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# Situation and Outlook for Forestry 2009/2010

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## 1. Introduction

The total forest area in Ireland to the end of October 2009 is over 733,400 hectares (ha). This represents over 10.5 percent of the total area of the country. Of this, privately owned forests now account for 45.5 percent.

Over the period of the National Development Plan 2007-2013, the short-term objective is for annual planting to grow to 10,000 ha per annum. This objective was restated in the Renewed Programme for Government published in October 2009 which aims to enhance the current range of programmes and supports to facilitate the attainment of the target of 17 percent forest cover by 2030 and contribute to meeting our Climate Change commitments. It also aims to review State forestry policy to take account of its critical role in relation to Climate Change and its importance to construction, bio-energy, bio-diversity and its potential to deliver long-term employment in other downstream industries, including eco-tourism, furniture and crafts etc.

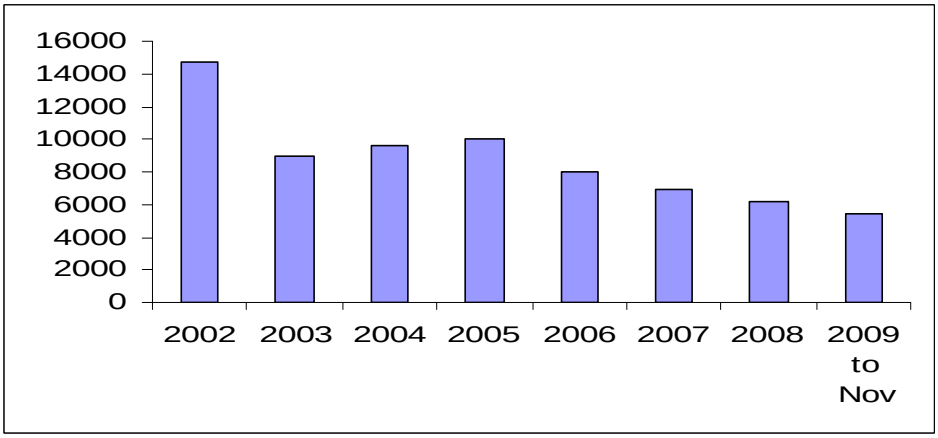
This paper will review developments in the forest sector in 2009 and will look at how these developments may impact on the short-term outlook for the forest sector in 2010.

## 2. Review of 2009

### 2.1 Planting in 2009

The total area of forests planted in 2009 to the end of October was 5,400 ha compared with 4,800 ha and 5,468 ha for the same period in 2008 and 2007 respectively (Forest Service, 2009). The Forest Service estimates that approx. 6,500 ha will be planted in total in 2009 (pers. comm.). Figure 1 shows the annual decline in the area of land planted since 2002. Of the 5,400 planted to Nov 2009, 2,610 hectares were planted under the Afforestation Scheme which is open to both farmers and non-farmers and has a minimum area of 0.25 ha for conifers and 0.1 ha for broadleaves.

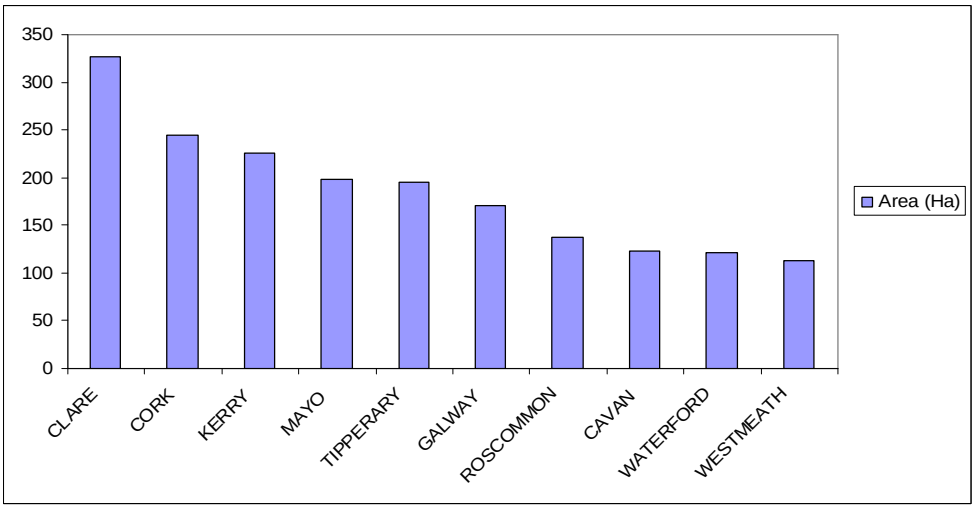
**Figure 1: Annual planted area (ha) 2002- 2009 (to Nov)**




