

Forage First Sheep Systems



Introduction

Forage first sheep systems seek to optimise lamb production from pasture to minimise costs. Inputs (nitrogen fertiliser and feeds) are strategic tools, not standard practice.

This results in:

- **Low feed cost per ewe**
- **Low labour requirements**
- **Strong ewe and lamb performance off grass**
- **Cost-effective lamb finishing**
- **High utilisation of grazing resources**
- **Reduced fertiliser inputs relative to output**
- **Improved profitability**

This is achieved through:

- **Rotational grazing to optimise pasture utilisation and quality**
- **Outdoor lambing**
- **Appropriate lambing date to better match flock nutritional demand with pasture growth**
- **Spring grazing management**
- **Identifying the most cost-effective wintering systems**
- **Effective autumn and winter pasture management to promote spring pasture growth**
- **Appropriate genetic selection and breeding strategies**
- **Good grassland management for optimal grass yield**
- **Flexible stock management including weaning date and grouping**
- **Effective management of ewe body condition**



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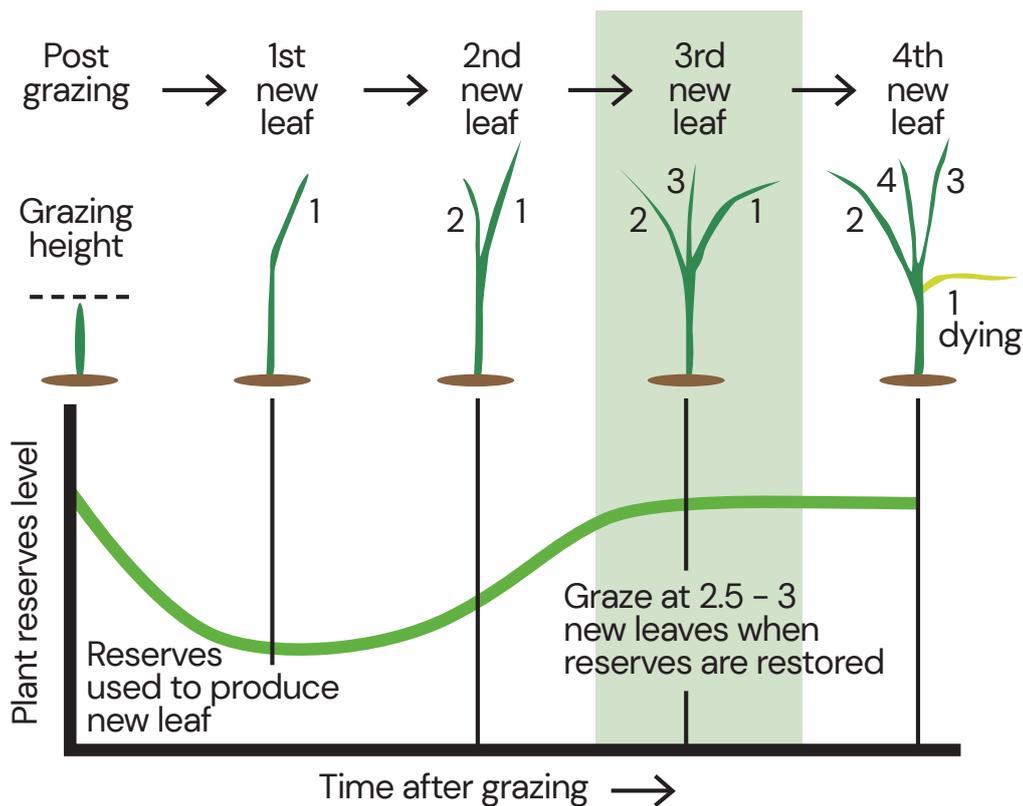
Section 1: Making more from pasture

Grazing management principles

Pasture can meet the nutritional requirements of the ewe at all stages of production including late pregnancy and lactation without the need for supplementation with concentrate feeds.

Pasture is highly variable in its growth and quality. It is influenced by climate and seasonal temperature but also by its management. It is important to understand some key principals to optimise its use:

- 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.



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- 2. Target grass heights:** Grazing too low (less than 4 cm) will impact regrowth, whilst allowing grass to go above 8–10 cm will lead to reduced quality through 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. 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/early June) to 30 days (winter).

A good starting point in spring and summer is to target a 21-day rest period, with the opportunity to shorten this during high grass growth periods. This rest period should increase with decreasing grass growth to 90 days in the winter.

- 4. 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 per hectare (kg DM/ha) – we know how many kg DM a ewe requires per day at different stages, we cannot use centimetres for this purpose.



'How many tonnes of feed do you have in a field? This can be measured using tools such as a sward stick or plate meter'.



Grass Height (cm)	Kg DM/ha (summer)	
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 lambing date

Reduce reliance on concentrate feeding by matching grass growth with periods of high nutritional demand – late pregnancy and lactation.

The figure below shows the impact of different lambing dates on feed demand for a generalised Scottish farm growing 6.4tDM/ha per year with an average annual stocking rate of ten ewes per ha (based on 70kg ewes).

- **March lambing requires supplementation through late pregnancy and early lactation.**
- **April lambing coincides the increasing grass growth with the point of lambing meaning minimal supplementation is required during lambing or lactation.**
- **May lambing also coincides sufficient grass growth to meet late pregnancy demand with less 'risk' in years of poor grass growth. However, the trade-off is that livestock demand is higher in the Autumn. This puts greater pressure on the farm to keep pasture for the breeding flock.**

