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1 **To plant or not to plant – Irish farmers’ goals and values with regards to**
2 **afforestation**

3
4 Keywords: Farm afforestation; decision-making; Ireland; rural development; multifunctionality;
5 qualitative methods

6

7 **Abstract**

8 To encourage Irish farmers to transfer land into forestry, a premium scheme supporting farmers
9 who afforest was implemented in 1989 and afforestation targets outlined in 1996. In the period
10 from 1996 to 2006, however, only half of the targeted area was planted in Ireland. As the income
11 of many farmers would improve when joining the scheme, a number of studies have been
12 conducted to find out why the response was not as expected. However, to date the phenomenon
13 has not been explained. Amongst the studies undertaken, a lack of qualitative approaches looking
14 at farmers’ decision-making was identified. In order to understand farmers’ decisions regarding
15 farm afforestation, in-depth interviews with 62 farmers in the North-West and Mid-Western
16 regions of Ireland were conducted in Winter and Spring 2011. The interviews were based on the
17 theory of farmers’ goals and values developed by Ruth Gasson in 1973 (Gasson, 1973) and relate
18 specifically to their instrumental, intrinsic, social and expressive values about farming. The
19 results of this study show that farmers exhibit complex, multiple and sometimes contradictory
20 values in relation to farming. The biggest group in the study were guided by intrinsic values when
21 it comes to farm afforestation. Their decision not to plant is made based on their values and
22 beliefs about farming, e.g. that it is a shame to plant land used for food production, even though
23 this returns low or no profits. A much smaller group were directed by profit maximisation when it

24 comes to afforesting land. These farmers would plant if the financial incentives around forestry
25 were more attractive, i.e. the premiums of the scheme higher or the outlook for agricultural
26 profits not as good as they anticipated them to be.

27

28

29 **1 Introduction**

30 **1.1 Farm forestry in Ireland**

31 Ireland has one of the most favourable climates for tree growth in Europe, with a mean annual
32 increment almost double the European average (Kearney et al., 1993; Ní Dhubháin et al., 2003).
33 Under natural conditions, the whole island would be covered with trees (Neeson, 1991).
34 However, due to continued resource exploitation and the expansion of agriculturally-used land,
35 forest cover decreased throughout the centuries and reached an all-time low in the 1890s, with
36 only 1% of the land under forest. Due to a number of afforestation programmes, forests currently
37 cover approximately 11% of the total land surface – considerably less than the European average
38 of about 40% (European Union, 2010).

39

40 Up until the 1980s, afforestation was primarily undertaken by the State. The first increase in
41 private sector planting followed the introduction of the EEC-funded Western Package Scheme in
42 1980. Farmers afforesting part of their holding could obtain up to 85% of their establishment
43 costs (Ní Dhubháin et al., 1999). In 1989, a countrywide afforestation scheme was introduced,
44 which pays farmers an annual premium to provide an income from the time of planting until the
45 time the first timber harvest was due (see figure 1 for the amount of premiums paid to farmers)
46 (Behan et al., 2005). The premiums are granted and thus do not have to be paid back. Premiums
47 increased significantly after the scheme was transformed into an accompanying measure

48 according to EC regulation 2080/92 (Frawley, 1998; Behan et al., 2005; Ní Dhubhain et al.,
49 2009). As a consequence, private planting rates peaked in 1995 with 17,000 hectares. of farm
50 land being afforested (Forest Service, 2009). Encouraged by these figures, the national forestry
51 strategy ‘Growing for the Future’, published in 1996, set ambitious planting targets of 25,000
52 hectares per annum until the year 2000, and 20,000 hectares per annum from 2000 until 2030
53 (DAFF, 1996). This level of afforestation was predicted to lead to a level of timber output
54 necessary to facilitate the establishment of a viable wood-processing sector, leading to additional
55 employment opportunities (DAFF, 1996; Irish Government, 2002; DAFF, 2010). The Irish
56 afforestation strategy is part of the State’s rural development policy and as such farm
57 afforestation is expected to lead to diversified income options in areas where agriculture is not
58 viable (Irish Government, 2002). So far no study analysed if farm afforestation displaced jobs in
59 other areas. However, an input-output-approach to assessing the value of forestry to the Irish
60 economy showed that the gross total value of an afforestation programme amounting to 15,000 ha
61 per annum over a five year period would be 475 Million Euros (Ní Dhubhain et al., 2009).

62 Nevertheless, interest in planting dropped significantly after the strategy was launched. In the
63 period from 1996 to 2009, only 48% of the targeted area of farmland was planted with trees
64 (Forest Service, 2009), even though the value of the premium was increased in 1995, 1999, and
65 2007 (see also Figure 1). This decline in planting has been attributed to the availability of
66 additional agri-environmental subsidies paid under the Rural Environment Protection Scheme
67 (REPS), introduced in the reform of the Common Agricultural Policy in 1993. These subsidies
68 offered farmers a competitive alternative to forestry that did not require a change in land use
69 (Bacon, 2003). Land in REPS was not allowed to draw forestry premiums, which increased the
70 competition between the two schemes. Furthermore REPS was attractive to farmers as the land
71 enrolled could be withdrawn after the period of five years, whereas the decision to afforest was

72 irreversible (McCarthy et al., 2003). To make the afforestation scheme even more attractive, the
73 Irish Government introduced the stacking of the Single Farm Payment in 2005, allowing a farmer
74 who afforested land to continue to receive direct payments on that land.¹ Nevertheless planting
75 rates did not meet the targets and the Department of Agriculture, Fisheries and Food (DAFF,
76 2010) states in its Rural Development Programme for the period from 2007 to 2013 that ‘*the*
77 *major difficulty with the [afforestation] programme at the moment is the low rate of take-up*’.

78

79 **Figure 1:** Private afforestation rates (hectare/year) and rate of annual farm afforestation premium
80 (euro/hectare) in Ireland 1990-2010.

81 Source: Irish Farmers’ Association (1991-1996); Irish Timber Growers Association (1997-2010);
82 Forest Service (2010).

83

84 **1.2 Farm forestry and agricultural change in Ireland**

85 According to the Irish forestry strategy, 70% of the planting target was to be carried out by
86 private landowners – more specifically by farmers (DAFF, 1996). The rationale for the continued
87 support of farm afforestation is closely linked to a paradigm shift in the EU agricultural policy –
88 from a “productivist” to a “post-productivist” agricultural regime. According to Lowe et al.
89 (1993), productivism can be conceptualised as the commitment to an intensified, industrially-
90 driven agriculture driven primarily by increased output and productivity. In defining the post-
91 productivist agricultural regime, Ilbery and Bowler (1998) characterise it as a shift in agricultural
92 policy from intensification to extensification, from concentration of agricultural resources to the
93 dispersion of resources and from agricultural specialisation to diversification. While such

¹ Due to Ireland’s critical economic situation, forestry premiums in 2009 were cut – surprisingly little – by 8%. In the government’s budget 2012 target planting levels were adjusted to 7,000 ha. However the overall strategy of increasing the forest cover to 17% until 2030 is still in place.

