

A farmer led project was funded through the European Innovation Partnership (EIP) Wales to investigate the potential of multispecies leys in sheep and beef systems in marginal areas (upland farms, high rainfall, thin soils).

**Project Aims:** The participant farmers wanted to examine if multispecies leys (MS) could offer any advantages above traditional ryegrass/white clover leys in terms of yields, seasonality of growth, forage quality, animal performance and in the persistence of the leys.



## Establishment

In 2018 three farms in South Wales (Gellifeddgaer, Gilfach and Brynchwith) established a new multi-species ley alongside a conventional ryegrass and white clover ley.- each of around 3ha in size. Long discussions were had regarding the formulation of the multispecies mixture – with the farmers keen to include a wide range of grasses but with less interest in a broad spectrum of herbs and legumes.

Control ley		
AberChoice	Late Diploid	3 kg/acre
AberWolf	Int Diploid	2 kg/acre
AberGain	Late Tetraploid	3 kg/acre
AberZeus	Int Diploid	3 kg/acre
AberBite	Late Tetraploid	2 kg/acre
Presto	Timothy	1 kg/acre
Aber Pasture	White clover blend	1 kg/acre

Multispecies ley		
AberLee	Late Diploid	2 kg/acre
AberGain	Late Tetraploid	4 kg/acre
AberZeus	Int Diploid	2 kg/acre
AberPaddock	Meadow Fescue	2 kg/acre
Presto	Timothy	1 kg/acre
AberNiche	Festulolium	2 kg/acre
AberChianti	Red Clover	½ kg/acre
AberClaret	Red Clover	½ kg/acre
Aber Pasture	White clover mix	1 kg/acre
Tonic	Plantain	0.6 kg/acre
Puna II	Perennial chicory	0.4kg/acre

Prolonged dry weather resulted in different establishment dates (May-Aug) on the three farms. All fields were corrected for pH and PK at establishment and maintenance PK applications made through the course of the project.

## Monitoring

- Establishment success – germination and weed levels
- Assessments of ground cover and species composition
- Dry matter yields – grazing cages cut every month through the grazing season
- Forage analysis for nutritional qualities (ME, CP) and mineral contents
- Animal performance – lamb weights recorded post weaning

