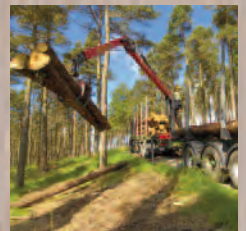
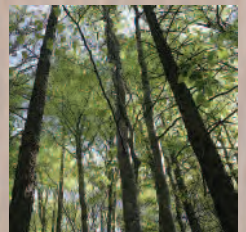
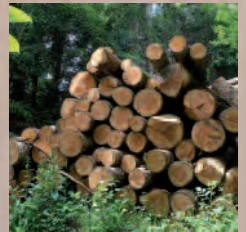


What shall we do with the timber?

OPPORTUNITIES FOR IRISH WOOD AND WOOD PRODUCTS



NATIONAL FORESTRY CONFERENCE

What shall we do with the timber?

OPPORTUNITIES FOR IRISH WOOD AND WOOD PRODUCTS



Keynote address by
Tom Hayes TD
Minister of State
with responsibility for forestry
at the Department of Agriculture, Food and the Marine

Johnstown House Hotel
Enfield, Co. Meath
Friday, 6 June 2014

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Organised by the Wood Marketing Federation and the Society of Irish Foresters
Supported by COFORD, Department of Agriculture, Food and the Marine
and the *Irish Farmers Journal*





Welcome

Welcome to the National Forestry Conference 'What shall we do with the timber?'- a timely topic as Irish forestry and the forest products industry compete in the global timber market.

The conference theme is quality and innovation, beginning in the nursery and continuing along the chain to the forest, sawmill, panel board mill, wood energy outlets and manufacturing before reaching the consumer. There are opportunities to add value at each stage while still producing a competitively priced, quality product from sustainably managed forests.

Few industries have a greater degree of interdependency than forestry. How the various links in the forest chain interact and perform determines the capability of the sector as a whole. These links begin with the quality of our seed and nursery stock, which decides the viability of our forests, the performance of down-stream industries and the effectiveness with which the sector delivers a range of economic, social and environmental benefits.

The conference acknowledges this interdependency. It highlights the need for an integrated approach as a precondition for the optimal development of the forest industry, which now exports close to 80% of its products and has an annual value of €2.2 billion.

Interdependency and partnership also played a part in the organisation and promotion of the conference. In this regard the Irish Farmers Journal, Wood Marketing Federation (WMF) and Society of Irish Foresters cooperated to ensure that the event would address as wide an audience as possible especially woodland owners who establish and manage our forest resource, timber processors, wood energy sectors and timber specifiers along with the various downstream industries.

We thank Minister Hayes for delivering the keynote address and COFORD, Department of Agriculture, Food and the Marine for its continued support of the wood promotion programme. Sincere thanks to all the speakers who readily took up the conference challenge to explore new market opportunities for Irish timber.

We hope you enjoy the conference and find the presentations informative, stimulating and challenging.



Paul Harvey
Chairman
Wood Marketing Federation



Justin McCarthy
Editor
Irish Farmers Journal



Pacelli Breathnach
President
Society of Irish Foresters

Agenda

09.00	Registration and coffee
10.00	Welcome by Pacelli Breathnach, President, Society of Irish Foresters.
10.05	Keynote address: Tom Hayes TD, Minister of State at the Dept. of Agriculture, Food and the Marine. Morning chairperson: Justin McCarthy, Editor, Irish Farmers Journal
10.30	Growing quality for future forests and wood processors including research into vegetative production. Mike Harvey, Director at Maelor Forest Nurseries Limited.
11.00	Adding value in the forest. How good silvicultural practice can optimise the forest resource. Dr. Niall Farrelly, Teagasc.
11.30	Acknowledging interdependency – the need for a partnership approach between grower and timber processor in addressing, supply, certification and quality. Traolach Layton, Forestry Manager, GP Wood Ltd.
12.15	Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity. Mike Glennon joint Managing Director, Glennon Brothers.
12.45	Discussion
13.00	Lunch Afternoon chairperson: Donal Magner, Forestry Editor, Irish Farmers Journal and Secretary WMF
14.00	Market opportunities for wood in renewable energy. Joe O'Carroll, Managing Partner, OC Consulting
14.30	Opportunities for increasing international market share for Irish panel board products. David Murray, Innovation Manager, Coillte Panel Products.
15.15	Exploring new products for Irish timber including engineered wood. Dr. Annette Harte, Senior Lecturer, Civil Engineering, NUI Galway.
16.00	Open forum
16.30	Close of conference Paul Harvey, Chairman, Wood Marketing Federation

Foreword

Maximising markets for Irish coniferous species



Paul Harvey
Chairman
Wood Marketing Federation
Business Manager
Lonza Wood Protection in Ireland.

The buoyant Irish forestry and forest products sector has an annual value of €2.2 billion including exports of forest products averaging €306 million per annum during the period 2010-12.

The total forest cover in Ireland is estimated to be 855,000 ha – north and south – which produces 3.2 million cubic metres annually, mainly softwood.

The species menu has changed over the years from 95% coniferous species for much of the last century to a 60:40 mix of softwoods and mainly native broadleaves in recent years. However, the predominant species is Sitka spruce (*Picea sitchensis*), which is used for construction, pallet or packaging, fencing and wood energy in recent years, while sawmill residue (wood chips and sawdust) is processed for panel board products such as oriented strand board (OSB) and medium density fibreboard (MDF).

The growth rate is defined by the term Yield Class (YC) and typical figures for Sitka spruce in Ireland range from 20 to 24 (cubic metres per hectare per annum). Typical figures in the UK range from 11 to 14, while YC 4 is the average in Sweden.

Therefore, Ireland's productive coniferous forests can provide yields of between twice and five times greater than northern European countries. This provides challenges on how we utilise these highly productive forests. In Ireland 33% of the annual round wood harvest ends up as construction timber.

This timber is sawn, kiln dried and stress graded to strength class C16 grade, suitable for internal construction such as floors and roof joists.

Fencing and round stakes yield is 36%, most of which requires preservative treatment if used externally. Comparisons are often drawn between low and high yielding spruce especially in construction where slow grown logs may have advantages. However, high yielding spruce has advantages in terms of density and permeability as it renders it uniquely suitable for pressure treatment, ideal for round fencing posts.

Work done to date indicates that once the timber is dried properly and correctly pressure treated, it will comply consistently with current IS and BS treatment standards (accepted standards in Ireland and Britain). This approach will allow Sitka spruce to penetrate fencing markets from which it was once excluded.

There are other opportunities for Irish timber to gain market share and these will be addressed in today's conference. Later this year to celebrate its 25th anniversary, the Wood Marketing Federation will organise Wood Awards Ireland 2014, which is aimed at architects, engineers and designers who use wood as the inherent medium in their building and design projects.

This is another way to highlight the advantages of wood as a construction and design material. Like the conference, it is compatible with our mission: to promote wood as a renewable, sustainable and versatile natural material.

Welcome address



Pacelli Breathnach
President
Society of Irish Foresters.

Minister, guest speakers, ladies and gentlemen

On behalf of the joint organisers, the Society of Irish Foresters and the Wood Marketing Federation, and our conference supporters, the *Irish Farmers Journal* and COFORD, I have great pleasure in welcoming you. Minister, we are honoured that you have taken the time to open and to address our conference.

Our industry has an annual value of €2.2 billion, much of it generated from export sales. When the construction industry collapsed in 2008, the timber processing sector developed export markets for the timber, so that today close to 80% of the output from the sector is exported. The sector has proved its capability beyond reasonable doubt and we are confident that the industry will process all the timber which is set to increase to almost five million m³ by 2020.

While this is an impressive performance, we still are well behind the targets envisaged in the 1996 report 'Growing for the Future' which forecast output at 10 million m³ per annum, and preferably 12 to 15 million m³ per annum by 2030.

To achieve this, a target of 17% forest cover by 2030 was deemed necessary, based on an annual planting programme of 20,000ha. In recent years we have achieved only one third of this target.

We welcome the 15,000ha annual planting programme in the Forestry Programme 2014-2020. However, it is important that this target is supported by appropriate policies which will ensure that they are achieved. If not, these new targets are no more than aspirations. At the moment, we have a golden opportunity to do this. We have the Forestry Bill going through the Oireachtas; we have the draft report of the Forestry Review Group and the proposed measures for the new Forestry Programme 2014-2020 which is in the consultation phase.

