Managing rising costs on beef and sheep farms

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Section 1. Fodder Budgeting

As we approach silage season, now is the time to take stock of the amount of silage required on the farm for winter 2022. A fodder budget allows the farmer to calculate the demand from feeding stock through the winter and determines whether there will be a silage surplus or deficit on farm prior to the issue arising in winter.

If farmers are falling into a small deficit, purchasing round bales may be enough to bridge the gap. However if you have a significant shortfall in silage for the incoming winter, consider the following options:

- Scan breeding stock and sell unproductive cows
- Sell cattle as stores before winter
- Cull/Sell older less productive ewes

In other years, a small deficit could be buffered by the purchasing of meal and concentrates such as soya hulls, in 2022 however with the projected rising meal costs this may not be a feasible option.

Quality vs Quantity

With rising meal costs, the importance of cutting high quality silage on farm has never been greater. The digestibility of silage (D value) is the main factor determining the quality of the crop, with quality reducing rapidly as silage swards come to seed and head out. High quality silage has a D value of 70+, a ME value of 11.5-12 and a crude protein of 14-16%.

Research from AFBI has shown that a delay in harvesting of one week from mid-May onwards typically results in a reduction in D-value of up to 3 units.

Research at Hillsborough has also shown that the quality of grass at harvest is the key factor which determines the capacity of cattle and sheep to maximise nutrient intake from silage.

Good quality silage is characterised by high digestibility and energy contents, which means that more of the nutrients are captured for growth, with less wasted in manure and gaseous losses.

In the current climate with rising meal costs, the ability to cut highly digestible silage with high energy and protein content will allows farmers to maximise the quality of forage fed to priority groups of stock such as young stock, finishing stock and pregnant ewes, and reduce the need to feed supplementary concentrate feed.

The table below outlines how feeding high quality silage to beef animals can greatly reduce concentrate levels.

A general guide to the optimum input of concentrates for various types of finishing cattle (kg per day)

	Silage Quality		
	Very Good	**Average**	**Poor**
First cut taken	Before 25th May	1st-10th June	After Mid-June
Regrowth taken	6-7 weeks	8-10 weeks	Over 10 weeks
Average D value	Over 70	62-68	Less than 62
Young bulls	3.5kgs	6.5kgs	8.2kgs
Heavy steers of high growth potential	3.0kgs	6.0kgs	7.5kgs
Heifers of high growth potential	2.2kgs	4.5kgs	6.0kgs

Source: AFBI, Hillsborough

Best use of fertiliser for silage swards

Soil pH	Nitrogen Utilisation	Phosphorus Utilisation	Potassium Utilisation	% of Fertiliser Wasted	Potential Financial Loss (£/ha) @ £840/t
5.0-5.5	77%	48%	77%	32%	£149
5.5-6.0	85%	52%	100%	21%	£98
6.0-6.5	100%	100%	100%	0%	£0

Source: Teagasc, DAERA, 2017
150kg N/Ha of 27-4-4
64% of soil samples below pH 6

The table above outlines the importance of pH status when applying fertiliser. With high fertiliser prices it is essential to use soil analysis to determine the soil fertility status prior to sowing silage and grazing swards.

The target for pH in grassland is 6.0. Targets will vary depending on soil type, with 6.0 being the target for clay soils and 5.7 the optimum for peaty soils. The table above shows that at optimum pH we achieve 100% efficiency of the fertiliser applied, while at a low pH of 5.0-5.5 we are losing up to 77% of the Nitrogen, 48% of the Phosphorus and 77% of the Potash applied. In 2022, it is in every farmer's interest to consult their soil analysis and ensure their pH levels are correct prior to applying expensive fertilisers.

Value of organic manures

Organic manures are a cost effective way to help meet silage nutrient requirements in 2022 with increased chemical fertiliser costs.

Applying organic manures by LESSE (Low Emission Slurry Spreading Equipment) in spring is the most effective method to maximize nutrient efficiency from slurries produced on farm. Research from AFBI has shown that applying slurry by LESSE in spring can improve grass yields by up to 25% versus using a splash plate. This is due to reduced Nitrogen loss to the atmosphere as ammonia and more Nitrogen being available to the crop for growth.

The table below outlines the value of organic manures shown as units NPK/1,000 gallons.

Value of slurry in available units NPK/1,000 gallon **(kg/m3 in brackets)**

Dry Matter %	Manure type	N	P	K
6%	Cattle	9 (1)	11 (1.2)	20 (2.3)
4%	Pig	17 (2)	13 (1.5)	17 (2)

(These values are based on the use of LESSE, in spring, assuming 40% availability of N for cattle slurry, 55% availability of N for pig slurry, 100% availability of P on P Index 2 or above soil and 90% availability of K)

It is important to remember that the maximum efficiency of nutrients available occurs using LESSE methods in early spring. As the growing season progresses the availability of nutrients decreases and value of slurry will decrease.