Plate 1 Control mixture



Plate 2 Multispecies mixture



Plate 3 Sampling from exclusion cage areas

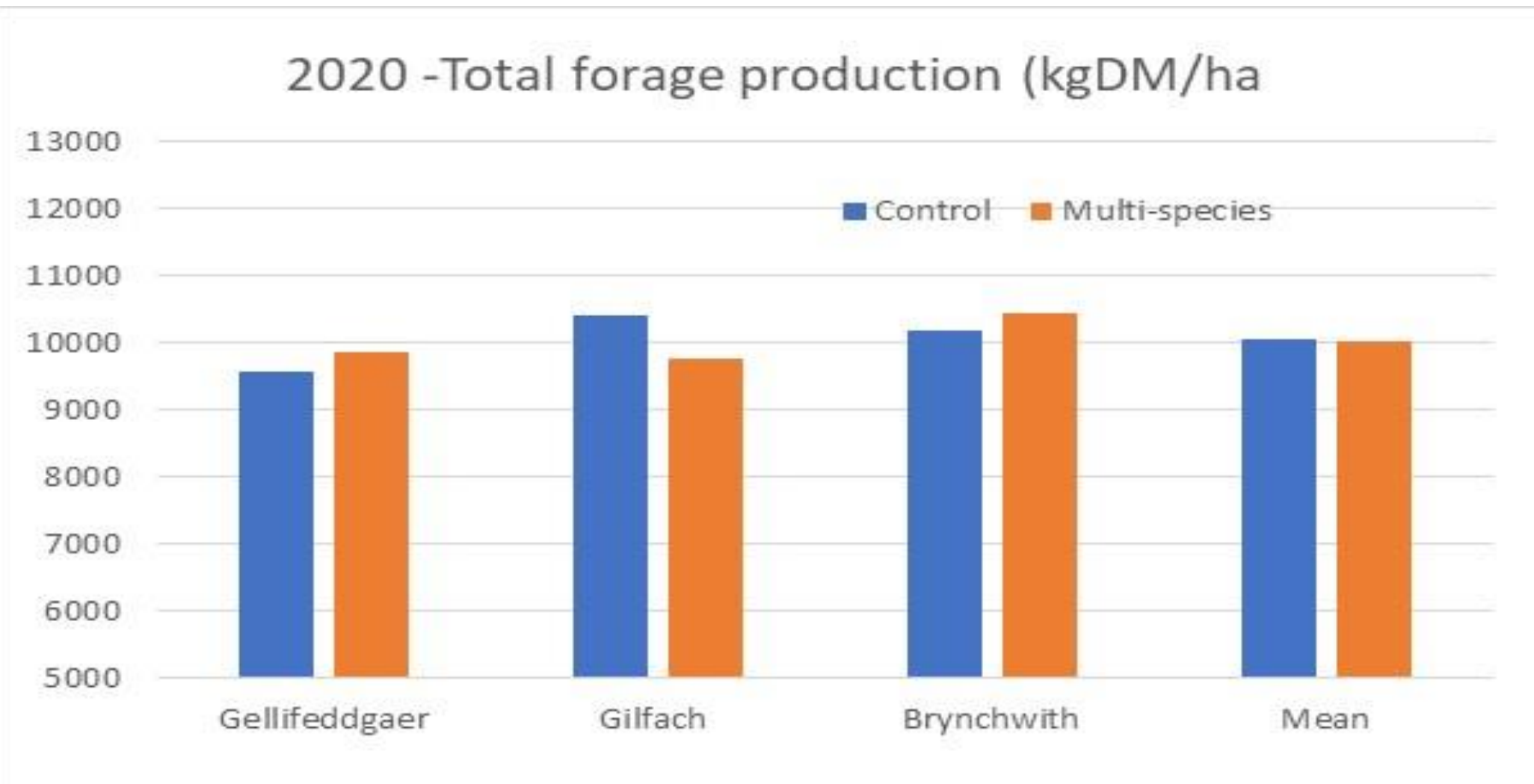
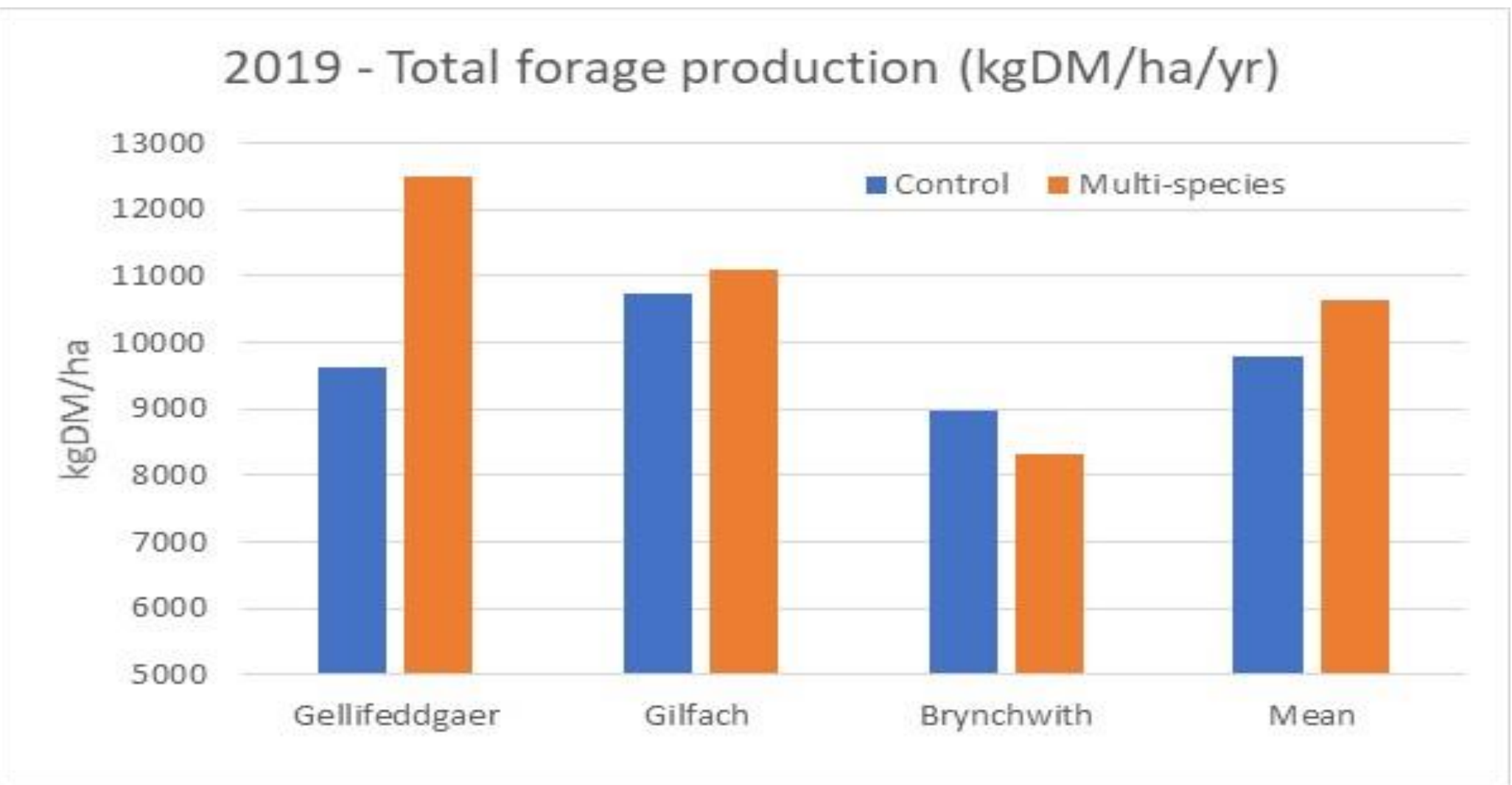