94 categorisations are widely deployed in explaining the fundamental shift that has taken place in
95 postwar agriculture, the binary/dualistic nature of the productivist/post-productivist discourse has
96 been criticised as potentially misleading, leading to a forced categorisation in which underlying
97 processes of change often remain unspecified (Wilson, 2001; Evans, 2002). At a policy level,
98 responses to the problems associated with “industrialised agriculture” were apparent in the rural
99 development measures introduced in some EU member states as early as in the 1960s (O'Connor
100 et al., 2009). From the early 1980s, the Common Agricultural Policy (CAP) was continuously
101 reformed. First implemented were quotas, set-aside and extensification regulations. Later on, with
102 the Mac Sharry reforms in 1992, agri-environmental measures and the general support of the
103 afforestation of agricultural land followed. As the focus of these policies is on support decoupled
104 from agricultural output, the new rural development paradigm is often referred to in the
105 “contentious” post-productivist terms outlined above (van der Ploeg et al., 2000; Potter et al.,
106 2002; O'Connor et al., 2006). Part of this post-productivist rural development paradigm today is
107 the notion of multifunctionality, which became a defining feature of the European model of
108 agriculture (Potter et al., 2002). Many definitions and interpretations of the term
109 multifunctionality are discussed in the literature. The most commonly used concept is that of
110 multifunctionality being the ‘*joint production of commodities and non-commodity outputs (public
111 goods and externalities)*’ (O'Connor et al., 2009, p. 334). It needs to be pointed out however, that
112 the notion of multifunctionality is also not an uncontested one. For the advocates of further trade
113 liberalisation within the WTO, multifunctionality is regarded as disguised protectionism (Dibden
114 et al., 2009; O'Connor et al., 2009).

115
116 Marsden and Sonnino (2008) classify an agricultural activity as being multifunctional if it adds
117 income to agriculture, reconfigures rural resources in ways that lead to wider rural development

118 and contributes to the needs of the wider society. Based on this definition, farm afforestation can
119 be regarded as part of the concept of multifunctional agriculture, as farm forestry – according to
120 European and Irish policies – is expected to meet precisely these targets. First, farm forests are
121 expected to create an alternative source of income for farmers (DAFF, 2010). This can either be
122 provided through non-food resources like timber or bark; or through food-resources such as
123 game, honey, berries and mushrooms (Glueck, 1998). Second, it is assumed that forestry and
124 related services or industries contribute to the development of rural economies (DAFF, 1996).
125 This is because locally owned and managed farm forests are regarded as being more beneficial
126 for rural development than large-scale State or privately-owned plantations, on the basis that
127 profits are more likely to remain in the communities (Frawley, 1998; Schirmer, 2007).
128 Furthermore, rural communities are likely to exhibit less negative attitudes towards locally owned
129 and managed farm forests than towards large-scale (State) afforestation. In the past, large-scale
130 planting had caused controversy and concern amongst the local population both in Ireland and in
131 other countries such as Spain, Finland and Australia because it was linked to depopulation of
132 rural areas and a depersonalized, factory-like productive use of land (Carvalho Oliveira et al.,
133 1993; Selby et al., 1995; Schirmer, 2007; Marey-Perez et al., 2009). Third, with regard to the
134 needs of the wider society, the established forests are also expected to meet environmental
135 objectives, e.g. by sequestering carbon and providing an alternative energy source, as well as by
136 improving the biodiversity situation (DAFF, 2010). While the social role of forests for example
137 for recreation is acknowledged in the general Irish forestry strategy this function is provided by
138 the State owned forests rather than by privately owned farm forests, as there is no public access
139 granted onto private land like it is for example in Scandinavian countries, Austria or parts of
140 Germany through the ‘freedom to roam’.

141

142 According to McDonagh et al. (2010), the discourse on productivist versus post-productivist
143 agriculture outlined above mirrors a parallel discourse about the changing role for forestry,
144 moving from a modernisation perspective that focused on the production of timber as a primary
145 resource to one that recognises it a multi-use (e.g. carbon sinks, biodiversity, wood production)
146 and multi-benefit (e.g. tourism, recreation, quality of life) resource. However, they argue that
147 while the recognition of forestry's potential role within a multifunctional model of agriculture is
148 recognised and promoted at national and EU policy level, and while the farming community in
149 Ireland may choose to engage in farm diversification practices which might include forestry, the
150 'mindset' of the farming community is still strongly entrenched in the need for productivist and
151 more conventional farming practices.

152

153 **1.3 Research on farm afforestation**

154 Other countries in Europe experienced a pattern of farm afforestation uptake similar to Ireland.
155 After an initial period of intense interest, planting rates also dropped in France and Finland
156 (Selby et al., 1995; Mather, 1998). In England and Northern Ireland, participation in afforestation
157 schemes didn't meet expectations from the outset (Edwards et al., 1992; Ilbery et al., 1992;
158 Burton, 1998). In Ireland, most attempts to explain the drop in farm afforestation focused on the
159 socio-economic factors and the material resources of the farm. Economic analyses, for example,
160 compared the returns from forestry and farming enterprises in Ireland over a typical forest
161 rotation. They showed that using Net Present Value (NPV) analysis, forestry returns under
162 current market conditions would exceed those from farming on poor quality land, namely beef
163 and sheep enterprises (Collier et al., 2002; Behan 2002 cited in Wiemers et al., 2004; Duesberg et
164 al., 2008). More recently, Breen et al. (2010) showed that the NPV of various forestry scenarios
165 are higher even compared to farming enterprises typically carried out on medium-quality land.

166 The first income from timber harvesting is typically realised in a conifer plantation after 20 years.
167 The aim of the forestry premium is to bridge this income gap and economic comparisons of
168 family farm income with forestry premiums have also confirmed that the value of the latter
169 exceed the former, where beef and sheep enterprises are being operated (Collier et al., 2002). On
170 the basis of these results, agricultural land should have been planted with forestry at a larger scale
171 than has been observed.

172
173 Other Irish studies have looked at how factors such as farm size and the farming population's
174 demographic characteristics (e.g. age, occupation and successor situation) have influenced
175 farmers' decisions with respect to afforestation (Hannan et al., 1993; Ní Dhubháin et al., 1994;
176 Frawley et al., 2001; Collier et al., 2002; Connolly et al., 2005; Farrelly, 2006b). However, the
177 outcomes of these studies have been partially contradictory. In addition, a longitudinal study on
178 on-farm diversification in Scotland showed that neither household type or size nor farmers' age
179 had had an impact (Shucksmith, 1993). The only variable showing a consistent influence on farm
180 afforestation in Ireland, as well as in the UK, was farm size. Farmers with larger than average
181 farms have been shown to be more likely to plant (Ilbery et al., 1992; Ní Dhubháin et al., 1994;
182 Frawley, 1998; Mather, 1998; Frawley et al., 2001).

183
184 An early survey on farmers attitudes towards planting in Ireland revealed that most farmers
185 would only plant land that was 'good for nothing else' (Ní Dhubháin et al., 1994). Other Irish
186 studies confirmed that the land planted or considered for planting was mainly marginal
187 agricultural land yielding little or no agricultural return (Hannan et al., 1993; Frawley, 1998;
188 Frawley et al., 2001; Kearney, 2001; Collier et al., 2002; McCarthy et al., 2003; Ní Dhubháin et
189 al., 2003). In 2006, a supplementary survey on farm afforestation was conducted as part of the

190 Irish National Farm Survey. When asked about the barriers to afforestation, farmers stated that
191 the main reason for not planting was that they needed all their land for agriculture (McDonagh et
192 al., 2010). Similar findings were made in England, Spain, Finland, Scotland and Northern
193 Ireland, where farmers were also more willing to afforest marginal land such as fallows,
194 unimproved bog or rough grazing ground (Edwards et al., 1992; Clark et al., 1993; Selby et al.,
195 1995; Watkins et al., 1996; Marey-Perez et al., 2009). In Ireland, less than one quarter of farmers
196 indicated they would have no objections to planting good farmland (Frawley, 1998). Kassioumis
197 et al. (2004) found similar results in Greece, where only one quarter of farmers in an area
198 dominated by agricultural production believed that fertile agricultural land should be planted. Ní
199 Dhubháin and Gardiner (1994) asked Irish farmers what would encourage them to afforest land.
200 Interestingly, 67% could not think of any factor which would positively influence such a
201 decision. Similarly, Potter and Gasson (1988) asked farmers in England how high premium
202 would need to be to transfer agriculturally-used land into forestry and 61% did not want to join at
203 any rate.

