Forage First Suckler Systems

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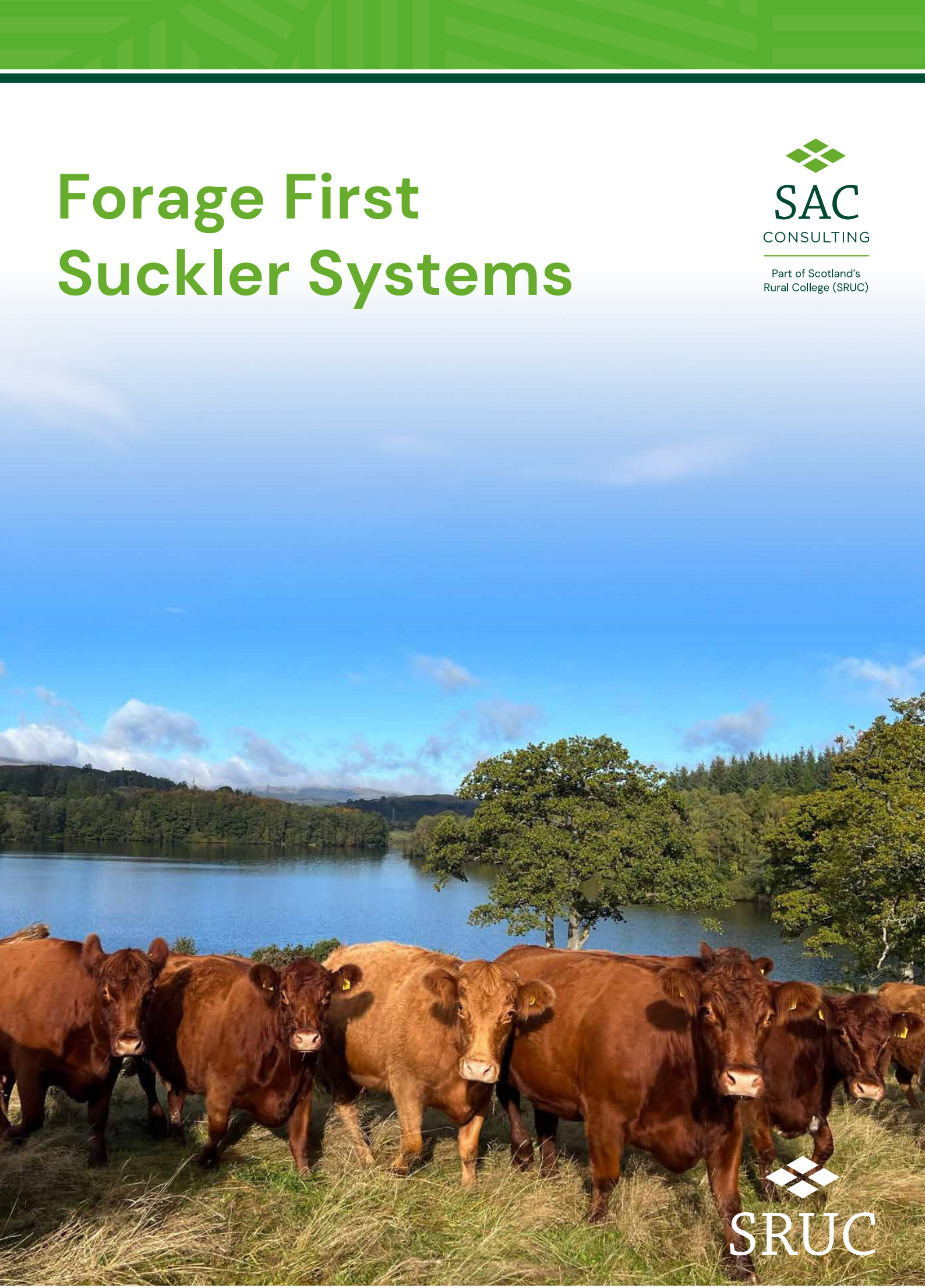


SRUC

Introduction

Forage First Suckler Systems seek to optimise suckler beef production from pasture and forage to minimise production costs and optimise output and profit per hectare.

These systems will not use high levels of nitrogen fertiliser and supplementary feeds; instead, these inputs are utilised sparingly, if required.

This results in:

- **High utilisation of grazing resources.**
- **Low feed costs per cow – forage only without concentrates.**
- **Extended grazing season – reduced housing/wintering period and associated costs.**
- **Strong growing stock performance off pasture.**
- **Cost-effective finishing if carried out – optimising forage in the diet.**
- **Reduced fertiliser inputs relative to output.**
- **Improved profit per hectare.**

This is achieved through:

- **A focus on profit per hectare, not output per animal.**
- **Appropriate calving date to best match pasture availability.**
- **Effective grassland and grazing management.**
- **Rotational grazing to optimise pasture utilisation and quality.**
- **Best use of surplus pasture – be that conservation or deferred grazing.**
- **Identifying the most cost-effective wintering system.**
- **Effective management and utilisation of cow body condition.**
- **Appropriate genetic selection and breeding strategies to suit the system.**
- **Calving at two years of age.**
- **Flexible and adaptable stock management.**
- **Effective integration with other pastoral enterprises (e.g., sheep).**

Contents

Cover Photo and Page Photo Credit: Murphy Maxwell

Section 1: Making more from Pasture

The potential of pasture

Pasture can:

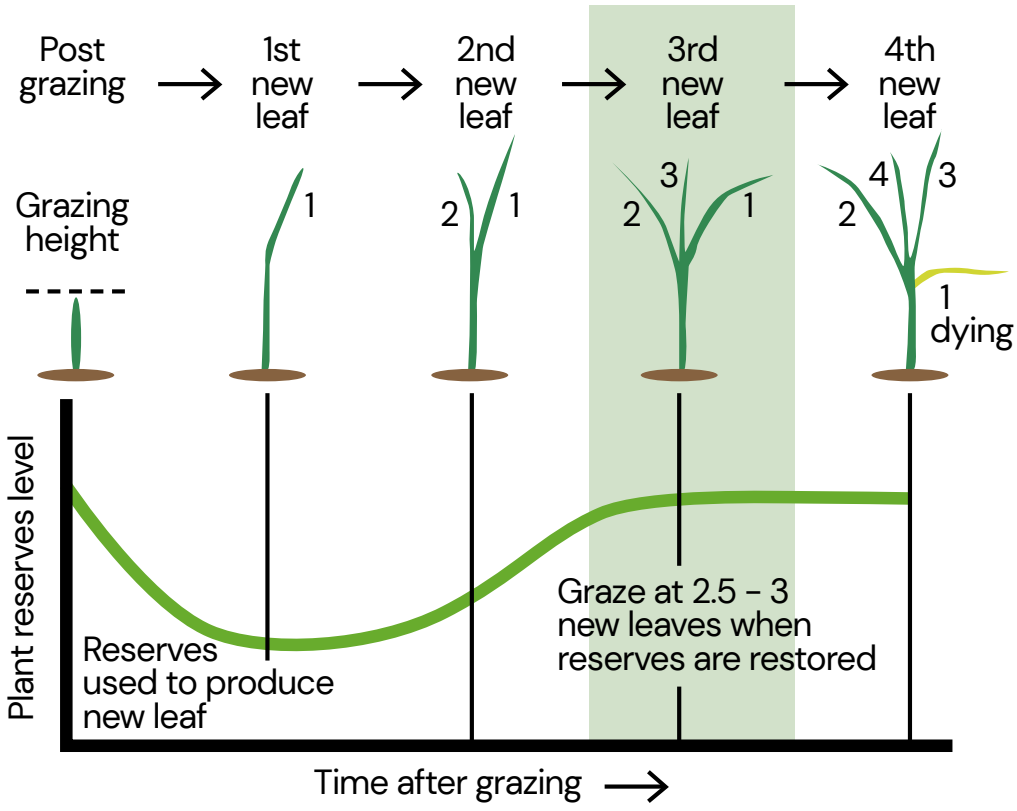
- **Meet the nutritional requirements of the cow at all stages of production.**
- **Support growth rates of over 1.3 kg/day in calves to weaning.**
- **And lead to greater than 1.5 kg/day liveweight gains in growing and finishing stock.**
- **Result in stock finished off grass at 18 months old.**

