

# Is forestry really more profitable than upland farming? A historic and present day farm level economic comparison of upland sheep farming and forestry in the UK

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## ABSTRACT

There are currently 3.16 million hectares of woodland cover in the United Kingdom. At a European scale, the UK is one of the countries with the lowest woodland cover, currently extending to only 13% of the total land area of the UK, this is less than half of the European Union (EU) average of 37 per cent. A significant study carried out by Read et al. (2009) identified that UK wide there is a need to increase significantly levels of new planting and forest creation by more than 23,000 ha each year over the next 40 years if a substantial influence on reversing climate change is to be realised. It is clear that expansion of the total forested area in the UK necessitates the establishment of new woodland and forest cover on farmland which is either owner occupied or rented out.

The main barriers to woodland establishment on farmland cited in the literature, include cultural resistance notably a dichotomous view of farming and forestry as being competing land uses; and lack of awareness of the potential economic benefits of woodland. This study intended to provide information that will improve farmers and landowners understanding of the potential economic differences between business as usual (sheep farming) and woodland creation in the uplands of the UK. The aim of this study was to evaluate the bio-economic potentials of temperate upland clear fell forestry systems in the UK over the last 60 years and determine if afforestation of upland farms has historically produced, and will in the future produce better financial outcomes than conventional upland sheep farming. The study used a bio-economic model based on discounted cash flow analysis to compare and evaluate a conventional upland sheep grazing system against a temperate upland forestry system.

Historic investments to cease upland sheep grazing and afforest upland farms in the UK based on historic financial budgeting information available to farmers and landowners in 1956, 1976 would not have been an economically viable and profitable land use change compared to continuation of upland sheep grazing in the UK. Historic markets in 1956 and 1976 were not strong enough to render potential forestry investments profitable without a need for grant assistance. Investments to cease upland sheep grazing and afforest upland farms in the UK in 1996 would have been economically viable and profitable land use investment as timber markets alone were strong enough to render potential forestry investment profitable without a need for grant assistance. Without subsidy, investments to switch from upland sheep grazing and afforest upland farms in 2016 would not be an economically viable and profitable land use change. Current day timber markets alone are not strong enough to influence new woodland establishment.

## 1. Introduction and objectives

The benefits of woodland cover are becoming ever clearer, there are growing evidence and consensus in academic circles that trees and woodlands play a key role in the mitigation of climate change and in ecosystem services delivery. There is a considerable body of evidence and research outlining the economic benefits of the forestry sector, the delivery of environmental and social benefits from woodlands and the

contribution of woodlands to the function and resilience of urban and rural landscapes. This is a convincing basis for expanding the current woodland cover of the United Kingdom (UK). That being said, UK woodlands and the forestry industry face unparalleled challenges, notably climate change, globalisation, increasing demand and competition for natural resources, extreme land use pressures, financial constraints and the political upheaval following the recent “Brexit” vote.

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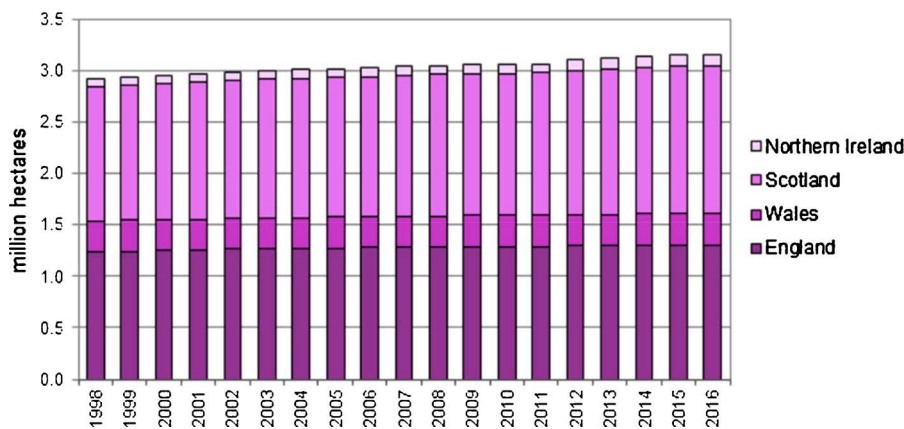


Fig. 1. Area of UK woodland 1998–2016 (Forestry Commission, 2016).