*Source: Forest Service, 2009*

The ten counties where most of these new forests are located are presented in Figure 2. As has been the trend in recent years, a considerable proportion of the area planted is in Munster.

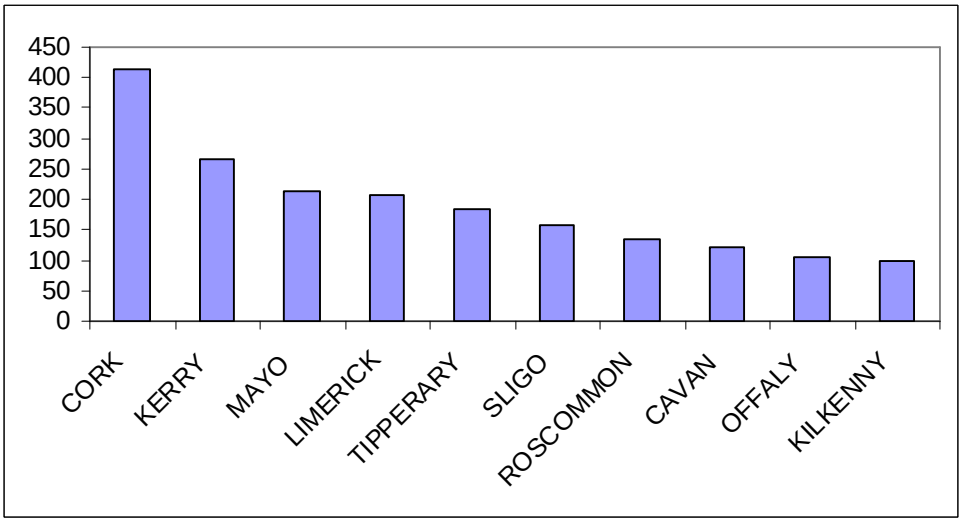
**Figure 2: Top ten Afforestation counties**




*Source: Forest Service, 2009*

The other 2,693 ha or 50% of the planted area was planted under the Forest Environment Protection Scheme (FEPS) which is open to farmers who are currently in the Rural Environment Protection Scheme (REPS). In FEPS, the minimum planting area is 5 ha for farmers who have less than 30 ha in REPS and 8 ha for farmers with greater than 30 ha or less in REPS. The area planted under FEPS has been increasing steadily since its introduction in March 2007. Until this year, FEPS planting had been concentrated in the Munster counties however Figure 3 shows that a considerable area was also planted in Western counties in 2009.

**Figure 3: Top Ten 2009 FEPS counties**




*Source: Forest Service, 2009*

The DAFF decision to close REPS 4 to new applicants in July of this year will limit the number of farmers who are eligible to join FEPS in future years. Currently, there are approximately 62,000 farmers in REPS but this will drop to just under 30,000 farmers by 2012 (REPS Division DAFF, 2009).

