

ELLEN HUMPHREY, Coed Cymru

How can farmers and landowners be motivated to plant more trees to deliver a wide range of benefits, especially mitigating climate change?

1. Introduction

Public dismay over the climate change emergency and the failure of governments to take meaningful action has been increasingly evident on both an international and national level. The UK is falling woefully short of hitting its emissions targets and global temperatures are set to surpass 1.5 degrees Celsius by 2050 (Committee on Climate Change, 2019).

Whilst renewable energy, carbon capture and storage (CCS), energy efficiency and societal choices are vital in reaching these targets, afforestation is widely acknowledged as an inexpensive yet effective strategy to help mitigate climate change (Bastin *et al.*, 2019).

In addition to sequestering carbon, woodlands can also provide other ecosystem services including biodiversity, flood mitigation, soil protection, recreational spaces, building supplies and fuel sources that can substitute materials with higher embedded carbon (UK NEA, 2011).

To achieve the UK's net-zero carbon target, the Committee on Climate Change (CCC) states that 1.5 billion trees would be needed by 2050. This is equivalent to planting 30,000 hectares every year and would increase the UK's woodland cover from 13% to 17% of the land area; a significant increase on current planting targets (CCC, 2019; Confor, 2019).

With agriculture occupying approximately 70% of the UK's land area, and urban areas and valuable habitats occupying 10% and 7% respectively, it is clear that landowners and land managers will have a significant part to play in helping the UK achieve its targets. In order to identify ways to motivate landowners to plant more trees for climate mitigation, this essay will discuss the factors that currently stimulate and encourage landowners to plant trees as well as the barriers that inhibit them.

2. Who owns and manages UK farmland?

Demographics are key to influencing the participation of a group of people, as understanding stakeholder circumstances helps identify motivational factors (Paletz, 2014). The security and nature of a land manager's circumstances will influence their attitude and their ability to plant trees. In the UK, detailed analysis of land ownership or management is not readily available. Generally land ownership is held by private individuals (UK and foreign), utility companies, charities, the Ministry of Defence and other government departments, the Crown Estate,

pension funds, private UK companies and private foreign companies (Taylor, 2015).

The quantity of land owned by each group and the average holding size in each group is not clear. Furthermore, it is estimated that 15-20% of land is still unregistered and back in 2010 it was estimated that 40% of farmers were tenants (Taylor, 2015; Forest Research, 2010). Thus, farmland is managed by a range of stakeholders with a variety of motives and restrictions for planting trees. However, there is a lack of clarity on the proportions of land held in circumstances where the land manager would be able and willing to plant trees.

3. Barriers

Finances are both a barrier and a driver for any tree planting scheme. The significant initial capital investment and lengthy delay on returns makes woodland a long-term investment. This traditional woodland model is incompatible with farming businesses which are typically asset-rich and cash-poor. Tenants are also less likely to show an interest in tree planting as they are not always guaranteed the financial return (Forest Research, 2010). Additionally, as the median age of agricultural holders is currently 60 years old and many family farms face uncertain futures, long term investments may not make financial sense to a considerable numbers holdings (DEFRA, 2017). In the absence of a woodland model that delivers annual financial returns, tree planting grants remain fundamentally important in making woodland creation accessible.

The majority of funding for tree planting has come from government schemes which are typically oversubscribed, confusing, complex, bureaucratic and inflexible. Poor communication and late payment have caused uncertainty and frustration. It has also been notoriously difficult to meet the land and farmer eligibility criteria and there has been a lack of clarity over scoring systems (Forest Research, 2010).

Critically, there has not been enough funding to meet all the eligible schemes, let alone enough to support the area of woodland creation needed to meet government targets. These issues have led to high percentages of applicants being repeatedly turned down and consequently abandoning their planting schemes.

Land eligibility criteria and woodland management plans are crucial in ensuring that tree planting schemes deliver maximum environmental benefits and avoid any negative impacts. So simplification of aspects of the system which impact the quality of planting schemes could risk causing more detriment to the environment than benefit.

Farmers often need assistance to ensure their schemes meet these criteria and can feel discouraged by the level of knowledge on woodland management that is required (Forest Research, 2010). Indeed, phrases like thinning, harvesting, felling licenses, timber sales, UK Forestry Standard, Environmental Impact Assessments and public consultation can be daunting. Seeking expert advice and assistance is often essential but can be another barrier

and expense to overcome. Free government guidance online is not widely known about and is often difficult to access for farmers with poor internet connections or computer skills. Available advice tends to focus on how to meet grant criteria rather than how to design a scheme that also complements the agricultural business.

Furthermore, years of Basic Payment Scheme financial penalties for areas of scrub, woodlands and tree canopies combined with the permanence of woodlands have created negative connotations of tree planting. However, there are a growing number of reasons why farmers are considering woodland creation.

4. Push and Pull Factors

Brexit uncertainty, changes to farm subsidies, volatile markets, and unpredictable weather are just some of the reasons why farmers are considering diversifying their income stream and future-proofing their businesses. This has led to a growing interest in woodland creation (Woodland Trust, 2018). Tree planting can give farmers the opportunity to bring in money from shooting activities, recreation, selling carbon units, timber materials, firewood and potentially payments for ecosystem services in the future. They can also complement the existing farm business by providing shelter for livestock and crops, timber for fencing supplies, trapping pollutants, reducing soil erosion and mitigating flooding (Woodland Trust, 2012).

