

Hedgerows for carbon capture

Overview

Hedgerows are an iconic landscape feature on British farms. As well as forming field boundaries, hedges offer shelter and browse for livestock, habitat for wildlife and help to capture carbon from the atmosphere.

Cornish hedges in particular are culturally important, with some dating back 4000 years to the Bronze Age. This makes them some of the oldest man-made structures still in their original use.

Livestock benefits

Hedges provide shelter from extreme weather. In cold, windy conditions hedges form valuable windbreaks, with research from Bangor University finding that shepherding involvement at lambing was lower where ewes had access to shelter. In hot weather, hedges provide shade to reduce the risk of heat stress.

Livestock also make use of hedges for browsing, with some tree species able to provide important nutrients, such as cobalt, to aid livestock performance.



Biodiversity benefits

The diversity of plant species in a hedgerow helps to support a wide range of animal species. Hedges are an important source of food and shelter within the farmed landscape. They are also useful for connecting habitats across the landscape, allowing animal populations to travel and spread.

Hedgerow management

Hedgerows are a man-made feature and as such, require managing in order to continue to exist. There is a balance between over- and under-managing a hedge. Over-managing damages hedge structure by increasing gaps, whereas under-managing leads to the hedge reverting to a line of trees with fewer nesting options for animals.

Ideally, hedges should be laid on a rotation. However, this can be time-consuming and so it is acceptable to use a tractor-mounted trimmer. When using a trimmer, a rotation should still be employed where hedges are trimmed once every three years. This will leave untrimmed hedges across the farm to harbour wildlife. Not trimming all hedges every year will also reduce fuel use, saving carbon emissions.

The 2023 update to the Sustainable Farming Incentive scheme includes several hedgerow management payment options.

Carbon benefits

The structure of Cornish hedges with an earth bank topped by shrubs and trees means they offer a significant opportunity for sequestering carbon.

The woody plant growth captures carbon as it grows. Carbon is also locked up in root biomass and leaf litter. For a hedge with an earth bank, there is also the potential for soil carbon capture in the undisturbed soil. The windbreak effect of hedges helps to reduce soil erosion, protecting soil carbon in fields bordered by hedgerows.

To further increase carbon sequestration, hedges should be allowed to grow upwards and outwards rather than being trimmed tightly every year. As shown in the table below, larger hedges capture much more carbon.

Hedgerow Type	Sequestration (tCO ₂ e)	Equivalent broadleaf woodland area (ha)	Quantity of red diesel offset (l)
Managed (100m)	0.11	0.02	32
Large growth with trees (100m)	0.67	0.12	197