I can assure you Minister, that the Society of Irish Foresters and the Wood Marketing Federation are willing to work with you and your officials in supporting the development of the sector to ensure maximum return to the national economy including job creation, most of which is and will continue to be, based in rural Ireland.

I would like to thank the *Irish Farmers Journal* for supporting this event and special thanks to the speakers at today's conference.

There is a huge amount of expertise and experience in this hall today and I look forward to the papers being presented. This topic is timely given the legislative and policy developments currently in train.

Minister, I have great pleasure in inviting you to make the keynote address and to declare the conference open.

Pacelli Breathnach
President
Society of Irish Foresters

Introduction

What shall we do with the timber?

Exploring market opportunities for Irish wood and wood products



Donal Magner
Forestry Editor,
Irish Farmers Journal
Secretary,
Wood Marketing Federation

While nobody knows for certain what we will be doing with timber and timber products in the future, we can be sure that we will be doing things differently with this great renewable resource. Few would believe even a few years ago that high rise buildings up to 20 storeys would be constructed in timber, but it's happening.

Timber specifiers and consumers continuously demand new products and the Irish forestry and forest products sector will have to continuously change to retain and improve market share. Eased edged, planed all over, properly kiln dried and mechanically graded sawn timber didn't exist in Ireland a generation ago. Neither did most of our engineered panel board products. Today these products are the norm as they contribute to an export-led industry which contributes €2.2 billion annually to the economy.

Probably the greatest opportunities lie in the role wood plays in sustainable living. While the Kyoto Protocol acknowledges forests as carbon sinks, in reducing greenhouse gas emission, there has been a reluctance to acknowledge forest products as carbon stores. However, the UN climate change convention in Durban at the end of 2011 accepted that harvested wood products such as sawn timber, engineered wood, panel products and pulp for paper manufacture, could be included in the carbon accounting framework for forests for the period up to 2020.

This recognises the climate change mitigation benefits of harvested wood products in replacing emission intensive products, such as steel, plastic and aluminium. For example, using wood saves energy over the life of a building as its cellular structure provides outstanding thermal insulation, estimated at 15 times better than concrete, 400 times better than steel and 1,170 better than aluminium.

The Timber Research & Development Association (TRADA) maintains that a 2.5cm timber board has better thermal resistance than an 11.4cm brick.

In the past the forest and wood cycle began with seed collection and ended with sawdust but this is no longer the case.

Today, it begins long before the seed is planted and continues after sawdust, which is recycled to make medium density fibreboard (MDF), oriented strand board (OSB), heat logs, wood pellets and other reconstituted products. And this is only the beginning, as we will discover at this conference.

However, despite increased exports, the Irish forestry and forest products industry cannot take markets for granted, which is why we ask the question: 'What shall we do with the timber?' It might appear superfluous during a time of increased demand but we know from experience that markets change and demand can fluctuate.

Currency variations, economic conditions and new market entrants can combine to quickly change the dynamic between growers, processors, manufacturers and ultimately, the end user.

It is only 23 years since the study 'The Irish timber industry – An export development plan for the 1990s' identified timber producers in Scandinavia, Canada, Portugal and even Chile as major threats to Irish timber exports and the domestic market.

Mike Harvey

Growing quality for future forests and wood processors including research into vegetative production.



Mike Harvey is Director, Maelor Forest Nurseries located at Fields Farm, Bronington on the Welsh border. Maelor produces approximately 20 million trees a year for customers throughout the UK and Europe. The nursery places strong emphasis on quality and research especially in vegetative propagation (VP) of improved Sitka spruce, root electrolyte leakage testing and pest and disease control.

Wood is increasingly recognised as “the material” of the 21st century. It is recognised for its carbon mitigation effects. The benefits of using sustainably produced wood for offsetting carbon intensive activities can continue indefinitely.

Major research in the development of tree breeding techniques is taking place world-wide as tree breeders seek to establish plantations based on the best available genetic gains for future timber production. It is predicted that the demand for wood products will increase dramatically over the next 20 years. Projected global wood harvest (billions of cubic metres)¹:

- 2010 – 3.79
- 2020 – 4.39
- 2030 – 5.11

The ability of our plantations to benefit from these developments however does not just rest with the tree breeder alone, but with the whole supply chain including methods of grafting, vegetative reproduction, seed orchard management, nursery practices, forest establishment practices, silviculture, harvesting and processing.

This presentation seeks to demonstrate the work being done on a commercial nursery as part of the supply chain, in delivering genetic gains to the plantation. The demonstration is focused on Sitka spruce as it is the major commercial timber crop in the UK and Ireland.

As the demand for better quality increases together with the development of alternative species (especially in view of the effects of *Phytophthora ramorum*), this places increasing pressure on the nurseries to develop their growing techniques and to widen their knowledge.

At Maelor we have recognised the importance of working together with all those involved in the supply chain from researcher and tree breeder to the sawmills. There will be no value from research into genetic gain or selection of an alternative species unless the supply chain knows how to grow it and sawmills can process it for an identified market.

The current annual production of forest planting stock at Maelor is circa 20 million, of which approximately 25% is from vegetative propagation. The nursery is involved in research projects with universities and forest research in the UK as well as with research institutes overseas. In developing working practices the nursery staff have developed connections to a world-wide network of specialists. The nursery is also involved in established working groups which include representatives from the whole supply chain.

The nursery is developing seed orchards for Sitka spruce, sycamore, birch and Douglas fir.

A decade previously, the then Forest Service – the owner of virtually all the productive forests – could not find markets for almost half of its timber. Due to the collapse of two processing mills and a stagnant sawmilling sector, thinning and clearfelling slowed down. In the late 1970s and early 1980s, the Forest Service reduced the annual volume of available timber to 740,000m³ but could sell only 420,000m³, which is less than the annual capacity of any one of our four major sawmills today.

During the past decade, Irish timber processors have increased market share and seen off almost all international softwood producers in the domestic marketplace, albeit a market that has shrunk dramatically since the collapse of the construction industry.

Could supply again outstrip demand in the future? There is little doubt now that the timber processing sector is much more sustainable than any time in our history but nothing should be taken for granted. Annual production in our forests is now over 3.0 million m³, but this is estimated to increase to 4.9 million m³ by 2020 (Figure 1).

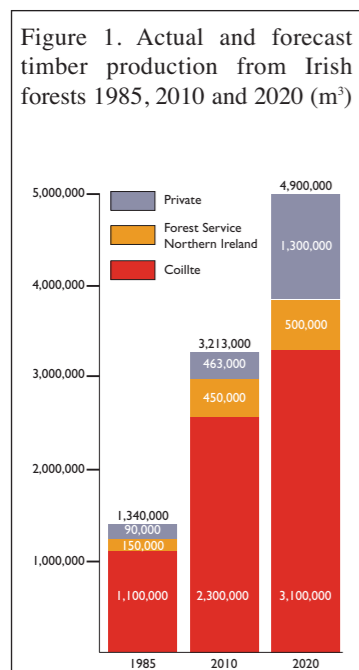
To ensure the continuation of a viable forestry and forest products industry, the disconnect that has existed for years between grower and processor needs to be addressed. Few industries have a greater degree of interdependency than forestry. How the various links in the forest value chain interact and perform determines the capability of the sector as a whole. These links begin with the quality of our seed and nursery stock, which decides the viability of our forests, the performance of down-stream industries and the effectiveness with which the sector delivers a range of social and environmental benefits.

This interdependency has been long acknowledged by the Irish Farmers Journal, representing farmers with plantations and others in the wood chain. It has also been promoted by the Society of Irish Foresters, representing the forestry profession and the Wood Marketing Federation, representing the timber industry.

All three organisations are represented at today’s conference in Enfield which highlights the need for an integrated approach as a precondition for the optimal development of the forest industry. A wide range of expert speakers will address the major challenges facing the sector which now exports close to 80% of its products and has an annual value of €2.2 billion.

