

Today, the total forest area in Ireland is over 750,000 ha. This represents approximately 11% of the total land area. Privately owned forests account for 47% of this total. It is estimated by 2020 there will be over 820,000 hectares of forests, representing 12% of the total land area. Over 50% will be privately owned, potentially contributing 1.5 million cubic metres (m³) of timber production per annum. Achieving these targets is largely dependent on landowners, particularly farmers, both planting land and harvesting existing farm forestry.

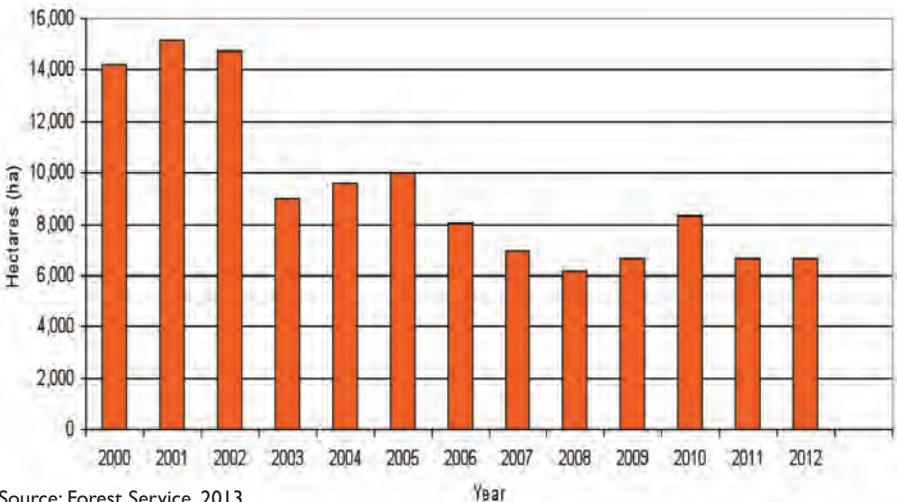
How much land is being planted?

The annual planting area has stabilised at just less than 7,000 ha in recent years, with 6,652 ha being planted in 2012, as shown in Figure 1. The budget allocation for forestry for 2013 allowed for 7,000 hectares of new planting under the Afforestation, Native Woodland (Establishment) and FEPS Schemes, along with limited funding for support schemes. It is believed a similar level of support will apply in 2014.

Who has forestry?

Each year, the Teagasc National Farm Survey (NFS) collects information on a sample of farms with a forest enterprise. The sample is statistically weighted to represent the national

Figure 1: Annual planting 2000 to 2012 (ha)



Source: Forest Service, 2013

Table 1: Percentage of farms with forests by farm system in 2012

Farm system	% of farms with forest by farm system
Dairying	16
Mixed livestock	4
Cattle rearing	30
Cattle other	26
Sheep	11
Tillage	13

Source: Ryan *et al.*, Teagasc working paper 2013

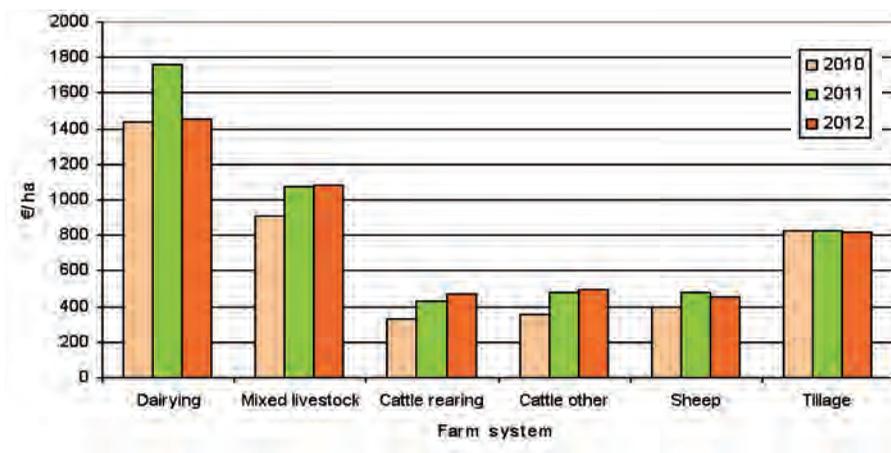
farming population. Of the 79,103 farms covered by the survey in 2012 (Hennessy *et al.*, 2013), 6,966 farms (9%) have forests, representing an average ownership of 10.5 ha per forest owner. An analysis of the farm system of farms with forests in the survey is shown in Table 1.

