

# Woodland Creation: Financial case study, 100 hectare site



## Understanding woodland financials **(All figures accurate as of February 2023)**

By planting the right trees in the right place, you can diversify your income and bring direct benefits to your land, your local community, and the environment. Woodland creation is a long-term commitment that provides new reliable income streams with far-reaching benefits.

When looking to understand the value woodland can bring, it's important to recognise the variables that influence income. These factors include species, growth rate, spacing, rotation length, woodland size, and the location of your woodland – all of which can vary considerably resulting in a number of possible combinations and outcomes. This real-life example of a woodland creation scheme demonstrates how the landowner created woodland to benefit the planet, while generating income. All figures in this case study are rounded to the nearest £100.





# A project for people and the planet

A landowner in the south of England had a number of low-grade arable fields, used for growing a variety of crops, which were no longer seen as a valuable asset. This presented an opportunity to consider alternative land use options which would meet their management objectives whilst also providing broader benefits. The landowner opted to apply for the [Woodland Creation Planning Grant \(WCPG\)](#) and the [England Woodland Creation Offer \(EWCO\)](#), proposing a large-scale woodland creation scheme nearby river valleys on their land.

Over time, the new woodlands will increase biodiversity and improve water quality in the area, sequester carbon and develop productive stands of broadleaf and conifer species to generate income through timber. The woodland will also form an integral part of the landowner's wider commitment to the local community through public access. Working with education providers and organisations within the forestry industry, the landowner hopes to contribute to both academic and professional understanding of woodland creation benefits across a variety of species, two management regimes, and two yield types (carbon and timber).

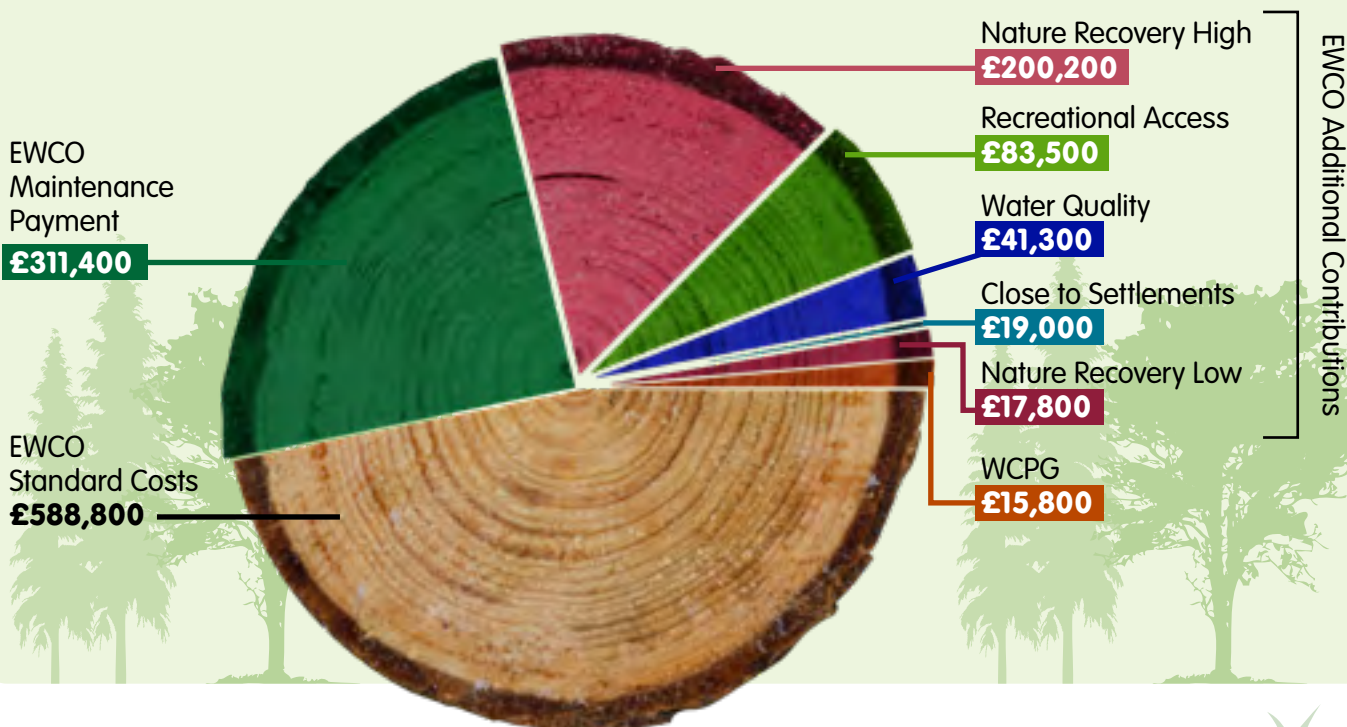


**Long-term goal:** Create a climate-robust, sustainably managed woodland, contributing ecologically, financially, socially, and intellectually to the holding.

