategy

Nitrogen fertiliser application strategy		
Rotation / Date	Grass 250 kg	Grass-Clover 150 kg
Mid-late January	28	28
Mid March	28	28
April (2 nd rotation)	33	33
May (3 rd rotation)	30	9
May (4 th rotation)	30	9
June (5 th rotation)	17	9
July (6 th rotation)	17	9
July (7 th rotation)	17	9
August (8 th rotation)	17	9
Mid September	33	12

Figure 1: Nitrogen fertiliser application strategy. Source: Teagasc



Tips to Avoid Bloat

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

Red Clover

Red clover is capable of producing high yields of highly digestible, high protein silage without the need for any inorganic N fertiliser. Like white clover it can fix its own N via bacteria located on root nodules. This can be worth up 200kg N/ha per year.

Unlike white clover, red clover has an erect growth habit and a strong taproot that leads to strong summer growth and a degree of drought tolerance. Due to its upright growth habit and high summer yields red clover is better suited to cutting than grazing.

Benefits of Red Clover

- Can produce between 12- and 16-tons DM/ha when grown with perennial ryegrass
- Annual N fixation of 150-200kg N/ha is possible from swards with a high red clover content
- High crude protein content of 16-20%
- Highly palatable leading to increased animal intake and performance
- Deep tap root makes red clover relatively drought tolerant



Red Clover can be identified by the white hairs on the back of the leaf



Establishing and Managing Red Clover

- Red clover requires high soil fertility for maximum production. Index 3 for P and K and soil pH 6.0-6.5 is desirable
- Sow red clover from April to July when soil temperatures are above 10°C
- Red clover is best sown in a mixture with perennial ryegrass and some white clover. A typical seed rate for a clover dominant sward would be 4kg/acre of red clover, 6kg/acre perennial ryegrass and 1kg/acre white clover
- Ensure a fine, firm seedbed and roll before and after shallow sowing <1cm deep
- In the establishment year, red clover should be allowed to flower before the first silage harvest to ensure strong root establishment
- A typical cutting strategy for red clover would be to harvest first cut in mid-late May with the second, third and fourth cuts at 6-8 week intervals thereafter
- The final cut should be taken no later than October
- Silage crops should be cut down to 7cm
- Crops can be autumn grazed in suitable conditions to leave an over-winter cover of 6cm
- Avoid cutting in wet weather
- Red clover is a low sugar, low DM crop so wilt for 24-48 hours to achieve 25-35% DM to aid preservation
- Do not use a conditioner mower and avoid excessive handling of the crop to reduce leaf loss
- To prolong persistence red clover should be allowed to flower once every year
- Slurry and FYM can be applied throughout the year to replenish P and K



Oversowing Clover Mixtures

DLF CLOVER BLEND			DLF CLOVER BLEND		
GRAZING/CUT & GRAZE			CUTTING		
<p>FEATURES</p> <ul style="list-style-type: none"> Mixture of small- and medium-leaf varieties Versatile mix for grazing and cutting Ideal for over-sowing into existing pasture 			<p>FEATURES</p> <ul style="list-style-type: none"> Specialist clover blend for silage swards Will boost silage protein content and fix N 		
60%	Coolfin		50%	Violin	
20%	Galway		50%	Iona	
20%	Iona				

Reseeding grass mixtures with Red & White Clover

- DLF N Saver Silage - This is a clover rich mix with 30% Red Clover and 10% white (specifically cutting varieties)
- DLF 6 Species Herbal ley - This Multi-species mixtures has dual purpose white clover and grazing type red clover
- Check our 2022 brochure for our grass mixtures with clover including DLF 4N Grazer



Red & White Clover Technical Support



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

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