The CAFRE crop nutrient calculator, available on DAERA Online Services, is a free and useful tool to allow farmers to calculate the nutrient requirements of their grazing and silage crops, using their individual soil analysis. For more information, see www.daera-ni.gov.uk/onlineservices

Fodder Balance Worksheet

Total clamp silage in store

Silo No	Silage DM (%)	Clamp Dimensions (m)			Clamp Vol. (m^3) =LxWxH (V)	Multiplication Factor from table below (M)	Weight of silage (tonnes) = (VxM)
		Length (L)	Width (W)	Height (H)			
						TOTAL (T1)	

Conversion factors to convert silage volume to tonnes of silage

Single Dry Matter Content (%)		Conversion (volume in m^3 to tonnes of fresh silage)
Grass Silage:	20	Multiply by 0.77
	25	Multiply by 0.68
	30	Multiply by 0.60
Whole-crop:	40	Multiply by 0.60
Forage Maize:	30	Multiply by 0.60

Total round bale silage in store

Bale Type	Number of bales (N)	Average weight per bale (tonnes) at 28% Dry Matter (A)	Weight of silage in round bales (*t*) (W) = (N x A)
Round (unchopped)		0.6	
Round (chopped)		0.7	
		TOTAL (T2)	

Silage still to be harvested (tonnes) (T3)	

TOTAL WEIGHT OF SILAGE AVAILABLE (T4) = (T1+T2+T3)	

*** SILAGE REQUIREMENT (Tonnage of silage required to feed livestock)**

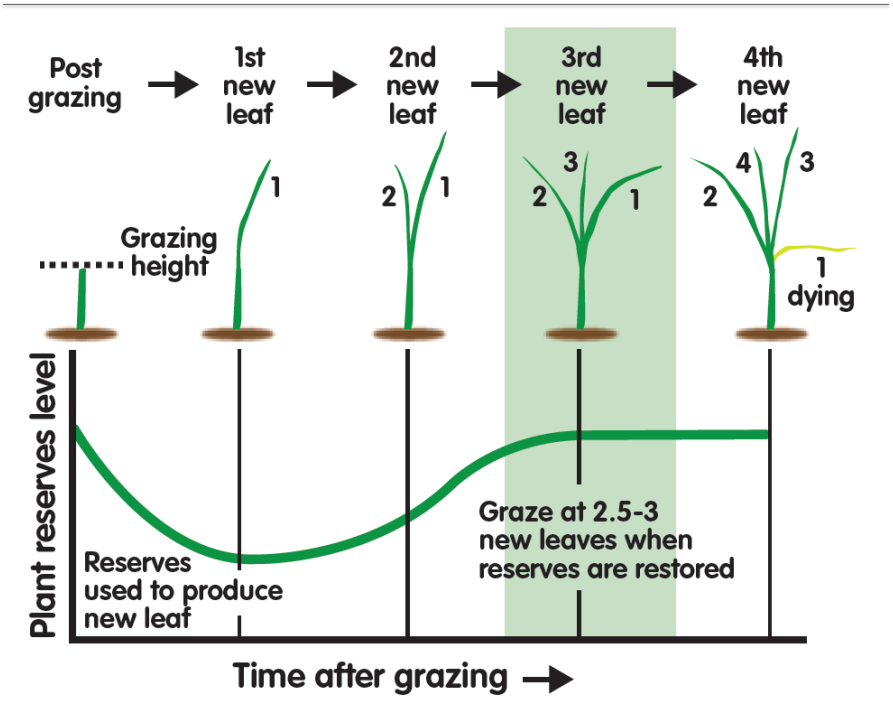
Type of stock to be fed	Number of animals (N)	Silage required/animal/ month (tonnes) (S)*	Number of months housed (M)	Silage required (tonnes) (NxSxM)
DAIRY COWS				
- milking		1.2		
- dry		0.8		
SUCKLER COWS				
Autumn/Spring calving		0.95 / 0.8		
OTHER CATTLE				
- 350kg+		0.8		
- 250 to 350kg		0.65		
- 200 to 250kg		0.55		
- calves		0.25		
EWES		0.12		
			TOTAL (T5)	
SILAGE EXCESS/SHORTFALL (stock requirements– tonnes in store) = (T5-T4)				

*Assuming grass silage dry matter content of 28%. Adjust intakes for different silage dry matters.

Section 2. Beef & Lamb production from grazed grass.

On Northern Ireland Beef and Sheep farms the objective is to produce high yields of grass and to manage the grazing system so that cattle and sheep have access to quality grass, maintaining high intakes and achieving animal performance targets. There is scope to increase output from grazed swards without increasing inputs by increasing utilisation efficiency, such as by adopting a grazing system with allows greater use of available grass.

The amount of grass grown on farm depends of on; Soil temperature (>6° C), Light, Water, Nutrient availability & Grass type/variety. Perennial Ryegrass (PRG) is the most commonly sown species and has three leaves on every tiller. As the fourth leaf starts to grow the first and oldest leaf dies. The best time to graze is when the plant is at the two and a half to three leaf stage.



Utilisation of grazed grass is often below 50%, but can be as high as 80% with good grassland management. The grass grown is utilised when grazed at the right time to the right height with the right amount of stock.