Grazed Grass: Supply and Demand

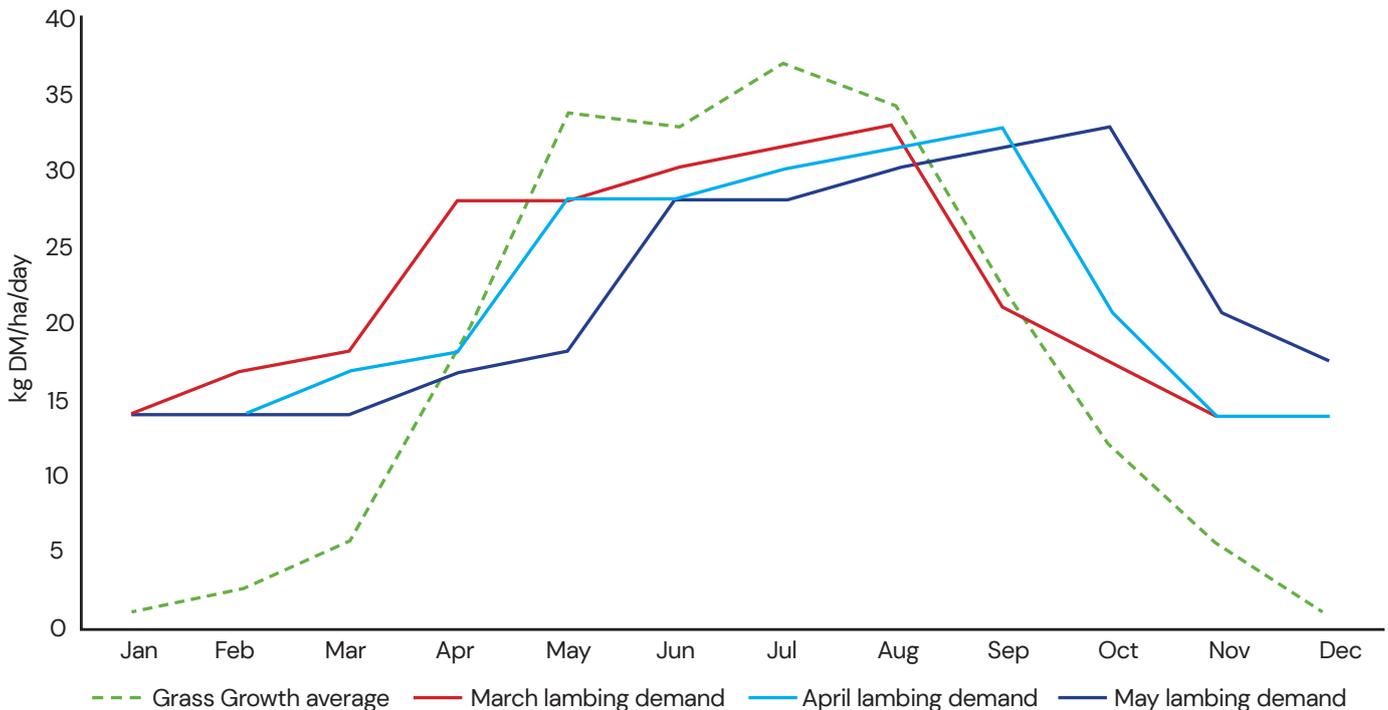


Figure 1. Grass supply and livestock feed demand depending on lambing date.

Section 2: Genetics and selection

Genetics for low cost, low labour and high performance

Key aspirations:

- **Moderate ewe weight, functional maternal genetics and high performance easy fleshing terminal sires.**
- **Optimal production off a pasture-based system with minimal input of feed and labour.**
- **Performance and functionality, not just aesthetics.**

There must be balance in the breeding programme. High selection for terminal traits within the ewe line, although beneficial for growth and carcass, can be detrimental to maternal and functional traits and lead to greater ewe mature weight. Maintaining a moderate mature weight (60–75kg) will help to optimise stocking rate and ewe efficiency and reduce feed inputs. Select genetics with good constitution, ability to hold and regain condition when grazed at high intensity with low supplementation.

Ewe weight (kg)	Pasture allocation (kgDM/hd/d)	Pasture supply (kgDM/ha/d)	Available pasture 70% (kgDM/ha/d)	Potential stocking rate (ewes/ha)
60	1.8	22	15.4	8.6
80	2.4	22	15.4	6.4

Pre-tupping ewes fed to gain condition at 3% of bodyweight. Pasture supply – 15kgDM/ha/d growth + 7kgDM/ha/d from pasture bank built up during summer.



Consider your target rearing percentage and optimal scanning percentage

Aim for ~170–200% scanning result – higher scanning results in more triplets which require additional resources.

Minimise lamb mortality and breed for suitability for outdoor, low intervention lambing – select appropriate breeds, purchase stock from breeders who are selecting for lambing traits and purchase tups with high Estimate Breeding Values (EBVs) for lamb survival, lambing ease and lamb vigour where available.

Target finishing lambs at 16–21kg R3L or better. Prioritise growth rates and target a moderate fat covering when selecting sire breed. Lambs need to be sold as soon as possible to maintain sufficient grass for the breeding flock and avoid impacting the spring grass supply.

Focus on maternal genetics

For example, for a 100 ewe flock at 150% rearing you can gain:

30% more U grade lambs = 45 lambs x 20kg carcass @ 10p/kg premium = £90

Or

2% more live lambs = 3 lambs @ £70/hd = £210

Number of Lambs reared is a key driver of profitability

Achieve breeding goals by considering breed choice, EBVs when selecting tups, crossbreeding for hybrid vigour and in-flock selection. Purchase stock from breeders that are running their stud flock under similar conditions to your own and who are applying selection pressure for functional traits.



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In-flock breeding selection

Running a self-replacing flock is highly valuable to reduce bio-security risk and replacement costs. It provides greater control over genetics and facilitates within flock selection.

Develop an 'A flock' of the best maternal ewes for breeding replacements and a 'B flock' that are put to terminal sires. Consider how these ewes are to be identified if one breed type and run as one flock - coloured tags, ear marking or Electronic Identification (EID).

Use EID, coloured tags or marking to identify problem genetics. At lambing time identify those with poor lamb vigour, lambing difficulty, poor maternal behaviour and high/low birth weight to inform culling, ewe lamb selection and 'B flock', demotion later in the year.



© credits: Charley Walker

This selects for functional low intervention genetics and improved lamb survival in outdoor lambing situations. See: [FAS TN747 Lambing Trait Selection](#)

Grazing singles and twin rearing ewes separately to weaning is useful to identify the twins for replacements. EID tagging of lambs at birth could be considered in the 'A flock' ewes and ewe lambs to identify those lambing and rearing twins and reaching heaviest weaning weights.

Produce flock Key Performance Indicators (KPIs) and benchmark performance to previous years and similar flocks. Use results to influence breeding and management decisions and priorities. See: [AHDB Sheep KPI Calculator](#)



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Section 3: Autumn Management

Body Condition Scoring

Achieving target condition scores is influential to scanning percentage, rearing percentage and ewe mortality.

