

Integrating Trees on Farms and Crofts in Scotland

Benefits, Barriers and Opportunities



This report is endorsed by



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1. Summary

In a time of nature and climate emergency, it is more important than ever to manage land in a way that addresses these issues before it is too late.

Ambitious targets of achieving a 75% reduction in emissions from greenhouse gases (GHGs) by 2030 and net zero emissions by 2045¹, mean significant changes will be required in the way we use land, including for farming. Woodland expansion and tree planting will be important responses to both the nature and climate crises. In the Forestry Strategy for Scotland, the Scottish Government has set a target to reach 21% forest and woodland cover by 2032 and has the ambition to achieve greater land use integration.

The current support mechanisms for tree planting in Scotland focus on woodland expansion, some of which will take land out of agricultural production. This overlooks another important opportunity to significantly increase the presence of trees in the farmed landscape, in a way that complements farming systems, including crofting.

Trees on farms can provide a range of benefits to both farmers and to wider society. They can be used to regulate growing conditions for the benefit of crops and animals, provide shelter from wind and rain, regulate soil temperature, support important populations of pollinators, enhance water conservation, reduce soil erosion and enrich soil fertility. They can also produce materials for sale or use on farms including timber, fruit, firewood and fodder.

Trees on farms also provide significant ecosystem services – which benefit all of society. They can reduce pollutants entering water courses, help to control flooding downstream, absorb carbon from the atmosphere and provide improved habitats for nature.

...the Scottish Government has set a target to reach 21% forest and woodland cover by 2032 and has the ambition to achieve greater land use integration



¹ Scottish Government, Climate Change (Scotland) Act 2009. 2009.

Despite these well documented benefits, there are significant barriers to integrating trees into farming systems in Scotland. These include grant incentives that focus on woodland creation rather than a more integrated approach and cultural issues arising from a Scottish farm-scape that is significantly less wooded than most of Europe. Lack of awareness, education, and skills, along with limited availability of good demonstration sites and case studies is a further constraint. Structurally, the persistent division between trees and farming in education, research and government departments contribute to a lack of integration of trees on farms.

The opportunity to review post-Brexit land use payments in Scotland provides an exciting opportunity to significantly increase the scale of tree planting in farming and crofting systems in a way that tackles biodiversity loss and climate change while also supporting a resilient and productive agricultural sector.

This publication is intended to provide land managers and policymakers with an understanding of the benefits and challenges of integrating trees into farming systems and to make some initial recommendations to support a significant increase in tree planting on Scottish farms and crofts.

This document was commissioned by Woodland Trust Scotland. A joint paper between Woodland Trust Scotland and Soil Association Scotland. It was written in 2021 and updated in 2022. Many thanks to those who have contributed (in no particular order): David McKay, Bruce Pearce, Arina Russell, Iona Hyde, Helen Chesshire, Alan Bryce, Alastair Seaman, Hamish Thomson and James McDougall.



2. Benefits of trees in farming systems

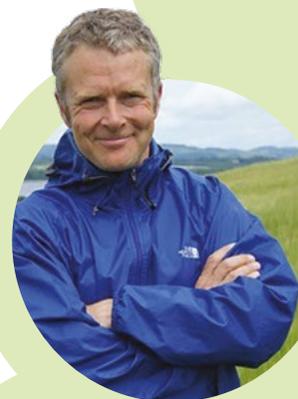
The benefits of trees in farming systems around the globe have been well understood and documented for centuries. For example, Scotland, with its windy climate, has a long history of using trees for sheltering livestock. In the last few decades there has been a flourishing of research and new approaches to 'agroforestry'. Although much of this initiated in the tropics and subtropics there has been significant research and innovation in many temperate countries across the world including China, Australia and Canada. Scotland has a long way to go to harness the full benefits of trees in its farming systems.

2.1 Productivity

Growing two crops from the same land, such as rows of fruit trees through arable crops, or combining livestock and trees for timber production, can increase total yield and on-farm productivity². Farm businesses can benefit from the services that trees provide, such as increased habitat for pollinators, shelter for livestock and crops to support improved growth, as well as diversified agricultural products such as fruits, nuts and timber.

Productivity increase from integrated tree and farming systems can be significant, in some cases up to 40%³. Hens ranging on land with 20% tree cover have been found to have increased laying rates and higher shell density meaning higher output, fewer second eggs and reduced losses⁴.

