



Scottish farmers' intentions to afforest land in the context of farm diversification



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ABSTRACT

Increasing woodland area in the United Kingdom is strongly supported in policies, but there is evidence of low rates of new planting, infrequent uptake of farm forestry, and negative attitudes to woodland among farmers. Additionally, there is a wider context of increasing farm diversification, and a need for greater understanding of farmers' attitudes and behaviour related to afforestation. This paper uses a representative survey of Scottish farmers (survey year: 2013, respondents used in analysis: 1735) to compare farmers who intended to expand forestry in future and farmers with alternative combinations of intended and past behaviour in relation to forestry. Overall, we find that certain characteristics: already operating forestry, reporting types of non-farming activities, involvement in environmental schemes, having a high education level, having a relatively high number of employees, and being relatively recent entrants to holdings, were more frequently found among farmers intending to increase forestry in future than farmers described as 'non-increasers' who did not intend to increase forestry and also had not expanded it in the past. Farmers with these characteristics could be a useful focus in attempts to expand woodland at larger scales, and encouraging small-scale tree planting could be an effective policy approach.

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1. Introduction

UK land represents an important opportunity for increasing the amount of forested area in the EU: forests and woodlands cover only 13% of the UK (Forestry Commission, 2015), in comparison to over 40% of the European Union (EU) (European Commission, 2013). The EU Forest Strategy recognises that sustainable forest management contributes to major societal objectives, including rural economic development and provision of renewable source material (European Commission, 2013); the major role of forests in carbon storage is particularly important due to the EU commitment to a large reduction in greenhouse gas emissions (European Commission, 2016). In this paper we assess the potential of UK farmers to contribute to afforestation targets, based on analysis of past behaviour and stated future intentions.

Strategy and policy documents of national and devolved governments in the UK, and the Irish Government, clearly acknowledge both the diverse positive contributions of forestry, and policies to increase forest area (Scottish Executive, 2006; Scottish Government, 2009; DEFRA, 2013; Department of Agriculture, Food and the Marine (DAFM), 2014). A number of other policies have also supported woodland planting in Scotland and the UK from the 1990s onwards (see Thomas et al., 2015: 151, for summary). In the UK, woodland expansion by farmers and other private landowners has been encouraged by various grant schemes, with over £0.5 billion paid in grants from 2005–6 to 2014–15 within England, Scotland and Wales (see Forestry Commission, 2015: Section 8.6). Aging woodlands in Scotland, with a decreasing ability to sequester carbon, have driven policies favouring woodland expansion (Scottish Government, 2013a). Similar grants and schemes in Ireland boosted private afforestation from the 1980s onwards (DAFM, 2014). Despite this support, recent new planting rates (Forestry Commission, 2015: Table 1.14) are, if maintained, insufficient to meet targets of 10,000 ha per year in Scotland (cited in Scottish Government, 2013a: e.g. 220–1), 5000 ha in England (DEFRA, 2013: 39) and Wales (Osmond and Upton, 2012: 5) and 1000 ha in Northern Ireland (Forest Service, 2014/2015: 5).

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The private sector has been responsible for the vast majority of recent new planting in the UK (Forestry Commission, 2015: Table 1.14) and Ireland (DAFM, 2014: 1)¹; this is reflective of the EU more broadly, where nearly 60% of forests and woodland were privately owned in 2010 (UK: 66.7%) (Eurostat, 2015a: 143). It has been widely recognised that encouraging woodland planting by farmers and other landowners is critically important for achieving woodland expansion (Scambler, 1989; Ní Dhubbáin and Gardiner, 1994; Bull and Thompson, 2011; Wynne-Jones, 2013; Schirmer and Bull, 2014). Indeed, a geographical assessment in Scotland found that the area with most potential for woodland expansion (ca. 2.7 million ha) was dominated by farmland (Sing et al., 2013). However, recent surveys have routinely found very low uptake, or planned uptake, of forestry by farmers. The EU Farm Structure and Methods Survey of 2013 found that 4.3% of holdings (out of 9400) in Scotland reported forestry (Scottish Government, 2013b). The Farm Structure Survey (2010) showed that few holdings operated 'forestry-work' for income generation in the UK (ca. 1.2%: Eurostat, 2015b). In the UK, a strong aversion by the farming community to afforestation has been described in Scotland (Slee et al., 2012; Feliciano et al., 2013, 2014). Furthermore, a survey of ca. 1500 Irish farmers in 2012 found that 10% were considering planting trees using an afforestation scheme, although this increased (to 26%) following the receipt of further information (Duesberg et al., 2014); another Irish survey found that only ca. 6% of 525 farmers without forestry were likely or very likely to consider planting in the near future (Howley et al., 2015).