Teagasc research has shown that adding one condition score at mating time, between 1.5 and 4, is worth 10% more lambs reared.

Understanding how to body condition score (BCS) is the simplest and quickest tool to assess whether ewes are fed correctly and whether management intervention is required.

Description of BCS technique: **FAS TN702 Body Condition Scoring of Mature Sheep**

Drafting ewes on BCS and managing feeding accordingly helps optimise ewe performance and target best pasture or supplementary feed for those that need it. Fat ewes can be put on poorer quality grazing.

Condition score ewes from weaning to tupping to get them on track to BCS 3.5 (lowland) at tupping and scanning. Those under target BCS 3–3.5 need priority management. The more you monitor ewe condition the better – it reduces the BCS range in the flock and helps validate feeding and management.

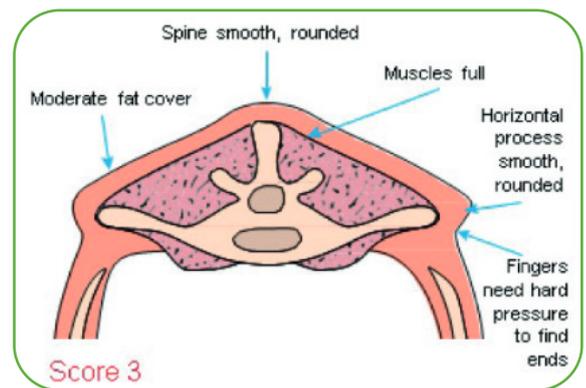
One BCS is equivalent to 10–13% of body weight; for a 70kg ewe one BCS is worth 7–9kg. On good quality pasture budget on 8 weeks to regain one BCS. If tupping start date is the November 15th this would mean September 20th is the latest you should start management of lean ewes to achieve one BCS gain.

BCS ewes every 3 weeks to re-adjust groups, optimise BCS gain and pasture use.

If thin ewes fail to gain 0.5 BCS in 4 weeks post weaning, then investigate health and consider culling.

The breeding flock must be prioritised. If grass supply is an issue, sell store lambs or supplement feeding with creep or forage crops.

Target having >70% of lambs sold by tupping.



Tupping

It takes 8 weeks to produce sperm so tups must be inspected 12 weeks before turn out so that they have sufficient time to gain condition and remedy any ill health.

A compact lambing period improves grazing allocation, tightens lamb finishing and improves labour efficiency at lambing. Keep the tupping period to two cycles: 34 days. Do a tup MOT, which detects 90% of problems, consider going a step further by getting tups semen tested.

Tups bred on forage-based systems can comfortably serve 80-100 ewes and live longer, this reduces tup cost per lamb, see table below.

Table 2. Tup cost per lamb (£) based on number of ewes served and tup longevity.

Number of mating seasons per tup	Number of ewes mated per tup			
	40	60	80	100
1	£9.17	£6.11	£4.58	£3.67
2	£4.58	£3.06	£2.29	£1.83
3	£3.06	£2.04	£1.53	£1.22
4	£2.29	£1.53	£1.15	£0.92
5	£1.83	£1.22	£0.92	£0.73

**£550/tup, 150% rearing rate per ewe.*



Golden 20 days

Move ewes to fresh pasture regularly for 10 days before and 10 after the tups go in to optimise nutrition and boost scanning. The aim is to maximise dietary energy: target grass height at 8cm on entry and 6cm on exit of the tugging paddocks.

Provided ewes are in target condition, there is no need to graze high quality grass from six weeks pre tugging (flushing). Rotate ewes through tugging and allocate pasture to maintain condition. This will conserve more pasture for post-tugging and winter feeding.

It takes 19 days for the embryo to attach to the uterine wall so minimise stress, avoid dietary changes and BCS loss for the first 45 days from the start of tugging.

Mineral and vitamin supply is influential to fertility. However, certain approaches can be costly and over-supplementation of minerals such as iodine, copper and selenium can be detrimental. Test bloods, forage and soil to gauge likelihood of mineral deficiencies and develop an appropriate supplementation strategy with an independent nutritionist.

Autumn grazing management

Dry ewes should be rotationally grazed in large mobs to:

- **Maximise utilisation (65–80% compared to 50% under set stocking) of limited autumn pasture to extend grazing season and reduce wintering costs.**
- **Graze pasture evenly to tight residuals so to reset pasture quality for next spring. Stagger the final grazing of fields going into winter. Shut off the lambing fields first to provide 90–120 days of rest to maximise spring grass production.**

Carry out a feed budget by calculating requirements and available grazing including an Autumn grazing plan for field shut off. See: [AHDB Planning Grazing Strategies for Better Returns](#)



The transition to the winter-feeding system

45 days post tup introduction to the ewes the flocks should be transitioned from their high-quality grass feeding to the winter-feeding system: forage crops, silage or paddock grazing.

During this time, the placenta is growing which influences lamb development and birth weight. Feed ewes to maintain or gain condition; only ewes greater than BCS 4 can be permitted to lose condition, and this should be no more than half a BCS.

Make valuable autumn and winter pasture go further by rotational grazing and feed budgeting.



Table 3. Pasture allocation and available grazing days on set stocking or rotational systems.

Grazing system	Intake (%BW/d)	Intake (kgDM/d)	Pasture utilisation	Allocation (kgDM/d)	Grazing days for 500 ewes on 50ha	Additional grazing days
Set stocking	4 (appetite)	2.8	50	5.6	18	
Rotational	2* (requirement)	1.4	70	2	50	+32 days

**70kg ewe at target BCS 3.5 fed to maintenance. Pasture cover 8-10cm (2500kgDM/ha).*

Feeding in mid-pregnancy is cheaper than feeding in lactation – monitor grass supplies, ewe condition and ensure pasture is rested for optimal spring growth.

Do not be tempted to graze pasture too hard, continuously or graze any potential Jan-Feb regrowth as this will impact grass availability in the spring.

Research by the former West of Scotland Agricultural College found continuous sheep grazing from January to March reduced April grass yields by 40%.

Breeding ewe lambs?

Breeding ewe lambs provides the opportunity to increase flock output without adding much cost. Sufficient quality pasture in the summer should determine whether this is a viable practice for your farm. Ewe lambs should be 60% of mature weight at tugging. Do not breed those underweight. Light ewe hoggs are more likely to experience lambing difficulty, produce lighter lambs and may perform poorer as gimmers than those managed to target weights.

