

What's in it for me?

'Every forest is different' is the usual response from a forester when farmers ask how much a forestry crop will earn for them. But Teagasc computer models allow an estimate of the annual value generated by a forest

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When you are considering the permanent land use that is forestry, it is important to look beyond the most common premium category of €510 per hectare (ha) available for the first 15 years.

Gaining an appreciation of the potential financial returns from thinnings and clearfell is crucial, with much depending on the tree species grown, crop productivity (yield class) and the management regime. Timber quality, prevailing timber prices, ground conditions, extraction distances and road access will also affect the net revenue generated.

Optimum and sustainable management of your forest will yield handsome dividends. One of the main opportunities to increase profit arises when forests are ready for thinning, provided that there are no undue crop stability issues or risk of wind damage.

Depending on the productivity of the site, trees may be ready for thinning at any time from years 14 to 20. Forests are thinned, on average, every four to five years. As the average size of timber removed in thinnings gets larger with each successive thin-



Yield class provides an indication of potential forest productivity



ning, the revenue from thinning also increases. The crop is then normally clear felled at the end of the rotation and replanted.

Figure 1 shows the estimated cash-flow for Sitka spruce, yield class 24 and a crop rotation of 35 years.

Yield class provides an indication of potential forest productivity. A yield class 24 forest has the potential to increase its volume by 24 cubic metres per hectare each year over its 35-year rotation.

As you can see from Figure 1, one of the biggest issues for farm forest owners is that the harvest income arrives at periodic intervals, rather than on an even annual basis.

Annual average

In contrast, a farmer can compare the annual average gross margin per hectare (€/ha) produced by the various farm systems over a number of years (Figure 2), when he or she is considering changing or adapting their farming enterprise.

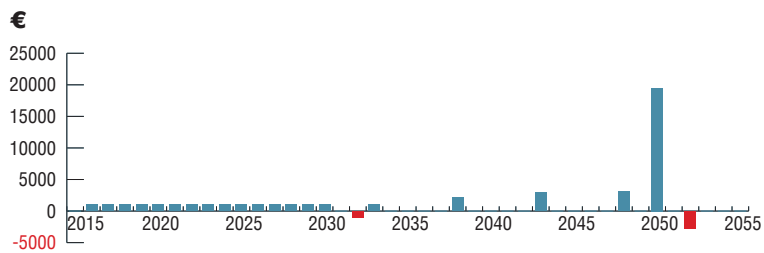
Figure 2 shows the comparable average gross margin per hectare excluding Single Farm Payment by farm system from 2012 to 2014.

Gaining an appreciation of the potential financial returns from thinnings and clearfell is crucial.



Figure 1

Estimated cashflow for 1ha of Sitka spruce



Source: Teagasc FIVE model

Figure 2

Comparable average gross margin (€) per hectare excluding Single Farm Payment by farm system, 2012-2014

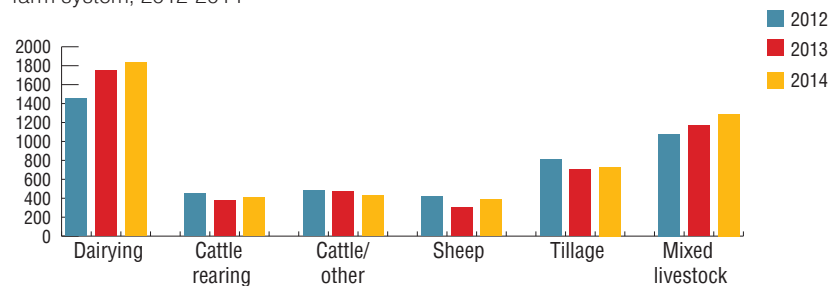


Table 1: Comparing timber crop value potential based on land-quality scenarios

Soil type	Grass/ rush wet, mineral soil	Less fertile rushy, peaty soil
Species	Sitka spruce	Sitka spruce
Growth rate (yield class***)	YC 24	YC 16
Crop rotation	35 years	40 years
NPV	€9,850/ha	€7,100/ ha
AEV**	€610/ha	€415/ ha

Source: Teagasc FIVE model



Can you directly compare potential forestry income with other farming enterprise incomes? **No**

Can you express the potential income from long-rotation forestry similarly to the annual income from traditional farming enterprise? **Yes**

Teagasc has developed the forest investment valuation estimator (FIVE) research tool, so that different forest crop rotations can be expressed on an annual per-hectare basis. This can be done by presenting the net present value (NPV)* of a forestry plantation as a series of equal cashflows over the forest rotation length, known as the annual equivalent value (AEV)**.

This indicative AEV figure (€) on a per-hectare basis can then be contrasted with the gross margin (€) per hectare per year for other farming enterprises. While this AEV can be used for indicative comparisons with gross margins, absolute comparisons are not appropriate.

The agricultural gross margins are historical figures while the forestry AEV is an indicative figure, based on a series of assumptions. Also, income from timber harvesting does not arrive on an annual basis.

Comparing potential forestry income from different land types

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 €610/ ha, while the AEV for Sitka spruce at yield class 16 could be €415/ ha (Table 1).

These are indicative values and calculations are based on premium and timber sales revenues minus costs, including inspection paths, maintenance, insurance, roading and reforestation. These figures do not take into account that the Basic Payment Scheme entitlement payments continue to be available on eligible afforested land.

The largest financial returns arise where forestry replaces cattle systems on land that is limited for agriculture due to poor drainage but can produce

at least a yield class 18 Sitka spruce crop, and where sheep systems are replaced on land that is very limited from an agricultural perspective but can produce at least a yield class 14 forestry crop (Ryan et al, 2013).

Attitudes towards forestry are strongly linked with land quality and possible alternative land uses and income streams.

The AEV figure modelled by FIVE can aid a farmer in making indirect comparisons between more conventional land uses and the forestry option and can help him/her to make a more informed decision as to the best use of their land.

*Net present value (NPV) = total net value of timber crop over the rotation expressed in today's money.

**Annual equivalent value (AEV) = annualised value of timber crop in today's money.