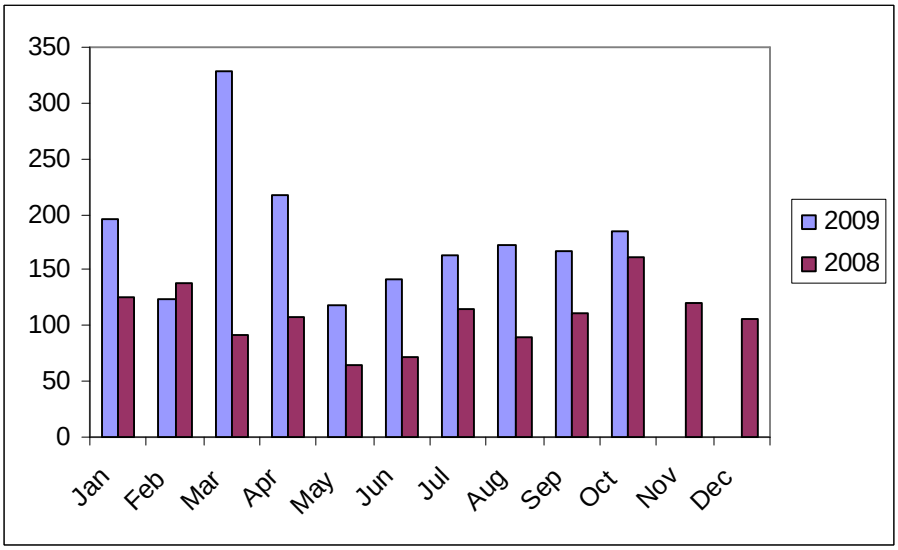
The Supplementary Budget in April 2009 brought further adverse news for forestry as the forest premium payment was reduced by 8 percent and the issuing of approvals for grant aid in respect of support schemes such as road grants, shaping, pruning and

reconstitution was suspended. As a result of budget constraints, the Forest Service has been issuing two types of planting approval for the Afforestation Scheme, FEPS and the Native Woodland Scheme this year. Technical approval is issued once a prospective site has been assessed as suitable for planting, but a further "financial approval" must now be granted by the Forest Service before planting can commence This allows the Forest Service to have tighter controls on expenditure. Financial approvals are currently being issued by the Forest Service for land that will be planted by the end of December 2009.

However, 2009 also brought some good news for farmers considering planting as forestry was included as "eligible land" for the purpose of drawing down Single Farm Payment (SFP). Any planted land from 1st January 2009 onwards would now be eligible for full Single Payment as long as the planted land (and the landowner) had been eligible for and received Single Payment in 2008. This means that farmers can avail of both the forest premium payment and the SFP without having to comply with restrictions imposed by consolidating entitlements as was the position heretofore.

This may be one of the factors that have led to the large increase in the number of applications for planting approval. Up to the end of October 2009, applications had been received by the Forest Service to plant a total of 14,161 hectares of forest. Figure 4 illustrates the monthly increase in the number of applications in 2009 over 2008.

**Figure 4: 2009 versus 2008 applications for planting approval**




*Source: Forest Service, 2009*

## 2.2 Climate change

As a signatory to the Kyoto Protocol, Ireland is committed to limiting its greenhouse gas (GHG) emissions to 13% above the 1990 level in the period 2008–2012. The Irish forestry sector has a key role to play in addressing climate change, through carbon sequestration and through the development of renewable energy resources. Forest areas established as a result of grant-aid under the State/European Union (EU) funded afforestation schemes since 1990 are expected to contribute an annual average emission reduction of 2.074 million tonnes of carbon dioxide (CO2) over the Kyoto period (O'Driscoll, 2009). This is set to almost double in the period to 2020, ensuring that forests will play a significant role in meeting climate change targets in the future.

### 2.3 Biomass for renewable energy

The national Bioenergy Action Plan aims to increase the use of renewable energy. A target of 40 percent of electricity consumption from renewable sources is set for 2020. Biomass power generation projects will be supported through the Renewable Energy Feed-in Tariff (REFIT) scheme. For biomass combined heat and power (CHP) the REFIT tariff has been set at 12 cent per kilo Watt hour (kWh) (compared to 5.7 cent per kWh for wind energy.

There is significant potential for wood fuel to displace fossil fuel, particularly in the generation of heat in industrial, commercial, domestic and institutional markets. In doing so, it can help reduce Ireland's GHG emissions and our dependence on imported fossil fuels. Since 2006, the use of wood biomass in Ireland has resulted in a total emissions saving of 1.14 million tonnes of carbon dioxide ($CO_2$) and the 2008 use of firewood for domestic heating and wood chips for commercial heating has grown by 23 percent and 80 percent respectively, over 2007 levels (O'Driscoll, 2009).

