

## 2.1 Sheep Grazing

### Introduction

There has been a substantial increase in sheep numbers in the UK over the past 50 years due to:

- technical advances in sheep nutrition
- innovative management practices such as pregnancy scanning,
- Common Agricultural Policy (CAP) payments based on a headage basis

This increase has resulted in the overgrazing and subsequent degradation of some hill areas to the detriment of important plant species such as heather (*Calluna vulgaris*), bilberry (*Vaccinium myrtillus*) and other dwarf-shrub heath plants and their associated fauna. In particularly vulnerable areas, especially on steep slopes, heavy grazing can result in bare ground and soil loss through erosion and runoff.

### Impacts on vegetation

A number of agri-environment schemes have attempted to halt or reverse the impact of overgrazing by reducing stocking rates on areas of dwarf-shrub heath. The stocking levels imposed were dependent on the required objective of either restoration or maintenance, and on the uniformity of the hill but were typically 0.5 to 1 ewe /ha for restoration and 1.5 ewes/ha for maintenance.

Under sheep only grazing regimes, the impact of reducing sheep numbers gave mixed results

Benefits	Disadvantage
<ul style="list-style-type: none"> <li>• Helps increase dwarf shrub cover</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in invasive grasses such as <i>Molinia</i> (purple moor-grass)</li> </ul>
<ul style="list-style-type: none"> <li>• Reduces grazing on heather, so improves growth rates, flowering and seeding</li> </ul>	<ul style="list-style-type: none"> <li>• Heather becomes rank and woody (unless managed through managed burning)</li> </ul>
<ul style="list-style-type: none"> <li>• Improves individual lamb performance</li> </ul>	<ul style="list-style-type: none"> <li>• Heather seedlings unable to germinate unless there is managed burning as well. Where germination does take place, the seedlings are selectively grazed by sheep</li> </ul>
<ul style="list-style-type: none"> <li>• Improves ewe weaning weight</li> </ul>	<ul style="list-style-type: none"> <li>• Gradual abandonment of some areas of hill with increased pressure on areas covered with fine leaved grasses</li> </ul>
<ul style="list-style-type: none"> <li>• Increases farm profitability in the short term</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in animal performance and financial return in the long term</li> </ul>

Recent decoupling of CAP payments and participation in Agri-environmental schemes will all impact on the future viability of hill farming. These support payments are essential components of the farm income making up to 80% of farm revenue.

### **Grazing preferences**

Improved husbandry and changes to schemes like the Hill Farming Allowance have allowed an increase in the use of larger, rapidly maturing crossbreeds within sheep production systems, often at the expense of traditional hill breeds. Potentially this will increase farm profitability, yet little is known about the potential impacts of crossbreeds in terms of diet selection and grazing preferences and the subsequent impacts on grazing management of hill vegetation.

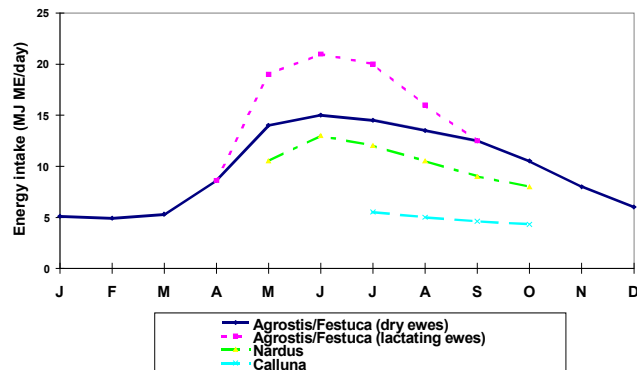
In the current study, IGER investigated the effect of breed on performance and sward composition on diet selection. Welsh Mountain ewes avoided *Calluna* to a much greater extent than Scottish Blackface ewes, regardless of how much heather was present in the sward.

### **Nutrient intake**

During spring and summer, the nutrient requirements of sheep can be met by the young, nutritious vegetation on offer.

However, in autumn and winter as the sward becomes mature and less digestible, it is more difficult for the animals to meet their needs. During this period, sheep will have to be supplemented with additional feed sources.

Seasonal changes in energy intake of hill sheep grazing different plant communities



### **Animal Performance**

In 1995, ADAS was commissioned by MAFF to examine effects of stocking rate on upland vegetation and physical/financial performance of sheep. Long term system studies were set up at ADAS Pwllpeiran (Cambrian Mountains in Wales) and at ADAS Redesdale (Northumberland). At each site, ESA<sup>1</sup> tier 1 and 2 prescriptions (aimed respectively at either maintaining or restoring dwarf shrub heath) were compared.