The emphasis throughout is on quality and innovation, beginning in the nursery and continuing along the chain to the forest, sawmill, panel board mill, wood energy outlets and manufacturing before reaching the consumer. For most of the last century that consumer was based in Ireland and to a lesser degree in Britain. Now an increasing volume of Irish timber and timber products reach customers throughout Europe, the Middle East and even India.

Irish processors are now paying growers better prices than any other country in Europe. In challenging and possibly controversial presentations, each speaker at the Enfield conference will demonstrate how we can further increase domestic and export market share for Irish timber, thereby creating greater market opportunities for timber growers and processors.



¹ Scion - New Zealand Forest Research Institute. Report ‘Challenges and Opportunities for the World’s Forests in the 21st Century, p 218. Turner et al. (2006) ISBN 978-94-007-7075-1

Growing quality for future forests and wood processors including research into vegetative production.

Economic driver for quality

The most valuable market for home grown softwood in Britain is structural grade sawn timber. Unfortunately most of the timber being felled does not meet the stringent quality requirements for this market. The lower value pallet, packaging and fencing markets currently absorb approximately more than two-thirds of the UK production of sawn timber. Timber growers are therefore concerned that a much higher proportion of the second rotation is aimed at the more lucrative structural market. To achieve that then the quality of timber grown has to be significantly improved over the previous rotation.

Selection of plus trees- Sitka Spruce

- In UK 2800 outstanding phenotypes selected
- Intensity of selection;- 1 out of 75,000
- Progeny testing carried out in trial plantings around Britain
- Evaluation of genetic quality lasted 15 to 20 years (final testing for breeding population delayed for pilot density measurement at age 15yrs +)
- As a result of the progeny testing 200 plus trees selected for the "breeding population"
- Breeding population then developed with new genetic combinations

Identifying heritable characteristics

Of the various factors controlling wood quality a number of them are known to be highly variable and also heritable:-

- Density
- Fineness of branching
- Angle of branching
- Grain angle
- Micro fibril angle
- Stem form

Establishment of wind pollinated seed orchards

- Clones from "breeding population" then established in clone banks
- Clones from this material then used to create seed orchards
- Initially emphasis for selection was vigour and form (poor grain angle and coarse branching material had been excluded from the plus tree selection)
- These seed orchards currently account for approximately 75% of the Sitka being planted in the UK
- This material has predicted gains in vigour (over QCI controls) of around 20% and gain in form of around 8% with a loss of density of around 12%

Establishment of more recent orchards

- In recent years seed orchards established from clones giving significant improvement in quality traits
- Predicted gains in stem form of circa +20%, with increases of vigour of circa +20% but without any loss in density
- These seed orchards just starting to produce seed

Growing quality for future forests and wood processors including research into vegetative production

Mike Harvey



Production by vegetative propagation

- Direct pollinated "full-sibling" seed bought individually at a cost of circa £5 per seed
- Seed germinated in individual containers
- Seedlings grown on for circa 2 growing seasons – becoming a "stock plant"
- Cuttings taken from "stock plant"
- Cuttings rooted and then planted into "stock hedges", after 2 growing seasons cuttings taken and rooted for bare-root production- process takes 6 years to get material from seed into the forest
- Subsequent cuttings from "stock plants" rooted and planted for bare-root production- enables some production from seed to forest within 4 years.

Growing quality for future forests and wood processors including research into vegetative production

Mike Harvey



Production from seed orchard



Production from seed orchard material

- Seed cost relative low circa £1250 for 1kg
- 1 kg equates to around 330,000 seeds
- Most of production is "bare-root" from broadcast sowings of seed
- Seedlings uplifted after 1 or 2 growing seasons and transplanted
- Transplanted stock then remains in field for 1 to 1.5 growing seasons before being lifted and sold

Cuttings from stock plants



Cuttings callousing with initial root growth



Rooted cuttings



Growing quality for future forests and wood processors including research into vegetative production

Mike Harvey

“Winter cuttings” inserted in controlled environment



“Summer-cuttings” inserted in “raspberry tunnels”





Benefits of improved Sitka spruce: volume and quality of timber

William Stuchlik, Alan Lee and Barry Gardiner September 2018

The increase in timber volume gained from planting improved Sitka spruce stock has been estimated to be between 21% and 29% at the end of a rotation. This research note presents the results of new research designed to investigate the impact of improved Sitka spruce stock on quality characteristics which determine the quantity of green sawlogs in the forest and construction grade timber in the sawmill. The study was carried out using trees close to rotation age from a trial of improved Sitka spruce at Kershope Forest in Cumbria. A number of characteristics relating to growth rate and timber quality were assessed on the standing trees in the forest and the sawn timber obtained from the trees after felling. The volume of green sawlogs and sawn timber meeting the strength classes C16 and C24 was calculated. Three improved lots with respectively the highest wood density, fastest growth rate and best stem form were compared with a control of unimproved Sitka spruce of Queen Charlotte Island QCI origin. The results at both the individual treatment per hectare level showed increased green timber volumes from improved planting stock without disadvantage in construction grade strength requirements. In the best progeny, increased of up to 130% in both green sawlog volume and sawn timber volumes per hectare were predicted with equivalent mechanical properties to the QCI stock.

FC180022 Forest Research

Results

In general terms of site productivity, the trial at Kershope Forest was on a good quality site. The QCI Control and Family 4 (highest wood density but slowest rate of growth) were predicted to be growing at Yield Class (YC) 22, and the faster growing Families 2 and 3 were predicted to be growing at YC24.

Results are presented both for the trees selected for processing (Table 1) and at a stand level for each family (Table 2). The mean diameters of the processed trees were similar but in some cases the mean green log volume obtained per tree varied significantly. Family 2 (the straightest family) had 42% additional green log volume whilst Family 3 (the fastest growing family) had 29% extra green log volume relative to the QCI control. This additional log volume translates to an additional sawn timber volume recovery per tree of 41% (Family 2) and 20% (Family 3). In contrast, Family 4 (the highest wood density family) had a slightly reduced green log volume (4%) and almost identical sawn timber volume compared to the QCI Control although the differences were not significant. The KARs for the improved progeny were all lower than the QCI Control.

When the random selection of battens from each family were tested against the C16/reject grading criteria all of the lengths from all four families passed and none were rejected (Table 1).

When the second random sample of lengths from each family were tested against the C24/reject grading criteria there was a lower overall pass rate varying from 62% in Family 4 (the highest wood density family) to 74% in Family 2 (the straightest family) with the QCI Control having a pass rate of 70%. However, the differences between families were not statistically significant.

The biggest differences between families occur when variations are compared for all trees at a per hectare level (Table 2). The values on a per hectare basis were calculated by scaling up the figures from Table 1 (based on an equal number of 12 trees per treatment and replication) to reflect the actual number of trees per plot with a DBH greater than 18 cm. As expected, Family 4 had the highest wood density as measured using the Pilodyn gun (i.e. less pin penetration) and Family 2 had the lowest wood density (more pin penetration). The QCI trees and Family 3 had similar wood density which was significantly higher than Family 2 but lower than Family 4. The grain angle measured on the outside of the stem was slightly better (lower value) for Families 2 and 4. All three of the improved families were on average straighter than the QCI.

The number of surviving trees per hectare was similar for the improved families and these were all higher than the unimproved QCI. The increased mortality in the QCI material together with smaller average DBH resulted in a lower basal area.

Table 1 Results for processed trees (36 trees >18cm DBH for each family)

Treatment	Mean DBH of selected trees (cm)	Mean green log volume (m ³)	Green log volume against QCI (%)	Mean batten volume (m ³)	Batten volume against QCI (%)	Average log KARs	C16 pass rate (%)	C24 pass rate (%)
QCI	23.6	0.228 ^a	100	0.102 ^b	100	0.22	100 ^a	70 ^a
Family 2	24.4	0.325 ^a	142	0.145 ^b	141	0.16	100 ^a	74 ^a
Family 3	25.3	0.294 ^{ab}	129	0.119 ^{ab}	120	0.18	100 ^a	67 ^a
Family 4	22.0	0.220 ^a	96	0.103 ^b	101	0.15	100 ^a	62 ^a

Table 2 Results at stand level (based on all living trees)

Treatment	Yield class	Mean DBH (cm)	Pilodyn penetration (mm)	Grain angle (°)	Mean straightness score	Trees/ha	Basal area/ha (m ²)	Predicted green log volume/ha (m ³)	Predicted green log volume/ha against QCI (%)	Predicted batten volume/ha (m ³)	Predicted batten volume/ha against QCI (%)
QCI	22	20.7 ^a	17.1 ^a	1.9	3.9	1559	56	219	100	98	100
Family 2	24	22.2 ^b	18.5 ^a	1.7	4.5	2097	84	515	235	229	234
Family 3	24	22.2 ^b	17.2 ^a	1.9	4.5	1913	79	401	183	163	166
Family 4	22	19.9 ^a	14.9 ^b	1.5	4.7	2012	66	296	135	133	142

a, b, c. Figures with different superscripts are significantly different; those with the same superscript show no significant difference P<0.05. No superscripts indicate significance tests either not carried out or not possible.