## Grant income for planning and establishing woodland

The Forestry Commission and our partners offer a range of funding to suit different woodland creation projects, offering farmers and landowners the flexibility and financial support to plan, plant, and maintain new woodland in England.

**This scheme, which is over 100 ha, received £1,277,800 (£12,400 per ha) from woodland creation grants** made up of payments from both the Woodland Creation Planning Grant (WCPG) and the England Woodland Creation Offer (EWCO).



# Woodland Creation Planning Grant (WCPG)

The process of designing new woodland brings together your objectives, the site context, suitability, and environmental, economic, and social factors into a plan that will make your woodland sustainable and UK Forestry Standard (UKFS) compliant. WCPG provides funding to landowners to help cover the cost of producing a compliant woodland creation design. This project received a total of **£15,800** in WCPG grant payments.

## England Woodland Creation Offer (EWCO)

EWCO supports the establishment of new woodland by offering financial support for capital costs, costs for maintaining young trees for up to 10 years, and further support for installing infrastructure to manage your woodland. It recognises the public and environmental benefits that woodlands bring, by providing stackable payments – known as Additional Contributions – to ensure the right tree is planted in the right place, and for the right reason. This application, which proposes over 100 ha of new woodland, will receive a total of **£1,262,000 (£12,300 per ha)** in grant payments over 10 years, made up of Standard Costs, Additional Contributions, and Annual Maintenance payments.

### Standard Costs

The standard cost grant payment of £588,800 has offset most of the costs associated with creating the woodland. As this is a large project, the highest cost was from the buying and planting of trees. Approximately 195,400 trees were needed for the project.

### Maintenance

The landowner will receive maintenance payments over the next 10 years, which cover the cost of tree replacement and weeding on the site. Land managers should anticipate some tree losses in the early years of the planting and plan for their replacement. Maintenance of the trees and their protection will help minimise these losses. In a project of this scale, up to 60,000 trees could be needed to replace losses in the first few years.

### Additional Contributions

Under EWCO, an application may be awarded extra stackable payments for woodland projects that provide wider benefits to people and the environment. This scheme received additional payments for supporting nature recovery, enhancing water quality, being close to settlements, and allowing public access.

- **Nature Recovery – qualifying for either the Higher or Lower rate depending on the site (one off payments of £200,200 and £17,800).** The scheme created several species rich, bio- and habitat-

diverse, woodlands with areas of future high forest, productive timber stands, shrubs, open ground, glades, and rides. The new woodland integrates with existing priority woodland habitats to buffer and increase networks along the river valleys and preserves existing features such as hedgerows and tree belts.

- **Water Quality (one off payment of £41,300).** The land use change from arable to woodland will lead to improvements in the silt and nitrogen levels within nearby rivers, through the removal of cultivation and chemical inputs from agricultural use. There will be a reduction in silt and run-off through interception of rainfall and surface water by the woodland slowing flows and reducing erosion.
- **Recreational Access & Close to Settlements (one off payments of £19,000 and £83,500).** There will be widespread public access to, and use of, the permissive paths and community facilities planned within the woodlands. The paths will connect to an existing Public Right of Way.





**Discount rates.** All figures in the rest of this case study have a discount rate applied. Discount rates are used to convert future cash flows into a present value. As this case study is looking at a period spanning 50 years, future costs and income need to be converted into a present value to make everything comparable. Whilst there is no "correct" discount rate, a discount rate of **3.5%** (as derived from the social

time preference rate outlined in the HMT Green Book<sup>1</sup>) is used for this evaluation. For example, £100 in 10 years' time is £70.89 in present value.

Applying this discount rate to the woodland creation grants outlined above, the **£1,277,800** in total grant funding is discounted to **£1,213,200** in present value. That is mainly due to the 10-year period of the maintenance grant.