An integrated tree component can support farm businesses to operate throughout the year, evening out the peaks and troughs of seasonal labour demands as well as offering a more diverse source of year-round income for farm businesses.



"The driving idea is a mixture of arable crops and apples that will be biodiverse, mutually beneficial in that the trees will give some shelter to the crops and give fruit as another commercial crop."

Roger Howison, Parkhill Farm, Fife

Case study: Roger and Rachel Howison at Parkhill Farm in Fife

At Parkhill Farm in Newburgh, Fife, Roger and Rachel Howison have created a silvo-arable system that is good for livestock, biodiversity and business. The farm is 217ha of mixed arable and livestock. The Woodland Trust worked with Roger and Rachel to deliver their scheme to plant 750 heritage apple trees and 10,000 native broadleaf trees. The trees act as shelter for livestock and are good for biodiversity, while the apples are a commercial crop. Roger and Rachel use the apples to make cider and apple juice, which they sell directly from Parkhill Farm. The inspiration for this project came from a fellow farmer in Cambridgeshire, Stephen Briggs, who is also reaping the benefits of a dual cropping system.

For full details of the case study and a video please visit: www.soilassociation.org and search for 'apple trees and barley'.



² Van Lerberghe P (2017a). Agroforestry Best Practice leaflet 01: Alley cropping systems: key objectives. AGFORWARD project. Available online: <https://www.agforward.eu/index.php/en/best-practices-leaflets.html>

³ Lampkin, N.H., et al (2015) 'The role of agroecology in sustainable intensification', Report for the Land Use Policy Group. Organic Research Centre, Elm Farm and Game & Wildlife Conservation Trust, 72.

⁴ Bright A, & Joret, A. (2012) 'Laying hens go undercover to improve production'. Veterinary Record 170: 228.

Opportunities for integration

Within a Scottish context there are four distinct models for integrating trees into farming systems (sometimes described as agroforestry):

- **Farm-scale woodland creation** to add a timber production element to the farming system.
- **Silvopastoral**: integrating trees and livestock. In Scotland this commonly includes shelterbelts, hedgerows, seasonal grazing of livestock in woodlands and wood pasture and an integrated mosaic of parkland trees, copses and pasture.
- **Silvoarable**: integrating trees and crops. This is still uncommon in Scotland although there have been some recent encouraging successes with fruit production.
- **Hedgerows, copses and buffer strips**, including the use of trees to protect riverbanks and provide shade to rivers. Small areas of awkward or unproductive ground can be planted to simplify farming operations and produce economic and environmental benefits.

2.2 Climate emergency and air pollution

The *Farming for 1.5°C Final Panel Report-From here to 2045*⁵ concludes that “agroforestry remains one of the most effective ways to achieve Scotland’s climate goals in both mitigation and adaptation across a range of soil types.”

Increased tree, shrub and hedge cover on farms can increase the amount of carbon sequestered compared to monocultures⁶. Woody perennials store a significant amount of carbon in above ground biomass and contribute to below ground carbon sequestration in soils. The potential for agroforestry systems to sequester carbon depends on several factors including system design, tree density, species composition, age, climate, management and the end product. Studies in North America on silvopastoral⁷ and silvoarable⁸ systems showed these were more efficient at storing carbon than tree plantations or pasture/cropping monocultures.

Although not a greenhouse gas, ammonia (NH₃) can have negative human health and environmental effects. Agriculture accounts for over 80% of NH₃ emissions in the UK, which come from livestock housing, grazing and the storage and spreading of manure⁹. Trees are effective scavengers of both gaseous and particulate pollutants from the atmosphere, suggesting that increasing tree cover within agricultural landscapes can remove NH₃ from the atmosphere near the source, so reducing impacts on sensitive ecosystems¹⁰. The Centre for Ecology and Hydrology (CEH) and Forest Research (FR) have jointly developed a calculator and guidance for farmers, planners and tree planters, so they can maximise the benefits of planting tree shelterbelts for ammonia recapture¹¹.

Increasing tree cover within agricultural landscapes can remove NH₃ from the atmosphere near the source, so reducing impacts on sensitive ecosystems



⁵ Anon, “Farming for 1.5°C Final Panel Report-From here to 2045,” 2021. Accessed: Feb. 13, 2022. [Online]. Available: <https://bit.ly/Farming1point5Report>

⁶ S. Jose, “Agroforestry for ecosystem services and environmental benefits: an overview,” *Agroforestry Systems*, vol. 76, no. 1, pp. 1–10, May 2009, doi: 10.1007/s10457-009-9229-7.