### 2.4 Decline in timber markets

2008 and early 2009 have been difficult for Irish sawmillers and Wood Based Panel (WBP) manufacturers. The demand for construction timber declined due to a sharp reduction in Irish construction activity. Housing is an important driver of timber sales – an average new house uses 7 cubic metres ($m^3$) of forest products (O, Driscoll, 2009). Many large sawmills therefore re-configured their mills to supply pallet and fencing products into the UK marketplace. The four WBP mills operating in the Republic of Ireland have reduced production to match the reduced demand.

In 2008, the volume of roundwood available for processing was 2,272,000 $m^3$, a reduction of 24 percent on the 2007 level. In addition, the prices paid for roundwood declined sharply to reflect market conditions. Coillte supplied 90 percent of this roundwood, with the balance coming from privately owned forests and from imports. The private harvest output declined sharply on 2007 levels, by some 70 percent to 118,000 $m^3$ (O'Driscoll, 2009).

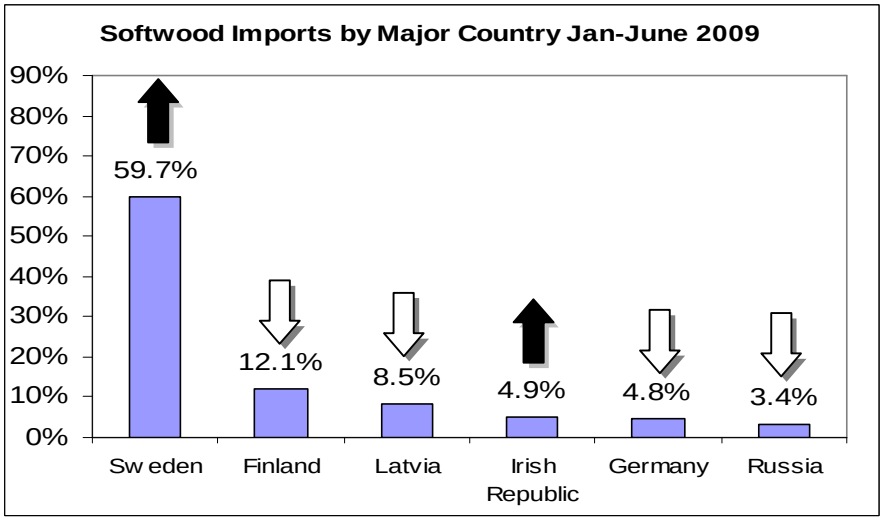
### 2.5 Current timber market situation

Irish timber sales into the UK construction market increased in the second part of 2009 due to a combination of factors:

- The value of sterling against the Euro dropped to 83 pence during June/July 2009;
- Figure 5 (see below) shows the relative importance of Swedish imports into the UK timber market. Swedish exporters who are price makers in the UK market, decided to increase their prices by £10-12 sterling per cubic metre ($m^3$) in 2009.

The combination of these factors allowed Irish sawmillers to avail of the opportunity to develop a new market, exporting construction timber into the UK. (www.exchange-rates.org/history**).** Despite the fact that the prices achieved are lower than those achieved during 2006 and 2007, the opening up of the UK market has allowed Irish sawmillers to return to almost full production, increasing overhead recovery and maintaining activity in the mills during this difficult economic period (pers. comm. Coillte, Nov. 2009). However, this new reliance on imports into the UK brings with it a vulnerability to currency fluctuations which is currently a cause for concern for timber exporters although the prospects for construction activity around the London Olympics and for economic recovery in the southern part of the UK appear to be brighter for 2010.