204
205 Frawley (1998) concluded that farmers follow an economic rationale when planting marginal
206 land. However, when it comes to displacing conventional agricultural enterprises, deeply held
207 values about the appropriate use of good farmland can be a barrier to afforestation (ibid). Bishop
208 (1990) and Watkins et al. (1996) came to the conclusion that negative attitudes towards forestry
209 on farmland were deeply rooted amongst farmers and that farmers' attitudes and beliefs about
210 farm afforestation are among the main obstacles to planting.

211
212 Very little work has been done so far to explore these deep-rooted attitudinal barriers to
213 afforestation of farmland amongst farmers. Burton (1998) studied the influence of farmers' self-

214 identity on the participation in a community woodland scheme in England. He found that farmers
215 gain little satisfaction from the management of woodland and thus are disinclined to establish one
216 on the farm. In Ireland to date, no study has explored in-depth the factors underlying the
217 decision-making of farmers with regards to the practice of farm afforestation. However, this is
218 crucial to be able to identify and address potential barriers.

219

220

221 **2 Farmer decision-making theory**

222 The Irish afforestation scheme offers farmers external motivation in the form of financial
223 incentives to plant their land with trees. Thus it assumes that farmers make this decision based on
224 profit-maximisation values (Schneider et al., 1990). This assumption is true to a certain extent, as
225 almost no farm afforestation took place prior to the introduction of the premium scheme, while
226 studies conducted since that time have shown that the vast majority of farmers would not plant if
227 grants were not available (Maguire, 2008; Carroll et al., 2011). On the other hand, there has been
228 a significant shortfall in planting rates despite the higher profitability of forestry compared to
229 dominant farm enterprises in Ireland. Thus, it seems that elements of the farming community
230 make their decisions with regards to afforestation based on goals and values other than profit
231 maximisation. The general literature on farmers' decision-making confirms this assumption.
232 There is abundant evidence that farm management (especially on owner-occupied family farms)
233 is not only motivated by economic goals (Gasson, 1973; Potter et al., 1988; Morris et al., 1995;
234 Battershill et al., 1997; Burton, 1998; Willock et al., 1999a; Austin et al., 2001; Shucksmith et al.,
235 2002).

236

237 Gasson (1973) described several different types of goals and values observed amongst British

238 farmers. *Goals*, according to Gasson (1973), are defined as ends or states in which the individual
239 desires to be. They are satisfiable and achievable. The decision to pursue one goal or another is
240 influenced by *values* (see Figure 2). Values serve as a guideline to categorize situations, objects
241 or events into being good or bad, right or wrong. Based on the literature and her own empirical
242 research, she classified the following value groups prevalent amongst farmers:

- 243
- 244 • Instrumental: i.e. making the maximum income, making a satisfying income;
 - 245 • Intrinsic: i.e. enjoyment of work tasks, preference for a farming life-style, purposeful
246 activity, control over land;
 - 247 • Social: farming for the sake of interpersonal relationships, continuing the family tradition;
 - 248 • Expressive: farming as a way of self-expression, meeting a challenge, exercising special
249 abilities, aptitudes, pride of ownership.

250

251 Gasson (1973; p. 525) furthermore described values as being organised in systems and that
252 *‘people desire to achieve all valued ends, but in situations where these are mutually exclusive, it*
253 *is the relative ordering of values which determines how they decide to act.’* It is this ordering of
254 values we need to know, in order to understand the course of actions taken in specific decision-
255 making situations such as farm afforestation.

256

257 Researchers in the field of behavioural studies have developed much more complex and
258 sophisticated models of farmers’ decision-making. The most comprehensive study undertaken in
259 this area was probably the Edinburgh Study of Decision-Making of Farmers (ESDMF) (Willock
260 et al., 1999a; Willock et al., 1999b; Austin et al., 2001). An interdisciplinary group of researchers
261 consisting of psychologists, agricultural scientists, business management specialists and

262 mathematicians incorporated personality, cognitive ability and external farm variables to model
263 farmers' general behaviour. They have shown that both personality and intelligence factors
264 significantly contribute to farmers' behaviour (see Figure 2) (Willock et al., 1999a; Austin et al.,
265 2001).

266
267 Battershill and Gilg (2006), too, distinguish between different factors influencing farmer behaviour
268 and decision-making, identifying "structural factors" such as government policy, financial pressures
269 and family structure, and "attitudinal" factors such as farmers' values, dispositions and personalities.
270 This conceptualisation is in line with a "structurationist" approach, which gives equal weight to *farm*
271 circumstances and *farmer* circumstances in terms of influencing decision-making and behaviour.
272 Going a step further, Clarke and Lowe (1992) have highlighted the prevalence of "farmer-free"
273 theories, which neglect the important role of farmers' own ideas and intentions in explaining their
274 decisions. According to Battershill and Gilg (2006), this dimension of the "farmer focus" remains
275 overlooked in most agricultural research.

276
277 All the above-mentioned aspects are important to draw an all-encompassing model of farmers'
278 behaviour. However, the authors of the ESDMF study themselves pointed out that '*whilst this*
279 *observation might be interesting from an academic viewpoint, the policy relevance of such results*
280 *is less apparent.*' (Willock et al., 1999a, p. 300). They furthermore contend that there are
281 problems with integrating structural and attitudinal variables in models in terms of practicability,
282 as large data sets would be required. Instead they recommend that in order to gain a deeper
283 understanding of the factors influencing farmers' decision-making processes, farmers' behaviour
284 in specific domains such as animal welfare and farm conservation should be explored (Willock et
285 al., 1999a). Against this backdrop, exploring the decision-making of farmers with specific regard

286 to afforestation will thus not only lead to practical policy recommendations, but also to deepen
287 the understanding of farmers' decision-making processes.

288
289 The approach taken in this study is to draw on Gasson's (1973) basic decision-making model and
290 the work of Willock et al. (1999b) (see Figure 2). This approach provides the researcher with
291 sufficient guidance through the theoretical structure while at the same time allowing sufficient
292 freedom for data collection.

293

294 **Figure 2: Factors Impacting on Farmer Decision Making**

295 Derived from Gasson (1973) and Willock et al. (1999b)

296

297 **3 Material and Methods**

298 **3.1 Research design**

299 To date, quantitative approaches have dominated the studies undertaken on farmers' decision-
300 making with regards to afforestation. This means that farmers were confronted with predefined
301 questions and possibilities of answers rather than being given the opportunity to articulate their
302 own views. To let them talk about their personal reasoning behind the decisions of land-use in
303 general, and afforestation in particular, is crucial to gaining a deeper understanding of the
304 decision-making process and the goals and values influencing it. Thus a qualitative approach in
305 the form of semi-structured interviews (in-depth interviews with open-ended questions) was
306 chosen as such an approach permits one '*to understand the world as seen by the respondents*'
307 (Quinn Patton, 2002). The interviews were shaped by a topic guide covering the broad discussion
308 topics and structuring the conversation, but also allowing for the exploration of issues brought up
309 during the interview. The guidance note covered general questions regarding the farm enterprise

310 and size, the farm family, future expectations for farming, agricultural markets and policy as well
311 as general goals for the farm. It also included discussion areas such as the information situation
312 about the afforestation scheme, the value of incentives paid and farmers' values with regards to
313 planting forestry on farmland. Each interview was recorded and transcribed. The interviews times
314 ranged from 15 minutes to two hours, lasting on average 45 minutes. All interviews were coded
315 using Nvivo©-software to identify farmers' values and goals towards farming in general and the
316 values underlying their decision-making on afforesting marginal and agriculturally-used land.

