

Grassland for challenging environments

IBERS has just begun 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 will be taking place with different grassland species across four sites along a 'challenge gradient'. Sites at altitudes of 70 m and 150 m above sea level are located 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 will be testing the effects of multiple stresses on grass and legume mixtures over multiple seasons and years. We will be tracking changes in sward composition over time under different management regimes; continuous grazing, rotational grazing, simulated grazing (the cutting regime they use when testing varieties for Recommended Lists), and silage cuts.

The project will be 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.

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The 'before' photos of the Pwllpeiran sites at 230 m a.s.l. (above) and 340 m a.s.l. (below).