**Figure 5: Timber imports into UK construction market**



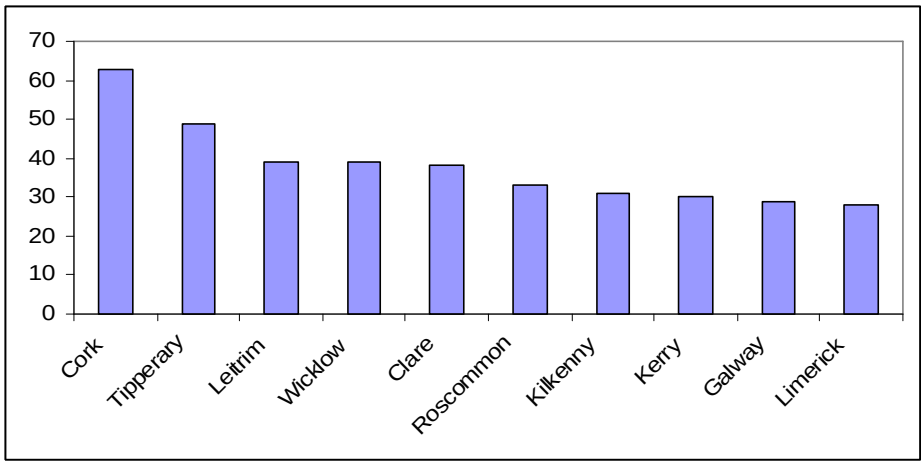

*Source: UK Timber Trades Federation (2009)*

### 2.6 Thinning activity

Harvesting contractors suggest that there is a strong demand for small diameter roundwood (logs) from thinnings – to the extent that one contractor claims "there was never a better time to thin" (pers. comm., Woodfab Ltd.). Average volumes from thinnings are in the region of 40 $m^3$/ha and average prices quoted are in the region of €4 - €8/$m^3$ with highs of €8 and €9/$m^3$ also being quoted by contractors. This is largely due to an increase in local demand for wood chips for heating, animal bedding and out-wintering pads for cattle. This may also be due to a reduction in the level of thinning currently being undertaken.

The location and number of General Felling Licences (GFL's) applied for annually can be used as an indicator of thinning activity as this is usually the type of licence granted for thinning operations. The counties where most GFL's were granted in 2009 are presented in Figure 6. It is interesting that the highest level of afforestation and the highest level of GFL's are both in Co. Cork this year.

**Figure 6: Top ten GFL's by county**




*Source: Forest Service, 2009*

Anecdotally, there has been an increase in thinning activity in recent years and this had been borne out by an increase in the number of GFL's granted up to 2009. However, Table 1 shows a fall-off in GFL's granted in 2009.

**Table 1: General Felling Licences granted (2005 to end Oct 2009)**

| Year | General Felling Licence |
|---|---|
| 2005 | 119 |
| 2006 | 303 |
| 2007 | 692 |
| 2008 | 824 |
| To end Oct 2009 | 660 |

*Source: Forest Service, 2009*

This is a worrying trend which is also borne out by a drop in Forest Road Grant applications as presented in Table 2.

**Table 2: Forest Road Grant applications 2007 to 2009**

| Year | Number of applications |
|---|---|
| 2007 | 850 |
| 2008 | 583 |
| To Nov 2009 | 242 |

*Source: Forest Service, 2009*

While approvals for road applications have not been granted since April 2009, the advice to forest owners was to continue to apply as applications would be dealt with on a first come fist served basis once funding was reinstated for road grants. The scope of the Forest Service road scheme was also reduced in 2009 and funding is now based on providing just enough road to harvest plantations which are ready within the next 2 years. The thinning process cannot commence until a felling licence is in place and in many forests, until a forest road or timber loading bay has been put in place to facilitate extraction and loading of timber. The information presented in Tables 1 and 2 indicates a serious drop-off in the number of forest owners who are planning to thin their forests. This is a worrying trend that has implications for maximising profits from farm forests, for future timber supply, for renewable energy targets and for the future of the entire timber processing sector.

## 3. Review of farm and off-farm incomes

A recent study conducted using Central Statistics Office (CSO) Quarterly National Household Survey (QNHS) data, shows that whilst off-farm employment is down 30.5 percent in the 12 months to the second quarter of 2009, construction related employment for part-time farmers is down by over 50 percent. Part-time farmers are much more likely to have lost a job than other sectors of the workforce (Meredith, 2009).

Meredith also points out that whilst the declines in off-farm employment recorded in the QNHS are unsurprising given the rapid deterioration of the Irish economy, they are of significant concern given the extent to which off-farm income supports the viability of many farms.

National Farm Survey (NFS) results for 2008 show a decline in Family Farm Income (FFI) of 13.7 percent in 2008 following an increase of 18 percent in 2007 and a decline of 26 percent in 2006, illustrating the volatility in farm incomes following decoupling of farm payments in 2005 (Connolly *et al*., 2009). The 2008 NFS results indicate that 56 percent of farm holders and/or spouses held an off-farm job and that amongst part-time farmers, off-farm income accounted for 80.7 percent of their income (Connolly *et al.,* 2009).

