TECHNICAL NOTE TN738 December 2020 • ELEC

Hedges – Carbon, Conservation & Compliance

Farm Advisory Service
National Advice Hub
T: 0300 323 0161
E: advice@fas.scot
W: www.fas.scot

Summary

- **When planting, think about habitat linkage and how the hedge can connect other areas of conservation interest on the farm.**
- **Where possible, manage a hedge with a mix of species, with native fruit-bearing plants in particular.**
- **If cutting or trimming, consider cutting at an angle, to form an A-shaped profile and leave a thicker base for wildlife.**
- **Consider cross-compliance dates and distances before carrying out any management activity.**
- **Consider alternative uses of cuttings and the potential for green fodder.**

Introduction

When it comes to hedges it is important to remember the three Cs: Carbon, Conservation & Compliance.
Hedges dominate the farmed landscape of many parts of Scotland. At a time in which agriculture as a sector is coming under increasing pressure to provide "public good", hedges can be an obvious feature with scope for widescale uptake, particularly for farms where maintaining a high level of productivity is important or where there are minimal woodland opportunities. Hedges also act as wildlife corridors and can go a long way to enhancing and connecting isolated native habitats on farms, building resilience to climate change, sequestering carbon and acting as a means of meeting various regulatory obligations.

Carbon

Hedges have been recognised for their potential to tackle the increasing challenges of climate change. The UK's Climate Change Committee (CCC) advocates the creation of new hedgerows across the country, in conjunction with other methods, to increase carbon sequestration.

Hedges sequester carbon dioxide (CO_2) in woody growth and in root systems in the same way that trees do. Additionally, the recurring breakdown of leaves on an annual basis builds and restores organic matter content of the soil, improving soil retention and pasture productivity.

The general rule of thumb to maximise carbon benefits is that a wider hedge is better than a tall one. The wider and deeper root network can convert and deposit more CO_2 into the soil. Also, challenges of managing and maintaining tall plant structures mean that having tall hedges are undesirable on a practical level.

Hedges can also help reduce wind erosion of sandy soils and, when planted across slopes, can slow the flow of water downslope, helping to reduce peak flood levels during the type of extreme rainfall events that are becoming more common as a result of climate change.

Conservation

Hedges play an important role in fighting habitat and biodiversity loss; they are the green corridors of the managed landscape, increasing connectivity and aiding in the provision of ecosystem services. Creating new hedges to link existing areas of woodland and scrub will maximise their benefits as habitat corridors.

Hedges act as shelter and provide a range of berries, flowers and seeds that sustain many farmland birds, mammals and insects.

When creating a new hedge, it is important to note that they may not be beneficial to all species on the farm. This is most commonly exemplified by the concerns over ground nesting wading birds, the concern being that wading birds perceive hedges (like woodland) as harbouring predators and will avoid nesting close to them. Careful consideration and consultation should take place with the relevant professional bodies to ensure that hedge planting does not take place in open landscapes important for these species. Hedges, like trees, may also dry out wetland areas.

The European Agricultural Fund for Rural Development
Europe investing in rural areas

SAC CONSULTING

Scottish Government
Riaghaltas na h-Alba
gov.scot

TN738AD17.12.2020

Promoting Pollinators

Pollinating insects do not typically like moving across open, exposed spaces and so in this regard hedges can go a long way on protecting and promoting pollinators on the farm, they are also valuable in providing a means for them to navigate across the landscape. Hedges that include blackthorn can be particularly useful in early spring when few other flowers are available. A succession of flowering species such as hawthorn and wild cherry are also important moving into late spring.

In the summer, hedges provide a good mix of flower plants and fruits but consider how the grass margin around the hedge is also being managed, especially if the farm is an arable unit. Most conventional crops will only flower for a few weeks but a well-managed grass margin with a supporting hedge can provide pollen and nectar for the whole flying season. Consider whether your grass margins can be extended, to round off an oddly shaped field or if areas of less productive land could be kept in longer grass. Consider adding native flowering plants to the margin.

Moving into the back end of the year, ivy can be a particularly useful source of nectar and pollen. What you will also find around this time is that pollinating species will use holes in the earth from small mammals, hollowed out stems, raised areas of turf, etc. for shelter and to lengthen out the season.

Hedges can provide a range of important foraging opportunities for farmland birds, small mammals and pollinating insects.

