

## Overseeding permanent pastures with herbal leys

### Overview

Permanent pastures are defined by Natural England as land that has been in grassland for at least five consecutive years.

Permanent pastures can possess high plant diversity, including some rare plant species. Environmental Impact Assessment (EIA) regulations are in place to protect this diversity. However, some permanent pastures have low botanical diversity and low productivity and are dominated by weed grasses that have low palatability to livestock.

Advice on EIAs and where they apply is available on the Defra website:

- [Changing uncultivated, semi-natural and rural land: when you need permission](#)
- [GRH6: Manage priority habitat species-rich grassland \(endorsed\)](#)

High quality permanent pastures can possess stable soil of good porosity and high soil organic matter. However, in some cases these long-term grasslands can have poor soil health, with a low level of water infiltration.



The HELEN (Cornwall Herbal Ley Establishment Network) project, funded by Farming in Protected Landscapes (FiPL), has worked with 6 farmers in different areas of the Cornwall National Landscape. The goal of the project has been to review the soil health and botanical diversity of permanent pasture. In collaboration

with the farmers, appropriate methods of herbal ley establishment were trialled in accordance with the EIAs. The project has been a collaboration between Cornwall Wildlife Trust and the Farm Carbon Toolkit.

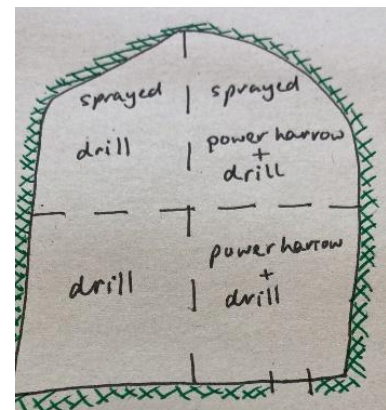
### Establishment methods

The farmers have trialled a range of establishment methods, with the trial aiming to understand:

- 1) Which drilling method was most successful
- 2) Which herbal ley plant species established with each method
- 3) Whether a glyphosate treatment of the ley was necessary to reduce competition for the new seeds.

### Treway Farm, FNZ Monitor Farm

In June 2024, Will Martin trialled a direct drill with and without a power harrow, and with and without a glyphosate treatment. The trial was carried out across three fields, each field had each of the four treatments.



The seed mix was:

Mass (kg)	Species
4	Intermediate perennial ryegrass
3.3	Late perennial ryegrass
1	Timothy
1.5	Meadow fescue
0.75	Cocksfoot
0.5	Sheep's fescue
1	Creeping red fescue
2	Red clover
0.75	Alsike clover
0.5	White clover
0.85	Bird's-foot trefoil

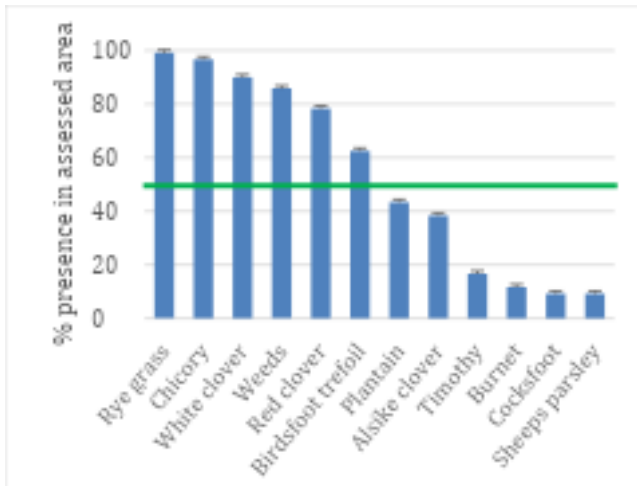
0.42	Plantain
0.3	Chicory
0.05	Burnet
0.03	Yarrow
0.05	Sheep's parsley

## Seed establishment results

Species presence was assessed in August 2024 by counting the number of plants of each species in 10 quadrats per plot. At the time of assessment; of the grasses, only cocksfoot, ryegrass and timothy could be differentiated at seedling stage.

Significantly more species established with the power harrow and drill combination, and in glyphosate treated plots.

**Species present in more than 50% of assessment areas:** Ryegrass, chicory, white clover, red clover, bird's-foot trefoil.



Plot to show species presence across all trial plots (10 assessments / plot with a quadrat of 0.25m<sup>2</sup>)



Power harrowed and drilled, not sprayed (left); and sprayed and direct drilled (right).

## Species dominance results

The percentage leaf area of each species was measured across all treatments and fields. Of the species that established:

- **Alsike clover, red clover, plantain, and ryegrass established better in the sprayed plots.**
- The method of drilling only significantly affected chicory.
- **Chicory had a greater leaf area in the direct drilled plots. Spraying had no effect.**
- Red clover had a greater area in the sprayed and direct drilled plots.

## Soil data

A complete set of assessments are required for all the trial farms to determine whether soil structure, and in particular the level of compaction, significantly affects which establishment method was most successful.

## Finally...based on the Treway results

For Treway, a simple herbal ley mix could be designed comprised of ryegrass, chicory, white clover, red clover, bird's-foot trefoil.

Management of plant competition, where the old permanent pasture is grazed tightly or sprayed off, is more important than the drilling

options (with or without a power harrow) trialled at Treway.

If time is limited, chicory is the single species that could be direct drilled into a permanent pasture. It may well thrive better with direct drilling compared to a more intensively prepared seed bed.

Reviewing permanent pasture performance is vital to ensure optimal soil health is achieved with high productivity and soil carbon sequestration.

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