⁷ S. H. Sharrow and S. Ismail, “Carbon and nitrogen storage in agroforests, tree plantations, and pastures in western Oregon, USA,” *Agroforestry Systems*, vol. 60, no. 2, pp. 123–130, Mar. 2004, doi: 10.1023/B:AGFO.0000013267.87896.41.

⁸ M. Peichl, N. v. Thevathasan, A. M. Gordon, J. Huss, and R. A. Abohassan, “Carbon sequestration potentials in temperate tree-based intercropping systems, southern Ontario, Canada,” *Agroforestry Systems*, vol. 66, no. 3, 2006, doi: 10.1007/s10457-005-0361-8.

⁹ T. Misselbrook et al., “Inventory of ammonia emissions from UK agriculture 2009,” 2010.

¹⁰ W. J. Bealey et al., “Agroforestry Systems for Ammonia Abatement AC0201 Final Report,” 2013. Accessed: Feb. 13, 2022. [Online]

¹¹ Centre for Ecology and Hydrology and Forest Research Agency, “Tree calculator for Ammonia Mitigation.” <https://www.farmtreestoair.ceh.ac.uk/> (accessed Feb. 19, 2022).

2.3 Reversing nature loss

By their nature, treed farm-scapes are more diverse than monocultures. Research has shown that scattered trees within agricultural landscapes act as 'keystone species' to facilitate the movement of wildlife through a landscape that may otherwise be too hostile¹². Integrating trees within agricultural landscapes can provide corridors, including along rivers, allowing movement of species through these landscapes. This function is likely to increase in importance under predicted climate change scenarios by allowing species to adapt their distributions in response to the shifting climate.

The value of farm trees for UK biodiversity has been assessed in several studies on trial sites in the late 1990s¹³. Specifically in Scotland and Northern Ireland higher abundance and species richness of invertebrates were recorded in silvopastoral systems compared to open grassland¹⁴. Encouragingly, these improvements can be seen at early stages of development in silvopastoral systems with a positive impact on birds that reflected a rich matrix of woodland and grassland birds¹⁵.

There are around 22,000km of hedgerows in Scotland, occurring mostly on agricultural land, and more than 725,00km across the whole of the UK. It is estimated that Scotland lost around half of its hedgerows in the 20th century¹⁶, largely to simplify agricultural operations but resulting in a significant loss of habitat and biodiversity. In the face of a growing biodiversity crisis, replacing these vital wildlife corridors is a key priority as highlighted in the UK Biodiversity Action Plan.

As well as improving habitat diversity and connectivity, trees in the farmed landscape can contribute to the aesthetic quality of farmed landscapes. Integrated approaches to land management are popular with the public and an increased presence of trees on farms is consistent with the appeal of 'natural' countryside landscapes¹⁸.



In the face of a growing biodiversity crisis, replacing these vital wildlife corridors is a key priority

¹² A. D. Manning, P. Gibbons, and D. B. Lindenmayer, "Scattered trees: a complementary strategy for facilitating adaptive responses to climate change in modified landscapes?," *Journal of Applied Ecology*, vol. 46, no. 4, pp. 915–919, Aug. 2009, doi: 10.1111/j.1365-2664.2009.01657.x.

¹³ J. H. McAdam, A. R. Sibbald, Z. Teklehaimanot, and W. R. Eason, "Developing silvopastoral systems and their effects on diversity of fauna," in *Agroforestry Systems*, 2007, vol. 70, no. 1. doi: 10.1007/s10457-007-9047-8. J. H. McAdam and P. M. McEvoy, "The Potential for Silvopastoralism to Enhance Biodiversity on Grassland Farms in Ireland," in *Agroforestry in Europe*, 2008. doi: 10.1007/978-1-4020-8272-6_17.

P. J. Burgess, "Effects of agroforestry on farm biodiversity in the UK," 1999. [Online]. Available: <https://www.researchgate.net/publication/237629863>

¹⁴ A. Cuthbertson, J. McAdam, and J. H. McAdam, "The effect of tree density and species on carabid beetles in a range of pasture-tree agroforestry systems on a lowland site," *Agroforestry Forum*, vol. 7, 1996.