	Annual Yield (t DM/ha)	Utilisation (%)	Usable yield (t DM/ha)	% increase
Set stocking	8.5	50	4.3	
Rotational	10.2	65	6.6	56%
Paddock	10.7	78	8.3	92%

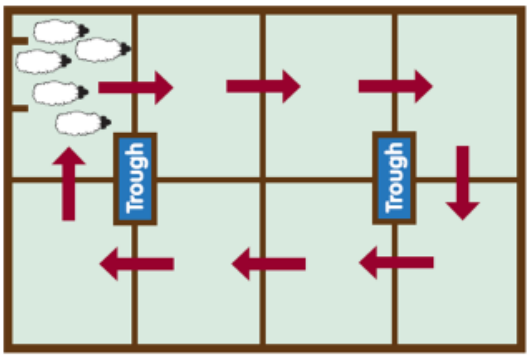
The principle of rotational grazing is to 'graze and rest'. Ideally the sward should be grazed for 3-4 days then rested for around 18-20 days before being grazed again. This should ensure that the grass is at the correct growth stage and stage of maturity. Throughout the year this will vary depending on growing conditions.

Practical steps to help increase grassland management

Grass still remains the cheapest form of feed for our livestock. Our temperate climate and plentiful supply of rainfall ensures that we have the ideal conditions to grow grass however, there is a need for an increased focus on improving grass utilisation throughout the grazing season on beef and sheep farms. Farmers should look critically at the grazing system that they currently have in operation on farm and revise where possible with the aim of maximising grass utilization in order to get the best return from inorganic fertilizer applications.

Consider a move away from the conventional set stocked grazing system to a rotational or a paddock grazing system which aims to graze the grass plant at the correct stage and then allow a period of recovery to take place.

Paddock grazing system



Animals are moved frequently through a series of paddocks based on measured grass heights or grass covers.

RULE OF THUMB-Aim to graze for 3 days and rest for 3 weeks to achieve the desired 3 leaf stage on the grass plant.

How do I know how much grass I have available?

The aim is to match grass supply to stock demand to optimize utilisation. This can be done by using a rising plate meter, a sward stick or a simple visual assessment to determine the number of grazing days ahead.

Rising plate meter - The plate meter is designed for use on grass swards, it calculates the kg DM/ha available on the area that has been measured. This can then be used to determine the grazing pattern on your farm. When using the plate meter walk the field to be measured randomly, it is essential that you do not choose the areas to measure. The aim is to get a representative measurement of the area. The digital plate meter is a very simple piece of equipment to use because it completes the calculations automatically for you. When using make sure that you drop the plate meter down vertically and do not roll it as this will be inaccurate. It is recommended that you follow a 'W' shape across the field and that you complete 30 drops of the plate meter and when you have reached the required 30 the plate meter will beep to alert you to this. Record the measurement and then move to the next field remembering to reset the plate meter to zero before beginning your next measurement. Ideally you should measure weekly and follow a similar route each time.

Visual assessment - This is a common way of estimating grass and is something that is done regularly on farm. Remember that these measurements are a guide and they do not take into consideration the quality of the sward. You can use the rule of thumb with your welly boot of 'in at the shin and out at the heel'.

Sward stick – Works like a ruler, taking the measurement of the height of the grass which is then correlated to the approximate amount of grass cover available. For example a pre-grazing cover of 2900kgDM/ha would be equivalent to approximately 10cm and a post-grazing cover of 1600kgDM/ha would be equivalent to approximately 4cm. When using the sward stick walk each field in a 'W' and take 30-40 top leaf readings. Calculate the field average and keep a weekly record.

Benefits of measuring grass growth

It will give an indication of when your swards are ready to be grazed. You can track entry and exit covers of grass in your fields and this allows you to determine grass supply and grazing days ahead. The ideal scenario is when grass supply matches demand and you can react to this quickly and effectively. In addition you are able to plan fertilizer applications, potential changes in stocking rate levels and also make the decision on the removal of paddocks for high quality silage.

Grasscheck

Operated by AgriSearch and AFBI - monitors weekly grass growth and quality to provide a forecast to farmers. This is published weekly and is an invaluable tool to help with grassland management decisions on farm and should be referred to regularly.

Assessing pasture cover

1500kgDM/ha **4-5cm**		
2000kgDM/ha **6-8cm**		
2500kgDM/ha **8-12cm**		
3000kgDM/ha **>12cm**		

Worked example:

Assume a 14 acre (5.66ha) block of land is available. Divide into seven 2 acre (0.8ha) blocks and this has the potential to support the following livestock on a 21 day rotation.

For cattle - Assume pre-grazing cover of 2900kg DM/ha and post-grazing cover of 1600kg DM/ha = 1300kg DM/ha available for grazing.

40 x 400kg steers

Intake/steer = 400kg x 2.2% BW = 8.8kgDM/head/day.

40 steers x 8.8kgDM/head/day = 352kgDM grass demand for 1 day.

Grazing for 3 days = 1056kgDM grass demand.

Grass available/ha =

2900kgDM-1600kgDM = 1300kgDM/ha

1056/1300=0.8 Ha or 2 acres.

20 spring calving cows (approx. 700kgLW) plus calves and 1 bull.

Intake/cow = 15kgDM/head/day.

Intake/calf= 2kgDM/head/day

Intake/bull=1000 x 2% BW= 20kgDM/head/day.

20 cows plus calves x 17kgDM/head/day = 340kgDM grass demand.

1 bull x 20kgDM/head/day=20kgDM grass demand.

360kgDM grass demand for 1 day.

Grazing for 3 days = 1080kgDM grass demand

1080/1300 = 0.8 Ha or 2 acres.