Why use vegetative propagation?

- Much higher quality, some crosses producing gains in stem form of +35%, compared to 20% from the best available (over the next few years) seed orchard material
- Newly identified material brought to the market much more quickly - have to wait 15-20 years for seed orchard compared to 6 years for VP
- Far higher confidence in predicted gain figures with uniformity
- Seed orchard production very variable, "panmixis" occurs rarely (equal distribution of coning)
- Scarce material can be maximised earlier e.g. acoustic velocity

Growing quality for future forests and wood processors including research into vegetative production

Mike Harvey

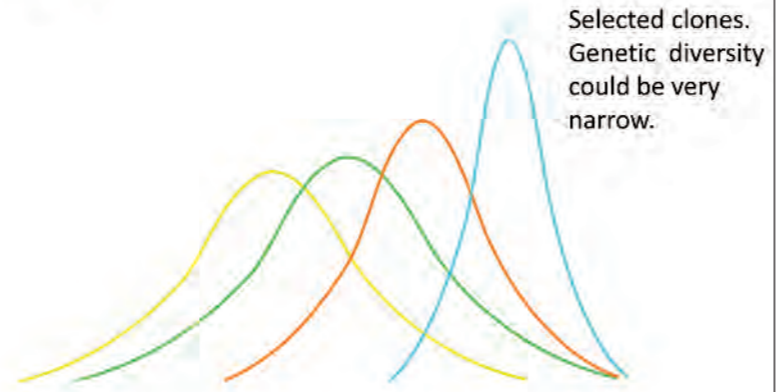
Disadvantages of vegetative propagation

- More difficult to establish on most sites; does not have fibrous root system and juvenile vigour of seed orchard material
- Cost - around £50 per thousand more expensive than seed orchard material
- Planting on poor sites can result in prolonged "plagiotropic" growth

Next steps with VP

- Somatic embryogenesis and cryopreservation - good model developed in Ireland by David Thompson
- Automation?
- Development of genetic material with high acoustic velocity traits
- Other species; work started on Douglas Fir, work in Sweden with Norway Spruce
- Creation of Sitka Spruce Breeding Co-op in the UK www.sitkacoop.co.uk
- Clonal?

QCI v family mixture v best full-sib families v tested clones



Growing quality for future forests
and wood processors including
research into vegetative production

Mike Harvey

Dr Niall Farrelly

Adding value in the forest. How good silvicultural practice can optimise the forest resource



Dr Niall Farrelly is a research forester with Teagasc Forestry Development Department, specialising in research on forest productivity, management land use and resource analysis. His research programme focuses on how environmental factors and forest management practices affect the productivity, composition and structure of forest ecosystems. Other research involves ecosystem classification and land use analysis.

Ireland has a mild, maritime climate lacking extremes in temperatures which is ideally suited to the growth of trees. The similarity in climate between the latitudes of the Pacific north-west of America and Ireland has resulted in the remarkable success of introduced species which show adaptability to Irish conditions.

Sitka spruce is a remarkable success story and the species occupies over 50% of the forest estate and accounts for over 90% of the harvested volume. Opportunities to achieve increases in productivity which offer significant revenue gains are the focus of this presentation. While very favourable yields can be achieved on former farmland sites, further increases in yield can be achieved by planting the species on better soils with higher fertility levels.

Further opportunities to increase productivity are possible through provenance selection with the choice of more southerly provenances of Sitka spruce offering yield increases of between 2 to 4 m³ over Queen Charlotte Island sources on the same sites. The use of improved material and continued tree improvement programmes have the potential to further increase yield, additional gains could possibly be achieved by selection of Oregon provenances for more southerly sites with less demanding end uses.

The potential for forest managers to increase yield and profitability exists by thinning which salvages trees that will ultimately die and offers the potential to increase yields by approximately 10%. The improvement in tree quality and an increase in diameter after first thinning are essential and research results indicate that a vigorous selection between the lines in thinning is necessary to at least a grade C thinning or more.

A robust first thinning offers the potential to significantly increase the diameter and volume of trees. The net result is that growing to a merchantable size of 0.7 to 0.8 m³ log is now possible with prescribed thinning regimes in crops well before the age of 30 on high yield class sites.

Prompt thinning of crops is advised as delayed thinning in the hope of achieving more palletwood and higher revenue is counter-productive. Reductions in diameter increment and individual volume increment are apparent and revenue is only marginally increased by delaying thinning by three years. Mean diameter and tree volume is greatest in crops thinned earlier as a result of the provision of more growing space.

Increasing thinning intensity results in the production of a higher percentage of straight logs and higher revenue returns especially as it is possible to reach a merchantable log in relatively short time.

How good silvicultural practice can increase the productivity and profitability of the forest enterprise

Dr. Niall Farrelly

National Forestry Conference, Johnstown House Hotel, Enfield Co. Meath, Friday 6th June 2014

The Irish Agriculture and Food Development Authority

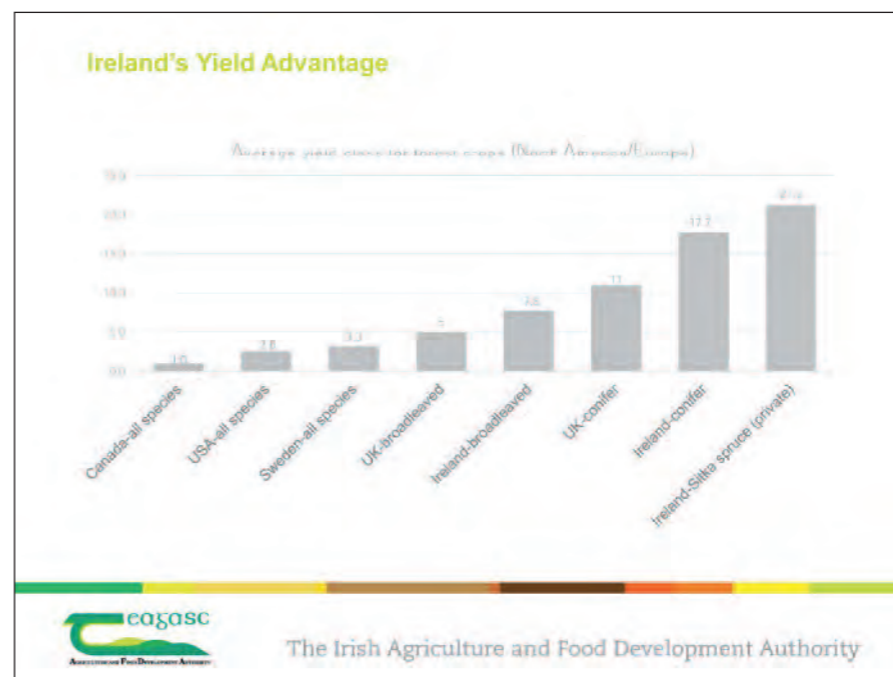
Adding value in the forest. How good silvicultural practice can optimise the forest resource.