…. providing it is **well managed**, combined with **appropriate animal genetics**, on improved land.

Pasture is highly variable in growth and quality. It is influenced by climate and seasonal temperature but also by its management.

Key principles to optimise its use:

1. **The three-leaf rule:** A grass tiller can only maintain three live leaves. As additional leaves grow, the oldest dies. This is lost production and leads to reduced pasture quality. Stocking rate and rotation length should target grazing pasture at the 3-leaf stage.



Reproduced with thanks to AHDB

2. **Target grass heights:** Grazing too low (less than 5 cm) will impact regrowth, whilst allowing grass to go above 10cm will lead to reduced quality through the build-up of dead and stem material.

3. **The value of rest:** A rest period allows the plant to build root reserves, produce leaf area and therefore carry out more photosynthesis; 'grass grows grass'. The ideal rest period between grazings depends on how fast the leaves grow back. Leaf regrowth can take from 5 days (during peak production typically May/June) to 30 days in the winter.

4. **Grazing duration:** Stock preferentially graze young grass leaves. When left in an area for too long, they will graze the regrowth. Grazing of 'second bite' leads to reduced pasture yields but also reduces control over quality. As a rule of thumb aim to graze each paddock to target residual (post-graze height) within 1-3 days and no longer than 5 days.

5. **Utilisation:** The longer livestock stay in a particular area, the greater the wastage of pasture. With set stocking, 50% pasture utilisation (eaten, not wasted) is deemed acceptable. However, grazing a field within 3 days can achieve 65% utilisation, and daily rotation can elevate this to 85%.

6. **Feed budget:** Grass should be quantified as a feed to understand ideal stocking density and support decision-making. To do this we need to quantify it in kilograms of dry matter (DM) per hectare (kgDM/ha) – we know how many kg DM a cow requires per day at different stages, we cannot use centimetres for this purpose.

'If cattle are entering a field at 3000 kg DM/ha and graze down to 2000kg DM/ha, we have 1 tonne of feed per hectare in a field'.

A good starting point in the spring and summer is to target a 21–25-day rest period, with the opportunity to shorten this during high grass growth periods. This rest period should increase with decreasing grass growth.

See: AHDB: **Planning grazing strategies for better returns**

Grass Height (cm)	Kg DM/ha (summer)	
CM 15	3930	Excessively High Covers
14	3740	
13	3550	
12	3350	
11	3150	
10	2960	Graze
9	2750	
8	2540	
7	2330	Let it Grow
6	2110	
5	1880	
4	1650	
3	1400	Stock Out
2	1120	
1	800	

A Calibrated Sward Stick; Convert grass height to kilograms of dry matter per hectare (kg DM/ha).

Appropriate calving date

Aim to time calving, mating, and lactation with peak pasture growth in spring and summer, so that when pasture growth drops in autumn/winter so does the feed demand of the cows.

Select an appropriate spring calving date that allows cows to be turned out to sufficient pasture post-calving (or to calve). The ability to do so is promoted by a tight calving period.

If meeting the additional energy demand for lactation with conserved forage, this adds 44 pence per day to the cow feed cost, see Table 1. Maximising the use of grazed grass during lactation is more cost-effective.

Table 1. The additional cost of trying to meet lactation demands from conserved forage.

	Energy requirements (MJ ME/day)	Silage req (kgDM/day)	Silage cost (£/day)
Dry cow	95	9.5	1.27
Lactation	135	12.9	1.71
	Additional	**3.4**	**0.44 (+34%)**

Assumptions: *700kg cows, 10 ME (Megajoules Metabolisable Energy per kilogram dry matter; MJ ME/kg DM) silage when pregnant and 10.5 ME silage during lactation, silage at £36/t fresh weight, 30% dry matter (DM). 13p/kgDM. Includes 10% waste.*

Body Condition Scoring

Body Condition Score (BCS) management is the bedrock of profitable suckler cow systems. BCS drives animal performance and means cows can utilise body fat that is stored whilst grazing cheap summer pasture to reduce feed costs in the winter.

Body Condition Score management helps:

- **Maximise colostrum and milk quality and quantity.**
- **Optimise fertility.**
- **Reduce calving issues and subsequent calf mortality.**
- **Reduce wintering costs by utilising fat energy stored up from summer pasture.**

Table 2. Body Condition Score targets for a grass-based suckler herd

	Calving	Bulling	Weaning	Mid-winter
Target BCS	2.5-3	2.5-3	3-4	2.5-3

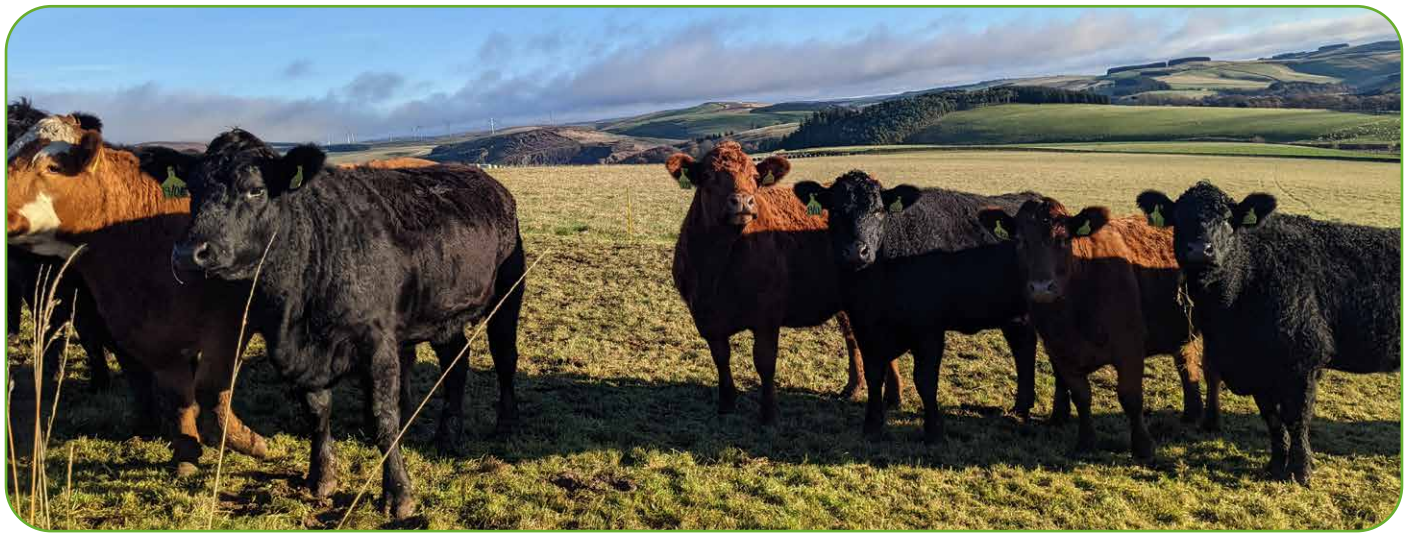
Calve down at 2.5 to 3 BCS. Over-fat cows have more fat around the birth canal leading to increased calving difficulties. However, BCS 2.5 is the minimum; thin cows are increasingly being found as a cause of calving difficulties as well.