Alternative Fodder

Often referred to as "tree hay", the cutting, gathering, drying and feeding of leaf fodder from trees and hedges is a historic practice that has declined in popularity, particularly in the last century. While it can never realistically be expected to replace conventional production of winter fodder, it does, have the potential to support and supplement those feeds and diversify feed and feed availability. Tree hay also presents an opportunity to utilise cuttings that will be largely renewable and recurring with your annual management of hedges on your farm.

Designing Your Hedgerow

The position and layout of a new hedge will depend on the desired function. Ground and soil condition will also play a large role in the decisions around species choice. Scottish Government's position on this is that newly created hedges incorporate several different species and have a preference against the use of single species beech. Hedges

Hedges aid in navigation for pollinating insects in addition to providing valuable habitat.

can exist for a number of reasons but it is important to note that for a hedge to have conservation value, a minimum length of 20ft is desirable. Look for ways to use hedges to link existing habitats, but avoid open areas important for wading birds.

Sourcing Plants

Sourcing plants is an important factor to consider. Widespread use of plants sourced from foreign markets diminishes the prevalence of local diversity and increases the potential for biodiversity collapse due to different flowering times, particularly in the face of a changing climate. For those reasons it is advised that local plants are used.

Scotland and the rest of the UK is broken down into zones for seed source, this is to promote regionally appropriate sourcing of plants. Local providence should be discussed in conversation with your local tree nursery or supplier.

Planting

Firstly, planting should be undertaken preferably in the spring or autumn. Doing so will improve survivability of individual plants when considering the threats of heat stress and extreme weather conditions.

When establishing a new hedge, it is important that the ground is suitably prepared. At a bare minimum, plants present on the area should be removed and if possible the land could be cultivated. Weed control is crucial to a successful establishment, particularly in the first few years of planting. Weeding should take place on a recurring annual basis. Doing so will increase a successful establishment as well as help the hedge form a dense base.

It is typically recommended that a new hedge be at least a metre wide. Doing so provides enough critical mass that the individual plants can intertwine and create an inter-reliant and mutually beneficial relationship with one another, eventually forming a wider hedge as it grows. Hedges at least a metre wide will create effective weather and livestock barriers as well as allow for the development of a diverse and meaningful habitat for farmland biodiversity. Where hedges can be wider than a metre, the benefits of shelter and conservation value are compounded.

Many woodland nurseries sell conservation hedge mixes which should provide a diverse mix of species compliant with many national environmental schemes. Tables 1 & 2

included at the end of this document provide an overview of some of the species and designs most commonly used when planting new hedges.

Trimming is an important aspect of management, preventing hedges from transitioning to trees.

Management

Established hedges require ongoing management. This can include trimming, laying and coppicing. Hedges typically need to be trimmed or cut back to remove excessive growth and maintain access. Under several environmental schemes and regulations, the trimming of hedges cannot occur between 1st March – 31st August. The purpose of this exclusion period is to allow nesting birds, pollinators and small mammals to use the hedge through the summer. It is generally accepted that the best time to undertake hedge cutting is between January and February, when berries and seeds have been eaten but before farm birds take up nesting in the spring.

Management within the first two to three years of establishment is crucial to the success of a hedge. During this time, hedges should be regularly weeded.

Hedge-laying involves cutting down the stem of the central hedge plant and forcing the remaining smaller stem sections horizontally. Doing so in theory prevents the hedge from growing vertically as well as maintaining the density and integrity at the base of the hedge. The split stem is known as a "pleach" or "pleacher". Over time the pleacher will die. However, at the base or "stool" of the cut, new growth will emerge. The deadwood from the pleacher will still be useful in reinforcing the hedge but can be removed along with any brush that has undesirable growth. Traditionally laying was done using a billhook but in more modern times is usually completed by a professional using an axe or chainsaw.

Hedges are important weather breaks and can help to reduce soil erosion and lock in carbon.

Coppicing follows the same principles and has the same end objectives as laying. Where coppicing differs is that it involves the complete removal of the existing plant, right down to the stool. Coppicing is a method most commonly used when a hedge has grown too tall or when it has become too mis-shapen and is in essence starting again, without replanting.

Traditional hedge trimming has mostly fallen out of favour now, largely replaced with tractor mounted flails and circular saws. Trimming hedges encourages bushy growth but must be carefully thought about as trimming will often limit the potential of the hedge to bear fruit or flower for a few years, subsequently having less conservation and biodiversity benefit.