## £ Income from timber

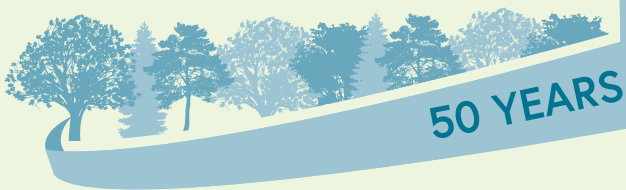
The demand for wood products in the UK hugely outweighs domestic production. We import over 80% of our timber, which was valued at £8.5 billion in 2020, making the UK the second largest net importer of forest products in the world<sup>2</sup>. There is an active market for timber, and trees provide a number of opportunities to generate income.

This scheme includes development of productive woodland, including limited areas of experimental timber, to be achieved through species choice, sound establishment, and ongoing maintenance work including weeding, formative pruning, high pruning, mowing, and grey squirrel control.

There are two ways a woodland owner can access income from timber: first, the sale of standing trees,

usually via an agent, that are harvested by the purchaser, or secondly the sale of timber harvested by the woodland owner and sold directly from the roadside. Whilst commercial timber production may not be the landowner's primary goal, active woodland management requires regular thinning which naturally produces timber by-products. Assuming timber income from sale of standing timber, over the 50-year period, the woodland is estimated to yield a total of 14,000m<sup>3</sup> from regular thinning on 5-year intervals and the clearfell of 9 ha of conifer woodland in year 50. Using an average standing price of £35/m<sup>3</sup> for conifer timber and £21/m<sup>3</sup> for broadleaf timber, the present value from timber income is estimated to be **£101,200 (£1,100 per ha)**.

Using an estimated standing price of **£35/m<sup>3</sup>** for a conifer stand and **£21/m<sup>3</sup>** for broadleaf timber.



Estimated present value **£101,200**  
(£1,100 per ha)

**Yield 14,000m<sup>3</sup>** from regular thinning on 5-year intervals and the clearfell of 9 ha

Each woodland scheme has different objectives. A scheme with more commercial woodland cover would see an increase in per hectare income for timber.



## Income from carbon

Carbon markets present an opportunity for landowners to generate more income from their land, by selling the additional carbon that new woodlands will sequester, while at the same time helping to mitigate the impacts of climate change. Woodland creation projects can sell two types of carbon units:

- **Pending Issuance Units (PIUs)** – an estimate of the future carbon dioxide the woodland will capture once the trees have grown. These aren't guaranteed and therefore can't be used to report against emissions, however, they allow companies to plan for future offsetting and can help with the associated costs of establishing your woodland. Typically, the value for PIUs is lower than WCUs
- **Woodland Carbon Units (WCUs)** – independently verified units that represent a tonne of CO<sub>2</sub> which has been sequestered on a Woodland Carbon Code certified woodland. There will be a delay to verify WCUs but as they're guaranteed, they allow

companies to state their carbon neutrality as soon as purchased, often resulting in a higher price per unit

PIUs convert into WCUs at a certain point in time, once the 'promise' of future carbon has been verified as converted into actual carbon storage. The [Woodland Carbon Code \(WCC\)](#) is the quality assurance standard for UK-based woodland creation projects hoping to generate carbon credits. To find out more about woodland and carbon, [read our fact sheet on GOV.UK](#).

The scheme will verify its WCUs every 5 years from year 5 onwards, selling its PIUs up front in year 5. Over the period of 50 years, the scheme is likely to deliver over 23,000 WCUs. Whilst there is no official price for carbon units, the weighted average price of successful bids at the WCaG auction in May 2022 of £23.70 is used to estimate the income from this sale. By selling this carbon upfront at year 5, the estimated income from the carbon market is **£459,300 (£4,500 per ha)**.

### Estimated Woodland Carbon Units (WCUs)

over a 50-year period

YEAR 1

YEAR 5

YEAR 15  **1,730** WCU (tCo2e)

YEAR 20  **4,870** WCU (tCo2e)

YEAR 25  **3,690** WCU (tCo2e)

YEAR 30  **3,950** WCU (tCo2e)

YEAR 40  **5,580** WCU (tCo2e)

YEAR 50  **3,190** WCU (tCo2e)

TOTAL

The present value from selling PIUs upfront at year 5 is **£459,300 (£4,500 per ha)**

**Total 23,010 WCUs**

**TOTAL 23,010** WCU (tCo2e)

There are several costs associated with selling carbon. These include validation of the project, and verification of carbon sequestered by the woodland over time, as well as registry fees to issue and convert units. Registration needs to happen prior to any woodland creation activity commencing, and validation needs to happen within 3 years of the registration date. If the scheme applies for the [Woodland Carbon Guarantee \(WCaG\)](#), verification

(comprising a survey by an independent third party and converting carbon units from PIUs into WCUs) can happen every 5 years from year 15 up until the end of the WCaG in year 33, and then every 10 years from year 40. If the scheme has not applied to WCaG they will need to verify at year 5 and then at least every ten years. For this scheme, the costs associated with selling carbon are estimated at **£16,900** over 50 years.