For sheep – Assume a pre-grazing cover of 2500kg DM/ha and post-grazing cover of 1500kg DM/Ha = 1000kg DM/ha available for grazing.

100 ewes (approx. 75kgLW) plus lambs

Intake/ewe 75kg x 3.5% BW = 2.6kgDM/head/day.

100 ewes x 2.8kgDM/head/day = 260kgDM grass demand for 1 day.

Grazing for 3 days = 780kgDM grass demand.

Grass available/ha = 2500kgDM-1500kgDM = 1000kgDM/ha

780/1000=0.8 Ha or 2 acres.

Getting the most from your grass:

Develop the practical steps to allow you to implement better grazing infrastructure on your farm to improve grazing management and subsequent animal performance. There is no point growing grass if we can't get animals to use it properly.

Key Steps:

Identify a suitable grazing block.

Check boundary fence.

Check location of water supply.

Determine grass availability and from this stocking rate and paddock size.

Be prepared to be flexible – for example you may have to further sub-divide paddocks, increase or decrease stock levels as necessary or react to changes in weather/ground conditions.

Effect of Soil pH on Fertiliser Utilisation

Soil pH	Nitrogen Utilisation	Phosphorus Utilisation	Potassium Utilisation	% of fertiliser Wasted
5.0 - 5.5	77%	48%	77%	32%
5.5 - 6.0	85%	52%	100%	21%
6.0 - 6.5	100%	100%	100%	0%

Considerations when altering your fertiliser policy

- Act upon findings from recent soil analysis results
  - Optimum soil pH for grassland to be maintained within the range of 6.0 – 6.5
  - Apply lime to ensure optimum soil pH and nutrient availability
- Utilise organic manures available on farm and allow for the N,P & K supplied in your planning
- Incorporate weather forecast and soil temperature when wishing to apply inorganic fertiliser
  - On a weekly basis AgriSearch-AFBI Grass Check provides high quality, up to date grass information for Northern Ireland farms to make grassland management decisions.
- Aim to increase grass utilisation through the use of rotational or paddock grazing
  - Better use of grass through grazing (~3 days) and recovery (~21 days) approach
  - 56%-92% increase in usable grass yield compared to set stocking
- Consider the use of clover within your sward to reduce the reliance on inorganic Nitrogen
  - Nitrogen fixing capabilities of clover can be as high as 150-200kg N/ha/year

Encourage productive swards

Perennial Ryegrass (PRG) would be the most commonly sown grass species in Northern Ireland. This is due to a combination of key objectives which have been taken into account in the breeding of this species with the main areas being outlined below:

- Yield: High total yields under silage and grazing conditions
- Persistency: Sward longevity and its ability to withstand poaching from livestock & machinery
- Nutrient efficiency: High response to Nitrogen application
- Nutritional quality: High in protein, digestibility and sugar content

The control of annual and perennial weeds within these PRG swards cannot be forgotten. Weed control is critical to allow for enhanced performance via increased grass yield and improved feeding quality. For instance, a field with a 10% dock infestation can reduce silage yield by 10%. This accompanied by the fact that docks have a substantially lower feed value can have a detrimental effect on overall feed intake and animal performance.

The table overleaf demonstrates the difference between various grass species in terms of quality and energy content, highlighting the value of encouraging perennial ryegrasses in swards. To

note, the difference in 1 point of D Value can equate to an extra 20g DLWG in lambs, 40g DLWG in cattle, 0.3lts milk/cow/day. Also to note newly established PRG swards will have higher N demand if wishing to get most out of the sward.

Grass Species	Average D Value	Average ME (MJ/kg DM)
Perennial Ryegrass	73%	11.7
Timothy	68%	10.9
Smooth Meadow Grass	61%	9.8
Red Fescue	61%	9.8
Creeping Bent	58%	9.3