P. Dennis, L. J. F. Shellard, and R. D. M. Agnew, "Shifts in arthropod species assemblages in relation to silvopastoral establishment in upland pastures.," *Agroforestry Forum*, vol. 7, no. 3, pp. 14–17, 1996.

¹⁵ J. H. McAdam, A. R. Sibbald, Z. Teklehaimanot, and W. R. Eason, "Developing silvopastoral systems and their effects on diversity of fauna," in *Agroforestry Systems*, 2007, vol. 70, no. 1. doi: 10.1007/s10457-007-9047-8.

¹⁶ <https://www.nature.scot/landscapes-and-habitats/habitat-types/farmland-and-croftland/hedgerows-and-field-margins>

¹⁷ Nature Scot, Priority Habitat – Hedgerows. [Online] Available at www.nature.scot, search 'hedgerows'

¹⁸ Scott, A. (2002) 'Assessing Public Perception of Landscape: the LANDMAP experience' *Landscape Research*, Vol. 27, No. 3, 271–295, 2002

Case study: Alley Cropping - Andrew and Seonag Barbour at Mains of Fincastle in Pitlochry



Andrew and Seonag Barbour run the 540ha upland farm at Mains of Fincastle, Pitlochry. Looking to diversify their farm business whilst not wanting to lose significant ground to trees, they decided to trial a wood pasture system to grow oak with the aim of producing marketable timber.

In 2009, with support from the then Forestry Commission Scotland, they established three blocks totalling 7ha of mainly oak in a strip alley system, centred at 16 meters and aiming for a 60% canopy cover. Sheep were gradually given access from year five as a trial to see what interaction there was with trees and to initiate some natural pruning of lower branches. Cattle were given access at year 10 for the same reasons.

Trees have established well at yield class six and the aim is to thin within the next ten years to maintain 60% canopy cover. Andrew and Seonag both intend to increase this type of land use as they see it as a practical way of getting to net zero in their farming operations based on a carbon audit.

Alley cropping is the planting of rows of trees or shrubs wide enough to create alleyways within which arable or forage crops are planted or produced.



"We decided to trial a wood pasture system to grow oak with the aim of producing marketable timber."

Andrew Barbour, Mains of Fincastle, Perth & Kinross

**Case study:
Lynn Cassels and Sandra
Baer at Lynbreck Croft
in the Cairngorms
National Park**



At 60ha this is substantially larger than most crofts, but with a mixture of hill ground, grassland and bog, it resembles many other 'marginal land' small-holdings in Scotland.

The croft business model is based on farming with nature and Lynn Cassels and Sandra Baer's model and decision-making delivers for nature and for business. One of their main priorities was to increase tree cover on their croft to future-proof in the face of a changing climate and to create woodlands that would act as 'living barns'. Around 17,400 native broadleaf trees were added to existing woodland areas to create a place where nature can thrive and animals can shelter and forage.

One aspect of particular interest in this case study is the use of trees as animal fodder, a practice that was once common in Scotland but which has fallen out of use. With annual hay cuts becoming increasingly costly and complex to plan, 5,000 trees planted as part of an agroforestry project, are being used for animal feed both as freshly cut branches and as dry tree hay for the winter.

For full details of the case study please visit:

<https://www.woodlandtrust.org.uk/media/44068/highlands-and-islands-woodlands-handbook.pdf>



"In our short time here, we have become increasingly aware of how our climate is changing. Weather extremes are becoming the rule, rather than the exception. Incorporating more trees on our croft is the best way for us to 'future-proof' our business."

*Lynn Cassels,
Lynbreck Croft, Moray*

2.4 Animal welfare

Farm animal welfare and performance can be improved in agroforestry settings. Shelter from wind, rain and sun can improve quality of life with increased infant survival rates, reproductive capacity and milk production in cattle.

Sheltered environments give farmers the opportunity to keep stock on the land in all weathers, reducing the demand for investment in animal housing and providing a warmer 'maternity unit'.

Farm trees can support farmers to transition to hardier domestic livestock breeds, meaning more time on pasture for livestock that are better suited to cope with extreme weather. The shelter provided by hedgerows and tree belts has the effect of increasing soil temperature in the early spring and late autumn, extending the growing season for grass. This is particularly important in upland livestock areas, reducing the need for supplementary feed at a critical time in young animals' development.