Video demonstrations online:

- **QMS: The benefits of cow condition scoring – Part 1**
- **QMS: The benefits of cow condition scoring – Part 2**

See: **QMS: Cow nutrition and body scoring timeline**

Genetics influences BCS. Select for cows that can maintain good BCS within the chosen system (e.g. outwintering), not cows that need additional feeding to thrive and conceive.



Section 2: Genetics and Selection

The cow in a forage-based system must be able to do the following:

- **Get in calve every year within a 6–9-week period.**
- **Calve at two years of age.**
- **Produce a saleable calf, weighing over 35% of cow body weight at 200 days.**
- **Maintain/manage body condition score under outwintering/low quality forage.**

As such the key breeding focus should be:

- **Low to moderate mature cow weight (under 700kg)**
- **Selection for fertility – females from calves born in the first 40 days.**
- **Ability to maintain and gain BCS on forage only and be outwintered – cull those that don't.**
- **Optimal growth, muscling, and milk genetics to maximise calf performance without impacting fertility, system suitability and animal longevity.**

Focus on maternal genetics

For example, for a 100-cow herd at 90% rearing you can gain:

Average grade of U 3 valued at £7/calf for 90 calves compared with averaging R Grade = +£630

Or

2% more weaned calves = 2 calves valued at £620/calf = +£1,240

Number of Calves reared is a key driver of profitability

Remember: A difficult calving can impact subsequent bulling success due to the impact on the uterus recovery and delayed oestrus.

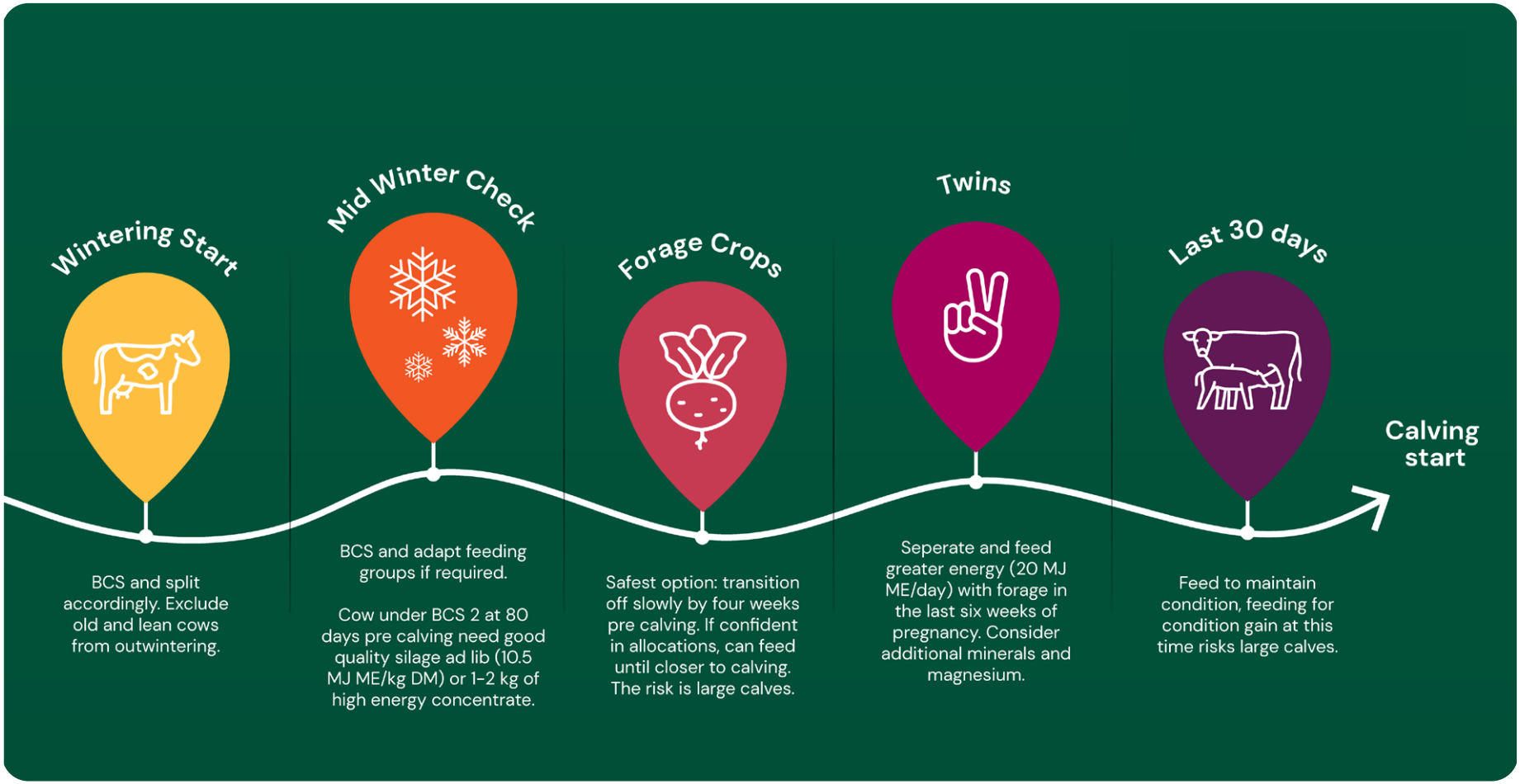
Genetic options to reduce risk of calving difficulty:

- **Use bulls with low birth weight, short gestation and good Calving Ease Direct (DIR) and Estimated Breeding Values (EBVs).**

- **In the female line, consider breed differences, use bulls with good maternal calving ease EBVs and select replacement heifers that were unassisted at birth.**

Section 3: Spring – Calving and Turn-out

Preparing for calving success



Outdoor calving guidelines

The fundamentals:

- Calves must be **double-tagged** with two identically numbered ear tags within 20 days of birth.
- **Shelter:** Choose appropriate calving fields with access to shelter and windbreaks.
- **Water supply:** Ensure that calving fields have access to a reliable and clean water supply.
- **Aim to move to calving fields by one-week pre-calving,** depending on the weather conditions and grass height.
- **Minimise mixing** of cows to reduce stress.
- **Clean environment:** Avoid muddy or manure-contaminated fields and rotate calving sites if possible.
- **Ensure heifers calving at two are at target weight** for first calving (80% of mature cow weight).
- **Consider grouping cows by calving date prediction** (three-week batches) to limit time spent in calving fields and bacterial build-up.
- **Analyse forage and bloods** to determine need for pre-calving minerals; magnesium deficiency impacts calving ease and expulsion of the placenta and deficiency risk increases on high potassium forage. See **FAS: Mineral nutrition for beef cattle**.