Consider running a teaser with ewe lambs (at 1:80 teaser to ewe ratio) for 14 days pre-tugging. Teased hoggets come into heat within 10 days of entire ram introduction as there is a synchronising effect of teasing, add another 17 days to catch the repeats and you can shorten the mating period to 27 days so the ewe hoggets lamb in a month. Breeding 20–30% more hoggs than required allows selection for fertility – those that hold in first cycle (17 days).

Ewe lambs must be fed to achieve growth rates shown in Figure 2 to meet target weight at lambing of 75% of mature weight. They require 20% more energy than mature ewes to achieve continued growth but feed to maintain weights from 6 weeks pre-lambing to avoid lambing difficulty. Select an easy lambing sire breed and utilise Lambing Ease EBVs where available. Good quality grass >4cm will meet all requirements of pregnant ewe lambs.

Remove a twin unless exceptional quality forage (e.g., herbal leys) is available or ewe hoggs are supplemented in early lactation and lambs creep fed, otherwise they will be more prone to mastitis and poor performance. Consider creep feeding hogg lambs unless on quality grass of 6cm or on mixed species pasture. Wean at 10–12 weeks to allow plenty of time for hoggs to recover and grow. Make ewe hoggs a priority stock class in late summer.

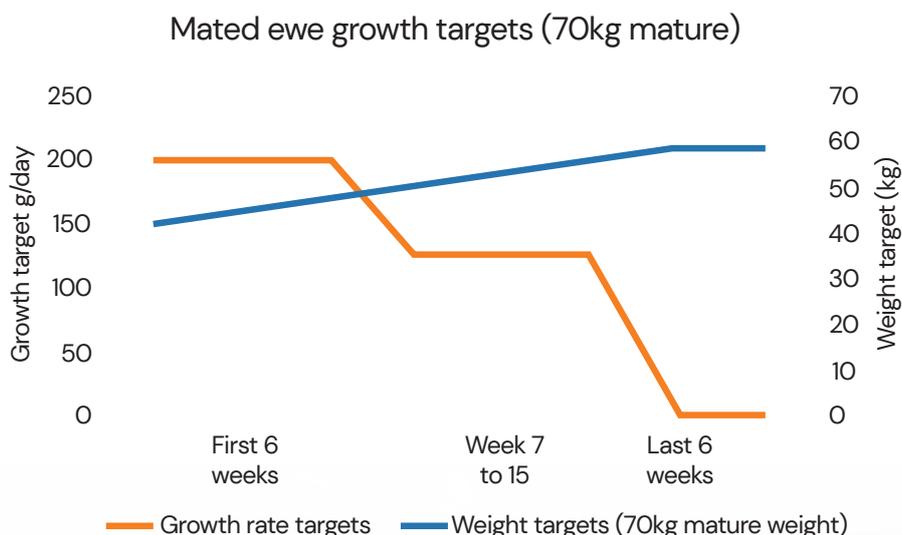


Figure 2. Weight and growth rate targets for breeding ewe lambs.



Section 4: Wintering options

Wintering systems

The best wintering strategy accounts for individual farms constraints and strengths. It is a balance between cost per head, potential stocking rate, when the feed is available (Figure 1) and how much ground is required.

Stock must be kept off the main grazing platform through winter, even if supplemented, as they will graze the pasture too hard and leave limited leaf area for photosynthesis in spring.

With effective grassland management, supplementary winter feeding on most farms can potentially be limited to an 8/10-week break of forage crops/silage between high intensity grazing early pregnancy and a pre-lambing rotation.



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Silage

Average quality silage of 10.5ME and >11% CP alone can meet the nutritional requirements of single bearing ewes to 4 weeks-, twin bearing ewes to 6 weeks- and triplet bearing ewes to 8 weeks pre-lambing. However, after this point, concentrate feeding is required at high cost.

The production of high-quality silage >11ME provides the opportunity to significantly reduce concentrate requirements. Table 4 below shows that through feeding twin bearing ewes high quality silage it is possible to save £3.25/ewe (13kg) or £1,950 (7.8t) for a 1000 ewe flock with a 60% twinning rate through reduced concentrate requirements.

Table 4. Concentrate feed requirements for twin bearing ewes pre lambing.

Silage quality	Weeks from lambing (kg per ewe per day)				Total concentrate per ewe (kg)	Cost £/hd*	Cost for 600 twin ewes (£)
	6	4	2	10d mid-point			
Average 10.5ME	0.2	0.5	0.65	0.65	25.4	6.35	3,810
High >11ME	0	0.2	0.4	0.4	12.4	3.10	1,860

*Concentrate feeding at £250/t.

Aim to produce at least 6 weeks of high-quality silage for late pregnancy feeding to reduce supplementation costs. See: [FAS TN748 Strategic Silage Production For Sheep Systems](#). On very high-quality silage it is possible to reduce supplementary concentrates further to just a source of high quality Digestible Undegradable Protein (DUP). Consider how to feed without causing soil damage or giving ewes access to the main grazing platform – feed on rougher ground, feed pads, dedicated wintering ground, sacrifice fields to be reseeded or indoors where applicable.



Forage crops

Farm suitability (soil type, climate), growing season, grazing period (winter hardiness), cost and the area required to be taken out of pasture (yield/ha) should be considered. Table 5 below outlines sowing and grazing dates for forage crops. Plan forage crops into re-seeding programme to provide a break for grass-grass reseeds.

Often mineral supplementation is necessary – seek nutritional advice.

Transition onto forage crops over a 10-day period gradually increasing the proportion of crop in the diet. Brassica and root crops are generally only fed for up to 3 months. For more information:

[FAS TN733 Forage Crops for Livestock](#)

Table 5. 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	Graze			Sow							Graze	
Stubble Turnips	8-13 weeks	Graze			Sow					Graze			
Rape / Hybrid Brassicas	10-12 weeks	Graze				Sow				Graze			
Swedes	25-30 weeks	Graze			Sow							Graze	
Fodder Beet	25-30 weeks	Graze		Sow							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.

All-grass wintering

Rotational grazing can be done through the winter to meet the flock's pregnancy demand entirely. It is important that this rotation starts with the lambing fields and those fields are not returned to until at least March to avoid impacting spring pasture production. Minimum 5kgDM/ha/day grass growth required over winter.