## Sward management

- All farmers were trained in assessing sward heights and on appropriate targets to avoid over and under grazing.
- All farms initiated a winter break (Nov-Feb).
- All of the leys were grazed on a semi-rotational basis – typically one week on, two weeks off.
- Grazing was a mixture of cattle and sheep at Gellifeddgaer, predominantly cattle at Brynchwith and just sheep at Gilfach.
- Gilfach took a silage cut from the new leys in both 2019 and 2020.
- Fertiliser inputs varied slightly across the three farms – ranging from 30kgN/ha at Gellifeddgaer to 100kgN/ha at Brynchwith and 120kgN/ha at Gilfach.

## Key results

Only one farm consistently grew more forage on the multispecies ley over the course of the project – including 30% extra in 2019



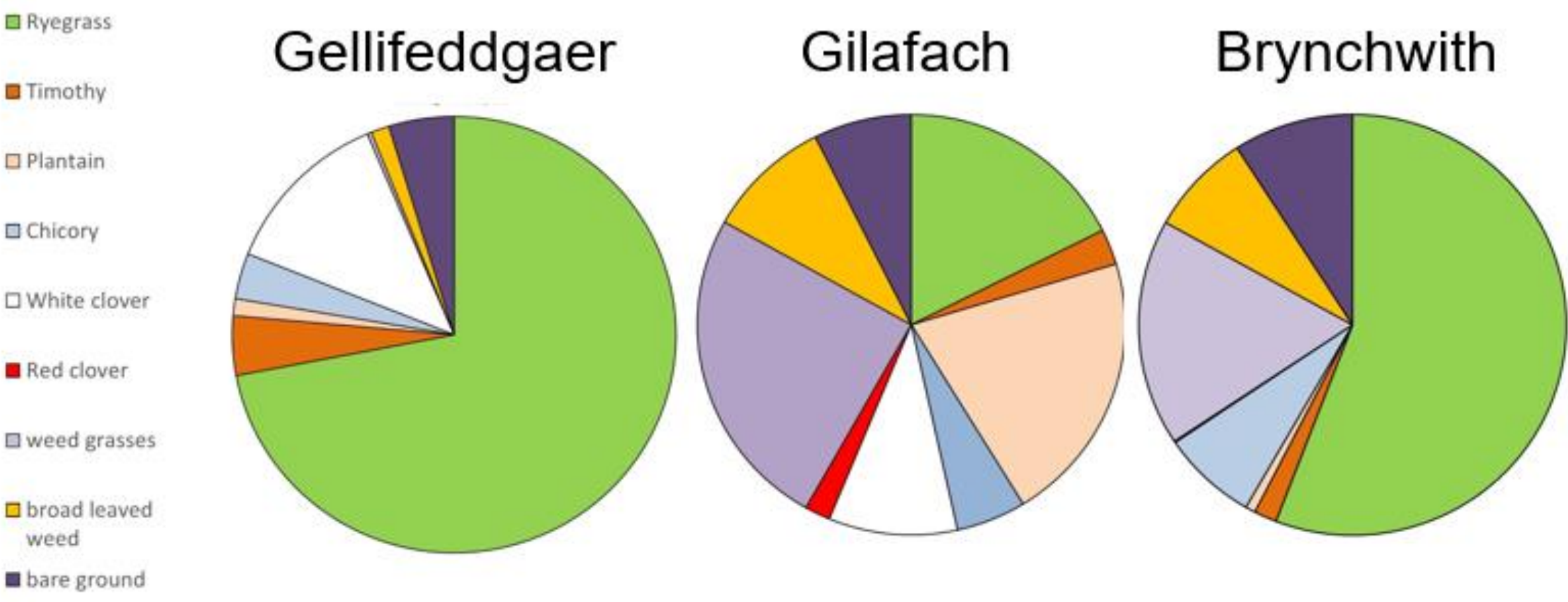
All farms recorded increases in winter, early spring and late autumn production with the multispecies leys in 2019, on average an extra 1tDM/ha - but this wasn't repeated in 2020.

There were no consistent trends found in the nutritional quality of the two swards (ME, CP, WSC) but the multispecies leys were lower in dry matter (1-3%) at every sampling point

Only in the final sampling in autumn 2020 did the project record any increase in mineral status of the multispecies leys – and even then, differences were small and inconsistent.

None of the farms recorded any improvement in animal performance (live weight gain) on the multispecies leys. Lamb weights indicated that often there was an acclimatisation period when stock were introduced to the multispecies leys. All farms reported that stock grazed the grass component of the sward ahead of the herbs. All farmers reported that the stock were cleaner on the MS leys.

By the end of the project all three farms had generated quite different multispecies leys – from the same starting point but with slightly different management activities.



## Project outcomes and farmer feedback

- Multispecies (MS) leys have performed as well as traditional ryegrass leys on a range of fields with challenging conditions.
- The greatest benefits of MS leys are in the early life of the ley – as often the herb content declines quickly
- MS leys have provided yield benefits in early and late season production.
- Wet soils and poorly drained land are probably not best suited for MS leys.
- Seed mixture selection is difficult due to the huge choice on the market.
- Establishment early in the year is beneficial
- Rotational grazing is preferred to continuous to prevent plants from being grazed out.
- Late autumn grazing and under-grazing in spring may have contributed to the decline in diversity.
- Winter rest period is important to allow the legumes and herbs to persist.
- A single silage cut (mid-season) seems to have no detrimental effect on the ley.
- Moderate N applications (<150kgN/ha) have not adversely affected the mixtures
- Forage quality and mineral status haven't been significantly altered by using MS leys
- Benefits for animal performance and animal health from grazing MS leys have not been evident from this project.

## Acknowledgments

The project is indebted to the co-operation and dedication of the three farmers and their families; Richard Morgan, Gellifeddgaer, Ed Roberts, Gilfach and Phil Thomas, Brynchwith.

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