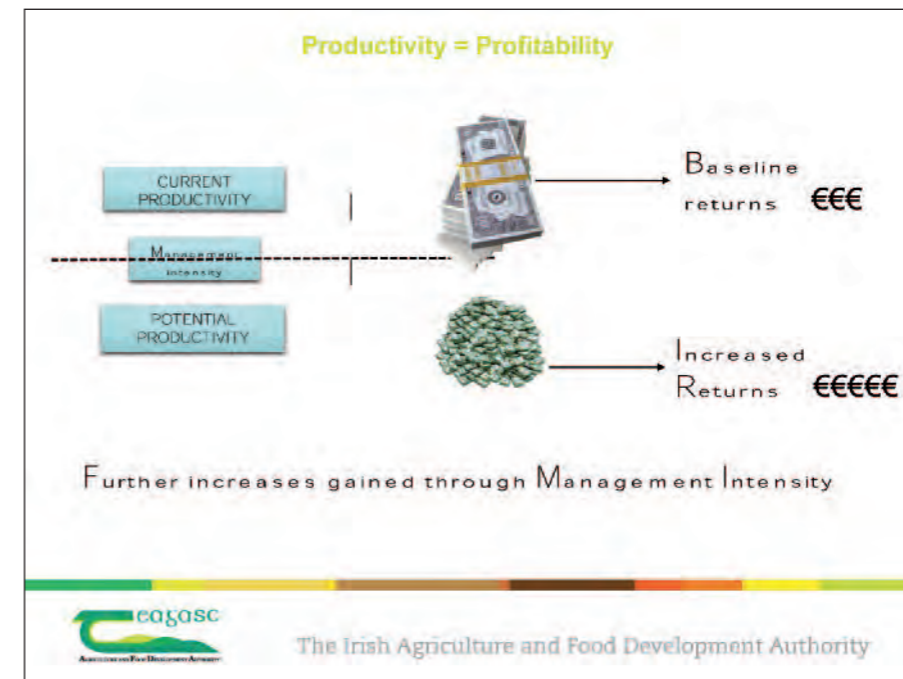
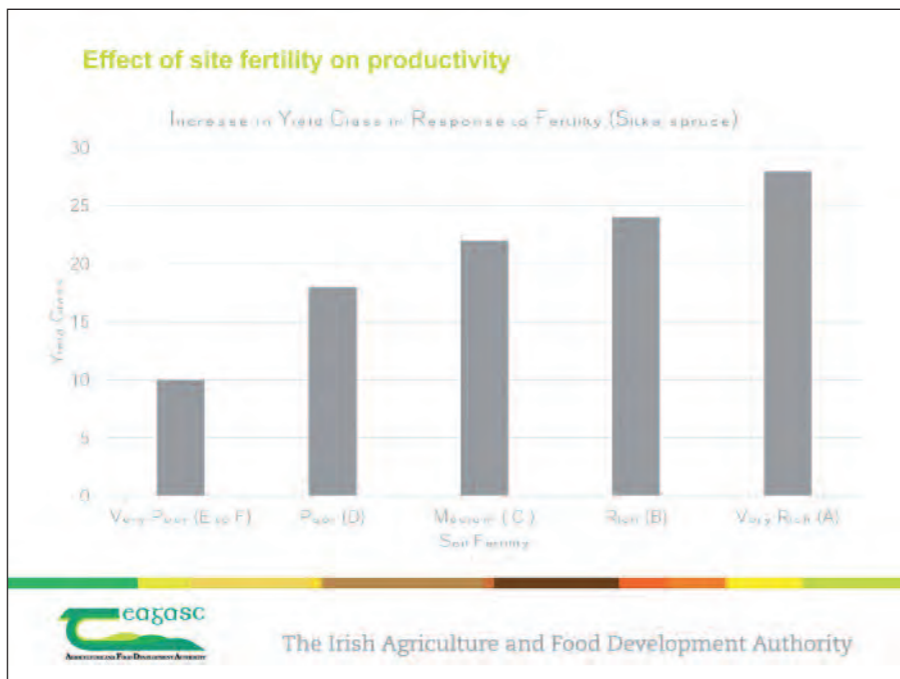
Dr Niall Farrelly

Starting point Conditions extremely good for tree growth

- Optimum growing conditions for high production rates.
- Competitive advantage in growing biomass (grass, forestry, etc)

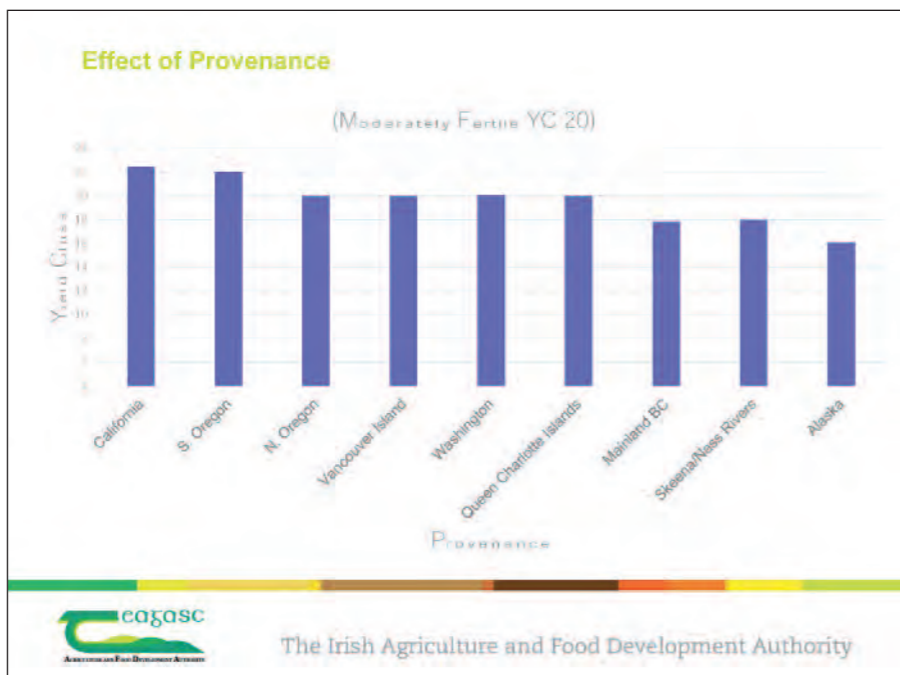
The Irish Agriculture and Food Development Authority



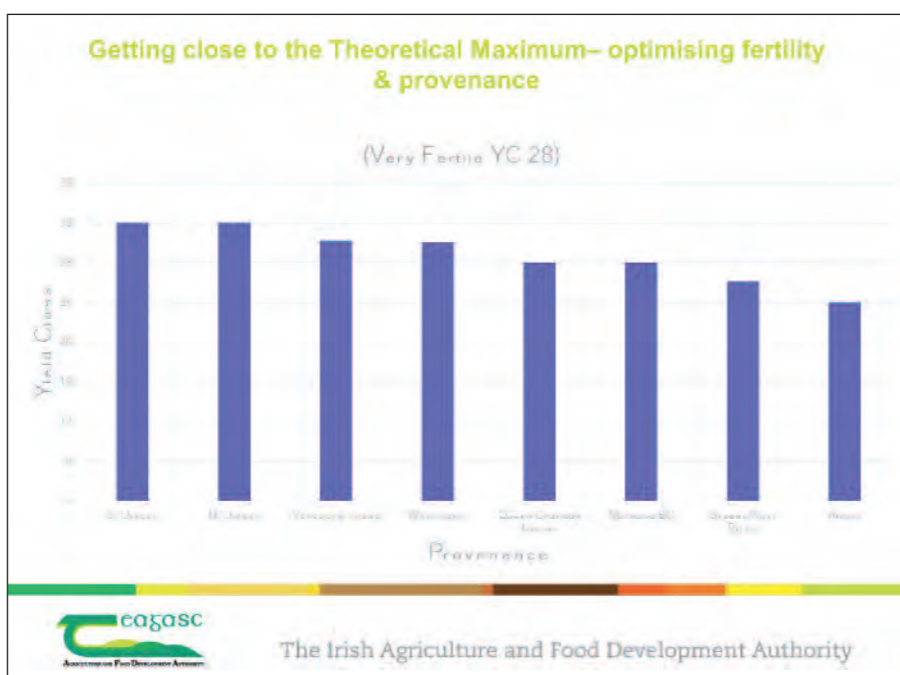


Adding value in the forest. How good silvicultural practice can optimise the forest resource.