This analysis also shows that the largest percentage (56%) of farms with forests is in the cattle rearing and cattle other systems. These farmers also have the largest percentage of their farms in forestry.

How does forestry compare with other farm systems?

Looking at the average gross margin per hectare (€/ha) produced by the various farm systems in recent years outlined in Figure 2, it is unsurprising that cattle and sheep farmers on marginal agricultural land are considering afforestation.

Figure 2: A comparable average gross margin (€) per hectare excluding Single Farm Payment by farm system, 2010- 2012*



Sources: Teagasc NFS (various years); Ryan *et al.*, Teagasc working paper 2013

* Owing to farms with a standard output of less than €8000 not being included in the NFS from 2012, the 2012 figures will not be strictly comparable to earlier years analysis as a result of exclusion of these smaller (standard output terms) farms

In order to compare land use and farm enterprise options, we need to be able to express different forest crop rotations on an annual per hectare basis. This can be done by expressing the Net Present Value (NPV) of a forestry plantation as a series of equal cash flows over the forest rotation length, known as the Annual Equivalent Value (AEV).

$$NPV^* = \left(\frac{i(1+i)^r}{(1+i)^r - 1} \right) = AEV$$

where i = discount rate
 $(1+i)^r - 1$
 r = rotation of crop

This indicative AEV figure on a per hectare basis can be used for comparison purposes with the gross margin (€) per hectare for other farming enterprises.

Even for a single tree species, the AEV figure will vary according to growth rate, rotation length, management history, etc. For example, the AEV for Sitka spruce at Yield Class 24 could be as high as €566/ ha, while the AEV for Sitka spruce at Yield Class 16 could be in the order of €388/ ha. These are indicative values and calculations are based on premium and timber sales revenues minus costs, including inspection paths, maintenance, insurance, roading and reforestation.

Who is considering planting?

A study conducted by Howley et al (2011) used a nationally representative panel dataset to model both farm and farmer related characteristics affecting the probability of farmers planting land. The results show that larger farms and those in less intensive farm systems are more likely to have planted land over the study period.

In October 2012, the Teagasc Forestry Development Department (FDD) carried out a nationwide telephone survey relating to non-activated approvals. The survey consisted of 254 individuals who had received afforestation approval in the 2011- 2012 period, but who had not, at the time, activated their approval. The total area involved was 3,059 ha, while the mean approved area was 12 ha. The current use of the land considered for forestry in the survey (Figure 3) closely corresponds with NFS results on existing forestry plantations.

Almost 47% of those surveyed have deferred or are undecided. Approval issues such as site conditions in 2012, delays due to “bureaucracy”, issues with forester/ company, issues with species choices and unenclosed area designation are cited as the largest reasons for deferrals (35%). A combination of strong cattle prices and uncertainty due to CAP reform is given as the 2nd largest reason for deferral (34%), as shown in Figure 4.

Of the 254 landowners contacted in the Oct. 2012 survey, 45% have decided not to plant. Land ownership issues influences 29% of those not going ahead with planting, following by the current level of premia (23%), as illustrated in Figure 5.