317

318 **3.2 Coding strategy**

319 In order to establish farmers' goals with regards to afforesting land, the interviews were first
320 coded by farmers' reasons for not planting trees and their reasons for planting trees. In a second
321 step, the coding strategy investigated further the values farmers held about farming in general and
322 how they influenced the farmers' decision-making process with regards to afforestation. The
323 analysis followed Layder's (Layder, 1998) "adaptive theory". It attempts to combine an emphasis
324 on prior theoretical ideas and models, which feed into and guide research, while at the same time
325 adding to the generation of theory from the ongoing analysis of data. The coding was conducted
326 based on Gasson's (1973) farming values: instrumental, intrinsic, social, and expressive values as
327 outlined in the theoretical discussion above. During the coding process, for each value, several
328 sub-values were identified, based on the data collected and put into sub-value groups according to
329 Gasson's (1973) theory. Wherever this was not possible, new sub-value groups were created
330 which were grounded in the data collected. Instrumental values were divided into two mutually
331 exclusive sub-values: making the maximum profit and making a satisfying profit. Intrinsic values
332 were divided into four sub-values. Three of those sub-values – enjoyment of work tasks, priority
333 for food production ('purposeful activity') and keeping control – were also described by Gasson

334 (1973). The fourth sub-value 'habit' was created to represent farmers' views where they
335 exhibited a certain passivity towards the course of action taken on the farm. Coded under social
336 values were quotes expressing farming values such as 'to keep the family tradition going', 'to
337 leave a good asset for successors' and also quotes about farming relating to social contact or the
338 value that farming has for society as a whole. The latter aspect was not described by Gasson
339 (1973) but expressed by many farmers in this study. Coded as expressive sub-values were quotes
340 expressing pride of ownership, exercising special abilities, but also quotes showing that farmers
341 exhibited entrepreneurial characteristics, didn't mind taking risks and/or had business ideas. Also
342 coded as an expressive sub-value were farmers' quotes expressing nature conservation values.

343

344 **3.3 Study area**

345 Cattle and sheep farms have for many years been the least profitable agricultural enterprises in
346 Ireland. Market returns in these systems have not covered the costs of production for many years
347 and parts of the support payments are used to make up the shortfall (Connolly et al., 2009). As
348 discussed earlier, calculations and comparisons of Net Present Values (NPV) have shown that
349 forestry returns would exceed those from beef and sheep enterprises (Collier et al., 2002; Behan
350 2002 cited in Wiemers et al., 2004; Duesberg et al., 2008; Breen et al., 2010). Thus they have
351 been identified as the farm types where forestry is an attractive financial option (Leavy, 2001).
352 The region chosen for study was the Mid-West/North-West of Ireland as farming in this part of
353 the country is characterised by small cattle and sheep farms on poor soils. Depopulation is also a
354 feature of the region, with the population declining by 19% and employment by 24% between
355 1971 and 1996 (Kearney et al., 1993; Bacon, 2003). Creating alternative income options for
356 farmers in these areas could help to stop further marginalisation. The three study counties chosen
357 were Roscommon, Sligo and Westmeath as their forest cover is also below the Irish average.

358 Thus, the potential in these counties for afforestation was assumed to be high.

359

360 **Figure 3:** Study counties and forest cover rates by county*

361 Source: Forest Service (2007)

362 (*the afforestation policy does not apply in Northern Ireland)

363

364 **3.4 Study participants**

365 The target population was farmers operating their farms in the three chosen counties. The names
366 and addresses of farmers in Ireland are not publicly available. Hence, we requested the Irish
367 Department of Agriculture, Food and the Marine to facilitate the survey by inviting a random
368 sample of 800 farmers to participate, of which 62 agreed to do so. Due to restrictions associated
369 with the Freedom of Information Act (1997), it was not possible to obtain any details on non-
370 respondents in order to investigate non-response bias. However an overview of the demographic
371 and socio-economic characteristics of the study participants given in Table 1 shows that the
372 average farm size in the sample was above the national average, which might be due to eight
373 unusually big estates in the sample, each of which comprised more than 100 hectares of land.
374 When these were excluded, the average farm size of the sample was exactly that of the national
375 average. Of the 62 participants, 14 had planted forestry on their land. Again the average size of
376 these forests was larger than the national average farm forests. However, when the large estates
377 were excluded, the average farm forest size dropped below the national average (see Table 1).

378

379 **Table 1:** Overview of characteristics of survey participants ¹

Percentage of participants by	Roscommon	Sligo	Westmeath	

counties				
	31%	32%	37%	
Percentage of participants by farming enterprises	Cattle	Mixed cattle	Sheep	Dairy and other
	45%	44%	6%	5%
Percentage of participants by occupation	Full-time farming	Part-time farming	Retired	
	50%	27%	23%	
Average farm size	Sample	Adjusted sample¹	National	
	53 ha	37 ha	37 ha	
Average forest size	Sample	Adjusted sample¹	National	
	12 ha	7 ha	9 ha	
Average age	Sample	National		
	55 years	55 years (2007 figures)		
Average direct payments in €	Sample	National		
	18,200	17,300 (2010 figures)		

380 ^{1.} Excluding farms larger than 100 ha

381

382 Results are presented in the following order: First farmers' goals and values towards farming in

383 general are described. Second, farmers' reasons for not planting and third reasons for planting are
384 presented. Finally, results are explored in the context of Gasson's (1973) theory and policy
385 implications of the results are discussed.

386

387

388 **4 Results**

389 **4.1 General farming values**

390 Regarding *instrumental values*, most of the participants exhibited one of the two instrumental
391 sub-values described by Gasson (1973). The two sub-values described and observed were either
392 making a 'maximum income' or making a 'satisfying income'. They were mutually exclusive
393 meaning that farmers held either one or the other sub-value. The majority were looking to make a
394 satisfying income rather than the maximum one (see Table 2). This bigger group typically said
395 that farming financially 'only breaks even', but in most years they would keep all or most of the
396 Single Farm Payment as their profit. This seems to be a satisfactory enough income, as most of
397 the interviewed farmers were not interested in increasing their income further.

398

399 *'You are lucky if you break even. The better farmers are holding their single farm payment and a*
400 *small bit along with it. But most farmers would be losing some of their single farm payment.'*

401

402 Most farmers looking for the maximum income didn't state this openly and if so, they qualified
403 their intention to make as much money as possible with an additional remark such as *'you will*
404 *never become a millionaire farming!'*. Another farmer complained that pursuing the maximum
405 income puts him and his animals under *'too much stress'*. Farmers who exhibited profit
406 maximisation as their target for farming were more inclined towards exploring and deploying

407 alternative market opportunities such as mushrooming, organic farming, wind farms, selling
408 spring water from the farm, producing good quality food but also forestry.

409
410 *'I have a great well on my land it's thousands, millions of gallons of water leaving it probably*
411 *every day. If I could ever get the money to set up a water bottling plant at it... because it's the*
412 *finest of spring water, it's perfect.'*

413
414 But also adapting quickly to the changing market situation was one of their strategies.

415
416 *'I'm going to get into more cows, that's what I'm planning anyway, sell more weanlings. Well so*
417 *far it's quickest way to make money.'*

418
419 The profit maximisers were also very interested in and well informed about the current and future
420 development of agricultural policies, especially those affecting support payments. In general in
421 can be said that they showed a more active, entrepreneurial approach towards managing their
422 farm.