Dr Niall Farrelly



- ### Opportunities to Increase Profitability through thinning
- Salvages material that will ultimately die (10% loss in volume)
 - Invest in good quality trees that are more valuable (i.e. sawlog)
 - Provides periodic income
 - Maximises productive potential of site (Potential V Actual)
 - Potential to reductions in rotation times (AMMAI – 20/30%)
 - Opportunities to grow for target volume quicker (0.8 m3 log)
- caqasc The Irish Agriculture and Food Development Authority



- ### Case study on what can be Achieved – Thinning Experiment
- Frenchpark, Co. Roscommon (2010), surface water gley, P 1995**
- No thinning
 - Light thinning (grade B)
 - Medium thinning (grade C)
 - Heavy thinning (grade D)
 - Light thinning 3 year delay
 - Medium thinning 3 year delay
 - Selection thinning 3 year delay
 - Crown thinning 3 year delay
- Abbeyshrule, Co. Longford (2011), Brown Earth, P1995**
- No thinning
 - Light thinning (grade B)
 - Medium thinning (grade C)
 - Heavy thinning (grade D)
- caqasc The Irish Agriculture and Food Development Authority

Different thinning types examined

Control – No thinning

Grade B – Remove dying, suppressed, forked and subdominant trees - C. 20% of basal area/volume

Grade C – Remove as above but include some co-dominant trees, C. 32% of basal area/volume

Grade D – Remove as above but include many co-dominant trees, C. 39% of the basal area/volume

S- Selection thinning: Remove all subdominant trees and all trees of target diameter >24 cm. This is realising the value of larger trees at first thinning.

X- Crown thinning: Removing defective dominants and co-dominants, allowing better quality co-dominants and dominants growing space to develop. Subdominants are allowed to fill gaps in the canopy.

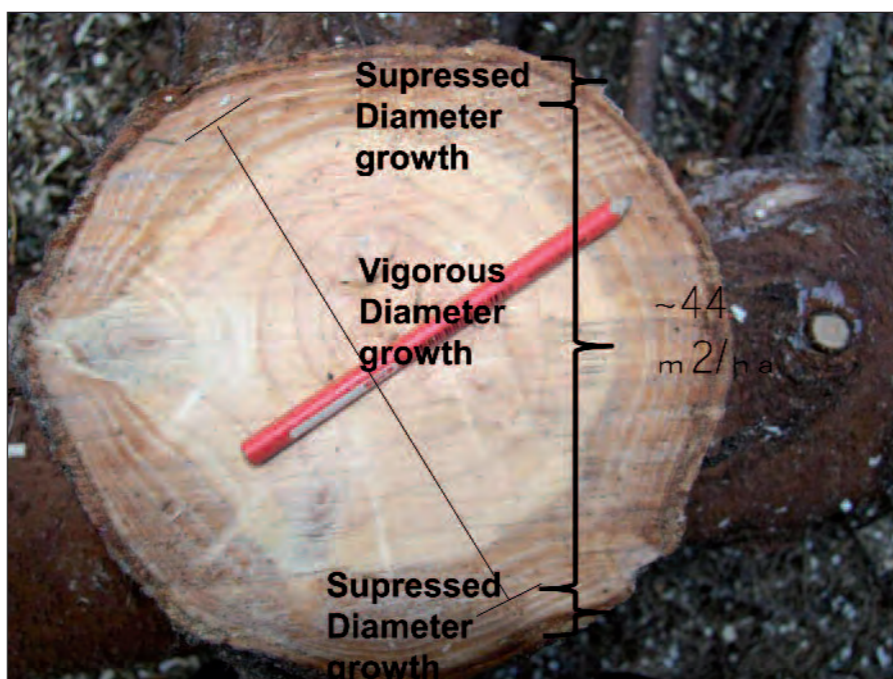
Crown canopy classes: D: dominant, C: co-dominant, SD: subdominant, S: suppressed.

No thinning – no opportunity to increase productivity

CONTROL

	Before	After
SPH	2104	NC
Basal Area (m2)	44	NC
DBH (cm)	16.3	NC
Volume/Ha	212	NC
Volume/Stem	0.10	0.10
Vol removed	0	0
Revenue €/Ha	0	0

The Irish Agriculture and Food Development Authority



Grade B – crop parameters

	Before	After
SPH	2155	1500
Basal Area (m2)	46	35
DBH (cm)	16.4	17.3
Volume/Ha	221	170
Volume/Stem	0.10	0.11
Vol removed		51
Revenue €/Ha		381

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Adding value in the forest. How good silvicultural practice can optimise the forest resource.

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Grade C – crop parameters

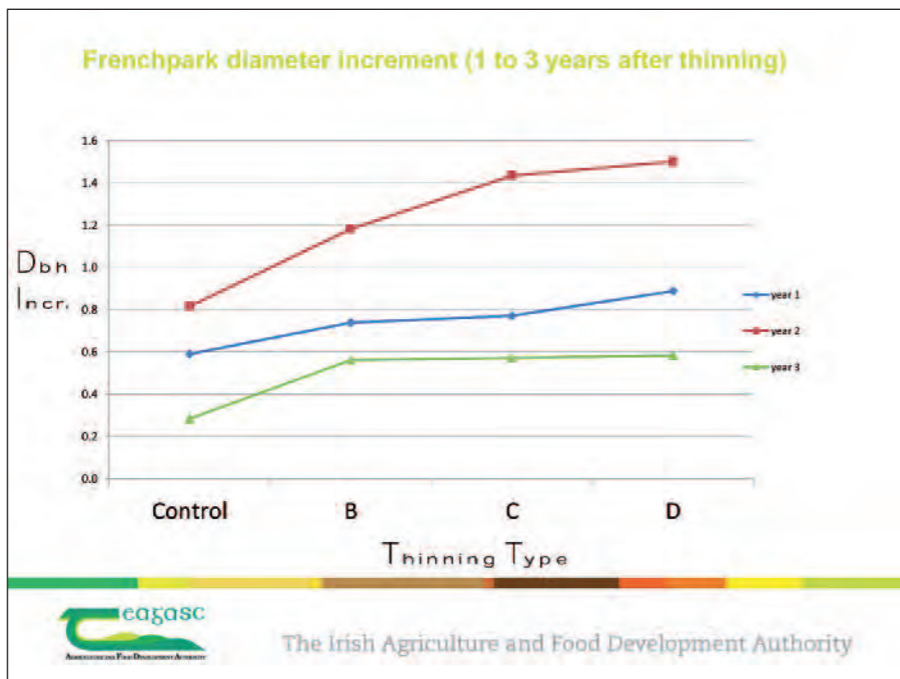
	Before	After
SPH	2058	1222
Basal Area (m2)	43	30
DBH (cm)	16.4	17.7
Volume/Ha	210	148
Volume/Stem	0.10	0.12
Vol removed		62
Revenue €/Ha		409

The Irish Agriculture and Food Development Authority

Grade D – crop parameters

	Before	After
SPH	2016	1008
Basal Area (m2)	42	27
DBH (cm)	16.2	18.5
Volume/Ha	200	133
Volume/Stem	0.10	0.13
Vol removed		67
Revenue €/Ha		442

The Irish Agriculture and Food Development Authority



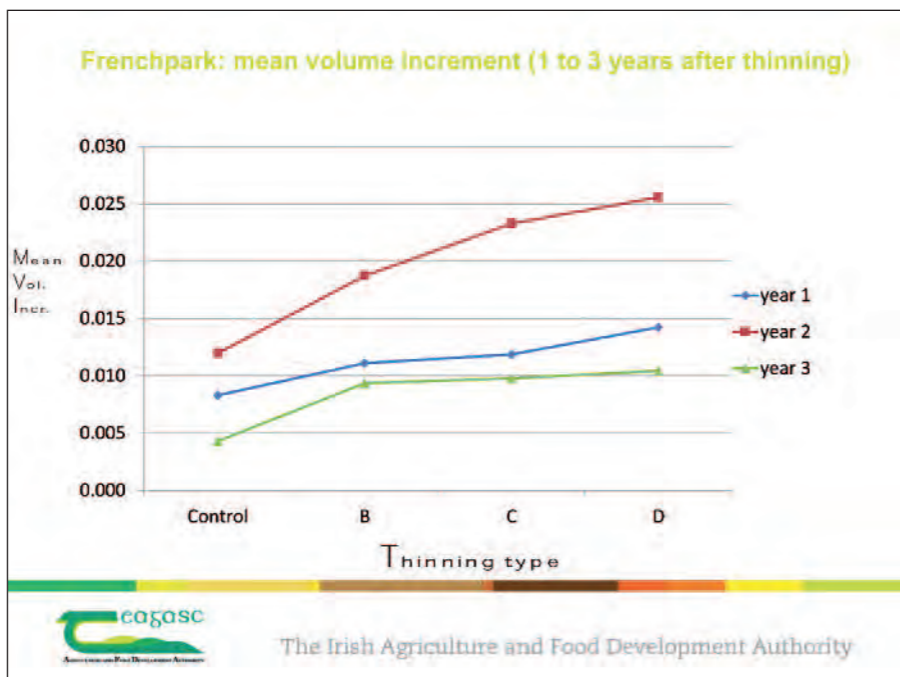
Comparison of thinning systems (post thinning)