<sup>1</sup> ESA – Environmentally Sensitive Area

At Pwllpeiran, *Nardus* dominated vegetation was grazed with 1.0 or 1.5 ewes/ha. At the lower stocking level *Vaccinium* increased whilst at the higher stocking level *Nardus* decreased. Heather cover (which was very low) remained similar under both stocking levels, not least because the dense vegetation cover inhibited any seed establishment.

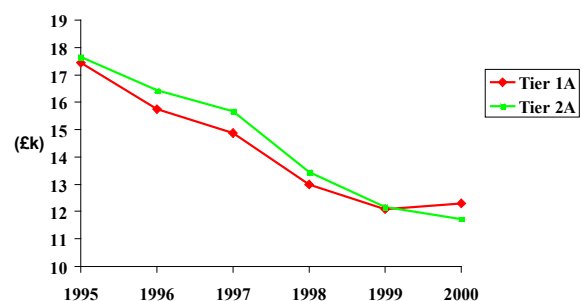


At Redesdale the vegetation was a mosaic of *Molinia* and heather. The lower stocking rate of 0.66ewes/ha led to an increase in both heather and *Molinia* cover whilst at the higher rate of 1.5 ewes/ha *Molinia* continued to increase whilst heather remained static.

At both sites, initially lamb and ewe weaning weights were higher with the lower stocking rates and the higher environmental payments for the lower stocking rate (about £20/ha) was more than sufficient to compensate for the reduced stock numbers.

However after 6 years, animal performance under the lower grazing regimes declined and farm gross margins become impaired.

### Effect of CMESA Agreements on Gross Margins



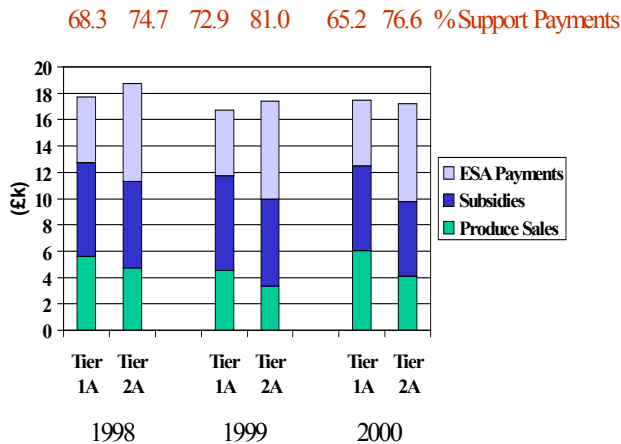
Reasons for the decline with time were related to the vegetation changes that occurred. At a reduced stocking rate, heather became rank and less palatable whilst unpalatable invasive grasses such as mat grass and purple moor-grass

flourished. Sheep at the lower stocking rates thus concentrated on areas of fine leaved grasses and effective grazing area actually reduced.

### Financial Performance

Modelling a number of sheep only grazing scenarios for a small, 200ha moorland, it is clear that without some additional payments, the enterprise will not be sustainable. All scenarios made a financial loss.

### Revenue Data 1998/2000



It also meant that a lower proportion of the farm income was coming from sale of product and there was a higher reliance on the support payments.

### Animal Welfare

When sheep are grazing hill pastures a number of health and welfare issues are important to consider.

- **Ticks and keds** are a key issue. This is mainly because they can spread disease such as louping ill and tick borne fever. While current dip products are effective in the prevention and treatment of ticks and keds, not all pour-on products are. None of the injectable products are recommended for the prevention or treatment of ticks and keds
- **Liver fluke** can be a problem for wet areas of moorland. The parasite can result in large production losses either through the death of the sheep, through impaired performance, or through the financial penalty of condemned livers at the abattoir
- On hill pastures, sheep need to be able to shelter from **adverse weather conditions**. A flock that has been long established on hill pasture will have developed hefts on the hill and will know where to go to find shelter and food. However, where a moor has been destocked for many sheep generations, sheep will have to be encouraged to heft. This can be done by placing feed in sheltered areas and by shepherding

### ***Labour requirements***

Labour availability will have an impact on the ability of the animal keeper to carry out routine tasks such as gathering for marking, shearing, weaning etc.

It is generally accepted that a flock of 600 ewes represents 1 labour unit but this is dependant on the area and nature of the land. Labour requirements will increase at certain time of the year such as lambing and shearing. On extensive sites skilled labour is also required for gathering. As sheep numbers decline, unless labour can be redirected to other activities there can be implications for the profitability of the sheep enterprise.

### ***Further reading***

See Fact sheet 2 Overview

A Project funded by Defra, English Nature and Countryside Council for Wales undertaken by ADAS, CEH, IGER, RSPB, Scottish Agricultural Colleges, University of Newcastle and Penny Anderson Associates Ltd.