

LONG-TERM TRIALS

PALACE LEAS HAY MEADOW PLOTS

The Palace Leas Meadow Hay plots is the longest-running grazing and hay cutting experiment in the world and one of the oldest fertilisation trials. The plots were established in 1896 as one of a group of long-term experiments at Cockle Park, Newcastle University. They demonstrate the changes in old meadow hay brought about by different management systems, which are now wholly anachronistic, but have been retained so that the long term effects on soil, on species diversity and on yield sustainability can be observed.

The field is laid out as a series of fourteen long parallelogram-shaped plots, and the treatments applied to these consist of five receiving farmyard manure, either with or without mineral fertiliser, and eight receiving all combinations of plus or minus nitrogen, phosphorus and potassium fertilisers. One plot acts as a control and receives no amendment. The grass is cut each year, and hay is made on the plots. Samples are taken for dry matter determination and the yield calculated. Livestock then grazes the aftermath growth.

LONG-TERM TRIALS

PALACE LEAS HAY MEADOW PLOTS



Subsequent research has ranged widely over the fauna, microbial population and soil properties. Changes to the soil organic matter content, form and distribution, as well as the effects of a changing climate on hay yield and quality, has received detailed research. The changes in plant species composition, nutrient availability, and above and below-ground invertebrate communities has also received attention.

This experiment has now provided the agricultural and scientific communities with data for 120 years. During this period, over forty theses and forty books and scientific papers have been published using results gathered here. This record demonstrates that long-term experiments with known management can help to answer new questions long after their inception, indicating their value and the requirement to maintain such experiments in the future.