Safe movement of cows and calves

This requires careful consideration for staff safety, animal stress and time management.

- **Cow and calf catchers are useful.**
- **Temporary handling system with head restraint or calving near the sheds will be useful for calving assists.**
- **An extendable calf crook can help catch the calf efficiently to minimise stress to cow and risk to yourself.**
- **Take care and time to avoid injury; tagging should ideally be done with two people present unless cow is immobilised.**

Photo Credit: Gordon Stephen

https://www.youtube.com/watch?v=cBHbYINgCBQ&t=70s

Improving pasture supply for calving/turn-out

Fertiliser applications should be an annual decision – too much grass in the spring can be detrimental to pasture quality if not utilised. Feed budgeting is the best way to determine whether nitrogen (N) fertiliser is required.

Grass starts growing when soil temperature at 10cm depth exceeds 5°C for 5 consecutive days.

Provided temperatures and ground conditions are correct and if farm grass covers are averaging less than 3cm (1,500 kgDM/ha) then N fertiliser in March can be justified.

Grazing fields in March will reset pasture quality, promote tillering, and improve spring grass growth. However this would need to be done with light stock, ideally sheep or young cattle and only when sufficient grass is available (over 7cm), and ground conditions are suitable.

If March temperatures are lower than average, or ground conditions are poor, then do not graze the calving, lambing or first turn-out fields. Retain stock on the wintering system or graze elsewhere.

For those housing cattle over winter, turn out as soon as grass height exceeds 6cm. Consider moving the light cattle out first if concerned about soil conditions.

Fresh, leafy spring grass is a very high-quality feed (it can be greater than 12 Megajoules Metabolisable Energy per kilogram dry matter (MJ ME/kg DM) and 18% Crude Protein (CP)). Provided there is sufficient grass growth and cover (+6cm or 2000 kg DM/ha), late pregnancy and lactation requirements can be met off pasture alone.

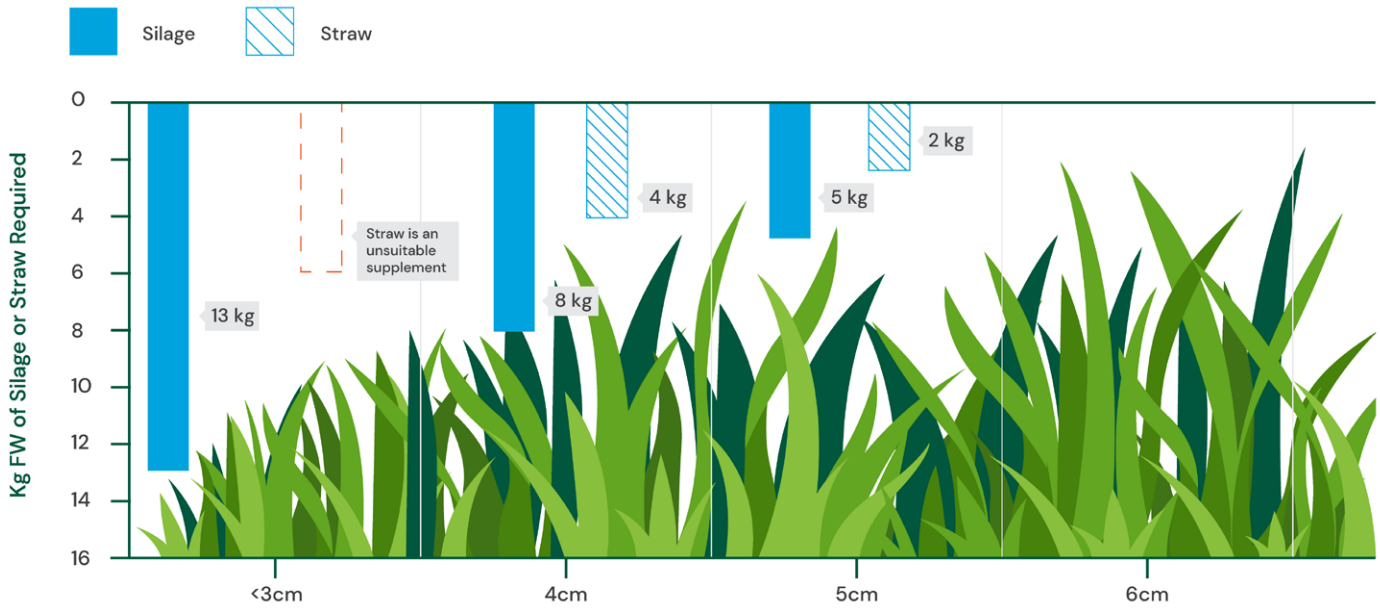
Maintaining grass covers above 6cm is essential to meet cow and growing stock requirements.

If grass covers are below 6cm, delay turnout or supplement with additional forage and/or concentrates (seek nutritional advice).

Grazing pasture below target without supplementation will:

- **Impact on animal performance (growth of youngstock or fertility and milk in cows).**
- **Impact future grass growth, remember that 'grass grows grass'.**
- **Delay 'magic day' – when pasture growth exceeds daily stock demand.**

Supplementation guidance at grass during late pregnancy (30 days pre-calving) when grass growth is slow (under 10kgDM/ha/day)



Based on Silage at 10 MJ ME/kg DM, 30% DM and over 10% CP

700kg cows, for every 100kg above or below this weight add or reduce 4kg fresh weight of silage or 1.5kg Straw, do not exceed 5kg of straw alone as it risks insufficient protein

Under moderate grass growth (15 kg DM/ha/day), supplementation is required at less than 3cm based on the above assumptions. 2kg of straw can be replaced with 1kg of Barley.

Section 4: Summer – Bulling and Early Lactation

Put bulls in for 6 weeks with heifers and 6 to 9 weeks with mature cows.

A tight calving period is essential for profit on a forage-based system, it results in:

- **Heavier calves at weaning and therefore improved sale value or reduced days to slaughter.**
- **More even batches of calves for sale.**
- **Uniform batch of heifers for selection decisions.**
- **More accurate cow management and feeding to stage of pregnancy and lactation.**
- **Reduced risk of disease spread from older to younger, more vulnerable calves.**
- **Cows and calves onto the grazing rotation sooner to better utilise spring grass growth.**
- **Reduced risk of calving issues due to better nutritional management.**
- **Cows milking on high value spring grass for longer.**

The cost of tail-end calves

Tail-end calves have lower value at time of sale, and their dams will not cycle in time to calve with those who calved within the first two cycles.

