

UNIT : GRASSLAND MANAGEMENT

INTRODUCTION

Grass is potentially the cheapest feed available – a key issue in beef systems where keeping feed costs down is one of the main keys to profitability. The availability and quality of grass can vary widely and good management of grazed and conserved grass and appropriate alternative forages are essential in order to capitalise fully on their potential.

THE POTENTIAL OF GRASS

Well managed grassland can easily meet the nutritional requirements of beef cattle without the need for alternative or purchased feeds. Only in the milder parts of the country and with careful management during the late summer to spring months can grazed grass alone suffice, but in collaboration with an effective silage or hay making system the needs of the cattle can be met all year round. An eye needs to be kept on costs, particularly silage making however, and alternative feeds and forages considered where appropriate.

PASTURE TYPES

Grasses – ryegrasses have been bred for their productivity and feed value with a wide range of varieties to suit most conditions and management systems

- Perennial ryegrass – should form the basis of most productive swards in all but the most extensive, low input systems as it possesses the best combination of yield, seasonality of production, feed quality and persistence. It responds better to fertiliser and clover nitrogen and contains enough sugar to ensile well. Recently developed 'high sugar' ryegrasses offer a great deal of promise with improved animal performance recorded.
- Italian ryegrass – produces high yields but only lasts for two seasons. Its early spring growth and high yields make it an ideal grass for early grazing and several cuts of silage where regular reseeding or mixed cropping are practiced.
- Meadow fescue, timothy and cocksfoot – offer an alternative to the ryegrasses in more difficult growing conditions and in lower input systems – timothy being well suited to slightly wetter, heavier soils and cocksfoot suiting dry conditions

Legumes – legumes such as the white and red clover can greatly increase the feed value of grassland and, more importantly, supply nitrogen to replace expensive fertiliser and / or increase productivity as they can 'fix' atmospheric nitrogen. Good clover content can supply as much as the equivalent of 150-200 kg of nitrogen per hectare annually, as much as half a tonne of a typical 'straight' nitrogen fertiliser which the grasses growing with them can take advantage of.

- White clover – is a long term legume that can be suited to either grazing or cutting for silage depending on the variety. Small and medium sized leaf varieties are better suited for grazing while the large leaved types are usually cut. 25-35% white clover in the sward offers the best combination of improved feed value (digestibility, protein, minerals and better intake), nitrogen fixation and total yield.
- Red clover – is a shorter lived but more productive legume that can be grown with grasses such as Italian ryegrass for high silage yields or on its own, where silage aftermaths can provide an excellent finishing diet for cattle and lambs in late summer and autumn.

WEED CONTROL

Weeds are often the result of poor management or low fertility and these issues should be addressed as part of any control measures.

The use of better and more varied grazing and cutting management, topping or reseeding in the worst instances must be considered as possible means of control as well as chemical herbicides.

PASTURE MAINTENANCE AND IMPROVEMENT

Reseeding – provides opportunities to

- Tackle weeds
- Capitalise on the attributes of improved varieties
- Improve grassland quality and palatability
- Reduce fertiliser use through introducing clover

Although costly, the investment can pay dividends quickly and alternative approaches such as partial reseeding can cut the costs and inconvenience.

Total reseeding involves killing off or cultivating the entire field and can be costly and time consuming while partial reseeding by broadcasting seeds with a grass harrow or the use of specialist drills can be cheaper and allow more of the farm to be tackled in a shorter time.

Mixtures of grasses and clovers should be selected to suit the site, intended lifespan and use as well as the improvement technique that is to be used with varieties recommended by the National Institute of Agricultural Botany (NIAB) being selected following advice from reputable merchants.

Improved management alone can often bring about dramatic improvements, though - in most grassland, attention to

- Drainage and soil compaction
- Soil fertility
- Grazing pressure, frequency and seasonality
- Weed control

can result in dramatic improvements in grassland productivity over time – but the desirable grasses and clovers must already be present in small quantities and well distributed.

FERTILISER AND MANURE

Soil fertility – soils should be sampled and tested at intervals of 3-5 years in order to determine pH and the need for lime as well as levels of phosphate and potash.

Manures – best possible use must be made of manure or slurry produced on the holding and the Code of Good Practice and any legislation adhered to:

- Target deficient soils and silage or hay fields
- Aim to apply in spring to achieve best capture of nitrogen
- Do not apply in quantities that might reduce the growth and density of the pasture

Fertiliser – must be used in accordance with needs to make up any soil deficit and encourage growth at key times e.g. spring or late summer and, wherever possible, complement clover.

- Nitrogen – can kick-start spring growth, encourage growth at key times during the growing season e.g. when stock are turned out of silage fields, after harvest or in readiness for weaning as well as to supply more grass in early autumn. Nitrogen must be used sparingly and at the correct time as it is expensive and easily lost and the fact that productive clover can easily supply as much nitrogen as most beef systems need for grazing in particular throughout the main part of the growing seasons must feature in any plans.
- Phosphate and potash – are the main nutrients required in addition to nitrogen and application must bear in mind soil analyses and whether the grass is to be grazed or cut.