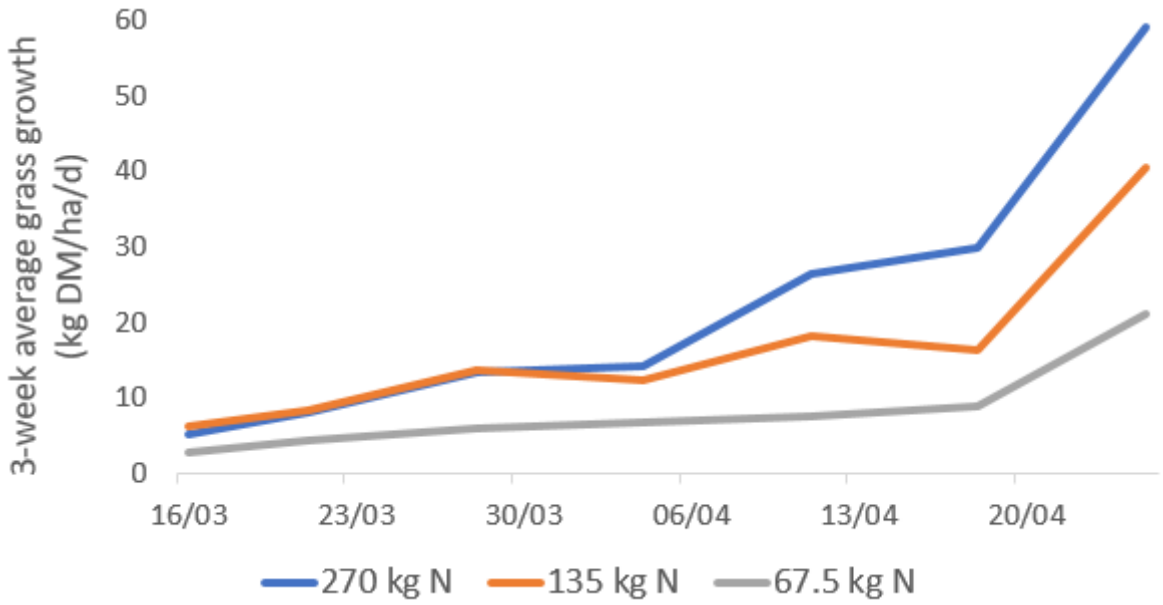
Source: SRDP, Farm Advisory Service

Troubleshooting Rotational/Paddock grazing system

Too Little Grass	Too Much Grass
Strategic use and timing of nitrogen fertiliser • Increases supply	**Close up fields for silage production** • An option if done at an appropriate time of year • Can be a section of a field/paddock • Ideally remove when the paddock should have been grazed
Cull unproductive animals • Reduces demand • An opportunity to cull cows or ewes with problems especially if market prices are favourable • Always evaluate the cost: benefit of potentially reducing output against reducing the need to buy in feed	**Reduce fertiliser applications** • Know what grass is required for the next 3-4 weeks and sow fertiliser to suit grazing requirements
Supplementary feed • Increases supply • Conserved forages, home-grown or bought in. Watch the market if buying	**Buy stock/increase stocking rate** • Increases demand • Introducing disease is a risk, so ensure that strict biosecurity measures are taken
Grow forage crops • Increases supply • Forage crops are an option to provide high-quality feed which can be grazed in situ	**Reduce supplementary feeding** • Decreases supply • The aim is to increase intakes from grass, which reduces the costs of supplementary feeding
Accept reduced growth rates and loss of condition • Reduces demand • Intakes will be reduced, which means growth rates will be lower than anticipated and condition will be lost. This loss of weight & body condition will be detrimental to lifetime performance	

Does it still pay to apply fertiliser?

Figure 1: GrassCheck Hillsborough plot growth rates 2022: Variable N application



The results of the N fertiliser review commissioned by AgriSearch and conducted by AFBI in 2021 demonstrated that even at current prices, fertiliser was over three times better value than purchased feed. The results from 2021 also highlighted the particularly strong response to nitrogen fertiliser from April through to the end of June with this trend also appearing in the 2022 results to date as shown in Figure 1 above.

Fertiliser application for the grazing platform

- Always act upon findings from recent soil analysis results
- The minimum soil temperature required for grass growth is > 6°C
- If turnout date late March – Apply 25 to 30 units of N per acre in early season
- Do not apply N to paddocks which have heavy covers. Graze these first, but apply promptly after these areas are grazed as this is when they will have high demand.
- Dress paddocks during rotations for the rest of the season
    - Apply on a little and often approach
    - Ideally, N should be applied on a proportion of the grazing platform on a weekly or bi-weekly basis.
    - Try to stay 14 days ahead of the livestock with fertiliser applications
    - Rates depends on stocking rates and demands for grass. High demand paddocks (intensive) aim to apply 1 unit of N per day of rotation length e.g. rotation length 21 days, then apply 21 units of N (26kg N/ha).
- Do not limit N to paddocks recently reseeded
    - For every kg of N applied young productive swards will give the best economic response
    - Limiting fertiliser to reseeds can result in performance collapsing and allow for weeds and other non-productive natural grasses to establish
- Sulphur (S) is an important nutrient for grassland production, and is closely associated with nitrogen uptake and efficiency.
    - Apply 16 units/acre (20 kg/ha) of sulphur per year for grazed swards on a little and often approach starting in early spring.

    - Get the balance right - an oversupply of sulphur can depress the uptake of selenium and reduce absorption of Copper by animals.
    - If clover plays a key role in your grazing fields sulphur application is important, as it plays a major role in nodule formation and therefore nitrogen fixation in all legume plants
    - Sulphur is present in cattle slurry but at low levels. Best source of sulphur is from inorganic fertiliser
- Calibrating your fertiliser spreader correctly is an easy way to get the best results from your fertiliser
    - To set the sower, first find the calibration table or chart for you sower which will be in the handbook and occasionally on the sower itself.
    - Generally three pieces of information are needed for calibration: - type of fertiliser, forward speed and spreading width.
    - When this information is fed into the chart, it will give a number setting for the sower.

Slurry applications for the grazing platform

- Do not apply slurry to fields which have heavy covers during spring. Like fertiliser, graze these first before applying.
- Use Low Emission Slurry Spreading Equipment (LESSE), such as a dribble bar or trailing shoe to reduce sward contamination and help grass utilisation of nutrients and sward grazing 'clean outs'.
- Watery slurry should be applied as soon as paddocks are grazed off
- Ensure stock do no re-enter these paddocks for at least 18 to 20 days post spreading.
- Avoid grazing paddocks with higher producing animals, such as lactating cows and ewes during early spring which received heavy slurry applications prior to grazing. Slurry is high in potash, which inhibits magnesium uptake in grass causing grass tetany (Hypomagnesaemia)

As always, for both organic and inorganic fertilisers, pay close attention to weather forecasts and ground conditions to minimise losses and maximise value from applications.