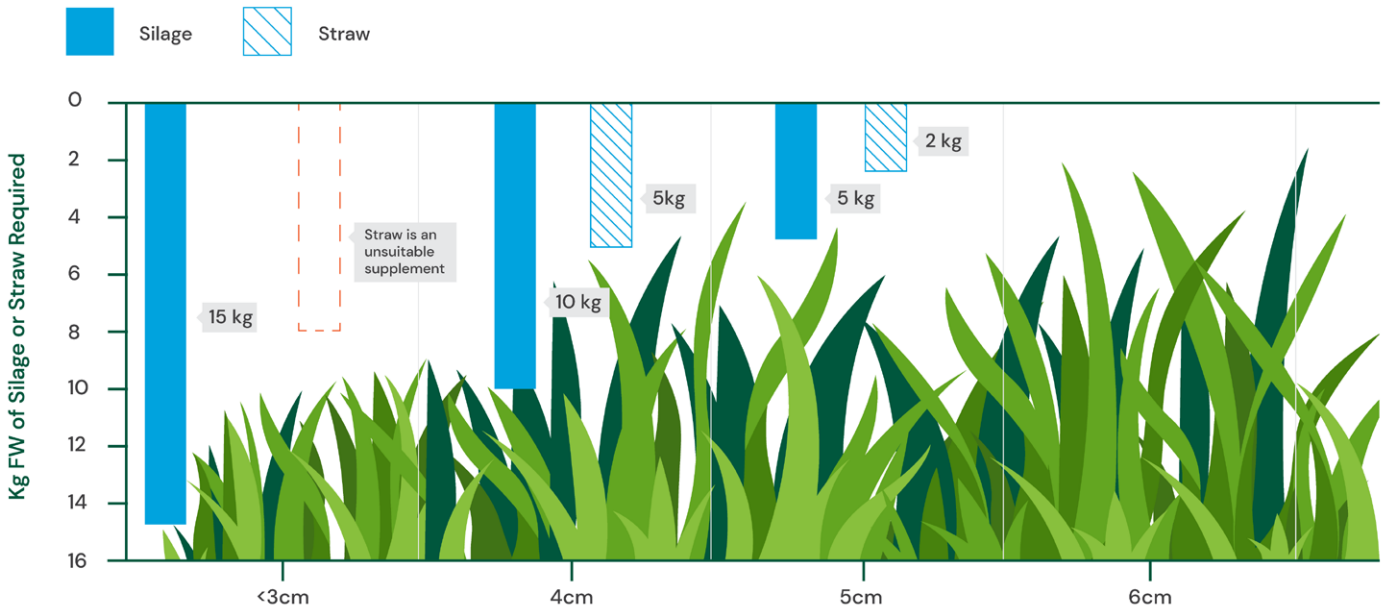
Late calves may be kept on however there is a cost to this in lower store value or increased days to slaughter on a finishing system.

Lactation management and management of cow condition

Once cows have calved, their energy requirements increase by around 30% when they start to produce milk. Milk yield is driven by high-quality spring pasture.

If cows are below BCS 2.5 then increasing BCS will improve ovulation and chances of conception. Continue to offer quality pasture to support embryo survival and lactation throughout the bulling period.

Supplementation during lactation if grass height is below target when grass growth is slow (under 15kgDM/ha/day)



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Bulling – Cow:Bull ratios

30-40 cows per bull is most common. Structurally sound fit bulls can run with 50 cows for 9 weeks. However, it is useful to have back-up in case of injury to bulls.

Utilising multi-sire bulling groups, with two or more bulls in a single group, during the breeding season can increase the likelihood of successful conception, ensure tight calving, and improve grazing pressure for managing pastures.

Best to ensure bulls are of a similar age and temperament to give equal opportunity for mating and reduce bullying. Bulls that have been raised together or are of similar size and age are more likely to coexist peacefully; otherwise introduce the bulls to each other well before the breeding season, in a neutral environment if possible, so they can establish a social hierarchy with less risk of injury.

Heifer management

For calving at two, heifers need to reach target weight (65% of mature weight) at bulling at 15 months for good conception. They also need to continue to grow well throughout their pregnancy to ensure they calve easily and milk well. Weight targets shown in Table 3, these targets are achievable with good pasture management.

Table 3. Heifer growth weight targets depending on the cow mature weight.

Cow weight (kg)	Average DLWG from birth to 1st service (kg/day)	Target liveweight for heifer (kg)*	
		Age: 15 months	Age: 27 months
600	0.8	390	510
650	0.85	423	553
700	0.9	455	595

** Based on achieving heifer weight targets of 65% of mature weight by 15 months old and 85% of mature weight by 27 months old.*

In winter, it may be advantageous to keep in-calf heifers as a separate group from cows to avoid bullying and enable them to get better nutrition.

First calving at 3 years of age

This puts less pressure on achieving the above weight gain targets and is perhaps justifiable in extensive systems on harder ground. This decision comes at an opportunity cost of ground that could be grazed with productive stock.

Summer – early pregnancy and late lactation

Following peak lactation (around 75 days post-calving) cows are better placed to gain condition. Allow cows to build condition to weaning up to BCS 4.

For this reason, their metabolisable energy (ME) requirement is 155 Megajoules (MJ) ME/day and equates to 2.4% of their bodyweight in pasture dry matter per day (pasture 11 MJ ME/kg DM). Good pasture quality will also benefit calf growth as calves will graze alongside their mothers at this stage.

To achieve this, follow the grazing strategy guidance on the next page:

Photo Credit: John Ritchie

Summer grazing strategy options

Set stocking

Set stocking: Stock grazed in the same field(s) for the duration of the grazing season.

Table 4. The pros and cons of set stocking.

Pros	Cons
+ Can provide good stock performance	- Poor grass utilisation
+ Low labour demands	- Low stocking rates and output per hectare
	- Less control over pasture quality

Whilst short-term animal growth rates may be good with set-stocked grazing, the quality and growth of the pasture later in the season can be impacted. This is seen on many farms with finishing cattle where their growth rates are good at the start of the grazing season but fall below 0.8 kg per day in August and September.

To sustain grazing quality while set stocking:

- **Maintain pasture height between 4-6cm early in the season (pre-July). Exceeding 6cm will result in a loss of pasture quality with a build-up of stem and dead material (lower energy).**
- **Adjust stocking density if grass is getting ahead (e.g., take out land for silage or defer grazing, bring in more stock or top using a mower).**
- **Once grass is past the high growth and main reproductive phase (July) then target heights can be increased to 6-8cm without losing quality so rapidly.**

Sustaining pasture quality through the season will lead to better young stock growth rates pre-wintering.

In large fields, an electric fence provides the ability to reduce the grazing area and maintain quality on the main grazing area when grass gets ahead. The excluded area can then be grazed by other stock or deferred to be grazed by adult stock later in the year.

Table 5. Grazing height targets for set stocking.

Stock class	Grazing period	Target height (cm)
All cattle	Turn out – May	5-6
Cows and calves	June onwards	7-9
Growing cattle	June - July	6-7
Growing cattle	Aug - Nov	7-8

Rotational grazing

Rotational grazing: Stock moved through a series of paddocks on a regular basis.

Under rotational grazing, the farm business benefits from the improved grass utilisation in various ways. For instance, some businesses might reduce their feed bill by carrying more pasture into the autumn and winter for an extended grazing season or reduce fertiliser use, whereas other increase stocking rate.

Table 6. The pros and cons of rotational grazing.