1.1. United Kingdom woodland area

There are currently estimated to be 3.16 million hectares of woodland in the UK (Forestry Commission, 2016). At a European scale, Wales is one of the countries with the lowest woodland cover, currently extending to only 13% of the total land area of the UK, this is less than half of the European Union (EU) average of 37% (Forestry Commission, 2016). The overall UK forest cover of 13% of the total land area comprises 10% in England, 15% in Wales, 18% in Scotland and 8% in Northern Ireland (Forestry Commission, 2016). Fig. 1 shows the total woodland area by constituent country from 1998 to 2016, the graph shows that the overall UK woodland area has increased by approximately 240,000 ha between 1998 and 2016, this equates to an 8% increase over the 18-year period (Forestry Commission, 2016).

Fig. 2 shows the area of new planting by each constituent UK country since 1976, it is clear that the rates of new planting in the UK have fallen since the late 1980's. The new planting rates have decreased by approximately 82% from 1988 and 2010, this decline has been attributed by some observers to changes to the tax benefits of forest ownership in the UK brought in by the Finance Act 1988 (Forestry Commission, 2016). There was a reported increase in the area of new planting in the UK between 2010 and 2015 that was approximately twice the level of new planting reported in 2009–2010. The Forestry Commission (2016) new planting statistics note that this increase was driven by the introduction of Rural Development Contracts in Scotland.

It is clear that new planting has decreased in 2015–2016 to levels similar to those reported in 2009–2010. The recent decrease in levels of new planting has been attributed by some observers to lower than expected levels of uptake of grant assistance (Ellis and Frost, 2008; Church and Ravenscroft, 2008; Cunningham, 2009; Wavehill Consulting, 2009; Urquhart et al., 2009; Dandy, 2012). This has led to concern that government woodland expansion targets might not be met. A study carried out by Read et al. (2009) identified that UK wide there is a need to increase significantly levels of new planting and forest

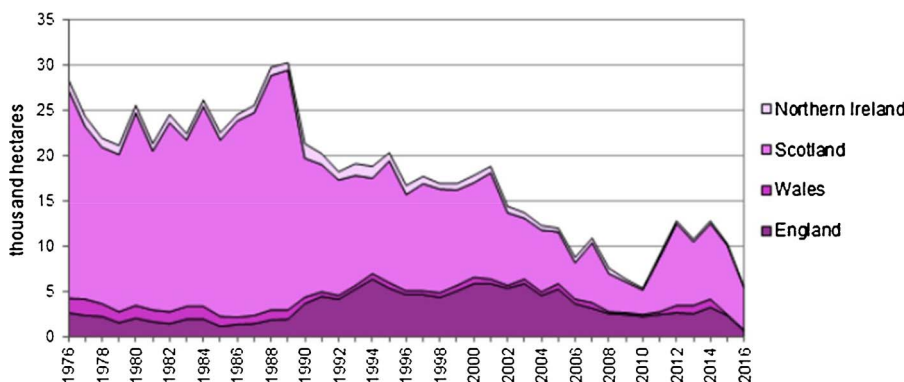


Fig. 2. Area of new woodland planting in the UK 1976–2016 (Forestry Commission, 2016).

creation by more than 23,000 ha each year over the next 40 years if a substantial influence on reversing climate change is to be realised.

It is estimated that approximately 27% (equivalent to approximately 853,000 ha) of the total UK woodland area in 2016 is owned or managed by the Forestry Commission, Natural Resources Wales and the Forest Service (Forestry Commission, 2016). It is clear that expansion of the total forested area in the UK necessitates the establishment of new woodland and forest cover on farmland which is either owner occupied or rented out.

1.2. United Kingdom upland agricultural area

Although there is no statutory definition for the ‘Uplands’, areas above the upper limits of enclosed farmland containing dry and wet dwarf shrub heath species and rough grassland are often referred to as such (DEFRA, 2010). However, in UK rural policy the upland agricultural area is synonymous with the EU Less Favoured Area (LFA) designation. The LFA designation covers all the upland and hill farming areas of the UK, therefore this paper will consider both upland and hill farming areas as “the uplands”. Land with Less Favoured Area (LFA) status accounts for around 45% of the agricultural area of the UK (Fraser, 2008). The traditional basis for farming these LFA areas is the raising of sheep and beef cattle, with the UK hills and uplands carrying around 12 million breeding ewes just over 60% of the UK total (Fraser, 2008). The uplands are areas where farming become difficult due to harsher climates, poorer soils, challenging terrain and distance from markets, which leads to lower yields and higher production and transportation costs.

1.3. Understanding landowner decision making in relation to woodland creation on farmland

In the UK forestry is a decentralised policy issue, with each constituent country having its own individual forestry policies and

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