The leaves and bark of trees can provide increased nutritional diversity, improving animal health, and they offer the potential to alleviate the use of antibiotics in animal agriculture¹⁹. The movement of stock within wooded areas can also suppress woody weeds, such as bracken and bramble, providing access to additional forage.

Silvopoultry is an established system in Scotland. Free-range chickens that move freely under the cover of trees are less stressed and more productive than those that are intensively housed²⁰, while Woodland Eggs command a premium price²¹.

Creating tree belts and thick hedges can provide a suitable bio-secure boundary around a farm. There is also evidence that trees in general can act as a buffer to the movement of harmful bacteria, such as E. coli, through ground water²².

The Suckler Beef Climate Scheme Report (October 2020)²³, supports "well-planned and integrated farm woodland and agroforestry projects including the preservation of existing native and riparian woodlands, scrubs and natural regeneration, as well as silvopastoral and hedges where the mutual benefits of forestry alongside farmland can deliver distinct benefits for the climate, local biodiversity and towards flood risk alleviation without jeopardising Scotland's domestic food security and the associated socio-economic and environmental benefits of a thriving agricultural sector".



¹⁹ Luske, B et al. 'Agroforestry for ruminants in the Netherlands', AGFORWARD 5.14, 15 August 2017. Available online: <https://www.agforward.eu/index.php/en/fodder-trees-for-cattle-and-goats-in-the-netherlands.html>

²⁰ A. Bright and A. D. Joret, "Laying hens go undercover to improve production," Veterinary Record, vol. 170, no. 9, 2012, doi: 10.1136/vr.100503.

²¹ Woodland Trust, "Trees mean better business," 2015. Accessed: Feb. 19, 2022. [Online]. Available: <https://www.woodlandtrust.org.uk/media/1785/trees-mean-better-business-for-egg-production.pdf>

²² Dougherty et al (2009). 'Nitrate and escherichia coli nar analysis in tile drain effluent from a mixed tree intercrop and monocrop system'. Agriculture, Ecosystems and Environment 131, 77-84

²³ Suckler Beef Climate Group, "Suckler Beef Climate Scheme: Final Report," 2020. Accessed: Feb. 19, 2022. [Online]. Available: <https://www.gov.scot/publications/suckler-beef-climate-scheme-final-report-2/documents/>

2.5 Water management

Climate modelling suggests that Scotland will experience more frequent and more intense flooding in the coming years. The careful siting of trees on farmland can improve soil infiltration and water retention, reducing the impact of flooding downstream by increasing the capacity of the land to retain water.

Farm trees and woodlands can play a significant role in water management. Vegetation buffers can reduce pollution run-off from crop fields and grazed pastures with a reduction of 70-90% of suspended solids, 60-98% for phosphorus and 70-95% for nitrogen²⁴. Riparian buffers can reduce non-point source water pollution from agricultural land and protect against bank erosion²⁵. Appropriately designed tree planting can also reduce the transport of veterinary antibiotics from manure to surface water resources²⁶.

Studies at Pontbren in Wales have shown that planting native broadleaved trees significantly improved soil infiltration, this being 13 times greater on ungrazed areas and 67 times greater on grazed areas. Other physical work and modelling using the data from Pontbren, has shown how careful placement of small strips of trees within a hillslope can reduce magnitudes of flood peaks by 40% at the field scale²⁷.



"...we've planted a contour plot of about 80 hectares, which is mainly native species, including birch, rowan, willow, and Scots pine. It stretches for three miles, all along the uphill side of the road, to prevent silt run-off into the river."
Dee Ward,
Rottal Estate, Angus



Case study: Trees and Water - Dee Ward at Rottal Estate in Angus

Landowner Dee Ward has planted trees and re-meandered the burn on the Rottal Estate in Angus, to benefit fish and wildlife and to help sequester carbon.

This riparian planting scheme is truly delivering multi-benefits with the trees performing an important function to improve the water quality going into the river and stop silt run-off.

Thanks to the number of newly planted trees, insects and wildlife have also benefited. Dee worked in partnership with the Esk Fishery Board and the Esk Fishery Trust on a riparian scheme to increase the number of freshwater pearl mussels in the Upper South Esk catchment. Alongside this a burn was re-meandered to slow the flow of water which helps to protect juvenile fish. The project was possible through collaborative action - an excellent way to complete environmental projects that would otherwise be cost prohibitive.

For full details of the case study please visit: www.soilassociation.org and search 'tree planting and river engineering'.