Pros	Cons
+ Increases pasture growth by allowing a rest period	- Requires planning and flexibility
+ Improves pasture utilisation	- Can increase labour requirement if not set up efficiently
+ Increases summer stocking rate	- Reduces animal ability to be selective which can impact animal growth rates
+ Increases output/ha	- Investment in water and fencing required
+ Provides opportunity to carry more grazing into the autumn to lengthen the grazing season	
+ Improves pasture quality in late summer and autumn	
+ Reduces weed burdens	

See: **FAS: Rotational grazing**

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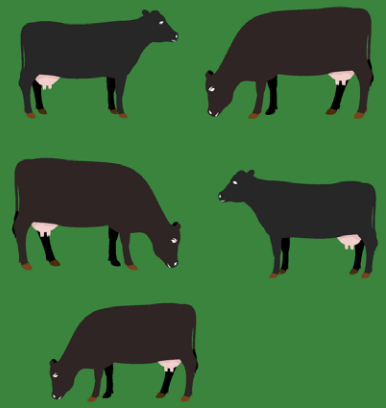
Rotational Grazing Beef Cattle



High stocking pressure - Small paddocks - Move regularly

Target in

Longer than 10cm?
Reduce rest

Lower than 10cm?
Increase rest

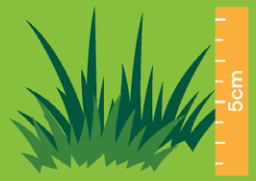
Rest period

- Be flexible
- Guide: 15–25 days in Spring/Summer

Paddock Size

- Depends on mob size
- Smaller is better
- Optimum under 3ha

Target out



Struggling to graze down?

Decrease paddock size or increase herd size

Guidelines for starters

Based on average summer grass growth, see guidelines below and adjust according to how well you meet the grazing height targets.

	Maximum group size	Guide numbers/ha	Area (ha)	Paddock size (ha)
Spring calving cows and calves	50	3	17	2
Autumn calving cows and calves	60	3.8	16	2
Growing cattle	100	4.5	22	2.8
Finishing cattle	80	4	20	2.5

Area and paddock size above is based on the maximum group size and a 24 day rotation, moving stock every three days.

Shift frequency

Move every one to three days

Test the concept

Split a field in half and move stock between the two halves

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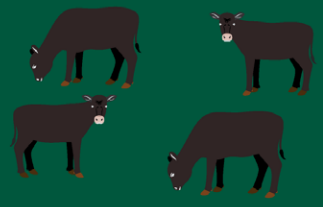
Creep Grazing Beef Cattle

Calves graze the quality grass ahead of the cows



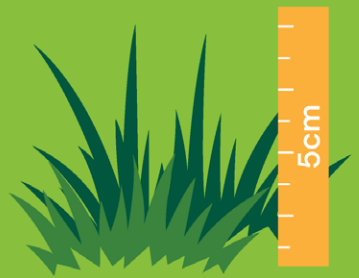
1-3 day grazing intervals
No barriers to line of sight

Target in

Fencing

- Single strand
- Wire at cow nose height >1m above ground

Target out



Rest period

- Consider cows only in calculation
- Guide: 15-25 days to start
- Be flexible - compare entry grass height with target:

Too short?	↑ Rest
Too long?	↓ Rest

Benefits

- Increase calve growth rates
- Manage pasture quality
- Reduce weaning stress

Or raise one post:

Beware, curious calves can knock the post and fencing down

Managing grass supply and demand

Where grass growth exceeds demand, typically in the months of May and June, it is important to adjust the grazing area to prevent a reduction in grass quality.

Maintaining pasture quality is key to achieving strong calf and growing stock growth rates.

Table 7: Troubleshooting too much or too little grass.

Excess grass	Too little grass
Take paddocks out for silage. This high-quality leafy silage is ideal for youngstock wintering to reduce supplementation requirements	Bring additional paddocks into the rotation to extend the time paddocks are rested
Bring more stock into the grazing rotation	Apply fertiliser if conditions are suitable and other aspects are not limiting growth for example low rainfall or soil pH
Mowing or topping the grass to improve quality (costly)	Supplement with silage, hay, or concentrates
Deferred grazing – shut up paddocks for grazing later in the season or winter	Wean calves from 155 days of age to reduce dam feed requirements (move calves to better pasture or give additional feed)
If it is a problem every year look at why this is happening	Reduce demand by selling cull cows and young stock earlier. Look to other grazing enterprises

The value of clover in a sward

Clover is key to Forage First Suckler Systems to promote stock performance and harness its nitrogen (N) fixation capabilities to reduce N fertiliser use. A 30% clover sward can fix 120-150kgN/ha per annum when soil fertility and conditions are optimal.

To maximise grassland productivity, retain desirable species, promote clover and nitrogen use efficiency, it is essential that soil fertility is maintained by ensuring the correct status of pH (target pH 6), phosphorus (P) and potash (K).

Test soils every 4-5 years and account for nutrients supplied from manures in the nutrient budget to make best use of organic manures and prevent over application of nutrients and expensive bagged fertiliser.

For more information on promoting and managing clover: **AHDB: Establishing and growing clover**

Multi-species swards

Consider incorporating multi-species swards including herbs such as plantain and chicory and additional legumes such as red clover and birdsfoot trefoil.

Irish SmartGrass trials[1] found a 13% increase in daily liveweight gain in heifers grazing a 6-species multi-species sward compared to both straight ryegrass and ryegrass and white clover swards. Whilst persistency of certain species may be limiting (2-5 years), such swards provide the opportunity to have a proportion of the farm under a highly digestible high-performance ley for growing or finishing cattle.

The deep rooting nature of species like chicory, red clover and plantain will also improve drought resilience and they require lower fertiliser usage than typical ryegrass swards.

Herbal ley grazing targets:

Stock in: 15cm

Stock out: 7cm

NB. The above is based on a low ryegrass content, with increasing ryegrass in the ley, the target heights reduce.

Sustainable parasite control

Effective worm, fly and fluke control is essential for stock performance and welfare. However, to be effective and sustainable in the long term we must limit risk of anthelmintic resistance.

1. **Faecal egg count (FEC) regularly to ascertain the need for worming, leave a proportion of animals untreated and carry out FEC reduction tests to understand anthelmintic resistance on farm. Speak to your veterinary practice for further information.**
2. **Reduce the worm challenge that the grazing stock are exposed to by avoiding grazing susceptible animals too tightly on grass that is less than 4cm.**
3. **Where possible, rotate the grazing ground between the sheep and cattle enterprises on an annual basis.**
4. **Quarantine and treat newly purchased animals to avoid bringing in worms.**

For more information: **Cows: Control of worms sustainably** and we recommend production of an in-depth health plan with your vet.

[1] Beaucarne, G., Grace, C., Shackleton, J., Kennedy, J., Sheridan, H. and Boland, T., 2021. 179 The Effect of Sward Type on the Performance of Co-grazed Cattle and Sheep. Journal of Animal Science, 99(Suppl 3), p.96.

Section 5: Autumn – Weaning

Weaning

The general guide is to wean calves at 175-200 days.

By 200 days of age, it is more efficient and better use of grazing resources to feed the calf directly with the best quality grazing.

Weaning before 155 days of age

From day 155, milk is contributing little to calf growth. Weaning could be considered if grass in short supply and high-quality pasture/feed is available for calves.

Weaning early will favour better cow BCS gain in time for winter, but exceptional calf nutritional management is required to avoid penalties to calf growth.

Wean light cows and heifers earlier than the rest of the herd..