423
424 A small group of farmers did not have instrumental values at all. They were either retired, had
425 full-time off-farm jobs, or were successfully self-employed. Farming for them was more like a
426 hobby and sometimes they would use the income of the off-farm job to subsidise the farm
427 business.

428
429 The majority of farmers with instrumental values additionally held one or more of the other
430 values – intrinsic, social or expressive – described by Gasson (1973). With regards to the whole

431 sample, the most frequently mentioned of these additional values were intrinsic values (see Table
 432 2).

433

434 **Table 2:** General farming values and sub-values by number of interviewees*

Farming value	Sub value	Number of interviewees	Percentage
Instrumental	Total	62	100%
	Satisfying income	40	65%
	Maximum income	13	21%
	No instrumental value	9	14%
Intrinsic	Total	51	82%
	Enjoyment of work tasks and lifestyle	29	47%
	Habit	17	27%
	Priority of food production	15	24%
	Control over land	15	24%
Social	Total	18	29%
	Family tradition	16	26%
	Good for society	2	3%
	Social contacts	1	2%
Expressive	Total	15	24%
	Meeting a challenge	9	14%
	Knowledge, abilities and aptitudes	7	11%
	Nature conservation	4	6%
	Pride of ownership	2	3%

435

436 *only instrumental sub-values were mutually exclusive

437

438 Within the *intrinsic value* group, four sub-values were identified during the research process.

439 Three of those – ‘Enjoyment of work tasks and lifestyle’, ‘Priority for food production’ (as

440 purposeful activity)’ and ‘Control over land’ – were also described by Gasson (1973). For many

441 farmers intrinsic values seem to compensate them for low financial returns from farm work:

442

443 *‘I never liked farming in my younger days, but I’m just glad to have it now. It’s not really for*

444 *farming; it’s just the pleasure of it. (...) A place to have a nice walk. It is peaceful. It certainly is*

445 *not the income, I know over the last number of years, the income off it has been little or nothing*

446 *or negative.’*

447

448 A fourth sub-value was identified and termed ‘habit’. As noted earlier, it was created to represent

449 farmers who stayed in farming simply because it is what they were used to doing all their life.

450 Those farmers typically expressed a negative attitude towards change in general. They either felt

451 too old for change, or didn’t like change because of the ‘*hassle*’ involved and therefore preferred

452 to keep doing what they were used to.

453

454 *‘I know people change, but a lot of people won’t, because they are at it so long, they are not*

455 *going to change. I suppose I won’t say it’s like a religion or something like that. It’s just in them*

456 *to produce cattle or produce sheep or whatever.’*

457

458 After ‘enjoyment of work tasks’, ‘habit’ was the next most frequently mentioned sub-value,

459 closely followed by ‘priority of food production’ and ‘control over land’.

460
461 The other additional values – *social as well as expressive* – were less dominant in the discussions
462 about running the farm in general. Gasson (1973) similarly found that farmers’ most frequently-
463 cited sources of work satisfaction were those related to intrinsic and instrumental values, while
464 those related to expressive and social values were mentioned less often. Ilbery (1983) also found
465 intrinsic values to be most important among the goals and values of hop farmers, followed by
466 expressive values, with social values having the lowest priority. In this study the most frequently-
467 cited social sub-value was continuing the ‘family tradition’ (see Table 2).

468

469 *‘I do it, I guess maybe for the kids if they have an interest.’*

470

471 Other less frequently-mentioned social values were the enjoyment of the social contact made
472 possible through the farming lifestyle and the idea that farming is beneficial for society as a
473 whole.

474

475 Expressive sub-values as described by Gasson (1973) and exhibited by the interviewees were
476 ‘meeting a challenge’, exercising special ‘abilities and aptitudes’ and ‘pride of ownership’ (see
477 Table 2). Also coded as expressive sub-values were quotes by farmers whose farm management
478 was influenced by ‘nature conservation’ values – which arguably could also have been coded as a
479 social value. As Gasson (1973) noted, grouping of sub-values is by no means clear-cut and the
480 meanings of value groups often overlap. We decided to code the ‘nature conservation’ sub-value
481 to the group of expressive values, on the basis that the interest in wildlife and the creation of
482 suitable habitats for them was closely related to the sub-value of exercising special abilities.

483

484 The expressive sub-value 'meeting a challenge' was linked to entrepreneurial thinking in terms of
485 actively looking for new business as a challenge.

486
487 *'I'm in the process of developing this new project; I'm a project person! I'm putting up a cool*
488 *chill room, for my organic lambs. (...). Well of course there's other projects you can do as well,*
489 *once you have these sheds fixed up (...) you could actually take in turkeys or geese or other*
490 *things. You can use the sheds in the summer then for other options.'*

491
492 To exercise special abilities or to make use of special knowledge was often expressed through an
493 interest in breeding high-quality stock or through managing the land in order to make it look
494 good.

495
496 In contrast to the instrumental values, intrinsic, social and expressive values were not mutually
497 exclusive. They were held in parallel creating a complex value system with regards to farming in
498 general. One farmer, for example, had sold some wet land to a forestry company. He managed
499 the remaining part of the farm with the goal of profit maximisation and entrepreneurial thinking
500 in terms of enjoying new challenges (see quote above). However, at the same time the farm work
501 also provided great source of joy to him:

502
503 *'With the sheep I work very hard. But it's enjoyment as well, you may go through a lot of*
504 *punishment for two months in the lambing, because it's all hours, but at least when they are all*
505 *up and running and out, and they are all looking well, you forget all that, it's gone, looking*
506 *forward to the next thing then!'*

507

508

509 **4.2 Reasons for not planting**

510 When presented with the option to afforest some land, the most commonly-expressed reason for
511 not planting trees was that the farm afforestation scheme wasn't attractive enough financially.
512 However, only a very small group of farmers knew the financial details of the scheme and had
513 compared them with their farming returns. Although they had heard about the existence of the
514 scheme, most respondents were not actually informed about the details. After informing them of
515 the financial benefits of the scheme many farmers admitted that it would pay better than staying
516 in farming.

517

518 *'Each year? For the twenty years? That would include fencing and planting? ...Jesus you have*
519 *me thinking now! And I thought you said you weren't promoting forestry!'*

520

521 However, even after being presented with the financial benefits, no farmer became seriously
522 interested in planting. The most frequently cited reason for not planting was that the land on the
523 farm wasn't suitable for forestry, i.e. not 'bad' enough or that the farm was too small for planting.

524

525 *'Well that's out with me, I have all very good fertile land and I would not plant it, I wouldn't*
526 *destroy it, there is no way, no matter how attractive it was, it's one of the last things I would do, I*
527 *would feel I would be destroying my land, by planting trees on it. I only agree to planting poor*
528 *quality land for forestry, but good land, I don't like the idea of it.'*

529

530 At this point of the interview, farmers were asked why they would not plant agriculturally-used
531 land, despite forestry returning higher profits. Interviewees' answers generally centred around

532 three reasons, which were in most cases influenced by intrinsic farming values: they either said
533 that farming was the more attractive option, because it produced food (31); or because it had the
534 advantage of a fairly quickly adaptable land-use cycle and they wanted to 'keep control' over the
535 land (45); or because it was linked to a specific enjoyable type of work and lifestyle (17).
536 Reasons were not exclusive and most farmers mentioned two or all three of them. A typical
537 statement for farming being linked to the preference of food production was:

538
539 *'You tend to hold onto land, you don't tend to plant land, you tend to hold onto it, as growing*
540 *crops, beef or cattle anyway.'*

541
542 For farmers, the second attribute making farming more attractive than forestry was, as mentioned
543 above, linked to a flexible land-use system, which can potentially be changed from one year to
544 another. This very often was expressed in the notion of forestry being too much of a long-term
545 enterprise.