Suits systems with a higher ratio of cattle: sheep as cattle are off the grazing platform early Autumn thus reducing demand on pasture over winter.

For more information: [AHDB All Grass Wintering of Sheep](#)

Table 6. Summary of wintering system cost.

Winter crop option	Feed cost (£/ha) ¹	Typical yield (tDM/ha)	Cost (p/kgDM)	Ewes wintered (number/ha for 75 days) ²	Total cost (p/ewe/day incl. silage)
Swedes	536	9	6	90	12
Kale	451	9	5	90	11
Stubble Turnips	270	4	6.8	40	13
Hybrid Brassicas	321	5	6.4	50	13
Fodder beet	772	17	4.5	170	10
Silage	796	10	8	71	15
Rotationally grazed grass	47			10	4

¹Forage crop cost (£/ha) – adapted from FAS TN733 Forage Crops for Livestock. Assumes full tillage. Costs can be reduced through direct drilling.

²Budgeted for 70kg ewe consuming 2% of body weight in DM. Forage crops accounting 70% of intakes supplemented with silage. 75% utilisation.

Section 5: Preparation for lambing success

- **Scan the flock**, ~70–90 days post tup introduction, and split into groups based on number of lambs carried and manage feeding accordingly.
- **Condition score ewes and preferentially feed thin ewes** by putting them in with the higher litter size mob, for example thin twin bearing ewes with the triplet bearing ewes.
- Flocks with issues of prolapse should **consider taking triplet bearing ewes off root crops** at pregnancy scanning.
- Whilst preferential feeding of thin ewes is recommended to optimise ewe performance, it comes at additional cost. **Record the tag numbers of these ewes**, 'B mob' and consider culling if requiring preferential feeding the following year.
- **Consider separating early (1st 10 days) and late lambers** based on raddle colours from tupping or by scanner judgment. This can mean late lambers stay on winter feeding to delay stocking on pasture to reduce grazing pressure early spring.

Separating out late lambers in a 1000 ewe flock scanning at 180% on an average quality silage and concentrate feed ration with 50% of ewes lambing post 10 days would save ~3t of concentrate feed worth ~£750.

Investigate with your vet if barren rate is above 2%. Cull barren ewes or at least record tag numbers so that any twice barren can be identified and culled. Demote to 'B flock' along with repeat single bearing ewes.

It is essential to maintain ewe BCS from scanning to lambing so as to minimise ewe metabolic problems, maximise lamb vigour and survival and promote ewe colostrum and milk production.

Beef and Lamb New Zealand study on ewe BCS:

- **For every ½ BCS below BCS 3 at lambing, lamb survival decreases by 5% and lamb weaning weight by 6%.**
- **For every ½ BCS lost over winter, lamb weaning weight decreases by 6%.**
- **For every ½ BCS lost in 4 weeks before lambing, lamb survival decreases by 5% and lamb weaning weight by 4%.**



Pre-lambing

Pre-lambing rotation?

Grazing fields in March will reset pasture quality, promote tillering and improve spring grass growth.

Ewes graze off winter dormant leaf which stimulates grass growth.

Provided there is a minimum of 6cm across the platform, then graze fields in rotation down to a residual of 3–4cm. See table 7, one ha will feed 160 ewes for one day. Target a 30–rest period before next grazing. This means lambing fields must be grazed first to provide time to regrow.

If March temperatures are lower than average, or ground conditions are poor, then do not graze lambing fields. Feed, graze elsewhere or keep on forage.

Table 7. Feed budget for late pregnancy feeding of pasture.

Allocation late pregnancy (%BW)	Allocation (kgDM/hd/d)	Available pasture (kgDM/ha)	Utilisation (%)	Utilised pasture (kgDM/ha)	Number of ewes per ha per day
2.5	1.75	400	70	280	160

Pre-lambing rotational grazing is an opportunity to meet the twin bearing ewe demand from grazed grass alone. This can lead to very substantial savings in concentrate costs. If concentrate supplementation is required, prioritise this feed for triplets over twins.

Consider flock metabolic profiling, blood sampling, ewes 3–4 weeks prior to lambing to assess whether nutritional demands are being met, particularly if the flock is new to a feeding system. Grass starts to grow when soil temperature at 10 cm depth exceeds 5°C for 5 consecutive days.

Provided temperature and ground conditions are correct and if farm covers are averaging less than 4cm 1,500 kg DM/ha then nitrogen (N) fertiliser in March would be recommended.

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 N is required.

Outdoor lambing

Outdoor lambing provides the opportunity to lamb ewes without concentrate feeding and reduce labour requirements, and cost. 600–1200 ewes can be managed per person outdoors.

Ewes should be set stocked at least 7 days pre-lambing to allow them to settle and choose their birth site. Stocking rate depends on grass availability but as a rule of thumb on good covers and grass growth rate (>25kgDM/ha/day):

- **Singles: 10–11 ewes/ha**
- **Twins: 8–9 ewes/ha**
- **Triplets: 6–7 ewes/ha**

If pasture growth is limited, as it may be in certain years or on many farms in April (<15kg DM/ha/d), then spread ewes thinner at 4–6 ewes/ha or consider supplementation.