Lime applications for the grazing platform

- Ideal time to apply lime is onto fields which have been grazed-off and grass covers are low, never apply onto fields which have grass covers.
- After spreading ground lime (bulk) on cattle grazing wait until rain has washed the lime off the base of the plant and onto the soil.
- With sheep grazing best practice is to wait 30 days to allow for the lower grazing pattern of sheep.
- Ideally there should be no lime residue left on the grass before grazing for both cattle and sheep, although if a small amount of lime remains on the leaf, it will not affect grazing animals.
- Granulated lime (bagged lime) is another option. This is very finely grounded and has a role to play during the growing season as it works quickly but is not a long term solution for low pH soils.
- If slurry or urea is applied first –wait 10 days and apply lime
- If lime is applied first – wait 3 months before applying slurry or urea to avoid the loss of N due to volatilisation
- There is no need to leave a gap with CAN or N-P-K compounds as lime will not affect N losses.

Section 3. Grass/clover swards for beef and sheep

Why sow white clover?

- A grass/clover sward fertilised with 50 kg N/ha can sustain a similar output to that from a grass sward fertilised with 200 kg N/ha. Therefore clover can reduce the costs by £255/ha (save 150kg N/ha, urea at £780/t).
- It also can reduce the carbon footprint of beef production. Data for a dairy origin steer system showed that replacing a pure grass sward receiving 150 kg N/ha with a grass/clover sward receiving no fertiliser reduced the carbon footprint in terms of kg carcase weight by almost 20%.
- Improve animal performance; 13% increase in animal carcase weight and up to 25% higher live weight gain in lambs as high clover content swards reduce worm burden, increase trace element availability, lose quality more slowly than grass, contribute to greater herbage intake.

Understanding how white clover grows

There are three stages of white clover growth from germination to full establishment. These are:

1. Rosette Phase
2. Expansion Phase
3. Clonal Phase

During the rosette and expansion phases white clover relies heavily on a central taproot for growth and development. In the clonal phase the plant is fully reliant on the stolons for growth and persistence.

Rosette phase	Expansion phase	Clonal phase
• Reliant on central taproot • Few branches Small spread • Rosette plant form - *Small vertical primary stem surrounded by ring of short secondary branches* • Plant size – 10-20 cm • Phase lasts approx. three months • **Clover does not fix N in this phase** • Important to graze during this phase to promote growth (without damaging plant)	• Reliant on central taproot • Rapid expansion – up to 15 branches, 25-30 cm in size • Initially rooting is poor on the stolons and careful grazing is required to avoid damage • Six months post-sowing roots strengthen but plant still reliant on central taproot for nutrient uptake • 12 months post-sowing taproot begins to die – can take up to 2.5 years for all taproots in the sward to die • **12-18 months post-sowing N fixation begins** • Good grazing management is crucial for stolon development	• No taproot. Reliant on adventitious roots which form at the nodes of the stolons • Normal status of clover in established swards • **Clover actively fixing N** • Stolons last for 12-18 months. New stolons produced at the terminal bud • New stolons become independent plants and this cycle continues each year • Good grazing management helps maintain stolon production and white clover persistence in grazing swards

Establishing grass/clover swards.

Where to sow white clover?

- High fertility soils (soil pH>6.3, ≥Index 3 for P and K)
- In fields where weeds are well controlled
- Drier fields on farm, Don't sow on gley or peat soils

How to sow white clover?

- Sow between **late April to mid-July** and choose varieties from recommended list
- Sow small/medium leaf clover for sheep - their grazing pattern can remove large leaf clovers
- Sow medium and large leaf clover for cattle
- If overseeding choose fields with a high perennial grass content, avoid old butty swards
- Always roll after sowing to ensure good seed contact with the soil
- Do not bury the seed

Conventional plough - Clover can be included in the grass seed mix

- Ensure you have a fine, firm seed bed
- Don't sow too deep, 10 -12mm
- Sowing rate of 1 to 2 Kg/ac
- Ensure good contact with soil by rolling

Overseeding - Broadcast:

- Just after cutting or grazing paddock tightly.
- Mix **2 Kg** of clover with 1 bag of 0-7-30 or 0-10-20 per acre **<u>in the field</u>**, the clover seed is so small if you travel any distance with it in the spreader it will separate out.
- Phosphorus encourages root growth thus is required for seedling establishment.
- Nitrogen should not be used to give the clover time to establish and not be over shadowed by grass
- Spread in two opposite directions, across the field then up and down to get an even spread of seed
- Ensure to roll to get good seed contact with the soil
- Ensure there is good moisture in the soil, aim for rain after sowing.
- Avoid windy days
- Graze as soon as grass gets 2700-2900 Kg DM/ha to keep light down to the little plants, keep grazing regularly thereafter, 17 - 21 day rotations.