546
547 *'Forestry as you know, you are in there for twenty years, you can't change, whereas I get out of*
548 *sheep or get out of cattle I could get back in two years later or three years later.'*

549
550 The third attribute characterizing farming as the preferred land-use is linked to a strong affinity
551 for the activities and lifestyle related to farming:

552
553 *'But the spring time is a lovely time of the year when you are farming, when calves are being*
554 *born and I don't think it's really what you make out of it, it's the fact that you get the animals and*
555 *you get them to stay alive and you get them thriving, that's basically it, it's the job satisfaction.*

556 *There is not much job satisfaction in forestry.'*

557

558 A quite large group of interviewees (17) indicated that Irish farmers would have a general
559 resentment towards forestry, which is deeply rooted in the nation's history of oppression, tenant
560 farming and famine.

561

562 *'In Ireland there is a huge tie to the land. The fact that you have land is worth more than the land*
563 *itself. It's historically, going back to the famine times and going back to different times. (...) To*
564 *put your land in forestry is a sin and I would have been told that, when I planted my land.'*

565

566 *'Irish people and land, there's a sort of a bond there all the time and the forestry is sort of*
567 *foreign. (...) a lot of it is coming from history, the fact that you had the English landlords here.'*

568

569 Another substantial group of farmers (17) had concerns about the impact forestry would have on
570 the landscape and environment. Typically, farmers were afraid of forestry blocking the view,
571 destroying the landscape or impacting on water quality.

572

573 *'Once you plant your green field, you don't see your green field anymore, because the trees start*
574 *to grow on it. It's nice to look out that window and you see a green field.'*

575

576 A small group of farmers (5) stated that they would not plant because of social value reasons, i.e.
577 that they hoped the next generation would take over the farm soon and they would rather leave
578 the decision about what to do with the land to them.

579

580

581 **4.3 Reasons for planting**

582 Most of the interviewed farmers who already had planted some forestry had a similar view on
583 planting as the majority of farmers without forest; farmers with forest mostly planted because
584 they had land that was difficult to farm or bad land that they could not improve (e.g. drain) to
585 make it fit for grazing. In many cases, the planted parcels were separate plots, typically far away
586 from the farmhouse and the farming facilities. Those farmers who had planted typically had more
587 than one reason leading to this decision. Similar findings were made by (Frawley et al., 2001) and
588 (Ní Dhubháin et al., 2003).

589

590 *'We inherited the land and we planted it two years after inheriting it. It was such a burden having*
591 *it, because it was far away from the house, it put extra pressure on you going to see cattle on it.*
592 *(...) This land it was bog, it was mountain, it would have been dangerous for cattle, because it*
593 *wasn't drained properly, there were dykes in it, so it wasn't used.'*

594

595 Asked if they would plant more – and also better quality land – most of them expressed the same
596 view as farmers who had not planted, which was *'I would never plant good land'*. Only two
597 farmers had no major objections towards planting land that was agriculturally-used. They had
598 planted because forestry in their case was the most attractive option financially. But even these
599 farmers had additional reasons driving them towards planting trees on agricultural land, e.g. not
600 having time to farm the land themselves; having a big farm by comparison – hence leaving
601 enough land for farming; or having a plot of land far away from the farmhouse or plot that was
602 difficult to farm.

603

604 *'The farm is in about twenty plots and we have one farm, I think it's thirty-five minutes away*
605 *from the home house and we used to keep all our cattle there we'll say. And we just found it*
606 *wasn't viable anymore to keep. But the main reason why we did move was because the main*
607 *Dublin-Galway road would split the land in two. So it was harder to farm as well.'*

608

609 **5 Discussion and Conclusion**

610 Most of the farmers interviewed appeared to exhibit multiple values in parallel about farming in
611 general, confirming Gasson's (1973) view that farmers have complex value systems. In terms of
612 instrumental values, the results showed that the two sub-groups – making 'the maximum income'
613 and making a 'satisfying income' – are mutually exclusive. Although Gasson (1973) groups the
614 two instrumental sub-values under one heading, they lead to two very different decision-making
615 processes. Farmers who look to make the 'maximum income' generally showed a more active
616 approach in running the farm enterprise and improving their income and thus their profit. Farmers
617 looking for a 'satisfying income' seem to look for an alternative source only when their income
618 falls below a certain threshold over a longer period of time. Amongst the interviewees, the
619 dominant instrumental value was to make a satisfactory income rather than the maximum one,
620 confirming similar results of Battershill and Gilg (1997). Farmers themselves were aware of the
621 fact that their income from farming is quite low and pointed this out in the interviews. This is also
622 supported by statistical data showing that the average family farm income is only half of that of
623 the average earnings of industrial employees in Ireland (Hennessy et al., 2010; CSO, 2011).
624 However, intrinsic, social and expressive values with regards to farming in general seem to
625 compensate farmers for this low income. At the same time, direct payments provide a certain
626 income security to many farmers and thus there is no necessity or immediate pressure to identify

627 alternative income options for farmers looking for a ‘satisfying income’. This might explain why
628 few farmers knew about the details of the afforestation scheme.

629

630 From the results of this study, we can conclude that multiple, sometimes contradictory farming
631 values co-exist unchallenged under stable circumstances. Burton and Wilson (2006) provide an
632 overview of empirical evidence on farmers with ‘multiple farming identities’ or ‘farming styles’
633 which confirms this conclusion. However, when it comes to a concrete decision between two
634 alternatives – such as the option to afforest land versus the decision to stay in farming, the
635 situation is different. In a concrete decision-making situation, the various co-existing values can
636 contradict each other as discussed by Gasson (1973). In such a situation, one value or group of
637 values takes precedence over the others as a main guiding value in the decision-making process.
638 For example, the majority of farmers with general profit-maximisation values would never plant
639 agriculturally-used land, even if it would produce more profit under forestry. Only two farmers in
640 this group had no major objections to planting agricultural utilised land (and actually had planted
641 such land). The majority however would never plant ‘good land’. This is underpinned by the fact
642 that private forests in Ireland are mainly growing on land considered marginal for agriculture
643 such as peat (30%), poorly drained gley soils (30%) or podzols (10%) (Farrelly, 2006a). It should
644 be pointed out that ‘good land’ from a farmer’s point of view is not a standardised
645 characterization according to soil quality parameters. What constitutes ‘good land’ to somebody
646 in the West of Ireland could be marginal land worth planting to somebody in the midlands. In a
647 survey of Irish farmers who afforested as part of the Coillte farm partnership, those participants
648 with farms in the West of Ireland – where wet soils prevail – planted predominantly wet mineral
649 soils, whereas farmers in other parts of the country planted mostly dry mineral soils (Ní
650 Dhubháin et al., 2003). It seems that ‘good land’ from a farmer’s point of view is defined as land

651 that is used for food production in a typical way under the given conditions. While farmers in
652 regions where the soil quality is lower frequently use quite wet land for farming, farmers in other
653 regions with land of similar quality could think of it as suitable for planting. Regardless of the
654 “objective” quality of the land in question, there seems to exist a common view amongst the
655 farming community that the ‘good land’ should not be planted, even if it would return a higher
656 income. However, most farmers would plant ‘bad’ land without hesitation. This decision is based
657 on profit-maximisation values, given that, after planting, the land at least produces some income.