²⁴ M. Borin, M. Passoni, M. Thiene, and T. Tempesta, "Multiple functions of buffer strips in farming areas," *European Journal of Agronomy*, vol. 32, no. 1, pp. 103–111, Jan. 2010, doi: 10.1016/j.eja.2009.05.003.

²⁵ M. G. Dosskey, "Toward quantifying water pollution abatement in response to installing buffers on crop land," *Environmental Management*, vol. 28, no. 5, pp. 577–598, 2001, doi: 10.1007/s002670010245.

²⁶ B. Chu, K. W. Goynes, S. H. Anderson, C. H. Lin, and R. P. Udawatta, "Veterinary antibiotic sorption to agroforestry buffer, grass buffer and cropland soils," *Agroforestry Systems*, vol. 79, no. 1, pp. 67–80, 2010, doi: 10.1007/s10457-009-9273-3.

²⁷ B. M. Jackson et al., "The impact of upland land management on flooding: insights from a multiscale experimental and modelling programme," *Journal of Flood Risk Management*, vol. 1, no. 2, pp. 71–80, 2008, doi: 10.1111/j.1753-318x.2008.00009.x.

2.6 Soil management

Trees act as a natural barrier helping to prevent soil erosion. Intense rainfall can result in surface run-off which removes valuable topsoil rich in nutrients and organic matter. Wind erosion can also move soil from fields to drainage ditches and waterways, losing valuable soil fertility and polluting watercourses.

The 'safety net hypothesis' is based on the principle that the deeper tree roots can intercept nutrients leached out of a crop rooting zone, thus reducing pollution and, by recycling nutrients as leaf litter and root decomposition, increasing nutrient use efficiencies²⁸. Greater permanence of tree roots means that nutrients are captured before a field crop has been planted and following harvest, when leaching may be greater from bare soil.

Deeper rooting trees improve soil stability and additional organic matter from leaf litter and root debris can promote soil structure and increase organic matter in the soil. In some cases, integrating trees into an arable landscape has been proven to reduce soil erosion by up to 65%²⁹.



²⁸ S. Jose, A. R. Gillespie, and S. G. Pallardy, "Interspecific interactions in temperate agroforestry," *Agroforestry Systems*, vol. 61–62, no. 1–3, pp. 237–255, 2004, doi: 10.1023/B:AGFO.0000029002.85273.9b.

²⁹ Subhrendu Pattanayak and D. Evan Mercer, "Valuing Soil Conservation Benefits of Agroforestry Practices," no. 59, p. 21, 1996, [Online]. Available: <http://www.rtp.srs.fs.fed.us/econ/>.

3. Barriers to uptake

Despite the many advantages of integrating trees into farming systems and a growing number of successful demonstration farms, Scotland's farming sector is still a long way from exploiting the full potential of trees.

3.1 Tradition and perceptions

Scotland's farm-landscape is significantly less wooded than most of the rest of Europe. Although there are examples in every region of Scotland of farmers enthusiastically embracing tree planting, they remain a minority. Many farmers have never considered tree planting, while others view trees as being in direct competition to agricultural production and, in some regions, to the survival of farming itself.

3.2 Knowledge and skills

Many farmers (and farm advisors) lack knowledge of how trees could enhance their farming operations. Agricultural college courses often provide little or no training in trees or agroforestry.

3.3 Departmental delineations

Most farmers have limited awareness of forestry grants provided by Scottish Forestry and gravitate naturally to land use payments such as those available under the Agri-Environment Climate Scheme.

Moving grant support for trees on farms into the farm grant system is likely to make these options more visible and attractive to farmers and will help to normalise and increase the integration of trees into the farming landscape.

3.4 Tenancy issues

For many tenant farmers, the structure of agricultural tenancies is not conducive to tree planting, especially those on Short Limited Duration Tenancies (SLDT) for a term of no more than five years. The level of capital investment required can discourage tenant farmers from diversifying and/or investing. However, the *Update to the Climate Change Plan 2018 – 2032* proposes* “developing models to increase woodland creation on both tenanted and owner-occupied farms, increasing the scale and scope of agroforestry”. This is a welcomed proposal and needs to be acted upon without further delay.