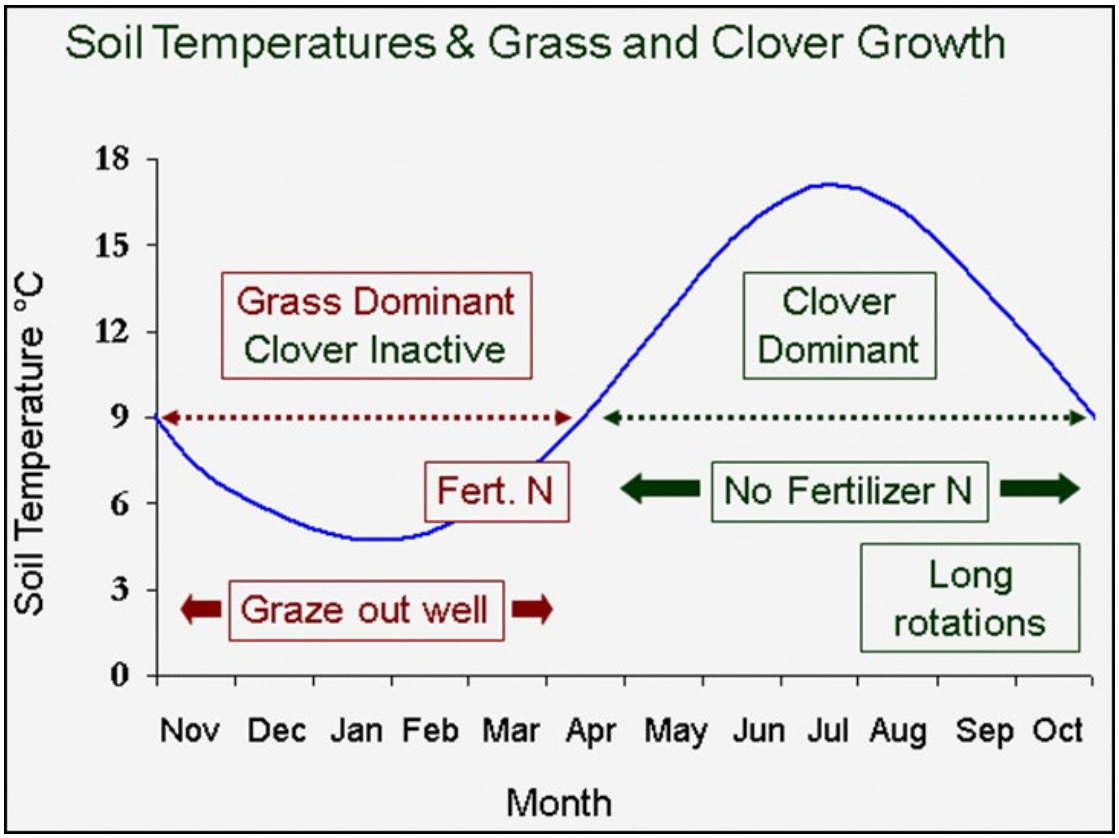
Overseeding - Stitch in

- Seeding rate of **2 Kg** of clover seed
- Follow the same management as above
- Don't bury the seed too deep, 10-12mm at most and remember to roll

Where grass/clover swards have been established using the plough rather than a surface cultivation (min-till) method, the stock carrying capacity could be reduced by as much as 50% until the nitrogen reserves and soil consolidation improves again.

Managing a Grass/Clover sward

You need to understand the growth pattern of clover to be able to manage it effectively. The diagram below shows the interaction between grass and clover growth.



Grass starts to grow at soil temperatures of 5-6 ºC while clover needs soil temperatures closer to 10 ºC, therefore grass dominates in spring and needs to be fertilised.

- When soil temperatures increase, the clover starts to grow and its nodules begin to release fixed nitrogen therefore there is less of a requirement for nitrogen, so it can be reduced or pulled out altogether.
- Graze paddocks at 2700-2900 Kg DM/ha and graze down tight to 1600kg DM/ha. Clover grows and spreads using stolons that stay on top of the ground, it is essential light gets to these stolons to promote growth so grazing needs to be tight and often. The stolon mass determines the clover content of swards.
- Avoid over grazing and winter damage.
- Avoid heavy silage cuts.
- Be careful spraying only use clover-safe products.
- Beware of bloat
  - Keep post-grazing sward height to 1600 kgDM/ha
  - Avoid switching from grass-only swards to mixed grass/clover swards
  - Avoid letting in excessively hungry animals

- Check stock regularly during the first 3 hours after turnout
- Can be prevalent after high rainfall and if clover content >50%
- Use bloat oil in the water (25ml/LU/Day)

Sward assessment work on farms has confirmed that the ground cover of clover should be:

- 20 – 30% ground cover early in the growing season;
- Approximately 40% ground cover midway through the growing season;
- Peak of 50-60% ground cover in the latter half of the growing season.

Grass/clover swards should ideally be rested from grazing for at least three weeks during July/August. To ensure that clover does not die during the winter the sward should be grazed well in late autumn ideally by sheep to a grass/clover cover of 1500-1700 kg DM/ha.

