

The traditional and alternative options for winter ewe nutrition

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The measure of success for winter feeding is healthy ewes at the right condition score to give birth to healthy lambs, without having compromised the supply of grass post lambing.

Whatever system is used, the ewes' requirements for energy, protein and major and trace minerals must be met. These requirements vary with stage of pregnancy, number of lambs and size of ewe. For example, see the differing requirements of a 70kg ewe in table 1.

When feeding sheep, it is crucial to remember they are a ruminant and most of the diet should therefore be forage – a healthy rumen means a healthy ewe. Feeding too much concentrate in one feed can cause a significant drop in rumen pH.

Neonatal losses

A high proportion of neonatal lamb losses can be attributed to inadequate nutrition during pregnancy. Having lambs born at the correct birthweight to ewes in the correct body condition with a good supply of colostrum is the best prevention for all the diseases of young lambs. But also be aware that over-fat ewes are prone to lambing difficulties.

Getting 90% of ewes at the correct condition score at key points through the production cycle (see table 2) minimises the chance of problems and avoids having a group of over-fat ewes trying to lose weight, or trying to get condition on to thin ewes. In addition to regular condition scoring, blood sampling three weeks before the start of lambing allows an assessment of the adequacy of energy



Nutrition ahead of lambing is key, but different approaches can be considered.

and protein supply and any adjustments to be made.

In addition to the traditional grass or forage-plus-concentrate feeding, there are some alternative approaches to managing ewes over winter.

One alternative is all-grass wintering (AGW), and AHDB Beef and Lamb has been working with pilot farms to develop guidelines for tight paddock grazing through the winter. It's a cliché to say grazed grass is the cheapest feed, and most farms will try and keep sheep grazing as long as possible before providing supplementary feed, but it is difficult to calculate how much ewes are eating and exactly when supplementary feed is required. In addition feeding in the field often leads to areas of poaching around troughs or ring feeders. However, the AHDB work, grazing at a high stocking density in paddocks to which ewes are

moved every one to three days, aims to improve grass utilisation while minimising poaching. Grass utilisation may only be 50-60% with set stocking, but this can be increased by 20-30% using all-grass wintering.

The system is most suitable for well-draining soils, ideally on a single block of and to allow easy

movements and in a climate that allows some winter grass growth. AHDB Beef and Lamb has monitored it on farms from Cornwall to Northumberland, finding that in South West England it was possible to keep ewes out all winter, whereas typically

Table 1: Nutritional requirements of a 70kg ewe

	Number of lambs	ME (MJ)	Protein (g)
Early pregnancy	-	8	
Seven weeks pre-lambing	Single	10.2	87
	Twin	11.4	93
	Triplet	12	96
One-week pre-lambing	Single	14.4	107
	Twin	18.3	126
	Triplet	20.3	136

Source: AHDB Beef and Lamb: 'Improving Ewe Nutrition for Better Returns'.

Table 2: Target body condition scores

	Lowland ewes	Upland ewes	Hill ewes
Weaning	2.5	2	2
Tupping	3.5	3	2.5
Mid-pregnancy	3	2.5	2
Lambing	3	2.5	2

For more information on condition scoring see AHDB Beef and Lamb: 'Condition Scoring of Ewe for Better Returns'.

Table 3: Required dry matter intake (DMI) for ewes in an all-grass wintering system

	DMI as % bodyweight
Pre-scanning	1.5%
Post scanning singles	1.6%
Post scanning twins	2.1%

Source: AHDB Beef and Lamb: 'All Grass Wintering of Sheep for Better Returns'.

in the North East concentrates were introduced in late pregnancy before ewes were housed for lambing.

A plate meter is required for this approach, so a grass budget can be drawn up based on the grass cover available, the residuals required and the intake requirements of the ewes. Size of paddock can then be calculated. Table 3 shows required dry matter intakes for ewes pre and post-scanning (these will need to be adjusted based on grass quality and weather conditions).

It is necessary to have a plan for bad weather, including supplies of conserved forage and sacrifice pastures to limit the areas of poaching. This requirement for a reserve feed supply needs to be factored against the cost savings expected.

Grazing ability

In order to graze efficiently, ewes will need good teeth and good feet. These should be checked routinely before tupping and any ewes with problems not introduced to the paddock grazing until they have been resolved. A proportion of ewes will fail to adapt to the system and will need alternative management. Over time, culling the ewes that don't cope and controlling lameness will produce a flock better suited to the system.

A second alternative ahead of lambing is total mixed ration (TMR) feeding. Providing a TMR can have advantages over a traditional forage-plus-concentrates system, including providing a constant, balanced supply of energy and protein to rumen microbes and avoiding the changes in rumen pH associated with feeding large meals of concentrate.

To some extent it reduces competition for feed at the trough, but it is still important to ensure there is enough space (20-30cm/ewe) to maximise dry matter intake even in heavily pregnant ewes. With a tight lambing flock, feeding a TMR allows the energy and protein levels of the diet to be adjusted through late pregnancy to meet increasing nutrient demands from decreasing intakes. In addition it should be possible to use cheaper, homegrown ingredients that will still meet both energy and protein requirements. Adas has completed a study that shows rapeseed meal, beans or wheat distiller's dark grains perform equally as well as soya as part of a TMR.

When feeding a TMR it is important to remember there are at least three diets on farm – the diet on paper worked out by the nutritionist, the diet as it is actually fed, and the diet the ewes eat which may be changed by sorting, heating in the trough or feeds not performing as analysed. At the end of the day the sheep will give you the best answer on how good the diet is, so regular condition scoring and blood samples pre-lambing avoid problems due to assumptions that what works on paper must work on farm.

Traditional systems

Not to neglect the traditional approach of forage-plus-concentrates, simplicity and flexibility are the main advantages of this system. Concentrates and conserved forages can be fed when they are required to supplement grass. The danger of feeding concentrates is that too large a concentrate feed can lead to acidosis, so concentrates should be fed twice daily in late pregnancy. It is important that forages are analysed, as energy and protein content can vary significantly year to year, which changes the specification of the concentrate needed to balance it. The better a forage you can make the easier and cheaper it is to supplement it.

There are various forage crops which can also be an alternative to grazed grass over winter, including kale, fodder beet and turnips. All these crops increase the risk of bloat, especially if they are grazed when frosted, and can cause metabolic problems such as hypocalcaemia. Fodder beet and turnips can cause acidosis and kale has been associated with nitrate poisoning. In addition soil contamination increases the risk of clostridial disease, although that is less of a concern in vaccinated ewes. Where forage crops are used, a grass run back area or baled silage must be offered to minimise these risks.