Thinning Type	First Thinning revenue €/Ha	DBH (cm)	Tree Volume (m ³)
Control	0	17.7	0.12
Grade B (on time)	€381	19.2	0.14
Grade C (on time)	€409	19.9	0.16
Grade D (on time)	€442	20.9	0.17
Grade B (3 yr delay)	€450	18.3	0.13
Grade C (3 yr delay)	€526	19.0	0.14
Crown	€648	18.2	0.12
Selection	€768	17.5	0.13

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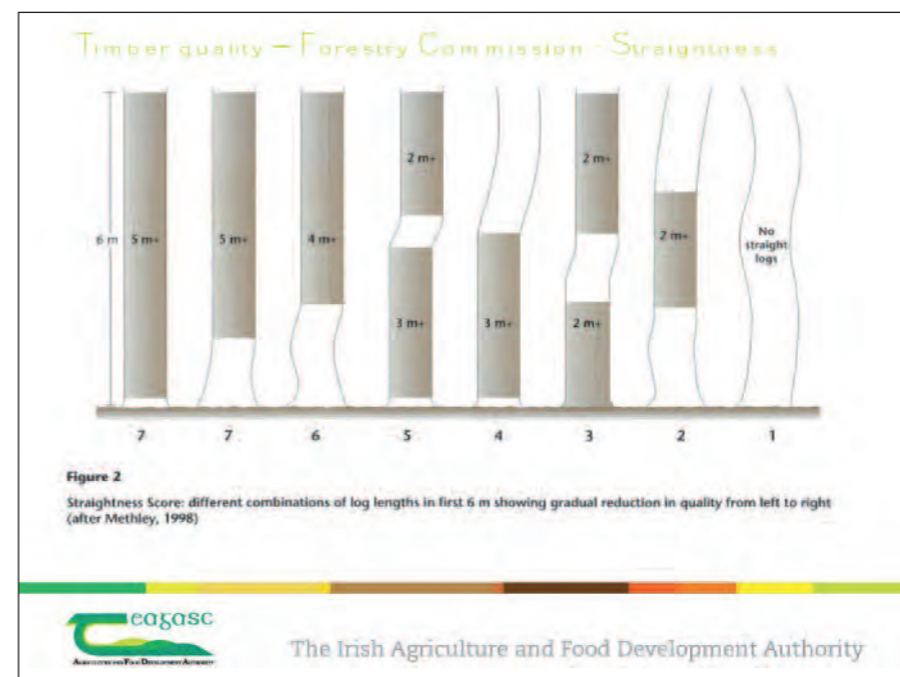
- ### Projected Rotation lengths & Financial implications
- Possibility of reducing rotation length by up to 10 years to produce 0.7 m³ log - 24 years (thinned) versus 34 years (unthinned)
 - D treatment has shortest rotation length to 0.7 m³ log size ~ 24 years
 - Forecasts of income suggest thinning can increase profitability by 35% (Frenchpark) 58% (Abbeystrute) on very productive sites
 - Potential to significantly increase annual payments depending on productivity and thinning intensity
 - D treatment is most profitable (both sites) short time frame to optimum log size
 - Top height at clearfell 7 m less to achieve mean log size in thinning implications for areas where there is a critical height issue / concern.
- caqasc The Irish Agriculture and Food Development Authority

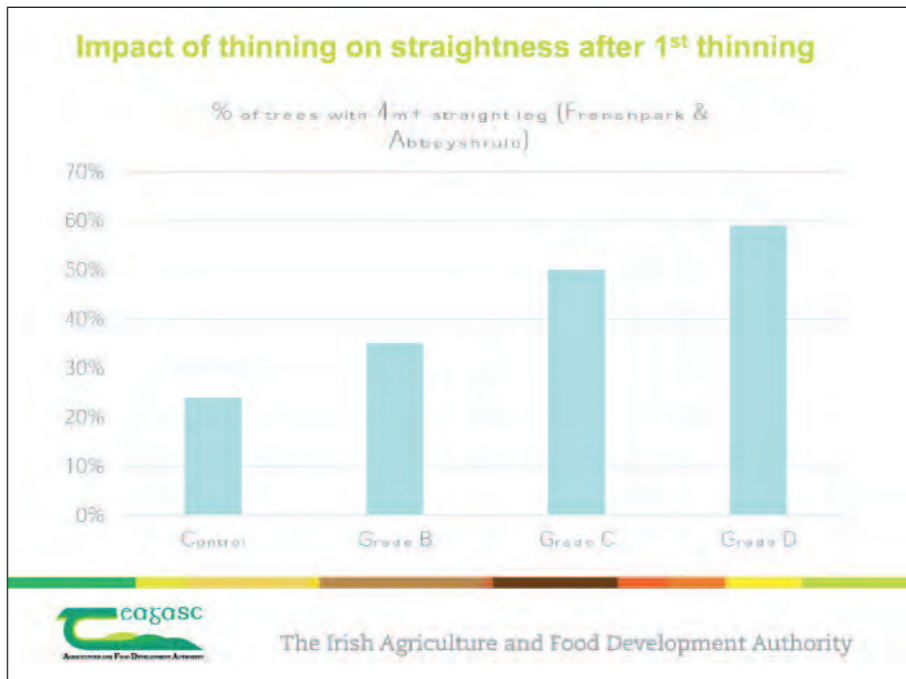
Summary 2 year Increment details

	Mean dbh cm	Mean vol m ³	Vol Incr m ³ /Ha
Control	1.4	0.020	41.4
Grade B	2.0	0.030	44.1
Grade C	2.2	0.035	42.9
Grade D	2.4	0.040	40.0

Increment as a % of the control	Mean dbh cm	Mean vol m ³	Vol Incr m ³ /Ha
% Incr B	40%	47%	6%
% Incr C	57%	73%	4%
% Incr D	70%	96%	-3%

caqasc The Irish Agriculture and Food Development Authority





Thinning – Take home Messages

- Thinning is more profitable than no thinning – crops > YC 14**
- To achieve 2 cm increase thinning to grade C/D is necessary**
- Largest returns arise in grade D thinning**
- D treatment only suitable (stable sites or stands thinned on time)**
- Thinning early reduces rotation length**
- NO benefit in thinning late (stands overstocked diam decreasing)
€117 extra for 3 extra years**
- Rotation lengths to 0.8 m3 possible after 24 – 28 years (YC 26-34)**
- Unthinned stands have sig. longer rotation lengths (windthrow risk)**

teagasc The Irish Agriculture and Food Development Authority

Thank You!

niall.farrelly@teagasc.ie

teagasc The Irish Agriculture and Food Development Authority

Traolach Layton

Acknowledging interdependency – the need for a partnership approach in addressing supply, certification and quality



Traolach Layton graduated from UCD in 1978 with a degree in forestry, Traolach went on to complete a masters degree in wood technology in the University of Washington, Seattle in 1982. He joined Palfab Ltd. in 1986 where he worked as Forestry Director until 2013 when he was appointed Forestry Manager, GP-Wood Ltd. after the merger of Palfab and Grainger Sawmills. A member of the Society of Irish Foresters, he is a 'registered forester' with the Forest Service.

Every year, in excess of 3.5 million tonnes of logs are harvested in Irish forests and transported to processing mills throughout the country. The planning and operation of this movement requires dedicated people, machinery and systems, all of which have evolved with the development of the State plantations.