Conversely, trimming at multiple points and angles in a hedge can help to create greater diversity of habitat. Trimming the same height and area too regularly is not recommended as often it can result in a "hard knuckle" with limited growth.

Options for Protection

Young hedges, trees and shrubs are highly vulnerable to browsing from domestic livestock and wildlife. Depending on the prevalence of small and large mammal pests, capital investment in stock fencing, rabbit proof netting or vole guards may be required. Where fencing or netting is required, up to 50cm from the outside of the hedge is recommended, to maintain access for management and facilitate growth outwards.

Hedgerow Trees

There are over 3 million hedgerow trees across the country, acting as more permanent and stable landscape features and providing a valuable and different habitat for a range of invertebrates, which in turn support a range of important farmland bird species; species that normally have poorer germination rates, e.g. oak tends to do well in a standard hedge. However, some tree species that are commonly found in hedgerows are now threatened by disease (e.g. elm and ash).

Retention of landscape features

When considering habitat management and cross compliance, it is crucial to understand the dos and don'ts around hedges.

Under the regulations for Good Agricultural Environmental Condition (GAEC) there are several compulsory management standards that must be maintained to meet cross compliance and subsidy support schemes. GAEC 7 relates specifically to the retention of landscape features and this includes minimum standards for the management of hedges.

The following rules relate specifically to the management of hedges, and exceptions can apply. You must not:

1) Remove or destroy hedges without Scottish Government consent.
2) Trim hedges or lop branches off trees during the bird nesting and rearing season starting on 1st March and ending on 31st August.
3) Cultivate land within 2m of the centre line of a hedge.
4) Apply fertilisers (organic manure, chemical or nitrogen) or pesticides within 2m of the centre line of a hedge.

Hedges can also be used to meet the greening requirements of the Basic Payment Scheme (BPS), for many arable farms and livestock farms with a significant arable component. Further information can be found on the Scottish Government Rural Payments and Services website, but some handy quick tips include:

1) To be eligible for EFA the hedge needs to be at least 20m in length and on or adjacent to arable land.
2) Hedges wider than 3m from the centre of the hedge are BPS and EFA ineligible.
3) Gaps can be included in an EFA hedge claim area. However, this gap should not exceed 20m.
4) Hedge trees can be claimed as part of an EFA hedge claim area.
5) If a hedge splits two fields and it is to be claimed for EFA, the hedge should be split down the middle and the claim areas of that hedge allocated to the relevant adjacent field.
6) Hedges created under an existing or past environmental scheme (AECS, RP) can also be claimed to meet EFA requirements.
7) If claimed for both an agri-environment scheme and EFA the payment received may be reduced to reflect the greening payment you receive for your EFA feature.

Table 1. Description of hedgerow species and characteristics

Species	Pros	Cons
Beech	Prolific Dense Widespread across Scotland	Non-native Poor biodiversity value
Blackthorn	Great biodiversity value – nectar/pollen and fruit Fast growing	Young plants and lower growing sections can be vulnerable to rabbits and hares
Hawthorn		Thorns can make management difficult and present problems for livestock
Willow	Prolific Suited to riparian environments	Rapid growth can lead to higher management demands
Hazel	Bears late season forage for biodiversity	Young plants and lower growing sections can be vulnerable to rabbits and hares
Sycamore	Drought tolerant Great long-term biodiversity value	Probably only native in the south of Scotland
Holly	Evergreen Winter forage	Slow-growing
Elder	Fast growing	Rapid growth can lead to higher management demands

Table 2. Typical hedgerow templates

No. of Rows	Plants/m	Pros	Cons
Single	3	Each side of the individual plant is accessible for management purposes	Hedge is less dense and becomes more prone to developing gaps
Double	5	Having concentric planting locations means that the hedge can more easily intertwine. Greater potential for a broader mix of species	Greater space requirement and more difficulty getting access
Double	6	Dense and robust hedge Excellent weather-proofing	Restricted access to the centre of the hedge

Author
Alexander Pirie, Agricultural Consultant
SAC Consulting, John F Niven Building, Auchincruive, KA6 5HW

Thanks to the following for their contributions
David Eadie, Helen Bibby and Paul Chapman

This technical note is funded by the Scottish Government as part of its Farm Advisory Service.