Key considerations for outdoor lambing

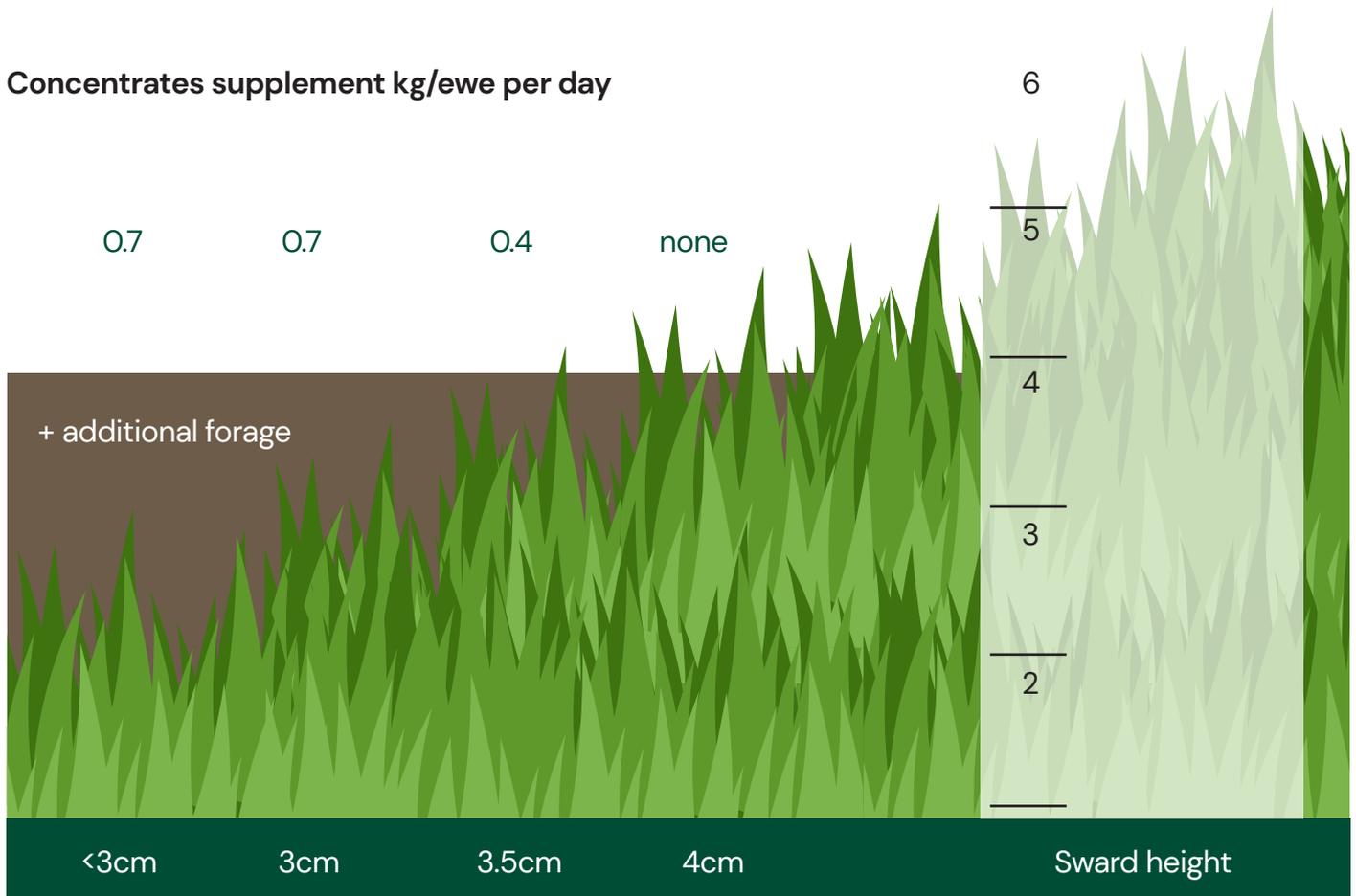
- **Group size:** Increasing mob size has a negative impact on lamb survival due to mismothering, aim to have <30 triplet bearing ewes per group and <50 twins per group. Single bearing ewes can be stocked in larger groups.
- **Lambing fields:** Choose fields wisely considering shelter, grass covers and quality, water access and risks such as ditches. Prioritise the best fields in this regard for triplets, then twins and lastly singles.
- **Grazed grass quality:** Fresh leafy spring grass is a very high-quality feed (>12ME, >18% CP). Provided there is 4cm (1,500kgDM/ha) or above, then ewe nutritional demands can be met in late pregnancy and lactation without concentrate feeding. Consider feed buckets as an insurance for triplet bearing ewes.
- **'Drift lambing'?** Ewes can be set stocked on the same field for the duration of lambing or 'drifted' out into neighbouring fields once lambs are 1–2 days old. This reduces grazing pressure in the lambing fields and provides newly lambed ewes access to fresh grass. Alternatively, ewes that are yet to lamb can be drifted out. This option is perhaps best for single bearing ewes.



When to feed...

Maintaining covers at or above 4cm is essential to meet ewe nutritional demand, if below then ewes should be supplemented. At pasture covers of 3.5cm then supplement with 0.4kg of concentrates or 2kg root crops. It is well worth supplementing as failure to do so will impact performance, but also further impact grass growth and delay "magic day" – when pasture growth exceeds daily stock demand.

Consider feed blocks or fodder/swedes instead of pelleted concentrates to ewes with lambs to reduce mismothering. Consider whether lambing date is appropriate, perhaps it should be moved later next year.



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Section 6: Management through lactation

Summer grazing strategy

Summer rotational grazing ewes and lambs:

- ✓ Provides the opportunity to increase summer stocking rate
- ✓ Increases output per ha
- ✓ Improves grass utilisation
- ✓ Improved control over pasture quality late summer and autumn
- x Reduces stock ability to be selective when eating
- x Can result in lower performance per lamb

Lower lamb performance under rotational grazing can be mitigated by not grazing below 5cm and following with cattle. Winter carrying capacity determines summer stocking rate potential, unless stock can be brought on for summer grazing. Rotational grazing helps grass go further in poor grass growing years.

See: [FAS Rotational Grazing](#)

Set stocking guidance

Maintain pasture height between 4–6cm. Exceeding 6cm will result in a loss of pasture quality with a build-up of stem and dead material; this impacts late summer and autumn pasture quality for finishing lambs or putting condition on ewes. Active pasture management is still required. Adjust stocking density, e.g. take out fields for silage or deferred grazing, based on pasture height or top.



Rotational grazing

Rotational Grazing

High stocking pressure - Small paddocks - Move regularly

Target in



Longer than 8cm?
Reduce rest

Rest period

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

Lower than 8cm?
Increase rest

Paddock size

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

Target out



Struggling to graze down?
Decrease paddock size or increase stock numbers

Leader-Follower?

- Graze no more than two paddocks behind

Suggested start

- Create 8 smaller paddocks (2-3ha)
- 200-250 ewes and lambs
- Graze over 3 days
- Provide 21 day rest period

Alternatively

Split a field in half and move stock between each half

Managing grass supply and demand

Where grass growth exceeds demand, typically in May/June, it is important to adjust the grazing area to prevent grass going to head and reducing pasture quality. Maintaining pasture quality is key to achieving strong lamb growth rates.

