

Coping with a fodder shortage on beef and sheep farms

Introduction

Due to adverse weather conditions during the grass growing season there is a large variation in the quantity and quality of silage available on many beef and sheep farms this winter. This bulletin has been compiled to help farmers to make the right decisions as they plan the feeding strategies for their livestock during the remainder of the housed period.

Step 1. Calculate available silage stocks

The quantity of silage available on the farm can be estimated by multiplying the length by width by average height of silage in metres. The number of tonnes can then be calculated using the conversion factors in Table 1. Silage should be analysed to determine its dry matter content and quality. Due to the poor growing and harvesting conditions last summer, analysis of silages done this year indicates a wide range in quality.

Table 1. Conversion factors to convert silage volume to tonnes of silage

Silage dry matter content %	Conversion (volume in m ³ to tonnes of fresh silage)
18	Multiply by 0.81
20	Multiply by 0.77
25	Multiply by 0.68
30	Multiply by 0.60
35	Multiply by 0.53



Worked example:

1: Calculate the volume

e.g., the silage in a silo measures 28 m long x 10 m wide x 2.4 m deep = 672 m³

2: Select conversion factor

Silage is 25% DM so, from Table 2, conversion factor is 0.68

3: Calculate fresh weight

Multiply 672 m³ x 0.68 = 457 tonnes of fresh silage.

Step 2. Assessing silage requirements

Estimate just how scarce silage stocks are likely to be on the farm by using the information in Table 2. Total silage requirements can be calculated by multiplying the silage requirement per animal (tonnes/month) x number of animals x estimated remaining months of housing period for each group of stock on the farm. It is advisable to be generous with the number of months of housing. These initial estimates will provide an indication on how dramatic the changes to diet and feeding levels may need to be on the farm.

Estimates should then be refined using the Hillsborough Feeding Information System.

One basic rule is that at least 35 - 40% of the total diet of cows/dry stock should be long fibre in the form of forage (silage/straw).

Table 2. Estimated monthly fodder requirements

	Silage kg Fresh/day	Silage (tonnes/month)
Spring calving suckler cows	33	1.0
500kg finisher/In-calf heifer	30	0.9
300 kg store	26	0.8
Lowland ewe	4.5	0.05

Note: Requirements are based on a grass silage dry matter content of 22% - adjust intakes for different silage dry matters.

Step 3. Options to best manage fodder stocks

The priority is to maximise the economic return from winter feeding.

- Firstly **reduce forage requirements by culling unproductive animals** such as barren, poor performing or problem cows/ewes. Then consider selling growing animals and only as a last resort sell productive breeding females as your future income is dependent on these animals.
- **Maximise the benefits of good quality silage** by offering it to stock with the highest growth potential, namely young growing animals or to pregnant ewes.
- It may be possible to **restrict silage intakes** to dry cows or those in late lactation with a body condition score above 3, but only do this based on credible information obtained through systems such as the Hillsborough Feeding Information System.
- **Offer high levels of concentrates to finishing stock** to increase the rate of finish. It may be more economical to buy concentrates rather than expensive silage of unknown feeding quality. Table 3 indicates the value of different feeds relative to dried rolled

barley at £128/tonne and soya at £315/tonne. Any feeds which can be purchased at a lower price than their relative value represent good value.

Table 3. Relative feed values of a range of ingredients

Ingredient	£
Barley	128
Soya	315
Good silage	45
Average silage	34
Poor silage	27
Maize silage	34
Barley straw	53
Alternative Feeds	
Brewers Grains	57
Trafford Gold	87
Vitagold	98
Soya hulls	128
Citrus pulp	105
Sugar beet pulp	120
Maize meal	160
Rapeseed	259



- **Purchase alternative feeds** such as maize silage, fermented whole crop wheat, brewers' grains or similar products. These can partially or completely replace grass silage in the diet, but care should be taken when formulating the complementary ration to alternative feeds as, for example, maize silage and whole crop have low crude protein contents. Brewers' grains can be fed to cattle at a rate of 7 – 10 kg fresh weight per day. As with most lower dry matter bulky feeds it is important to minimise wastage and losses or it may be more economical to feed concentrates or straights.
- Some **straights can be used as a forage substitute** because they have a chemical analysis on a dry matter basis that is similar to average quality silage. Such ingredients include soya hulls and sugarbeet pulp. Each kg of soya hulls fed to a spring calving suckler cow could save approximately 4-5kg of average silage per day. It is important to ensure that cows have adequate feeding space (0.7m/head) so that all cows receive

their allocation of concentrate and also to manage condition score. Shy feeders or fatter cows may have to be batched and managed separately.

- Where **ewes are housed pre-lambing** they are typically offered ad lib silage and concentrates at levels outlined in Table 4 or concentrates at a flat rate of 0.4 kg/day for the last 6-8 weeks of pregnancy.



Table 4. Concentrate required (kg/d) for a crossbred ewe offered precision chop silage (10.8 ME, 14% CP)

Number of lambs expected	Weeks prior to lambing			
	6-8 weeks	4-6 weeks	2-4 weeks	0-2 weeks
1	-	-	-	0.3
2	-	0.2	0.3	0.6
3	-	0.2	0.5	0.9

- However where silage is scarce and the housing system allows **ewes can be offered straw ad lib and concentrates** at levels outlined in Table 5. Due to the low protein content of straw it is recommended that the concentrate offered has a crude protein content of 21%

and also contains a good quality protein source such as soya. Extreme care must be taken to avoid acidosis at these high feed levels by not using over-processed grain, offering feed twice daily and ensuring ewes never run out of straw or fresh water.

Table 5. Concentrate requirements (kg/d) for a crossbred ewe offered straw

Number of lambs expected	Weeks prior to lambing			
	6-8 weeks	4-6 weeks	2-4 weeks	0-2 weeks
1	0.6	0.7	0.8	1.0
2	0.7	0.85	1.1	1.4
3	0.8	0.9	1.2	1.5

Useful Contacts

Hillsborough Feeding Information System Tel: (028) 9268 1580

CAFRE Development Advisers are based in the DARD offices listed below:

Co. Antrim	Ballyclare	Tel: (028) 9332 2399
	Ballymoney	Tel: (028) 2766 0160
Co. Armagh	Armagh	Tel: (028) 3751 5659
Co. Down	Downpatrick	Tel: (028) 4461 2211
	Newry	Tel: (028) 3025 5990
	Newtownards	Tel: (028) 9181 3570
Co. Fermanagh	Enniskillen	Tel: (028) 6634 4800
Co. Londonderry	Limavady	Tel: (028) 7776 2521
	Magherafelt	Tel: (028) 7930 2066
Co Tyrone	Dungannon	Tel: (028) 8775 4777
	Omagh	Tel: (028) 8225 1020

Contributors

By Dr Steven Johnston, Senior Beef and Sheep Technologist and
Dr Norman Weatherup, Beef Technologist, Greenmount Campus, CAFRE.