658
659 When farmers were asked why they would prefer farming over planting – despite the lower
660 income earned – intrinsic farming values were the most frequently cited reasons. Sometimes, one
661 single intrinsic value dominated, but most often farmers mentioned more than one value as being
662 a barrier to planting. This means that if only ‘good land’ is available, values other than
663 instrumental ones are guiding the decision-making process. Similar findings were made by
664 Battershill and Gilg (1997) in a study on the influence of farmers’ dispositions on
665 environmentally-friendly farm management practices, in which farmers ranked the enjoyment of
666 farming and the countryside higher than the achievement of profit-maximisation targets. The
667 importance of values other than instrumental ones in guiding the decision-making process on
668 afforestation of agriculturally used land also explains why farmers didn’t change their mind in
669 favour of planting, following the provision of more detailed information about the scheme and
670 the realisation of the profitability of forestry. It can be concluded that simply addressing the lack
671 of information will not be sufficient to encourage more farmers to plant. The reason why forestry
672 is not an option to these farmers simply is because it is not farming. Similarly, Selby and Petäjistö
673 (1995) found that Finnish farmers clearly favoured solutions that maintain productive farming
674 over various other means for reducing overproduction. Elands et al. (2004) in their multinational

675 research in eight EU countries found that in Atlantic countries – and especially those with a short
676 forestry history such as Ireland – the view that ‘forests are harmful’ (i.e. because they are a threat
677 to other land use activities such as farming or because they diminish the beauty of the landscape)
678 is more widespread than in central European countries with a long forestry history such as
679 Germany. This gives rise to the conclusion that the Irish farmers’ value systems with regards to
680 farm forests exhibit both universally valid and regionally-specific value system characteristics.

681
682 This study demonstrated that Irish farmers’ value systems with regards to farming and
683 afforestation can be a barrier to engage in this alternative land use. This finding is highly
684 significant for future policy design in the area of farm afforestation support in Ireland. As the
685 majority of the farmers interviewed were not guided by profit-maximisation values when it
686 comes to afforestation, it is questionable if the farm afforestation scheme in its current form alone
687 will be sufficient to increase the planting rates as envisaged in the Irish policy strategy. The
688 results suggest that an additional policy tool is needed to overcome the barriers rooted in Irish
689 farmers’ value system about farming. To find out which tool might be appropriate, the collected
690 data would need to be analysed further and from a different, more policy-oriented angle.
691 Furthermore, in order to provide recommendations regarding improved policy tools, a
692 quantitative study would be needed to assess the applicability of the results to the wider farming
693 community in Ireland. Such a study would also allow the findings to be related to demographic
694 and structural factors, which will also lead to more specific policy recommendations.

695

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700

701 **References**

- 702 Austin, E.J., Deary, I.J., Willock, J., 2001. Personality and intelligence as predictors of economic
703 behaviour in Scottish farmers. *European Journal of Personality* 15, 123-137.
- 704 Bacon, P., 2003. *Forestry: A growth industry in Ireland*, Killinick, p. 64.
- 705 Battershill, M.R.J., Gilg, A.W., 1997. Socio-economic constraints and environmentally friendly
706 farming in the Southwest of England. *Journal of Rural Studies* 13, 213-228.
- 707 Behan, J., McQuinn, K., 2005. Farm forestry in Ireland. *Irish Forestry* 62, 58-72.
- 708 Bishop, K.D., 1990. Multi-purpose woodlands in countryside around towns, Faculty of Urban
709 and Regional Studies. University of Reading, Reading, p. 487.
- 710 Breen, J., Clancy, D., Ryan, M., Wallace, M., 2010. Can't See the Wood for the Trees: The
711 Returns to Farm Forestry in Ireland, Working Paper Series. The Rural Economy Research Center,
712 Teagasc, Athenry.
- 713 Burton, R.J.F., 1998. The role of farmer self-identity in agricultural decision making in the
714 Marston Vale Community Forest. De Montfort University, Leicester, p. 301.
- 715 Burton, R.J.F., Wilson, G.A., 2006. Injecting social psychology theory into conceptualisations of
716 agricultural agency: towards a post-productivist farmer self-identity? *Journal of rural studies* 22,
717 95-115.
- 718 Carroll, M.S., Ní Dhubháin, Á., Flint, C.G., 2011. Back Where They Once Belonged? Local
719 Response to Afforestation in County Kerry, Ireland. *Sociologia Ruralis*, 35-53.
- 720 Carvalho Oliveira, A., Monteiro Alves, A., 1993. Long-term afforestation programmes in
721 Portugal, in: Volz, K.-R., Weber, N. (Eds.), *Agriculture: afforestation of agricultural land*.
722 Proceedings of a workshop in the Community programme of research and technological
723 development in the field of competitiveness of agriculture and management of agricultural
724 resources (1989-1993), held in Brussels (Belgium) on 12 and 13 December 1991. Commission of
725 the European Communities, Luxembourg.
- 726 Clark, G.M., Johnson, J.A., 1993. Farm woodlands in the Central Belt of Scotland: a socio-
727 economic critique. *Scottish Forestry* 47, 15-24.
- 728 Collier, P., Dorgan, J., Bell, P., 2002. *Factors Influencing Farmer Participation in Forestry*.
729 COFORD, Dublin.
- 730 Connolly, L., Kinsella, A., Quinlan, G., Moran, B., 2005. *National Farm Survey 2004*. Teagasc,
731 Athenry.
- 732 Connolly, L., Kinsella, A., Quinlan, G., Moran, B., 2009. *National Farm Survey 2008*. Teagasc,
733 Athenry.
- 734 CSO, 2011. Earnings and labour cost. Central Statistics Office Ireland.
735 www.cso.ie/en/statistics/earnings/, date accessed: 2nd Dec 2011.
- 736 DAFF, 1996. *Growing for the future. A strategic plan for the development of the forestry sector*
737 *in Ireland*. Stationary Office, Dublin.
- 738 DAFF, 2010. *Rural Development Programme Ireland 2007-2013*. Stationary Office, Dublin.

739 Dibden, J., Potter, C., Cocklin, C., 2009. Contesting the neoliberal project for agriculture:
740 Productivist and multifunctional trajectories in the European Union and Australia. *Journal of*
741 *Rural Studies* 25, 299-308.

742 Duesberg, S., O'Connor, D., Deegen, P., Ní Dhubháin, Á., 2008. Trees, beef or sheep? A
743 comparison of the Net Present Values of bare land of forestry and two agricultural land-use
744 systems in Ireland. Unpublished report. University College Dublin.

745 Edwards, C., Guyer, C., 1992. Farm woodland policy: an assessment of the response to the farm
746 woodland scheme in Northern Ireland. *Journal of Environmental Management* 34, 197-209.

747 Elands, B.H.M., O'Leary, T.s.N., Boerwinkel, H.W.J., Freerk Wiersum, K., 2004. Forests as a
748 mirror of rural conditions; local views on the role of forests across Europe. *Forest Policy and*
749 *Economics* 6, 469-482.

750 Farrelly, N., 2006a. A Review of Afforestation and Potential Volume Output from Private forests
751 in Ireland. Teagasc, Athenry.

752 Farrelly, N., 2006b. Private afforestation in Ireland – history and trends. Teagasc, Athenry.

753 Forest Service, 2009. Afforestation Statistics 2009. Government of Ireland, Johnstown.

754 Forest Service, 2010. Afforestation Statistics 2010. Government of Ireland, Johnstown.

755 Frawley, J.P., 1998. Farmers' attitudes towards forestry as a farm enterprise in Ireland, in:
756 Wiersum, F.K. (Ed.), *Forestry in the context of rural development*, proceedings of the final
757 scientific conference COST Action E3, Vila Real, Portugal.

758 Frawley, J.P., Leavy, A., 2001. Farm Forestry: Land Availability, Take-up Rates and Economics,
759 Rural Economy Research Series. The Rural Economy Research Centre, Teagasc.