Excess grass in the rotation:

- **Take paddocks out for silage. This high-quality leafy silage is perfect for ewes in late pregnancy.**
- **Bring more stock on rotation. Ideally with lower feed demand to follow main group e.g. cows or ewes with singles.**
- **Mowing or topping.**
- **Deferred grazing – shut up paddocks until late summer/autumn and graze with dry ewes or cows.**

Too little grass in the rotation:

- **Bring additional paddocks into the rotation to extend rest period.**
- **Apply fertiliser if conditions are suitable and other aspects are not limiting growth, e.g. low rainfall.**
- **Feed concentrates or silage.**
- **Wean lambs from 10 weeks of age to reduce ewe feed requirements.**
- **Reduce demand by selling cull ewes or lambs as stores.**



Promoting lamb growth rates on rotational systems pre-weaning

Managing residuals throughout lactation will influence the grass quality later in the year, see figure below to understand how residuals should be managed to balance **future pasture quality and productivity** and **animal performance** according to the time of year.

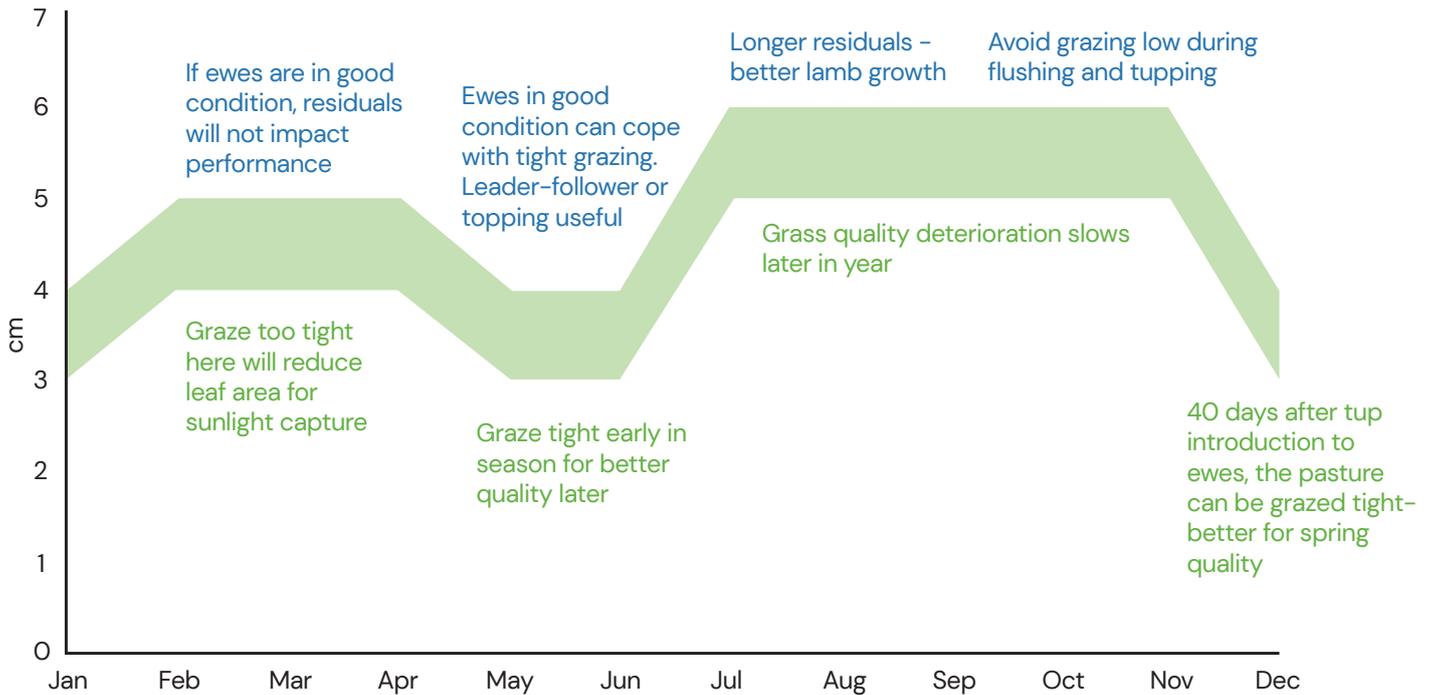


Figure 3: Grazing residuals for good lamb performance.

Monitor lamb growth rates. Assess whether lambs achieved an 8-week target of >20kg (>320g/d) and whether they are on target to achieve 30kg (>240g/d) by 13 weeks. If lamb growth rates are below 200g/d then wean provided they are over 25kgs.

Value of clover and multi-species swards

To optimise grassland productivity, retain desirable species, promote clover and nitrogen use efficiency it is essential that soil fertility is maintained in terms of phosphorus (P), potash (K) and pH status (target pH 6). Maintain a strict 4-year soil testing programme. Incorporate manures in the nutrient budget to prevent over application of nutrients.



Clover should form a key component of pasture swards on low-cost systems to harness its N fixing capabilities, reduce N fertiliser and promote livestock performance. A 30% clover sward can fix 120–150kgN/ha per year providing the opportunity to cut summer N applications whilst maintaining productivity. Increasing low clover content swards to 30% clover can increase lamb growth rates by as much as 25%.

For more information on promoting and managing clover:
[AHDB Establishing and Growing Clover](#)

Consider incorporating multi-species swards including herbs such as plantain and chicory into the grazing strategy. The Irish SmartGrass project found a 2.4kg increase in lamb weaning weights on a 6-species sward compared with grass only swards. The multispecies sward also achieved a higher yield on a lower N fertiliser rate.



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. This can be used for effective finishing of lambs or priority stock such as triplet rearing ewes to reduce costs of rearing orphan lambs or creep feeding.

Getting on top of lameness

Effective disease control supports good livestock productivity but also reduces veterinary costs through prevention.

Adopting a strict lameness control protocol can lead to lameness incidence below 2%. Rapid and effective treatment is essential.



- **Cease foot trimming.**
- **Record and cull 'repeat offenders' that are lame twice in a season.**
- **Separate lame ewes from the flock to reduce disease spread.**

For more info: [FAS The Five-Point Plan for Tackling Lameness in Sheep](#)

Reducing parasite challenge

Effective worm and fluke control are essential, but to be effective and sustainable in the long term we must aim to limit selection for anthelmintic resistance. Faecal Egg Count (FEC) to ascertain need for worming, leave a proportion of animals untreated and carry out FEC reduction tests to understand anthelmintic resistance on farm. FEC EBVs are also available in certain breeds allowing selection for genetic resistance to worms.

