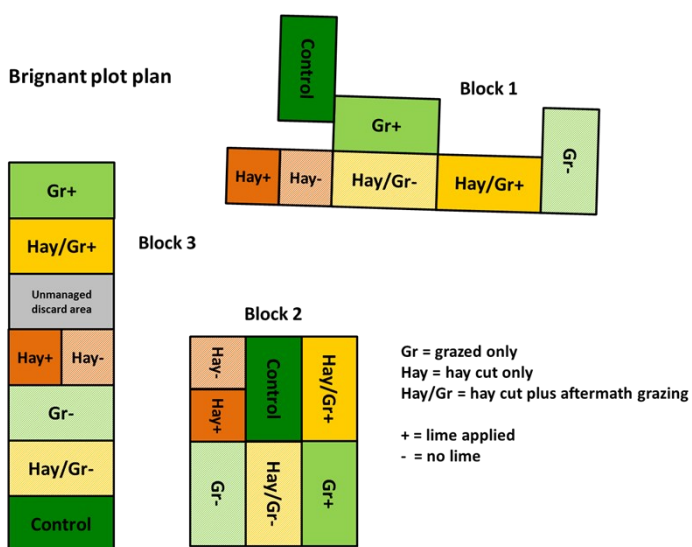


The Brignant long-term plots

The Brignant plots are a unique experimental resource. They were originally set up to test the effectiveness of different management options in achieving reversion of improved permanent pasture to semi-natural vegetation. They were established in 1994 on typical upland permanent pasture (last reseeded in 1973) which had received regular inputs of fertiliser and lime. At the time the plots were created, sown grass species still dominated the pasture, with ryegrass at 58% sward cover. Seven different management regimes have been imposed in three replicated blocks. The treatments are: sheep grazing, with and without lime application; hay cutting only, with and without lime application; and hay cutting followed by aftermath sheep grazing, with and without lime application. Control plots continuing the previous site management (i.e. limed, fertilised and grazed by sheep) are also included within each block. These receive an annual application of 60 kg N fertilizer plus P and K fertilizer as required.



Brignant plot plan



Studies over the years (including projects by visiting researchers from Czechia, Spain and Hungary) have demonstrated that the most effective management for restoring botanical diversity has been hay cutting with aftermath grazing, and that the changes in plant species diversity are linked to changes in insect populations, including pollinators. The results give an evidence base for the comparative assessment of public goods delivery from pastures under alternative management regimes.

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Recent related papers:

Forster, D.J., Fraser, M.D., Rowe, R. and McNamara, N. (2021) Influence of liming and sward management on soil carbon storage by semi-improved upland grasslands *Soil & Tillage Research*, 212, 105059.

Pavlu, L., Pavlu, V. & Fraser, M.D. (2021) What are the effects of 19 years of restoration managements on soil and vegetation on formerly improved upland grassland? *Science of the Total Environment*, 755, 2, 142469

Sandor, R., Iovino, M., Lichner, L., Alagna, V., Forster, D.J., Fraser, M.D., Kollár, J., Surda, P., Nagy, V., Szabo, A. & Fodor, N. (2021) Impact of climate, soil properties and grassland cover on soil water repellency. *Geoderma*, 383, 114780.