

Assessing and managing fodder stocks on dairy farms

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Summary

- Design a winter feed plan to assess how much silage you require.
- Continuously assess fodder stocks over the winter period.
- Good management practices prevent costly ensilage losses.

Calculating silage requirement

Preventing a fodder shortage requires forward planning and calculation of how much fodder is needed for the winter period. When constructing a winter feed plan there are a number of items to consider. Firstly, we must determine the amount and quality of silage required on the farm. Typically animals with the greatest level of performance require the highest quality feed (72–74 DMD for young stock and milking cows). Silage required can be estimated from stock numbers, the expected duration of the winter and the dry matter (DM) intake per animal, as shown in Table 1. Secondly, our aim is to calculate how much herbage needs to be harvested to produce the required yield, as shown in Figure 1. Mark out this area on a farm map and have a planned cutting date. Any remaining silage production can be managed to produce dry cow silage (68 DMD). If the silage cannot be produced from a single cut, there is a need to calculate an area required for further harvesting i.e. a second cut.

Measuring fodder stocks

Measuring fodder stocks in situ on farm is important to allow for correct assessment and management of supply. Typically silage is measured in tonnes fresh weight before being converted to DM. To calculate the tonnage of a silage pit, multiply the length by breadth by height to get volume in m³. The volume is then divided by 1.35 to give the tonnes equivalent at 22% DM. Obviously, with modern ensiling practices, DM targets are greater than 22% so adjustments can be made for density in drier silages, i.e. for 28% DM silage divide by 1.5 instead of 1.35 to give the tonnes of silage available. Silage bale weights have increased over the past decade. Recent appraisal of bale weights would indicate that silage bales are 800–900 kg fwt or 200 to 260 kg DM. A 220 kg DM bale is equivalent to one tonne of pit silage at 22% DM. For example a single bale will feed 20 dry cows for a day.

Preserving silage and minimising losses

Silage quality and quantity losses occur during ensiling. For every 1,000 kg grass DM in a silage sward, between 150 and 300 kg of losses can occur. Furthermore, the DMD of ingested silage can be 0–7% units below the cut sward. These losses occur in the field (leaf shatter, incomplete pick-up, etc.), at the silo (respiration losses, effluent, etc.) and in the feed trough (respiration, spillage, etc.). Some losses are unavoidable but others can be reduced or prevented. For example, a sward yielding 6,000 kg DM/ha produces 5,040, 4,620 and 4,200 kg edible silage DM/ha where losses of 16% (excellent management), 23% (good management) and 30% (poor management) occur, with quality decline of 0, 1.5 and 4% units DMD, respectively. The yield loss difference between 16 and 30% DM loss results in over 80 fewer animal feed days/ha. The DMD loss difference of 0 vs. 4% units DMD requires over 1 kg concentrate/animal daily to compensate. Thus, DM losses of 16, 23 and 30% (+ DMD loss) result in costs of €207, €230 and €263, respectively, to provide cows with the

same feed energy as silage. This shows the importance of reducing silage losses. Efficient mowing and pick-up, effective wilting, fast filling and perfect sealing of the silo, ensuring good fermentation and relatively little effluent, fast and tidy feed-out, and sensible feed provision and waste removal at the feed trough can all help minimise losses.

Table 1. Establishing winter feed requirements for dairy females

Stock	Winter feed required per month (tonnes)	No. of animals	No. of months	Feed required (tonnes)
Cows	1.6			
0-1 year old	0.7			
1-2 year old	1.3			
Total (normal winter)				
Additional feed				
New total required				

Winter feed plan

Stock	108 spring calving dairy cows, 26 weanling heifers and two bulls
Land	44 ha dairy grazing, 12 ha out-farm
1.	Good quality silage 72-74 DMD > milking cows + weanling heifers
2.	108 cows @ 400 kg DM = 43.5 t DM 26 heifers for 150 days @ 5.5 kg DM = 21.5 t DM Total = 65 t DM of 74 DMD silage
3.	Require 14 ha @ 4.5 t DM for high quality silage Close outside block (12 ha) plus 12 ha milking block for silage Bale 7 ha of closed milking block area on May 20 th (35 t quality silage) Target 130 bales from grass surpluses Jun-Aug (30 t quality silage)
4.	Standard silage - 68 DMD for dry cows in good condition, stock bulls
5.	110 (dry cows plus bulls) * 125 days* 11 kg DM = 151 t DM
6.	17 ha (12 ha outside block plus 5 ha) cut in early June at 7.5 t DM = 127 t DM Close 7 ha of outside block for 2 nd cut silage in late July = 35 t DM

Figure 1. A proposed example of a winter feed plan

Conclusions

Unforeseen circumstances can often arise which increase the predicted length of the winter feeding period. Therefore, plan early in the grazing season by calculating your expected animal numbers and their requirements for the winter ahead, while ensuring good management practices are followed during preservation.