3.5 Deer

A significant barrier to establishing trees in Scotland, including on farms, is deer. Deer numbers are now estimated at one million animals across Scotland and overgrazing is one of the main threats to woodland expansion targets as well as woodland condition. Deer fencing and/or treeguards is a basic requirement for the success of new planting schemes throughout much of Scotland creating a barrier in terms of capital costs as well as costs of on-going maintenance and eventual removal. There are clearly downsides to fencing, including visual and wildlife impacts and the issue of plastic pollution. To address this the recommendations of the Deer Working Group should be implemented urgently.

*Scottish Government, *Securing a Green Recovery on a path to net zero: Climate Change Plan 2018-2032 - update, 2020*, available at <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/>

3.6 Support mechanisms

Although the Forestry Grant Scheme (FGS) has a number of grants for trees on farms and crofts, uptake has been limited. This is partly due to lack of farmer familiarity with the scheme because, as described above, it sits outside the main farm support system. However the grants themselves are also limited in their applicability. For example, the current agroforestry option only covers a productive timber design suitable to fertile lower areas with no applicability to the large areas of upland Scotland.

While the stability of the current grant incentives until 2024 provides farmers with a degree of continuity, it is unlikely to encourage any significant changes in practice, with many farmers waiting to see what future incentive packages look like before considering any large-scale changes to their farming practice.

A window of opportunity

Leaving the European Union is the biggest change in the support and regulation of land use and management in Scotland for 40 years, providing the opportunity to develop new policies and mechanisms that will support our farmers to produce quality food while also managing their land in ways that help tackle the climate and nature crises. Those changes must include smarter and more effective mechanisms for encouraging the integration of trees into farming systems as described in this paper. Initiatives such as the Integrating Trees Network, led by farmers and supported by Scottish Government and Scottish Forestry, will have a key role to play in this transition through the provision of resources, facilitating discussions, events and a demonstration network of farms across Scotland.



"It will be a place where nature can thrive and where our animals can shelter beneath trees and forage on woodland flora and leaves. Our decision-making delivered for nature and for our croft business."

Mike Hyatt, Baleveolan Croft, Argyll & Bute

Case study: Mike Hyatt and Clare Haworth at Baleveolan Croft on Lismore

This croft on the Isle of Lismore had been transformed by Mike Hyatt and Clare Haworth from an unmanaged croft with derelict buildings to a thriving and diversified business which supports a productive tea plantation, organic garden, poultry business, an orchard and 5,000 new trees.

One of the first projects on the croft was the planting of trees as shelterbelts. The species chosen were mainly native and also provide firewood and fruit and improve the biodiversity and amenity value of the croft. The croft also has an area of ancient woodland which is being expanded through natural regeneration. Around 60 heritage fruit trees provide abundant fruit, and a forest garden system is under development in the areas with established woodland. During the day rescue hens roam the croft and fertilise the trees and also help with weed control.

Most interestingly, this crofting business has also diversified with tea plants. These are grown in alternate rows with edible shrubs which protect the tea plants from the wind. This croft is an excellent example of innovative diversification.

For full details of the case study please visit: <https://www.woodlandtrust.org.uk/media/44068/highlands-and-islands-woodlands-handbook.pdf>

4. Recommendations

- Develop policies to facilitate the integration of trees and woods into farming and crofting systems. In a post-CAP system this should acknowledge the wide range of public goods delivered by trees on farms including carbon sequestration, water management, soil health, biodiversity and animal welfare.
- Review current funding provisions and develop appropriate funding mechanisms to support trees on farms projects at all scales, including during the transition period to the post-CAP schemes.
- Develop grant options for trees on farms under support schemes that farmers and crofters are already familiar with, such as the Agri–Environment Climate Scheme (AECS).
- Create an effective and well-funded advice structure to increase the knowledge and understanding of the benefits of trees amongst farmers, crofters and their advisers. This should sit alongside an advice and knowledge exchange platform for farmers to share their experience and enthusiasm. This needs to include evidence and promotion of the economic and environmental benefits of agroforestry to landowners, farmers, and crofters.
- Increase the element of tree and woodland education in agricultural training courses.
- Integrate the development of farming and forestry policy through closer cooperation across departmental and organisational boundaries.
- Build a critical mass of trail blazers by further developing the ‘Integrating Trees on your Land: New Demonstrator Farm Network’ of farms, crofts and estates to trial different tree species and management techniques and showcase best practice.
- Long-term agricultural tenancy agreements should reflect the environmental advantages of integrating woodlands and agroforestry schemes and allow tenants to make improvements without recourse to altering tenancy agreements.





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