GRAZING

Grazing is the cheapest means of using grassland and good management can ensure efficient utilisation and the longest grazing season possible without damage to grassland or sacrificing animal performance. The aim must be to provide animals with a constant supply of the highest quality grazing possible without inefficient utilisation which leads to waste

and deteriorating pasture quality. Target grazing heights give a clear compromise between meeting the needs of the animals by providing enough grass and maintaining swards in a leafy, nutritious and productive condition to ensure quality and persistency for the future.

Target sward heights (cm)

Type	Time of year	Continuous grazing	Rotational grazing	
			Before grazing	After grazing
Lactating suckler cows	Turnout to end of May	5-6	10-14	5-6
	June – July	7-8	12-15	7-8
	Aug - Nov	7-9	12-15	8-9
Dry suckler cows	Turnout to end of May	4	-	-
Growing and finishing cattle	Turnout to end of May	5-6	10-12	5-6
	June – July	6-7	10-14	6-7
	Aug - Oct	7-8	10-15	7-8

These targets often appear to be very low in comparison with traditional practice but ensure that swards are kept at their productive and most nutritious throughout the season while grassland quality often deteriorated by mid summer in the past with much poorer animal performance in late season than could be the case.

➤ Height too low

- Expand grazing area or reduce stocking rate
- Apply nitrogen if growing conditions suitable
- Supplement with silage, hay, straw

➤ Height too great

- Restrict grazing area or increase stocking rate and cut any extra grass for baled silage

MIXED GRAZING

Mixed grazing (or sequential grazing) of cattle and sheep can bring substantial advantages in terms of :

- Better utilisation of grass
- Better grass quality
- Reduced parasite burdens

SILAGE OR HAY

Role in the diet – hay and, more frequently, silage make up a large proportion of beef cattle diets during periods when grass growth is poor in late autumn, winter and early spring as well as, occasionally, dry summers.

- Hay – well made, quickly dried hay can be a valuable feed but the dependence on long spells of dry weather makes it an unreliable fodder and its popularity has fallen.
- Silage – well fermented silage with a Dry Matter content of 25-30% can result in reliable, stable fodder that can make a large contribution to diets
- Dry silage or haylage – silage with high Dry Matter contents (40%+), usually baled, has become increasingly popular leading to high intakes and reduced bedding requirements but losses at feeding can be very high as dry silage rapidly heats up

Harvesting date and silage quality

The feed value of any silage is determined by a combination of :

- Harvesting date (combined with shutting off date and length of growthy period)
- Grass and clover species and varieties

The appearance of the crop at harvest will determine its energy and protein contents :

Leaf and stem content	ME (MJ/kg DM)	Digestibility	Crude Protein (%)	Suitability
Very leafy – no stem	12		18-20	Finishing cattle

Leafy – some stem	11		16-18	Finishing cattle and lactating cows
Stemmy – some flower heads	10		14-16	Young store cattle and lactating cows
Large number of flowering heads	9		12-14	Store cattle and dry cows

Harvesting technique

Efficient silage making needs to ensure :

- Wilting – aim for a Dry Matter content of 25-30% (clamp) or 30% + (bales)
- Additive – consider the use of an additive for high quality material only
- Sealing – ensure that the material is tightly packed and sealed
- Protection – avoid damage to the plastic by weather, vermin or animals

Feeding

- Analyse the silage to work out its feed value
- Feed in an appropriate feeder or behind a barrier
- Ration accurately to avoid waste

ALTERNATIVE OR COMPLEMENTARY CROPS

A number of alternative forages can be grown to fill any gaps in quality or quantity of grazed grass or silage :

- Cereals – maize, winter or spring wheat, spring barley – produce high yields of high energy silage that can be the main component of finishing rations
- Roots – fodder beet, swedes, turnips – high yields with high energy to be fed from a store in winter

- Leafy brassicas – kale, rape, stubble turnips – possible components of an out-wintering or extended grazing system that could play a big role in reducing housing and feeding costs for suckler cows and store cattle

These are often grown before or during the process of reseeding grassland and can be worked in to create an effective cropping and feeding programme.

CONCLUSION

Grassland and forage are essential components of cost-effective rations for all classes of beef cattle. It is important to ensure :

- Good pasture composition – the correct grasses and clovers – by reseeding and good grassland management
- Correct soil fertility – by careful management to avoid poaching and the correct use of lime, manures and fertilisers to encourage growth over as long a season as possible
- Controlled grazing management – to ensure good utilisation and to maintain pasture quality
- Efficient silage and hay making – to satisfy requirements when grazing is not possible
- Appropriate alternative crops – cereals, legumes, roots, brassicas – as high quality alternatives to cheapen feeding costs and extend the grazing season, often as part of the farm's reseeding programme

INFORMATION SOURCES

EBLEX (2006) Beef Action for Profit 16 – Better Returns from Conserved Forage

EBLEX (2010) Improving Pasture for Better Returns; Beef and Sheep BRP Manual 1

EBLEX (2010) Improving Soils for Better Returns; Beef and Sheep BRP Manual 3

EBLEX (2010) Managing Clover for Better Returns; Beef and Sheep BRP Manual 4

HCC (2008) Grassland Management

HCC / EBLEX / QMS (2009) Grassland Management DVD

www.fwi.co.uk/landing-page/livestock/grasswatch/