Figure 3: Current land use of land being considered for forestry, Oct. 2012

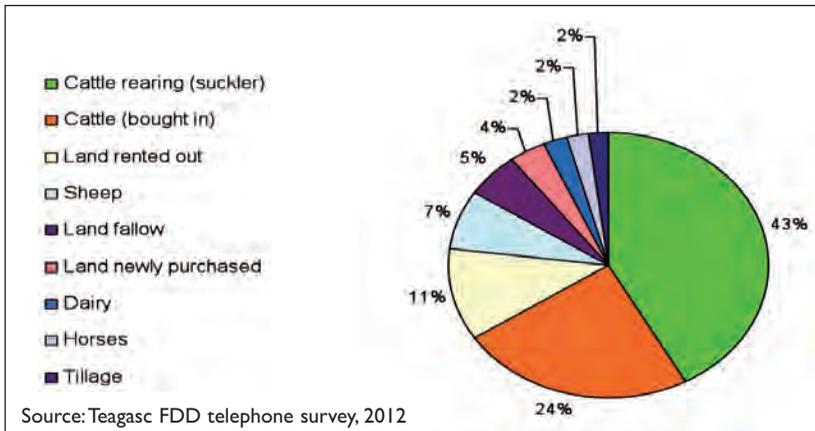


Figure 4: Reasons for deferral

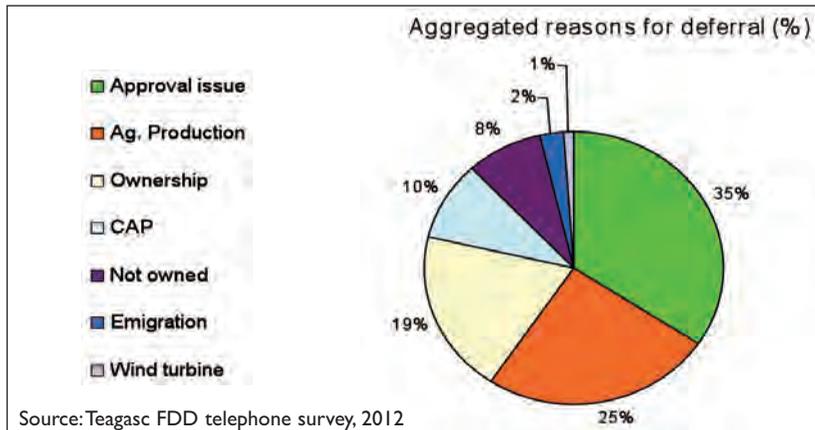
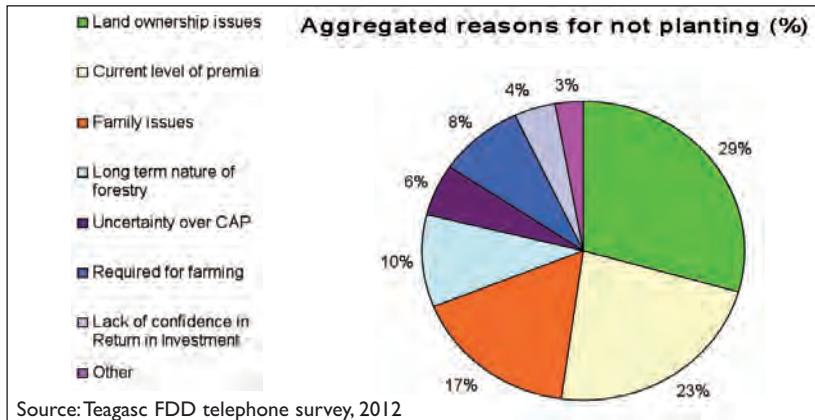


Figure 5: Reasons for not planting



References:

Forest Service (2013). Forest Service Monthly Reports, 2013. Forest Service, DAFM

Hennessy, T., Moran, B., Kinsella, A. and Quinlan, G. (2013). Teagasc National Farm Survey Results 2012

Howley, P., Hynes, S., Farrelly, N., and Ryan, M. (2011). Afforestation in Ireland: Examining farm and farmer characteristics behind the decision to plant. Rural Economy and Development Programme working paper.

Ryan, M., Kinsella, A. and Upton, V. (2013). An examination of studies of the financial and attitudinal factors affecting the farm afforestation decision. Teagasc working paper 2013.



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While the 2012 telephone survey above was small and is not weighted, it is indicative of the issues landowners are considering before planting at the moment.

Analysis shows that the greatest returns from forestry are possible by replacing cattle and sheep enterprises on marginal land, while it is unlikely to be a good financial option for replacing more profitable enterprises, such as dairy.

Employing net present values and discounting to account for differences in rotation lengths and income streams allows farmers to make comparisons with more conventional land uses. However, these comparisons do not take into account the irreversibility of the planting option and the opportunity loss associated with permanent land use change.

Attitudes towards forestry are strongly linked with land quality and possible alternative land uses. Research suggests that for the majority of farmers, maximising profit is just one of a diverse range of factors affecting the decision to plant.

The challenge for the forestry industry is to convince landowners, primarily farmers, that afforestation is the optimum land use in certain circumstances.