# Woodland Carbon Guarantee (WCaG)

Projects registered with the WCC can apply for the WCaG, a scheme which allows landowners to sell their verified Woodland Carbon Units (WCUs) to the government for a guaranteed index-linked price for the life of the project contract, every 5 or 10 years up to 2055/56. To allow for flexibility and the opportunity to make income from a rising market, landowners can still choose to sell carbon units on the open market at any point in time.

## How does this compare to agricultural income?

As with any change, there will be some costs associated with the establishment of woodland. In this case, where the land was previously used for a variety of crops, the landowner has foregone agricultural income. Whilst it is impossible to predict future income from any agricultural land use with any certainty (especially for the next 50 years), for this scheme the 5-year average Farm Business Income from the annual Farm Business Survey (FBS) for England and Wales is used to estimate the income foregone<sup>3</sup>.

A farm in the southeast of England had an average income of £280 per ha over the period of 2016/17-2020/21. In this project, 96 ha of the total land was used for agricultural activity. Applying the average figure, the income foregone per annum is £27,100. Over a 50-year period, applying discounting for present value, this amounts to £662,500 (£6,400 per ha) of income foregone from agricultural activities on the land.

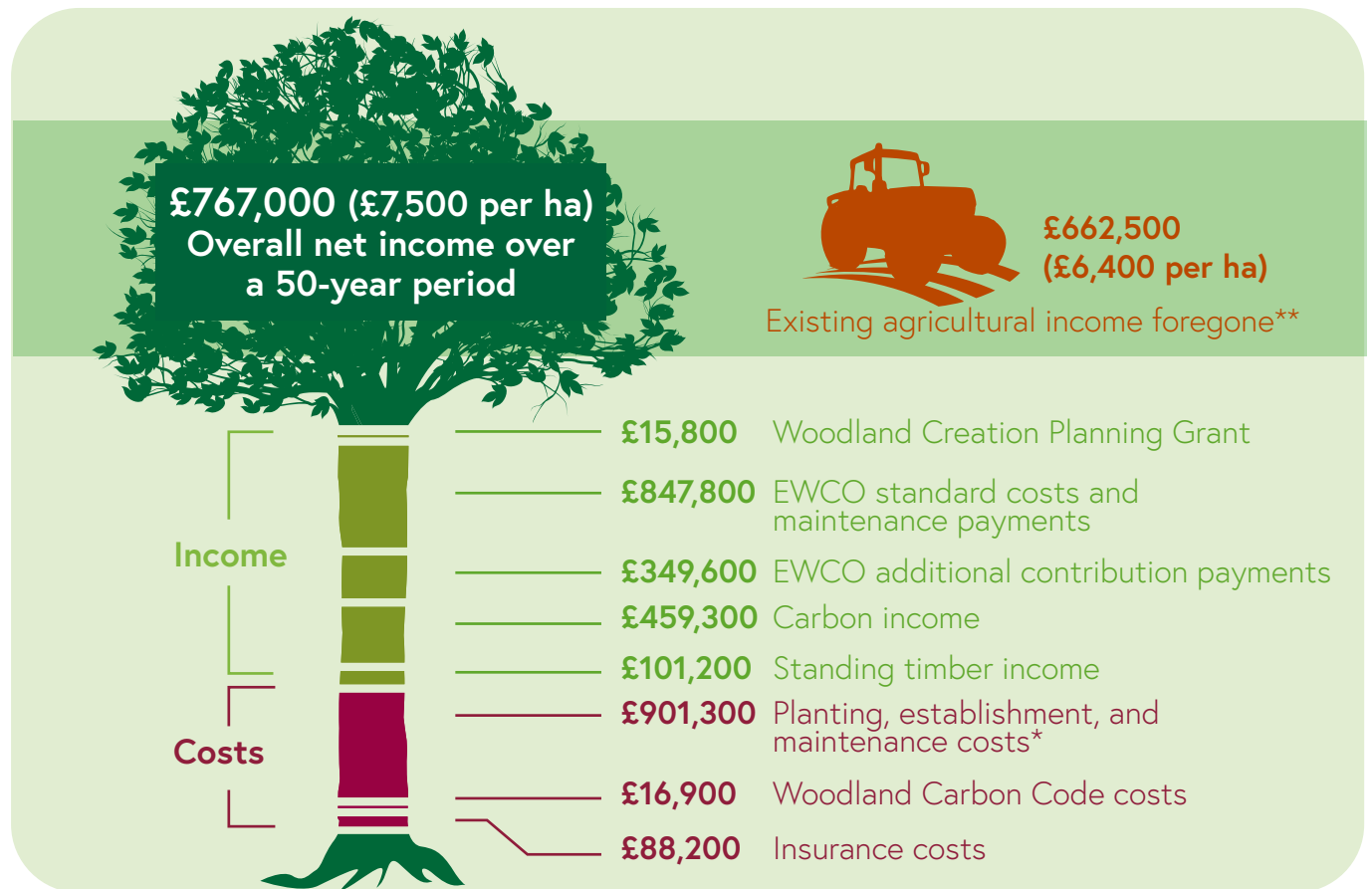


# How do the financials stack up?

The income and costs for this example have been calculated over a 50-year period, though it is important to note that some finances impact a shorter duration of this period. For example, for grant payments, WCPG income would be made prior to the establishment of the woodland, while EWCO maintenance payments are only available for the first 10 years of the scheme. Thinning is at 5-year intervals, and carbon income has been calculated for the scheme by selling carbon units up front at year 5.

Over the 50-year period, the scheme will bring in an overall net income of **£767,000 (£7,500 per ha)** at

present value. Agricultural income foregone in this scenario would be £662,500 (£6,400 per ha), showing a £104,500 increase in income over the 50-year period, when the woodland creation scheme is compared to the previous agricultural activity. This shows how a change in land use to woodland creation can benefit a business' finances. There are further advantages as woodland management requires significantly less labour than agricultural activities. After the early years of establishment, when weeding and pest control is required, trees will begin to thrive on their own – with thinning every few years, and other management interventions such as pruning and squirrel control.