Weaning after 200 days of age

Delayed weaning can reduce BCS/prevent gain but may benefit calf growth. This is an option if cows are fat and there is plenty quality grass available.

Late weaning reduces the number of groups on the farm, simplifying management. Some producers are delaying weaning through into February with calves wintered on their dams. For this, it is important that the calves have access to high quality forage to maintain their growth rates and limit cow condition loss.

Creep feeding of grain/concentrates from birth is not cost-effective for spring calving herds where pasture quality is high. It also doesn't fit in with regular moves on a rotational grazing system.

Cows post-weaning

Rotational grazing helps stretch pasture supplies further as grass growth is slowing. Prioritise high quality pasture for calves/growing stock.

Cows can be used to graze poorer quality pasture or tidy up paddocks behind growing stock if they are in good condition. Ensure that younger cows (1st calvers) and leaner cows are given better quality pasture if needed.

Rest period for grass must be dictated by grass growth: as grass growth slows into the autumn, the rest period must increase to continue to graze grass at the optimum 3-leaf stage. Use the target entry heights to judge whether rest period is correct.

General rest periods between grazings:

- **Spring: 15-20 days**
- **Summer: 25-30 days**
- **Autumn: 30-40 days**
- **Winter: 90-100 days**

Provided cows are BCS 3.5 or above then they can afford to lose 1 BCS before calving. This is a cost-saving opportunity to feed cows less when winter feed costs are high and can make forage crops/autumn grass/deferred pastures go further.

For farms with high clover, the mineralised nitrogen benefits grass growth and tillering into the autumn. Some may choose to apply nitrogen later in the year to stretch the autumn grazing further.

Pregnancy scan cows between 12 and 20 weeks after bulling and cull the empty cows. If the barren rate is over 10%, investigate with your vet.

Aim to go into winter with cows in good BCS. Give low BCS cows better pasture to gain BCS but consider whether they are suited to the system if they require additional attention.

Section 6: Winter – Extended Grazing and Wintering

Extending the grazing season – mitigating poaching

Regardless of the chosen wintering system, aim to extend the grazing season into the autumn as far as possible to reduce winter feed and housing costs.

Rotational grazing with cows allocated 1-3 day paddocks will make pasture go further.

Putting up a single electric wire to sub-divide into daily shifts for improved utilisation pays dividends:

- **Every day at grass saves £1.27 per cow in silage alone (see Table 1) for a 100-cow herd this amounts to £127 per day.**
- **On a straw-bedded court, a 100-cow herd will also use £18.30 in straw each day.**

Grazing management however must:

- **Minimise poaching damage.**
- **Prevent overgrazing, as this can affect spring pasture production.**

Poaching is impacted by grazing duration. Reducing grazing duration down to one day will help reduce poaching risk

Once poaching becomes an unavoidable issue then the farm's wintering system should commence.

For mixed sheep and cattle systems, there is also the consideration around how the two systems fit together when deciding on commencing the cattle wintering system. See **SAC: Forage first sheep systems.**

Photo Credit: Duncan Miller

Wintering systems

The wintering of a suckler cow can be the largest cost in a suckler beef system. Not only does this decision have a major impact on profitability potential but it also has the single greatest influence on land use in terms of planning and producing the winter forage (cropping, grassland).

The best wintering strategy accounts for an individual farm's constraints and strengths. It is a balance between costs per head, potential stocking rate, when feed is available and how much ground is required. Land type and weather have a major impact on whether outwintering practices are viable.

Stock must be kept off the main spring grazing platform through the winter, as they will graze pasture too hard leaving limited leaf area for the spring. The risk of poaching is also greater in the winter, resulting in yield loss and soil erosion.

Consider the impact of other farm enterprises: Research by the former West of Scotland Agricultural College found continuous sheep grazing from January to March reduced April grass yields by 40%. Wintering systems that enable pasture rest are important.

Cow Body Condition management for winter can lead to cost-savings, for example, see Table 8 below.

Table 8. Cost of winter silage feeding and value of utilising cow condition (when above BCS 3.5).

	Daily allocation (kgDM/ head)	Feeding period (days)	Cost per cow per day	Total Silage (t FW/cow)	Total cost per cow ***
Maintain BCS*	10.5	180	£ 1.26	6.3	£ 226.80
0.5 BCS loss**	9.5	150	£ 1.14	5.8	£ 208.80
Return to Maintenance	10.5	30	£ 1.26		
			Saving	**0.5**	**£ 18.00**

**700kg cows on maintenance, 95 MJ ME/day, 1.36% of bodyweight*
*** 700kg cow restricted to 84.5 MJ ME/day leading to 0.3kg loss/day, 1.21% of bodyweight*
****Silage at £36/t, 10 MJ ME/kg DM, 30% DM. Includes 10% waste.*
Numbers have been rounded for practical purposes.

Outwintering

Outwintering offers a substantial opportunity to reduce the cost of wintering cattle.

Choice of outwintering system will depend on the class of stock, farm location, facilities, soil type, weather, and other environmental considerations.

Ensure you have a contingency plan with reserved forage and alternative grazing sites for adverse weather conditions to prevent livestock hunger and maintain access to the herd. If the ground becomes excessively damaged, remove animals from the outwintering system.

On many farms, cows are outwintered and young stock housed. However, on farms where outwintering cows is not an option due to soil damage or land availability, outwintering of young stock, with lower poaching risk, could be considered.

Options include:

- **Forage crops.**
- **Deferred grazing.**
- **Bale feeding on sacrifice paddocks or feeding platforms.**
- **Bale grazing.**

