2 Grazing Regimes Overview

There are four fact sheets under the sustainable grazing umbrella. As well as this introductory sheet, these provide advice on:

- Sheep only grazing (Fact sheet 2.1)
- Cattle only grazing (Fact sheet 2.2) and
- Mixed stock grazing (Fact sheet 2.3)

Introduction

Grazing is often seen as a cost effective management tool for a wide range of natural environments. Historically, much of our landscape has been shaped by grazing animals, however many of the natural grazers are either no longer present or exist in much reduced numbers.

Without grazing, vegetation biomass would increase. Dwarf shrubs such as heather would become rank with no succession and without light and bare ground many dwarf shrub seedlings would be unable to germinate. Overall there would tend to be a decrease in biodiversity.

What is sustainable grazing?

Sustainable grazing regimes are difficult to determine. Often what is deemed as sustainable for the environment is considered unsustainable from an agricultural point of view.

Clear guidelines are required if a grazing regime is to be practiced on hill land that can be sustainable for the environment whilst remaining part of a financially viable production system. Aspects such as:

- stocking rate
- duration
- season
- animal species
- animal breed

All decisions need careful consideration and will depend on the specific outcome required.

In addition, vegetation being managed may be low in palatability and/or nutrient content, some may even be toxic to some species, and supplementation may be undesirable due to problems of nutrient enrichment.

As a result, animals used for sustainable management of natural vegetation may, at times, have impaired performance and the financial consequences this has to other parts of the whole farm system needs to be understood.

The role of Grazing in the Management of Moorlands

UK moorland, and particularly upland heath, is recognised as being of International importance because this habitat is largely confined within Europe to the British Isles and the Western seaboard of mainland Europe. The total upland heath resource in the UK is estimated at between 2 and 3 million hectares. The majority of upland heath is found in Scotland with around 270,000 ha in England, 80,000 ha in Wales and about 70,000 ha in Northern Ireland.

Variation in sward structure is required to enhance biodiversity.

- Tall vegetation offers cover and protection for invertebrates and bird life, allows flowering and seeding and provides nesting sites
- Short vegetation provides feeding sites for some animals and allows plants to germinate and establish

Whilst sward height can be varied with cutting and burning, these alternative management options tend to provide uniform areas whereas grazing under the correct management, by the appropriate species can actually create a variable sward.

What grazing animals eat

What a grazing animal actually eats is determined by a number of factors:

Plant Factors	**Animal Factors**
Nutrient concentration	Body size & digestive capacity
Nutrient composition	Energy, protein and trace element requirements
Horizontal & vertical distribution	Mouth size
Biomass	Environmental conditions
Plant defences	Physiological status
Dung/urine deposition	Metabolic status

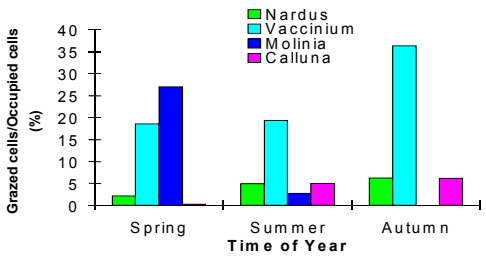
These factors combine to determine what part of which plant is actually consumed.

Temporal changes in sheep grazing preferences

As plant factors change with season, there are temporal effects on animal dietary selection. As can be seen from Figure 1, sheep consume different plants at different time of the year. *Molinia* (purple moor-grass) for example is only consumed in spring and early summer whilst heather is only consumed in late summer and winter.

(Calluna = heather, Vaccinium = mostly bilberry, Nardus = mat grass)

Figure 1 Temporal changes in sheep grazing preferences



Effects of stocking rates on vegetation

Historically, farmers would have turned animals out on hill grazings at a time of year when the vegetation would have provided sufficient nutrition for the livestock.

- Sheep would have grazed hill land for most of the year
- Cattle grazing on the hills mainly during the summer months

The Common Agricultural Policy resulted in a change to traditional hill farming practices which saw an increase in sheep numbers at the expense of cattle. Sheep numbers increased markedly after the Second World War leading to an increase in invasive grasses like *Molinia* and *Nardus* (mat grass) and a decrease in dwarf shrub and forbs.

Overgrazing of heather occurs when more than 40% of the current season's growth is removed from young plants in their establishment phase, but at only 15% of mature heather's current year's growth. A good indicator of overgrazing on heather is where older plants are being eaten, and the plants become suppressed, contorted and twiggy, with very short growth increments.

If overgrazing causes degradation of upland habitats, could the effects be reversed simply by reducing stocking rates?

A number of agri-environment schemes have attempted to address the issue of sheep overgrazing by paying farmers to remove sheep from specific areas at specific times.

Grazing can be an effective way of managing semi-natural vegetation communities. However, a number of factors limit intake;

- digestibility
- the distribution of particular plant species
- seasonality of plant growth

The result is an uneven grazing pressure both within and between plant communities. Actual utilisation of a given species, such as heather, will thus be dependent on the availability of other, more preferred sward components, the availability of which will be determined by the number of stock in the same area.

Benefits of Cattle

Grazing by cattle has the potential to promote heather regeneration and general plant diversity because;

- Cattle are generally less selective grazers than sheep
- Cattle are prepared to consume significant quantities of invasive hill grasses such as *Molinia* and *Nardus*
- Cattle break up the sward and woody plant components through trampling which facilitates colonisation by other species

At the same time, sheep are more selective than cattle when grazing heather itself, removing leafier shoot tips whereas cattle remove more woody material. As a result, if a lack of preferred food items forces cattle to consume heather, they are more likely to cause damage than sheep.

These and other species' differences in grazing behaviour can be exploited to promote the restoration or maintenance of moorland communities. The implications of grazing regimes based on these major 2 species are discussed in Fact sheets 2.1 to 2.3.

It is recognised that other species may have a future role to play, including horses, goats, deer and camelids, but these are outside the scope of the current project.

Further reading and information

Andrews, A. & Rebane M. 1994. *Farming & Wildlife – A Practical Management Handbook*. Published by The Royal Society for the Protection of Birds ISBN 0 903138 67 0.

Backshall, J., Manley, J. & Rebane, M. (2001). *The Upland Management Handbook*. English Nature publication. ISBN 1 85716 402 4.

The Heather Trust website can be accessed at www.heathertrust.co.uk

UK BAP website can be accessed at www.ukbap.org.uk

A Guide to Animal Welfare in Nature Conservation Grazing. 2001. Edited by Sandie Tolhurst on behalf of Grazing Animals Project.

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