760 Gasson, R., 1973. Goals and values of farmers. *Journal of Agricultural Economics* 24, 521-542.

761 Glueck, P., 1998. The Role of Forestry in Rural Development - Overview, in: Koch, N.E.,
762 Rasmussen, J.N. (Eds.), *Forestry in the Context of Rural Development*. Final Report of COST
763 Action E3. Danish Forest and Landscape Research Institute, Horsholm.

764 Hannan, D.E., Commins, P., 1993. Factors affecting land availability for forestry. Economic and
765 Social Research Institute, Dublin.

766 Hennessy, T., Moran, B., Kinsella, A., Quinlan, G., 2010. National Farm Survey 2010. Teagasc,
767 Athenry.

768 Ilbery, B., Kidd, J., 1992. Adoption of the farm woodland scheme in England. *Geography* 77,
769 363-377.

770 Ilbery, B.W., 1983. Goals and values of hop farmers. *Transactions of the Institute of British*
771 *Geographers* 8, 329-341.

772 Irish Farmers Association, 1991-1996. *Irish Farmers Handbook*, Dublin.

773 Irish Government, 2002. National Spatial Strategy for Ireland 2002-2020. Stationary Office,
774 Dublin.

775 Irish Timber Growers Association, 1997-2010. *Forestry and timber yearbook*, Dublin.

776 Kassioumis, K., Papageorgiou, K., Christodoulou, A., Blioumis, V., Stamou, N., Karameris, A.,
777 2004. Rural development by afforestation in predominantly agricultural areas: issues and
778 challenges from two areas in Greece. *Forest Policy & Economics* 6, 483-496.

779 Kearney, B., 2001. A review of relevant studies concerning farm forestry trends and farmers
780 attitudes to forestry. COFORD, Dublin.

781 Kearney, B., O'Connor, R., 1993. Economic issues in Irish forestry. *Journal of the Statistical and*
782 *Social Inquiry Society of Ireland* XXVI, Pt.5, 179-209.

783 Layder, D., 1998. *Sociological practice. Linking theory and social research*. Sage Publications,
784 London.

785 Leavy, A., 2001. The socio-economic sustainability of rural areas in Ireland. The Rural Economy
786 Research Centre, Teagasc, Athenry.

787 Maguire, K., 2008. The objectives and harvesting intentions of Ireland's private forest owners,
788 Department of Crop Science, Horticulture and Forestry. University College Dublin, p. 116.

789 Marey-Perez, M.F., Rodriguez-Vicente, V., 2009. Forest transition in Northern Spain: Local
790 responses on large-scale programmes of field-afforestation. *Land Use Policy* 26, 139-156.

791 Marsden, T., Sonnino, R., 2008. Rural development and the regional state: Denying
792 multifunctional agriculture in the UK. *Journal of Rural Studies* 24, 422-431.

793 Mather, A., 1998. The changing role of forests, in: Ilbery, B. (Ed.), *The geography of rural*
794 *change*. Longman, Harlow.

795 McCarthy, S., Matthews, A., Riordan, B., 2003. Economic determinants of private afforestation
796 in the Republic of Ireland. *Land Use Policy* 20, 51-59.

797 McDonagh, J., Farrell, M., Mahon, M., Ryan, M., 2010. New opportunities and cautionary steps?
798 Farmers, forestry and rural development in Ireland. *European Countryside* 2, 236-251.

799 Morris, C., Potter, C., 1995. Recruiting the new conservationists: farmers' adoption of agri-
800 environmental schemes in the UK. *Journal of Rural Studies* 11, 51-63.

801 Neeson, E., 1991. *A history of Irish forestry*. The Liliput Press, Dublin.

802 Ní Dhubháin, Á., Gardiner, J.J., 1994. Farmers' attitudes to forestry. *Irish Forestry* 5.

803 Ní Dhubháin, Á., Kavanagh, T., 2003. Joint ventures in private forestry in Ireland. *Small-Scale*
804 *Forestry* 2, 9-19.

805 Ní Dhubháin, Á., Wall, S., 1999. The new owners of small private forests in Ireland. *Journal of*
806 *Forestry*, 28-33.

807 Ní Dhubhain, A.N., Flechard, M.C., Moloney, R., O'Connor, D., 2009. Assessing the value of
808 forestry to the Irish economy - An input-output approach. *Forest Policy and Economics* 11, 50-
809 55.

810 O'Connor, D., Dunne, W., 2009. Conceptualizing multifunctionality in the Irish policy context –
811 issues for policy formulation, implementation and evaluation. *Journal of Environmental Policy &*
812 *Planning* 11, 333-346.

813 O'Connor, D., Renting, H., Gorman, M., Kinsella, J., 2006. The Evolution of Rural Development
814 in Europe and the Role of EU Policy, in: O'Connor, D., Renting, H., Gorman, M., Kinsella, J.
815 (Eds.), *Driving Rural Development: Policy and Practice in Seven EU Countries* Royal van
816 Gorcum, Assen, pp. 1-30.

817 Potter, C., Burney, J., 2002. Agricultural multifunctionality in the WTO – legitimate non-trade
818 concern or disguised protectionism? *Journal of Rural Studies* 18, 35-47.

819 Potter, C., Gasson, R., 1988. Farmer participation in voluntary land diversion schemes: Some
820 predictions from a survey. *Journal of Rural Studies* 4, 365-375.

821 Quinn Patton, M., 2002. *Qualitative research and evaluation methods*, 3 ed. Sage Publications,
822 Thousand Oaks.

823 Schirmer, J., 2007. Plantations and social conflict: exploring the differences between small-scale
824 and large-scale plantation forestry. *Small-Scale Forestry* 6, 19-33.

825 Schneider, A., Ingram, H., 1990. Behavioral Assumptions of Policy Tools. *Journal of Politics* 52,
826 510-529.

827 Selby, A., Petäjistö, L., 1995. Attitudinal aspects of the resistance to field afforestation in
828 Finland. *Sociologia Ruralis* 35, 67-92.

829 Shucksmith, M., 1993. Farm household behaviour and the transition to post-productivism.
830 *Journal of Agricultural Economics* 44, 466-478.

831 Shucksmith, M., Herrmann, V., 2002. Future Changes in British Agriculture: Projecting
832 Divergent Farm Household Behaviour. *Journal of Agricultural Economics* 53, 37-50.

833 van der Ploeg, J.D., Renting, H., Brunori, G., Knickel, K., Mannion, J., Marsden, T., Roest, K.d.,
834 Sevilla-Guzman, E., Ventura, F., 2000. Rural Development: From Practices and Policies towards
835 Theory. *Sociologia Ruralis* 40, 391-408.
836 Watkins, C., Williams, D., Lloyd, T., 1996. Constraints on farm woodland planting in England: a
837 study of Nottinghamshire farmers. *Forestry* 69, 167-176.
838 Wiemers, E., Behan, J., 2004. Farm forestry investment in Ireland under uncertainty. *Economic*
839 *and Social Review* 35, 305-320.
840 Willock, J., Deary, I.J., Jones, G.E., Gibson, G.J., McGregor, M.J., Sutherland, A., Dent, J.B.,
841 Morgan, O., Grieve, R., 1999a. The role of attitudes and objectives in farmer decision making:
842 business and environmentally-oriented behaviour in Scotland. *Journal of agricultural economics*
843 50, 286-303.
844 Willock, J., Deary, I.J., McGregor, M.M., Sutherland, A., Edwards-Jones, G., Morgan, O., Dent,
845 B., Grieve, R., Gibson, G., Austin, E., 1999b. Farmers' Attitudes, Objectives, Behaviors, and
846 Personality Traits: The Edinburgh Study of Decision Making on Farms. *Journal of Vocational*
847 *Behavior* 54, 5-36.
848
849