See: **SRUC: Outwintering strategies for livestock**

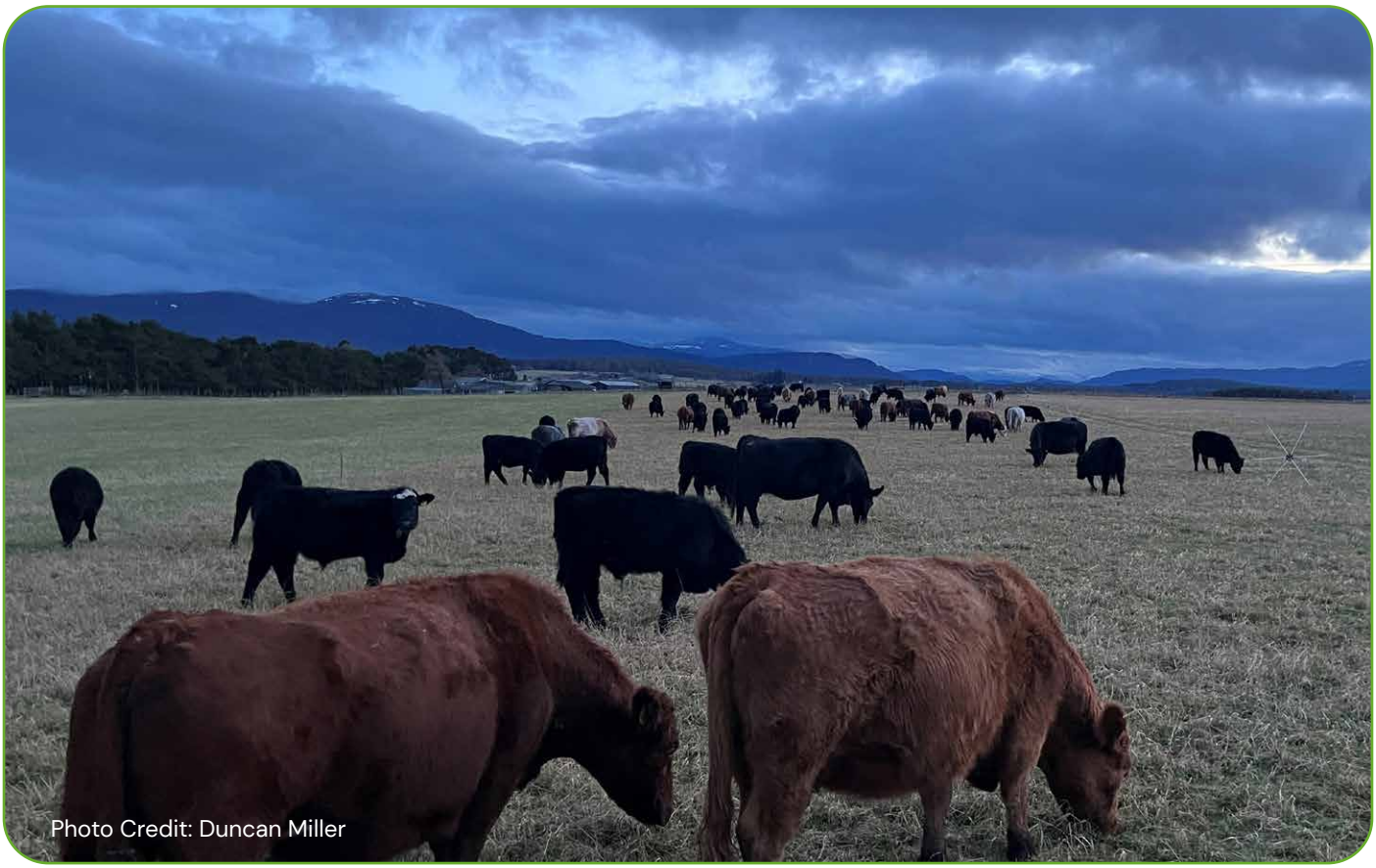


Photo Credit: Duncan Miller

Forage crops

Farm suitability (soil type, climate), growing season, grazing period (winter hardiness), cost and area required to be taken out of pasture (yield/ha) should be considered. Table 9 below outlines sowing and grazing dates for forage crops. Plan forage crops into reseeding programme as a break for grass-grass reseeds.

Adequate transition is essential to allow the rumen to adapt to the new feed. On crops such as fodder beet, a 3-week minimum period of gradual increased access to the crop is required due to high acidosis risk. On brassicas provide a minimum of a 10-day transition period. Inadequate transition management commonly results in cows loosing condition due to low feed intake.

Mineral supplementation is often necessary and additional health concerns (e.g., clostridial vaccination for fodder beet) will need consideration. Seek advice from your nutritionist and veterinarian.

To maximise utilisation and ensure a balanced diet, crops should be grazed behind an electric wire (one strand). The area of feed offered should be matched to the feed requirements of the grazing animals with an allowance made for wastage. It is essential to get an accurate estimation of crop yield and account for the variation in yield across fields as this will affect allocation. In wet weather, increase the allocation to account for greater waste.

Provide a **fibre source** (silage, hay, straw) at least 30% of the daily dry matter intake. Silage also provides additional protein which is often required with bulb crops if leaf is lost due to frost.

To **avoid machinery on wet fields** and reduce labour requirements, bales can be placed in the field in summer. Behind an electric wire, these can be unwrapped (silage) and fed out as the electric fence is moved.

Daily shift allocation and silage placement can be calculated to improve utilisation of feed and to ensure stock are performing as best they can.

See: **FAS: TN733 Forage crops for livestock**

Table 9. Typical sowing and grazing periods of different forage crops available.

Crop	Ready to graze after...	Jan*	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kale	22–30 weeks				Sow								
		Graze										Graze	
Stubble Turnips	8–13 weeks				Sow								
		Graze								Graze			
Rape / Hybrid Brassicas	10–12 weeks					Sow							
		Graze								Graze			
Swedes	25–30 weeks				Sow								
		Graze										Graze	
Fodder Beet	25–30 weeks			Sow									
		Graze									Graze		

**Crop suitability to graze from start of January onwards is dependent on the likelihood of frost on farm and crop species and variety. Frost tolerance from most to least tolerant: kale, swedes, fodder beet, hybrid brassicas, stubble turnips.*

Deferred grazing

Deferred grazing is the practice of setting aside (stockpiling) pasture in the summer to allow covers to build up (+15cm) for grazing in the autumn/winter.

Shut-off date influences yield but also feed value.

Option 1: Spring/early Summer shut-off.

- **Maximises yield.**
- **Low-quality feed sometimes referred to as 'standing hay'.**
- **Best suited to dry cows.**
- **Often practised on poorer quality hill ground.**

Option 2: Deferring pastures later in the season, mid-July onwards, following a summer grazing or silage cut.

- **Higher quality feed.**
- **Better suited to youngstock and thin cows.**
- **Lower yield.**

Deferred pasture can be supplemented with conserved forage or concentrates to improve nutrition if required and/or extend the grazing period.

Strip or paddock grazing behind electric fencing reduces wastage making the pasture go further into the winter. Bales can be placed prior to winter.

Deferred grazing is only suitable if soil type and rainfall are suitable for winter grazing without causing damage to the existing sward or soil.

Back fencing is beneficial if you would like to have the option of utilising some of the deferred land again in the summer months as it will result in a grass wedge of pasture with the benefit of some rest. Water and shelter need to be considered.

Mineral supplementation is often required, particularly on low-quality hill pastures.


SAC CONSULTING
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Bale Grazing
Winter cows in a field with bales
Use fields with the most shelter
Manure left around the bales; move bale sites annually to manage nutrient deposition.
Back fencing pros:
Pasture rest
Reduces poaching across the whole field
Back fencing cons:
Increases poaching risk on grazing break
Mobile water troughs required
Less practical
Less shelter options
Use electric fencing to allocate regular feed breaks
Do not site bales on steep ground or within 10m of watercourses
Pasture covers built up for additional feed and soil protection
Bales placed out in late summer
Plan to feed higher quality bales closer to calving
Field options:
Grazing/Silage fields - well drained farms only
Rough ground
Sacrifice fields due re-seed or cropping
Avoid gullies
Temporary leys using high yielding short-term grasses

Section 7: Target Key Performance Indicators

The key performance indicators (KPIs) listed below should relate to all production systems except for herd efficiency and calf growth, these KPIs are based on grass-based systems without creep feed.

KPI	Target
Barren rate	<10%
Calving rate (from cows bulled)	>90%
Cows calving in first cycle (3 weeks)	>65%
Cows calving in first two cycles (6 weeks)	>90%
Calf mortality birth to weaning	<3%
Calving assists	<2%
Replacement rate	<15%
Grass-based KPIs (without creep feed)	
Herd efficiency: Calf weight at 200 days relative to cow weight mated. (Number of weaned calves x 200-day weight ÷ number of mated cows and heifers x average weight at weaning)	>35%
Calf growth: Birth to 200 days	>1.1kg/day

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