The combination of falling farm incomes and the loss of jobs for part-time farmers in the construction sector are contributing to the recent increased interest in forestry. Many farmers are now considering forestry as a means of combating the volatility in farm prices and supplementing household income.

## 4. Review of which farmers are likely to plant in the future

Analysis carried out by Ryan *et al.* (2008) looked at whether farmers who had intended to plant over a three year period actually carried out their intentions. The analysis was carried out using a matched sample of 2005 and 2008 respondents from the 2005 and 2008 National Farm Survey (NFS) supplementary surveys and is presented in Table 3.

**Table 3: Forest area 2008 – planned (2005) versus actual (2008)**

| | Planned to plant (ha) | Actual Planted (ha) | % planted vs. planned |
|---|---|---|---|
| No forestry and plans to plant | 5,607 | 3,724 | 66 |
| Has forestry and plans to plant | 6,953 | 5,546 | 80 |
| No forestry and no plans to plant | 0 | 8,554 | |
| Has forestry but no plans to plant | 0 | 316 | |

*Source: NFS Supplementary Surveys (2005 and 2008)*

Those farmers who intended to plant didn't plant as much land over the three year period as they had intended. This applies whether they already had land in forestry or not and reflects the overall downward planting trend during those years.

Interestingly, the results show that the greatest area of land was planted by a group of farmers who didn't have forestry in 2005 and who did not plan to have planted by 2008. The area planted by this group amounted to 40% of the total area planted nationally by farmers over the period 2006/2008. Further analysis showed these farmers to be largely "cattle rearing" and "dairy other" farmers with farm sizes greater than 50 ha.

From these results it is possible to build a profile of the group of farmers who planted 40% of the total national forest area planted between 2006 and 2008. This is valuable information in enabling policy makers to recognize categories of farmers who are likely to plant in the future.

## 5 Outlook for Forestry in 2010

### 5.1 Medium term outlook for returns from forestry versus agriculture

The discontinuation of the Rural Environment Protection Scheme (REPS), the possibility of a switch from the current Single Farm Payment (SFP) to a flat area based payment and the recent volatility in the price of agricultural outputs and inputs, all indicate that Irish farmers may be heading into a period of lower farm incomes and greater uncertainty. Over the past 15 years the incomes of many farmers were buoyed by off-farm employment and the one-off sale of land for construction. However with the decline in the construction sector, those land sales that do take place in the future are likely to be at substantially reduced prices. In their Spring 2009 Land Market Review, Irish Auctioneers Knight Frank estimate that the Irish property market is now tracking 2004 levels and they "see no reason why agricultural land prices will not follow this trend" (Ganly, 2009). The likelihood is therefore that given the increased uncertainty regarding

the returns to traditional agriculture, changes in land use will receive greater consideration amongst Irish farmers.

Breen *et al.* (2008) argued that the increase in land value brought about by the construction boom of the last 15 years could be a principal driver of the decline in afforestation rates, rather than the relative rate of returns between forestry and agricultural enterprises. However, with the downturn in the Irish construction industry and its subsequent impact on land values, it is expected that the relative rate of returns between forestry and agricultural enterprises will once again become a key factor in the decision to afforest.

Analysis undertaken by Breen, Clancy and Ryan earlier this year used a Discounted Cash Flow (DCF) model to examine the Net Present Value (NPV) of the estimated investment returns over a 40 year period, from a decision to switch a hectare of land from an agricultural enterprise to forestry. The baseline analysis assumes that the superseded activity is land rental, and the opportunity cost of the market rental value of the land is included. The analysis also included four other superseded enterprises, namely land rental, lowland sheep, store to finished beef, spring barley and winter wheat. The three forestry options analysed included a conifer forest, a mixed forest and a broadleaf forest.

The results showed that the conifer option with a superseded enterprise of store to finished beef has the highest NPV of €5,343 per hectare, while the broadleaf forest with a superseded enterprise of winter wheat has an NPV of - €317 per hectare. Despite receiving the lowest level of forest premium payments per hectare, the conifer forest returns the highest NPV (€5,343). In comparison, the broadleaf forest, which received the highest level of forestry premium, had the lowest NPV as a result of the significantly lower volume of timber produced.