Grass/clover swards need to be grazed down to a cover of 1500-1700 kg DM/ha in late autumn

References

Molloy, A and Harrington, M. Teagasc. Technical Note – White Clover

Ulster Grassland Society. Booklet – Grazing Management

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College of Agriculture, Food & Rural Enterprise

Section 4:

Creating a cashflow forecast

CAFRE Business Team

DAERA

Key Steps

- Cashflow
- Cost control
- Efficiency
- Professional help

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Cashflow

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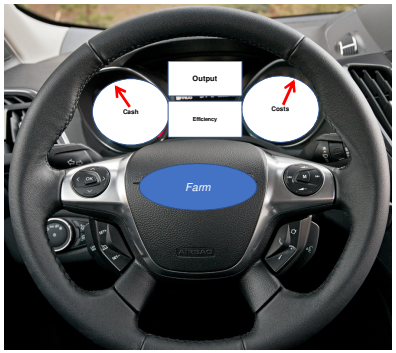
- **Plan**
  - Estimate of income and expenditure each month
    - Know YOUR farm data
    - Income and Costs based on current prices
    - Expenditure from
      - Last years benchmarking or VAT book
      - Bank account plus cash transactions each month
  - Plan for next **12** months
- **Control**
  - What actually happens each month



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Cashflow: Example 1

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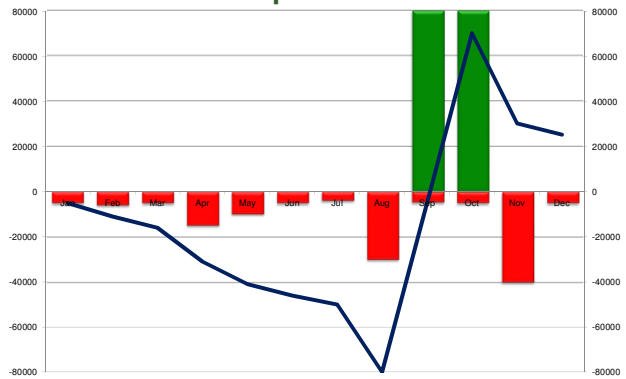

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Cashflow: Example 2

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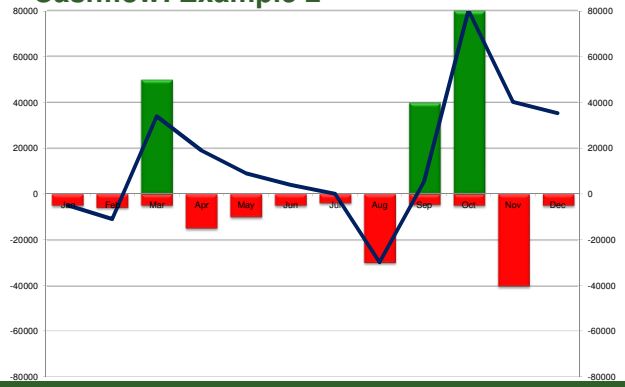

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Cashflow: Example 3

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	Feb	Mar	Apr	May	Jun	Jul
Income						
Stores			14000			
Cull Cows			1700	1700	1700	
Silage	1250	1250				
Beef Cattle			9240	9240		
CAP Payment						
Total Income	£ 1,250	£ 1,250	£ 24,940	£ 10,940	£ 1,700	£ -
Expenses						
Meal	1500	1500	1000	600	200	200
Fertiliser		3000			3000	
Vet	300	300	600	300	300	300
Contractor		1000				3000
Fuel		1000			1000	
Repairs	150	3500	150	150	150	150
Water/Electricity/Rates	200	400	200	200	400	200
Insurance	200	200	200	200	200	200
Ai / Semen		375				
Loan repayment	200	200	200	200	200	200
Total Expenses	£ 2,550	£ 11,475	£ 2,350	£ 1,650	£ 5,450	£ 4,250
Cashflow	-£ 1,300	-£ 10,225	£ 22,590	£ 9,290	-£ 3,750	-£ 4,250
Overdraft						
-£ 5,000	-£ 6,300	-£ 16,525	£ 6,065	£ 15,355	£ 11,605	£ 7,355

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Technical Efficiency

- Output/prices of cattle etc. weights, grades
- Maximise forage potential
  - Analyse silage
  - Target to the animals that will respond best
- Fertiliser
- Purchase of silage

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Impact of spending decisions on cashflow

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- Farm taking two cuts from 10ha
- N fertiliser product costs £600/t
- Reduces fertiliser usage by 30%

Implications on cashflow?

Cash saved in spring, but potentially more cash required in winter?

- Cuts total fertiliser bill from £3,850 to £2,700 = **£1,150 SAVED**
- Yield reduced by 70tFW or 17.5tDM
- To replace 20% lost yield (70t) with silage @ £35/tFW = **£2,450 COST**

OR

- To replace lost yield (17.5tDM) with 20t concentrate @ £275/t = **£5,500 COST**

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Cost Control

- **Don't spend unless it's vital**
  - Postpone, do without, rent, borrow, contract
  - Watch for knock-on effects to health, yield, growth rate, fertility, efficiency
- **Cost recovery**
  - Carry no passengers!
  - Any surplus stock to sell
  - Maximise quality bonuses

You're not on your own

- **CAFRE Adviser**
  - Benchmarking – what is your CoP?
  - What are your strengths/weaknesses?
  - Feed Program – silage analysis, target feed
  - Animal Health / Fertility / Culling policy
  - Nutrient Management

You're not on your own

- **Bank Manager**
  - Overdraft limits
  - Capital Holiday
  - Loan Restructuring
- **Accountant**
  - Tax Accounts
  - Averaging of accounts
  - Implications of asset sales
- **Rural Support**

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Summary

- Act early
- Assess current position
- Make use of the available business tools
- Talk to professionals