There are a number of recognised factors influencing afforestation intentions, and similar land-based decisions. A recent review by Dandy (2012) for Forest Research (UK) detailed 27 influences on the decisions of land managers, split into economic, social, physical-environmental and operational categories (Dandy, 2012: 15). Similarly, a recent assessment of Scottish woodland expansion by Thomas et al. (2015) responds to the question "...what factors influence woodland creation on private land(??)" (ibid: 3) using a literature review structured using the theory of planned behaviour (Ajzen, 1991). This framework described intentions to expand woodland as a product of a) external behavioural controls: economic and non-economic incentives (e.g. grants and tax status of woodlands, other positive motivations for tree planting), bureaucracy and advice; b) attitudes and c) social norms (adapted from Thomas et al., 2015: 153–5). In general, two key findings have emerged from social research: a) farmers favouring tree planting on lower quality land, or the presence of low quality land as a positive factor for afforestation (Ní Dhubbáin and Gardiner, 1994; Watkins et al., 1996; Wynne-Jones, 2013; Duesberg et al., 2013, 2014; Schirmer and Bull, 2014; Howley et al., 2015) and b) a preference for agricultural production acts as a barrier to tree planting (Watkins et al., 1996; McDonagh et al., 2010; Wynne-Jones, 2013; Duesberg et al., 2013, 2014; Schirmer and Bull, 2014; Howley et al., 2015). In essence, afforestation on farms is framed as counter to the ongoing productivist orientation of farmers: most farmers prefer not to afforest, and if they do afforest, prefer to do so on low quality land.

The resistance to afforestation – as well as persistent productivist orientations – is grounded in long-established cultural norms. Research by Burton (Burton, 2004; Burton et al., 2008) has demonstrated the importance of the 'good farmer' identity, whereby social status is derived from landscape evidence of skilled role performance. In essence, afforestation, and engagement in other environmental activities, not only represents a loss of productive potential of the land (i.e. reduced yields) but also bears a symbolic cost (loss of opportunity to demonstrate farming skill) (Burton, 2004). Farmers resist afforestation on this basis. It is well recognised that farmers are not purely profit-driven (Gasson, 1973; Gasson and Errington, 1993), instead seeking to obtain multiple

objectives (such as independence, outdoor work), including achieving the status of 'good farmer'.

Research into the 'good farmer' identity has demonstrated that these socialised norms, while resilient, can change over time. This occurs particularly as farmers come under economic duress (e.g. when high yields are insufficient to achieve profitability – Sutherland, 2013) and engage in new economic fields (which yield different forms of symbolic capital – Sutherland and Darnhofer, 2012). Over the past 20 years, farm diversification has become a prominent topic within broader debates around multifunctional transitions in agriculture (Mather et al., 2006; Maye et al., 2009), reflecting the shift in agricultural policies from a central, common focus on production, towards encouraging a wider set of goods and services to be produced on agricultural land (Sutherland et al., 2016). In Scotland, the number of holdings with 'other gainful activities' increased from 13% (2010) to 21% (2013) (Scottish Government, 2013b). In comparison, 5.2% of the EU's agricultural holdings recorded 'other gainful activities' in 2010, with higher proportions in the UK and Ireland (17.5% and 9.2%, respectively) (Eurostat, 2013: 183). Nijnik et al. (2013) argue that "... carbon sequestration forestry projects are likely to be implemented if they are consistent with the wider programmes of sustainable rural development" (ibid: 41).

This review demonstrates that farmers and land managers have a central role in delivering woodland expansion. Greater knowledge of the drivers of farmer decisions will inform more effective, targeted engagement between national forestry agencies and farmers (Dandy, 2012; Howley et al., 2012). A Scotland-based review by Thomas et al. (2015) notes a continued need for social research into woodland expansion. Schirmer and Bull (2014) describe the high importance of land-owner attitudes to tree planting in delivering effective afforestation, and emphasise that these attitudes ('willingness to adopt'), and the factors influencing them, form key research questions. In addition, the interaction of farmer decisions related to woodland expansion, and a broader context of increasing farm diversification, requires careful consideration.

This article utilises a large-scale, representative survey of Scottish farmers to analyse associations between the intentions to expand forestry and characteristics of farmers and their farms, including diversification activities and other farm changes. The emphasis on past behaviour and future intentions is supported by research suggesting that attitudes, and thus up-take, change over time. This study advances the literature in two specific ways: by assessing afforestation within the context of farm diversification, and addressing past behaviour and future intentions to afforest.

The remainder of the paper is organised in five sections. The method (Section 2) and data used (Section 3) are described, before the results of the statistical analysis are detailed (Section 4) and discussed (Section 5), followed by a conclusion which includes policy recommendations (Section 6).

2. Method

This paper is based on a telephone survey of Scottish holdings (2013), which collected detailed information on past and planned farm changes (total responses = 2416). More detailed information on the data collection and sample are described within the 'Data' section. Farmer intentions regarding afforestation were assessed based on two survey questions: respondents were asked whether they had changed the area of forestry since 2005, with responses of 'Decrease', 'No change', 'Increase' or 'not applicable'. A similar question was asked for intentions to change the area of forestry by 2020. A variable was created from these responses: where a farmer had answered both questions (i.e. 'Decrease', 'No change' or 'Increase') they were classified into one of three groups:

- Farmers who intended to increase the area of forestry by 2020, irrespective of past changes made ($n = 200$)
- Farmers who did not intend to increase the area of forestry by 2020,

¹ Howley et al. (2012: 33–4) also provides an overview of Irish afforestation.

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