1. Introduction

The Burren

A unique farmed landscape of limestone pavement, grasslands, heaths and wetlands, approximately 30,000ha of which is designated as special areas of conservation (SAC). Traditional farming practices, in particular winter grazing with minimal external inputs, are important in maintaining the good ecological status of the Burren (Dunford, 2002).

Changing practices

In recent years there has been a concentration of agricultural activities on improved grasslands and changes in farm practices on conservation grasslands. A switch from stone cattle to suckler beef production has resulted in many farmers introducing silage onto winter grazed areas (winterage) or housing animals over the winter due to the higher nutritional requirements of in-calf cows. Silage feeding on winterages results in animals foraging far less, leading to undergrazing and point source pollution around feeding sites. Winter housings of animals leads to abandonment of winter-grazed grasslands and the loss of important management traditions.

BurrenLIFE EU LIFE-Nature funded project

BurrenLIFE aims to develop a new model for sustainable agricultural management of the priority habitats of the Burren. A key action of the project is to encourage sustainable grazing levels on conservation grasslands while meeting the nutritional needs of the grazing animal. As suckler cows are the most prevalent livestock type on the winterages, do Burren winterages meet their nutritional requirements?

2. Materials and Methods

Twenty BurrenLIFE monitor farms were selected across the Burren covering 3097ha (2486ha designated as SAC). To profile the forage quality of Burren winterage grasslands, they were divided into 5 broad vegetation types based on previous research. 50 sample areas representing these vegetation types were selected across the monitor farms.

Forage Quality:

Sampled every two months from August to April, from December 2005 until April 2007. Samples analysed for ash, N (Kjeldahl nitrogen), crude protein (CP) (N x 6.25), oven dry matter, acid detergent fibre (ADF) and neutral detergent fibre (NDF) (Van Soest analysis). Trace mineral analysis of Cu, Mn, Mo, Se, Zn, Ca, K, Mg, P and I concentrations was carried out on December 2006 samples using inductively coupled plasma-mass spectroscopy (ICP-MS).

Forage Composition:

The vascular plant species in 2 x 2 m quadrats at each sampling site were recorded and their cover estimated using the Domain scale. Cluster analysis (PC-ORD vers. 5; relative Euclidean distance measure and wards linkage method) and indicator species analysis was used to accurately assign each sampling location to a vegetation type

3. Results and Discussion

Cluster analysis divided samples into 6 vegetation types. The mean forage quality for the Burren winterage vegetation types together with their approximate national vegetation classification of Britain vegetation communities (Rodwell et al., 1992) are shown below:

Species rich limestone grasslands of the Burren, Ireland: feed value and sustainable grazing systems

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4. Conclusions

The results suggest that Burren winterages do not meet the nutritional requirements of suckler cows, especially from December to March when cows are in late pregnancy: However, this does not take into account selective grazing of more palatable vegetation, which may result in consumption of forage of higher quality than suggested by this study. Supplementation with concentrate feed (replacing existing silage feeding) from December to March could meet the maintenance requirements of cows and increase the supply of crude protein. This can increase the breakdown and rate of passage of poor quality forages through the gut allowing the animal to consume more (Romey and Gill, 2000), as a consequence improving the grazing levels on wintering areas. This allows farmers to graze cows on winterage areas for longer, while meeting their nutritional requirements without resorting to silage feeding or housing. Concentrate supplementation is currently being piloted by the BurrenLIFE project with initial positive feedback from the farmers involved.

5. References