Consider mapping the grazing platform based on worm challenge and use this to forward plan grazing. Fields grazed by lambs earlier in the year or during the previous year are high risk for high worm burdens. Low challenge grazing can be created. The example below is for Barnside Farm, with thanks to Andrea and Charley Walker. The equal feed demand of the cattle herd and the sheep flock enables one part of the farm to be free of sheep for a year. Furthermore, the lambs go onto silage aftermaths at weaning which is ungrazed earlier in the season.



For more info: [SCOPS Sustainable Worm Control Strategies for Sheep](#)

Develop an in-depth disease control plan with your vet covering the above alongside other key diseases such as clostridial infection, contagious ovine digital dermatitis (CODD), abortion and the 'iceberg' diseases.

A strict quarantine procedure, minimum 30 days, is essential for all bought-in stock to mitigate the risk of 'buying in' disease. Consider the bio-security threat of away wintering and that of neighbouring flocks.

Lamb weaning management

Weaning date is one of the key management tools for a low-cost sheep system as it can be used to influence lamb growth rates, ewe BCS and allows more strategic grazing resource allocation.

Lambing start + 10 days = estimated average birth date



Weaning date must be flexible. However, after 14 weeks of age, lamb milk intake is negligible, and the lambs are competing with ewes for pasture. Generally weaning at 12–13 weeks of age is a good guide.

Early weaning? They can be weaned from 8–10 weeks of age. Assess:

- **Ewe body condition score.** If ewes are lean (<2.5 BCS), then weaning earlier will provide more time for ewes to regain condition before next tugging.
- **Pasture quantity.** If grass growth is poor, then consider weaning. Once weaned, ewe intakes can be restricted to free up more grass for lambs. This is valuable during drought conditions.
- **Pasture quality.** If quality has depleted on the grazing platform, then consider weaning. Lambs can be moved to better quality pasture or rotationally grazed on the same ground with ewes or cows cleaning up residuals.
- **Lamb growth rates.** If lambs are growing less than 150g/day, they may benefit from weaning.

Late weaning?

If ewes are fit, lambs are achieving target growth rates, pasture quality and quantity is good then delay weaning until 14 weeks. Consider delaying to 16 weeks for well grown singles. This would increase sales of lambs pre-weaning. Lambs with adequate fat can be drafted for sale above 38kg pre-weaning as killing out percentage is often higher.

Weaning causes stress for lambs which in turn impacts growth rates. This is further compounded where lambs are moved to a new diet, new environment or exposed to other stresses.

- **Keep the lambs in the same field, move the ewes**
- **Avoid any dietary changes immediately after weaning**
- **Introduce lambs to any new feeds a week pre-weaning**
- **Don't vaccinate or drench on the day of weaning**



Section 7: Lamb finishing

Post-weaning – Lamb finishing

Pasture quality is the main determinant of lamb growth rates. Trace element (cobalt, in particular) status is important and parasite challenge should also be controlled but effective pasture management will make the greatest difference.

Once lambs have settled (from around a week post-weaning), group lambs based on weight for more effective finishing allocation and reduced labour associated with drawing fat lambs. Example grouping: 30–34kg, 35–39kg and over 40kg.

Do not change the diet of the short keep >40kg lambs as they are nearly finished. Identify the most cost-effective finishing options for the rest.

Rotational grazing helps maintain pasture quality going into the autumn, improves lamb growth rates and reduces the requirement for supplementation or store sales.

Table 8. Grazing height targets for finishing lambs.

Rotational grazing		Set stocked
Pre-graze (cm)	Residual (cm)	Continuous (cm)
10–12	5–7	6–8

Rule of thumb: allow lambs to eat the top third of grass on offer.

Consider a leader–follower system with lambs grazing to a higher residual. Plan to increase rotation length to 30 days in late summer as grass growth slows and extend to 45 days as Autumn progresses – however, grass growing conditions will dictate actual rest period, use target grass height on entry to judge whether rest period is right.



The final finishing phase

Draft lambs at least every 3 weeks for sale and monitor lamb growth rates, investigate if below target or past seasons.

Table 9. Target lamb growth rates to weaning and on different finishing systems.

Period	Daily target for period	Cumulative target
0–56 days (8 week)	>320g	>280g to 90 days (i.e., an average of 30kg at weaning)
67–90 days (weaning)	>240g	
Post weaning for finishing summer and autumn	>150g pasture (eg, aftermath)	>250g from birth to sale for spring lambing flocks aiming to finish most lambs off pasture
	>180g aftermath or reseed with high % white clover	
	>200g forage rape, turnips, hybrids, plantain and chicory swards	
	>300g red clover, creep feeding	

Nitrogen spreading in August is more cost-effective than creep feeding but only if an effective response is achieved. Measuring pasture covers is the only method to determine the value of summer nitrogen.

This is more beneficial if using feed budgeting tools such as FARMAX.

Feed budgeting combined with cost analysis should be used to influence lambing finishing options each year – on farm forages, creep feeding or store sales – and whether different approaches should be trialled in future years, for example forage crops.

Table 10: Grazing considerations for different lamb finishing crops.

	Estimated DM Yield/ha	Hectares required for 100 lambs*	Start grazing	Notes
Forage rape / stubble turnips	4	2.0	August/September	Watch for photosensitisation.
Rape-Kale Hybrid	5.5	1.5	August/September	Watch for photosensitisation. Multiple grazing possible if leaf left and rotationally grazed.
Swedes	7	1.1	January	Consider grass run-back, shelter and contingency options for bad weather.

* The area required for 100 lambs is based on a 60 day feeding period and assuming 1kg DM/lamb/day is required from the forage crop.



Section 8: Target Key Performance Indicators

	KPI	Target
Ewe performance	Barren rate at scanning	<2%
	Empty ewes (fail to lamb)	<4%
	Ewe mortality	<4%
	Flock replacement rate	<23%
Lamb mortality	Scanning to birth	<5%
	Birth to turnout/markings	<5%
	Turnout/markings to weaning	<3%
	Total lamb losses scanning to weaning	<13%
	Weaning to sale	<2%
Lamb weight	Average lamb weight at 8 weeks	>20kg
	Average lamb weight at 90 days	>30kg

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