These results will be unsurprising to many but serve to clarify that regardless of other factors, when looked at over a 40 year period, the financial returns from productive forests exceed cattle and sheep and some tillage enterprises. In 2009, the number of farmers applying for approval has increased greatly on recent years however the number of additional farmers who can plant in the future will ultimately be contingent on the level of funding made available for 2010 and subsequent years.

### 5.2 Profitability of thinning

There are essentially two strands to the income from forests. Within the first 15 to 20 years, the income from forestry is essentially the premium payment. For many forest owners, it is only when these payments are running out that the question of thinning the forest arises. The greatest opportunity to increase profit arises when the forest is ready for thinning provided that there is no undue risk of wind damage. Depending on the productivity of the site, trees may be ready for thinning any time from year 14 to year 20. Forests are thinned on average every four to five years and as the timber removed gets larger with each thinning, the revenue derived from thinning also increases.

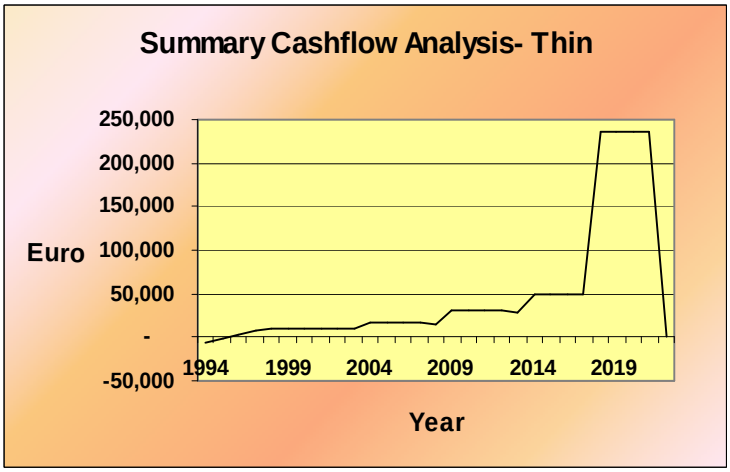
The financial return to forestry as calculated by Breen et al., 2009, is dependent on the forest being thinned at the appropriate age and in the appropriate manner. Unlike in farming, the "do nothing" option can work in forestry as unthinned forests will still realise a profit at clearfell but will not generate any income in the interim. Teagasc is in the process of developing financial appraisal software to assist forest owners in making decisions such as whether to thin or not. The FIVE (Forest Investment and Valuation Estimator) uses Forestry Commission timber volume Yield Models and Coillte10 year average standing sale prices to estimate the NPV (overall revenue generated by the crop expressed in "today's money"). For instance, we can look at a Sitka spruce (SS) and Japanese larch (JL) forest which is currently 15 years old and run the software for both

"Thin" and "No Thin" scenarios. Figures 7 and 8 present the NPV (overall revenue generated by the crop expressed in "today's money") of two scenarios for a 15 year old 10 ha conifer forest.

The scenarios show an increase in NPV of €6,906 in today's money in a 10 ha forest, as a result of thinning. As profits from the sale of timber are generally not liable for income tax, this increase in revenue is essentially tax free profit for the farm forest owner.

In reality, the old adage applies that "every forest is different" and other factors such as timber quality, current timber prices, ground conditions, extraction distances and road access will also impact on the financial returns from thinning. Many farm forests are very productive and as such would have much greater financial returns as has been shown by Farrelly, (2007), who forecasted increases in NPV of over €2,500 /ha in very productive sites after thinning.

