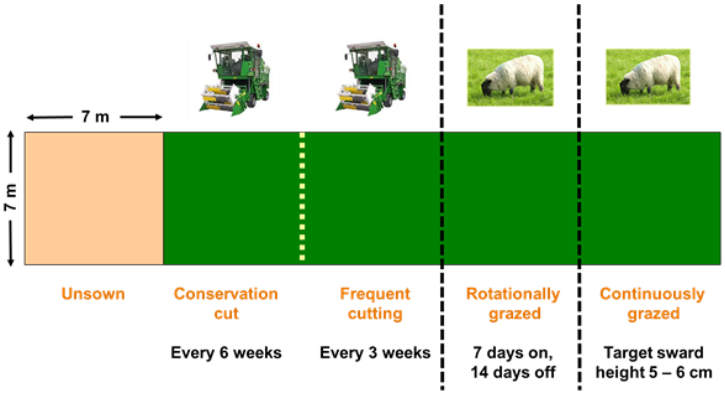
PROJECT INFORMATION SHEET

Grassland for challenging environments

IBERS is currently conducting a multi-million pound research programme, funded by BBSRC, to improve the economic, productive and environmental sustainability of crops in the face of climatic and political change. Related project work with grassland is taking place at four points across a 'challenge gradient'. We have sites at altitudes of 70 m and 150 m above sea level at Trawscoed, and sites at 230 m and 340 m above sea level have been selected at Pwllpeiran. Detailed surveys have shown the underlying soil chemistry and current sward compositions of the different sites are broadly similar, and that the climatic conditions across the gradient are representative of those experienced by 80% of UK grasslands.

Experimental work led by Pwllpeiran staff is testing the effects of multiple stresses on grass and legume mixtures over multiple seasons and years. The contrasting multi-species mixtures that have been sown are typical of commercial mixtures targeted at delivering high performance and long-term sward stability. We are tracking changes in their botanical and chemical composition over time under different management regimes: continuous grazing; rotational grazing; frequent cutting/simulated grazing (cuts at 3 week intervals; similar to the cutting regime used when testing varieties for Recommended Lists); and conservation cutting (at 6 week intervals) .

The project is using the very latest DNA and molecular techniques to monitor genetic shifts within plant populations as well as the impact of the grazing preferences of the stock grazing the plots. This will shed light on plant-to-plant competition and the way different sward components respond to varying degrees of defoliation. The results will feed into plant breeding programmes and form the basis of mathematical models giving a deeper understanding of interactions between resource use efficiency, sward yield optimisation and environmental services. The trial work will last for 5 years.



Contact for more information:
Dr Mariecia Fraser
E - mdf@aber.ac.uk
T - 01970 823081

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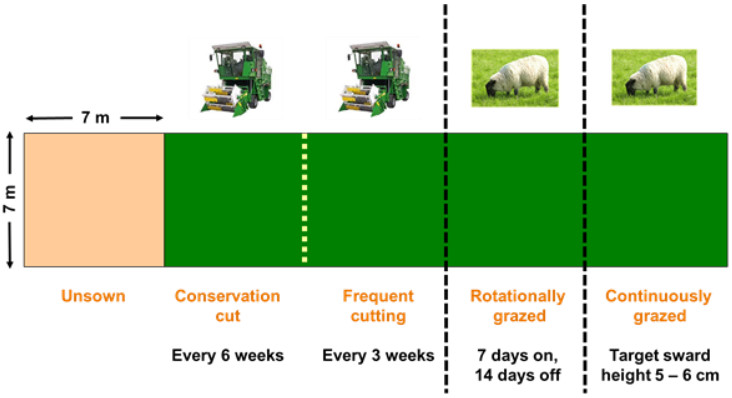
Grassland for challenging environments

Mae IBERS newydd gychwyn ar raglen ymchwil gwerth miliynau o bunnoedd, yn cael ei hariannu gan BBSRC, i wella cynaliadwyedd economaidd, cynhyrchiol ac amgylcheddol cnydau yn wyneb newid hinsawdd a newidiadau gwleidyddol. Bydd gwaith prosiect cysylltiol yn cael ei gynnal gyda gwahanol rywogaethau glaswelltir ar bedwar safle ar 'raddiant o heriau'. Mae'r safleoedd ar 70 metr a 150 metr uwch lefel y môr wedi'u lleoli yn Nhrawscoed a'r safleoedd ar 230 metr a 340 metr uwch lefel y môr wedi'u dewis ym Mhwllpeirian. Dangosodd arolygon manwl fod cemeg sylfaenol y pridd a chyfansoddiad presennol y borfa ar y gwahanol safleoedd yn eithaf tebyg a bod amodau'r hinsawdd ar draws y graddfeydd yn gynrychioliadol o'r hinsawdd ar 80% o laswelltir y DU.

Bydd gwaith arbrofol, yn cael ei arwain gan staff Pwllpeirian, yn profi effeithiau gwahanol bwysau ar wahanol gymysgeddau o laswellt a chodlys dros sawl tymor a sawl blwyddyn. Byddwn yn tracio newidiadau mewn cyfansoddiad y porfeydd dros amser o dan wahanol drefniadau rheoli, pori parhaus, pori cylchdro, pori dynwaredol (y drefn o dorri sy'n cael ei defnyddio wrth brofi amrywiadau ar gyfer y Rhestrau Argymell) a thorri silwair. Bydd y prosiect yn defnyddio'r technegau DNA a moleciwlaidd diweddaraf i fonitro newidiadau genetig mewn poblogaethau o blanhigion yn ogystal ag effeithiau dewisiadau'r stoc wrth bori'r plotiau. Bydd hyn yn taflu goleuni ar y gystadleuaeth rhwng planhigion ac ar sut y mae cyfansoddion gwahanol borfeydd yn ymateb i wahanol raddau o ddiddeilio. Bydd y canlyniadau'n bwydo i raglenni bridio planhigion ac yn ffurfio sylfaen ar gyfer modelau mathemategol a fydd yn rhoi dealltwriaeth ddyfnach o'r berthynas rhwng effeithlonrwydd y defnydd o adnoddau, optimeiddiad cynnyrch porfa a gwasanaethau amgylcheddol.



Cysylltwch am mwy o wybodaeth:

Dr Mariecia Fraser
E - mdf@aber.ac.uk
T - 01970 823081