Description of Income	Income	Description of Costs	Costs
Woodland Creation Planning Grant	£15,800		
EWCO standard costs and maintenance payments	£847,800	Planting, establishment, and maintenance costs*	£901,300
EWCO additional contribution payments	£349,600		
Carbon income	£459,300	Woodland Carbon Code costs	£16,900
Standing timber income	£101,200		
		Insurance costs	£88,200
<b>Total Income</b>	<b>£1,773,700</b>	<b>Total Costs</b>	<b>£1,006,400</b>

\*Planning, establishment, and maintenance costs includes all costs associated with initial planting, shelters, fencing, rabbit netting, badger gates, vehicle deer gate, pedestrian deer gate, management, replacement (years 1-3), weeding, and fence maintenance.

\*\* Where land was previously used for agriculture purposes, agricultural income has been calculated, to illustrate the income foregone with the land use change.



# Wider benefits of woodland creation

With careful management, trees can provide an additional income stream, have a positive impact on your farm productivity and help to save costs, for example, you could heat your own buildings with woodfuel produced from your woodland. However, trees are much more than their commercial capacity: woodland can support health and well-being, improve air quality, offer shade for crops and livestock, prevent nutrient loss and soil erosion, capture carbon, improve water quality, boost biodiversity, and reduce the risk of flooding.

Discover the far-reaching benefits of woodland in our [brochure](#), or to find out more about how woodland can have a positive impact on your bottom line, [read our fact sheet on making money from trees](#).



## Discover how woodland creation can benefit you

For guidance on woodland creation and information on grants and available support, visit: [gov.uk/forestry/tree-planting-overview](https://gov.uk/forestry/tree-planting-overview)

Find out how other landowners are benefitting from woodland creation, visit: [gov.uk/forestry/tree-planting-case-studies](https://gov.uk/forestry/tree-planting-case-studies)



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## References

1. HM Treasury. The Green Book. [www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government](https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government)
2. Forest Research. Forestry Facts and Figures 2022 report: [www.forestryresearch.gov.uk/publications/forestry-facts-and-figures-2022](https://www.forestryresearch.gov.uk/publications/forestry-facts-and-figures-2022)
3. DEFRA. Farm Business Survey. [www.farmbusinesssurvey.co.uk](https://www.farmbusinesssurvey.co.uk)

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