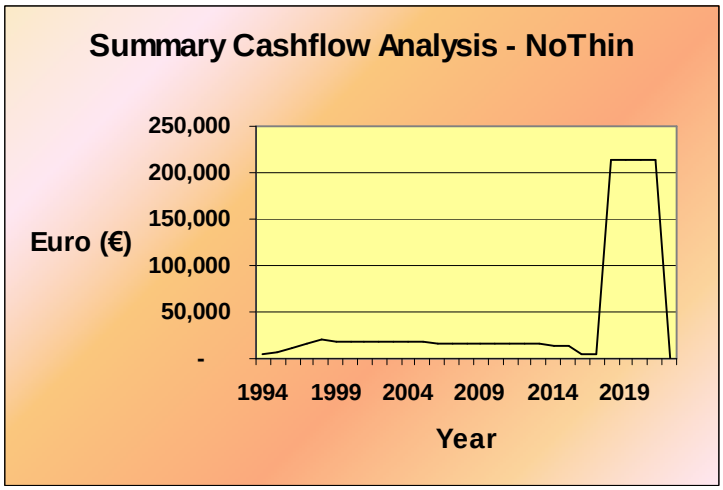
**Figure 7: Cumulative Cashflow and NPV for "Thin" scenario**




Estimated Net Present Value = **€79,808**

Total cumulative cash flow = **€240,000**

**Figure 8: Cumulative Cashflow and NPV for "No thin" scenario**




Estimated Net Present Value = **€72,902**

Total cumulative cash flow = **€210,000**

*Source: FIVE (Teagasc, 2009)*

The cashflows presented are cumulative so they are increasing over time as thinnings are carried out, but decrease over time for the "No Thin" scenario until the final clearfell. Obviously in the "Thin" scenario, there is ongoing income generation from the thinnings whereas in the "No Thin" scenario, the plantation incurs a small loss until clearfell as there is no income to offset against the cost of maintenance and insurance.

**5.3 Timber production forecasts**

In 2008, COFORD funded an updated forecast of the roundwood (log) volumes available from the Irish private forest estate. The results from this UCD project show that the overall net roundwood production from privately owned forests will increase from an estimated 0.38 million $m^3$ in 2009 to 2.95 million $m^3$ by 2028. The total thinning area peaks at circa 30,000 ha in 2022 (Phillips et al., 2009). Table 4 presents a forecast for timber production from private forests and also includes the portion of the forecast harvest which would have potential for renewable energy.

**Table 4: Timber Forecast from the Irish private forest estate**

| Production Year | Net volume ('000 $m^3$) | | | | Potential energy volume ('000 $m^3$) |
|---|---|---|---|---|---|
| | Pulp | Pallet | Sawlog | Total | |
| 2010 | 257 | 11 | 15 | 381 | 302 |
| 2015 | 330 | 209 | 56 | 595 | 388 |
| 2020 | 515 | 362 | 209 | 1,086 | 388 |
| 2025 | 576 | 627 | 539 | 1,793 | 675 |
| 2030 | 530 | 951 | 1,472 | 2,953 | 626 |

*Source: Phillips et al., (2009)*

This forecast shows a sizeable timber volume being available for harvest in 2010 and increasing significantly up to 2025 in particular. However, the forecast only tells us how much timber is growing in the forests. The timber forecast for 2010 can only be realized if farm forest owners actually thin their forests. The window for thinning forests only lasts for a couple of years as thinning becomes risky as tree height increases and trees become more vulnerable to damage from windblow.

## 6 Conclusion

While the implementation of the Water Framework Directive and changes to CAP post 2013 will both pose challenges for forestry in the medium term, the outlook for the shorter term could be reliant on the ability of our forests to sequester carbon. The 2010 budget provides funding for the planting of 7,000 ha of new forests while also providing funds for forest roads and broadleaf tending and thinning (Budget, 2010) but this may not be sufficient to allow for the increased number of farmers contemplating the forestry option. The Renewed Programme for Government (2009) states that "The Government will work with the Irish forestry sector, including Coillte, to develop a scheme through which some of the monies currently set aside to purchase carbon credits abroad will be diverted for forestry investment in Ireland." We need to continue to strive to develop innovative thinking to optimise scarce funds to provide the best possible return for farmers, the environment and society as a whole.

Declining numbers of applications for general felling licences and road grants raise concerns about the level of thinning that farm forest owners are planning in the short term. If forests are not thinned, we will fall well short of achieving our renewable energy and timber industry targets. This would be unfortunate as it appears that timber markets may have "rounded the corner" in late 2009 with improving prospects for 2010.

We need to come up with new and innovative ways to incentivise thinning so that we don't end up with large tracts of forests that remain unthinned; not generating income, employment or timber raw materials and not realising the full potential of these forests to contribute to rural sustainability.

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