Public demand for climate change action and government tree planting targets are important push factors as they help justify providing support mechanisms for farm tree planting. It also gives farmers another reason to plant as it provides an opportunity to improve public opinion by demonstrating that farmers are listening and responding to public concerns (Farming UK, 2019). Woodland creation also offers farmers another marketing angle for their produce which can set them apart from competitors.

A significant reason why many farmers want to plant trees is perhaps the simplest and the most under acknowledged one: they care about their land and the natural environment and they want to look after it. A Forest Research study found that conservation was a common primary motivation for farmers to create woodland above that of timber production and sport (2010). However, their land is their livelihood so creating permanent woodland has to make economic sense regardless of their environmental ambitions.

5. Conclusion

To a large extent, motivation to plant trees already exists amongst land managers. They see that tree planting can deliver benefits to the environment, the public and their businesses. However, there are barriers land managers face that prevent their schemes going ahead. Consequently, finding ways to overcome these barriers and maximize the benefits they can get from trees could improve the viability of tree planting on farmland.

Training, workshops and farm tours could be used to build land manager knowledge of farm woodland management, explain the benefits, options and demonstrate successful schemes. This could increase the popularity of tree planting and improve the quality of schemes, which in turn would build further confidence in land managers contemplating planting.

The initial capital investment required for tree planting has been identified as a significant barrier that means many land managers cannot plant without a grant. Currently government grants are not sufficient to support the UKs planting and emissions targets. In order to deliver the quantity of schemes required without compromising on the quality of schemes, funding must match annual targets and advisory support must be available to ensure schemes deliver maximum environmental and business benefits. Given the range of land managers, farming systems, environmental conditions and constraints on land, any grant scheme needs to be as flexible as possible to facilitate various scheme sizes, shelter-belts, agroforestry and traditional woodlands.

While this would remove barriers to planting, there is still little support for long-term management and harvesting. An alternative environmentally and financially sustainable woodland farm model is needed to reduce the dependency of landowners on planting grants. A model that delivers annual returns to land managers for ecosystem services and future timber production could make woodland a viable option whilst allowing farmers to retain land ownership and continue to farm.

This would benefit rural and farming communities, increase planting rates, avoid substantial losses of agricultural production, and deliver ecosystem services including climate change mitigation whilst also increasing UK timber production. This would inevitably require government and industry collaboration to manage and develop the UK timber market so as to encourage these outcomes.

6. References

Bastin, J.F., Finegold, Y., Garcia, C., Mollicone, D., Rezende, M., Routh, D., Zohner, C.M. and Crowther, T.W. 2019. *The global tree restoration potential*. *Science*. [Online]. Available from: <https://science.sciencemag.org/content/365/6448/76> [Accessed 8th October 2019].

CCC (Committee on Climate Change). 2019. *Net Zero The UK's contribution to stopping global warming*. [Online]. CCC. Available from: <file:///C:/Users/Ellen/Downloads/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf> [Accessed 7 October 2019].

Confor. 2019. *Trees "must play key role" in tackling climate change*. [Online]. Confor. Available from: <https://www.confor.org.uk/news/latest-news/trees-must-play-key-role-in-tackling-climate-change>

/ [Accessed 6 October 2019].

DEFRA (Department for Environment, Food and Rural Affairs). 2017. *Agriculture in the United Kingdom*. [Online]. DEFRA. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/741062/AUK-2017-18sep18.pdf [Accessed 1 October 2019].

Farming UK. 2019. *UK farmers aspiring to produce 'world's most climate friendly food'*. [Online]. Farming UK. Available from: https://www.farminguk.com/news/uk-farmers-aspiring-to-produce-world-s-most-climate-friendly-food-_53867.html [Accessed 10 October 2019].

Forest Research. 2010. *Landowners' attitudes to woodland creation and management in the UK*. [Online]. Forest Research. Available from: file:///C:/Users/Ellen/Downloads/Landowner_attitudes_evidence_review_final_2010.pdf [Accessed 5 October 2019].

Forest Research. 2019. *UK Wood Production and Trade: provisional figures*. [Online]. Forest Research. Available from: <https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/timber-statistics/uk-wood-production-and-trade-provisional-figures/> [Accessed 6 October 2019].

Paletz, D.L., Owen, D. and Cook, T.E. 2012. *21st century American government and politics*. [Online]. Creative Commons. Available from: <https://2012books.lardbucket.org/books/21st-century-american-government-and-politics/> [Accessed 6 October 2019].

Taylor, M. 2015. *Who owns the land?* [Online]. Barbers Rural. Available from: <https://www.barbers-rural.co.uk/blog/who-owns-land> [Accessed 5 October 2019].

UK NEA (National Ecosystem Assessment). 2011. *Chapter 8: Woodlands*. [Online]. UK NEA. Available from: <http://catalog.ipbes.net/system/assessment/1/references/files/424/original/Ch8Woodlands.pdf?1417604857> [Accessed on 5 October 2019].

Woodland Trust. 2012. *Benefits of trees on livestock farms*. [Online]. Woodland Trust. Available from: <https://www.woodlandtrust.org.uk/media/1816/benefits-of-trees-on-livestock-farms.pdf> [Accessed 6 October 2019].

Woodland Trust. 2018. *Farm diversification: ideas, grants and examples*. [Online]. Woodland Trust. Available from: <https://www.woodlandtrust.org.uk/blog/2018/01/farm-diversification/> [Accessed 7 October 2019].