In recent years output from State plantations has matured and stabilised. The grant aided private planting programmes of the past two and a half decades have almost doubled the area of forest in Ireland and already begun to yield increasing volumes of log from privately owned forests, mainly thinnings. Future growth in log output will come mostly from privately owned plantations, but the challenge of efficiently mobilising this output is very different.

With over 15,000 individual owners and an average plantation size of 8ha the private forest is not nearly as predictable and well managed as the State forest. Output from privately owned forests will change over time in terms of log type, harvest type and volumes.

Log processors have demonstrated their ability to process and market all the available logs and are always looking for more timber.

From a sawmiller's perspective log procurement is a specific function that involves sourcing, evaluating and buying log lots, contracting and management of harvest operations, liaison with the forest owner, organization of haulage, log sales to third parties, stock and quality control, payment and reporting. All the above need to be in compliance with Sustainable Forest Management.

The harvest and haulage infrastructure is the vital link between the forest and the processor. An understanding of the relationship between the grower, the contractor and the processor, and its effective management, is critical. Planning is everything.

Harvest and haulage contractors have been remarkable in their ability to meet the needs of the existing industry through investment in machinery, personnel and technology. We need significant investment over the coming years to harvest the private forest, as well as the State forest, but investment requires confidence.

To get the best from the private estate we need efficient procurement, harvest and haulage operations. Efficient operation requires accurate forecasts and yearly production plans. Work needs to be offered in viable lot sizes in a consistent and ordered manner. Forest owners need to become more aware and involved in the industry and organised in a way that facilitates the efficient and sustainable flow of logs from the forest to the markets.

We need to understand more about the new forest owners, their motivations and how their forests are growing. We need to build relationships that recognise our mutual dependence and build structures appropriate to industrial needs and social constraints.

We need a partnership approach to building an effective interface between the private growers and the processors which encourages the contractors to develop and service the needs of all.

Acknowledging Interdependency

- the need for a partnership approach between grower and timber processor in addressing supply, certification and quality.
- Traolach Layton - GPWood
- National Forestry Conference June 6th 2014

Private forests -Industry perspective

- Coillte volumes are static
- Development will depend on Private resource
- Huge potential growth in volumes
- Concerns

Acknowledging interdependency – the need for a partnership approach in addressing, supply, certification and quality.

Traolach Layton

Acknowledging Interdependency

- Forest industry overview
- Private forests - Industry perspective
- Market Overview
- Harvest and haulage Overview
- Harvesting the Private forests
- How growers can influence development

Industry concerns about Private forests

- Uncertain forecasts
- Location of Plantations and Access to Them
- Forest Harvest Contracting Resource
- Owners Knowledge of and Enthusiasm for Forestry
- Number of owners
- Plantation Size, Productivity & Quality
- Forest Management
- Industry Leadership & Co-ordination

Forest Industry Overview

- 10.5 % of land now in Forest
- 46% Privately owned with over 15,000 owners
- 12,000 employed – mostly rural
- In 2012 output estimated €2.2 billion (1.3%GDP)
- 73% Sawmill production exported in2009
82% panel board production exported

Market Overview

Current Annual log consumption by source

Total Consumption	3.4 million (m3)
Coillte	2,400,000
Forest service NI	400,000
Private	400,000
Imports	200,000

Markets

- 8 major Sawmills with combined throughput 2.2 million m3
- 2 large pulpwood plants combined throughput 0.8million m3
- Stakes and fuel wood 0.4million m3

All available logs are being processed in Ireland with most of the product exported.

- Industry crying out for logs
- Logs being imported

Harvest and Haulage - needs

- Existing Contractor base needs investment.
- Need continuity of well planned work to invest in specialised machinery and training.
- Need skilled and energetic new operators.
- Need higher level Training and Certification for specialist thinning operators.

Acknowledging interdependency – the need for a partnership approach in addressing, supply, certification and quality.

Traolach Layton

Harvesting and haulage overview

- Independent contractors.
- Dedicated harvest/procurement managers.
- Industry norms for lot presentation, sales, measurement, quality control, site management and payment.

3. Harvesting the Private forests

- The challenge is to connect the individual owners with the processors in a way that meets the needs of both in an efficient way
- It is not feasible for processors to interact directly with thousands of owners.

Harvesting and haulage overview

- In 2014 78 Harvest contractors in republic
 - 350 Operators + 50 backup
 - 134 Harvest machines 78 clearfell 56 thinning
 - 121 Forwarders
- 101 Haulage Contractors
- 435 trucks

Harvest Management - functions

Mapping, measurement, evaluation and sale
Felling licence approval
Harvest scheduling
Harvest Plan
Health and safety and work monitoring
Environmental and other constraints
Access roads and stacking areas
Haulage
Security
Measurement
Payment

Planned management and marketing

This is Coillte

- Provide 10 year production forecasts
- 22 auctions per year
- Large sale Lots
- Comprehensive harvest plans, felling licences etc
- Permit system, Volume/weight measurement and AWS
- FSC Certified
- Centralised management systems
- But Output static

Planned management and marketing

This is Private

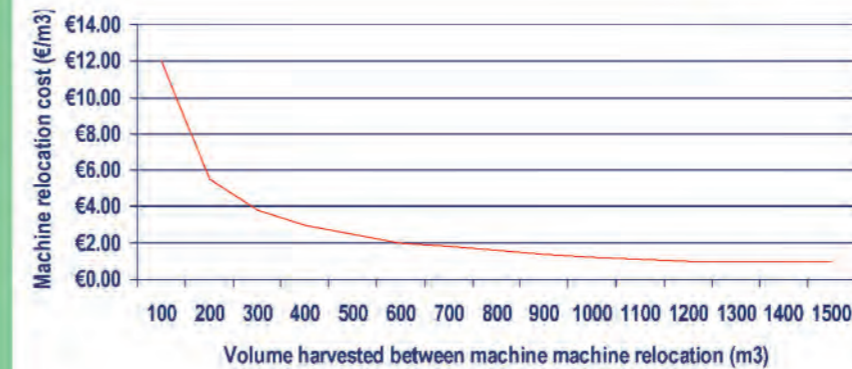
- Poor Forecasts
- No planned marketing strategy
- Lot sales are ad hoc and marginal in size
- Poorly controlled harvest operations
- No universal Measurement or permit system
- Usually not Certified
- Thousands of owner/managers
- But..... Huge increase in projected output

Harvest - Haulage operations and Cost factors.

The major cost factors are :

- Location relative to markets
- Access
- Site features
- Tree size and form.
- Scale of harvest sites and distance from base.

Optilog study - Influence of Scale of harvest operation on machine relocation overhead



How Growers can influence development

- Consider the needs of Processors and Contractors
- Planned management and marketing
- Affiliate and co-operate
- Certification

Processing industry needs

- Reliable forest production forecasts
- Agreed common standards and procedures for Lot Presentation , Measurement , Sale and Management standards
- Viable work packages for Contractors
- Larger sales packages
- Certification
- Reliable inventory based on standard management plans will allow effective planning and grouping.

Acknowledging interdependency – the need for a partnership approach in addressing, supply, certification and quality.

Traolach Layton

Planned Management and Log sales

- Some private forests are being managed professionally.
- Huge numbers are without clear objectives.
- Need a variety of approaches to servicing the diverse ownership.
- Owners need to affiliate and commit to structured group management and sales

By Cooperating Private growers can:

- Efficiently engage professional foresters
- Pool information for planning and forecasting
- Agree standards, objectives, group Certification
- Efficiently use available skills and services
- Adopt standard arrangements for sales, measurement and security
- Prepare larger sales packages
- Negotiate the best deals
- Engage with support agencies and influence policy
- Add value

Certification

- Chain of custody
- Industry requirement
- Group scheme
- Options



Conclusions

- We have a broad indication of the potential volumes.
- We are confident that this volume can be processed and marketed.
- We urgently need to support Contractors to invest in equipment and personnel.
- We need structured skills training and certification.
- We need to Motivate growers to commit to group management, certification and marketing.
- We need to develop the range of management structures to meet the diverse needs of owners.

Acknowledging interdependency – the need for a partnership approach in addressing, supply, certification and quality.

Traolach Layton

Mike Glennon

Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity



Mike Glennon is joint Managing Director, Glennon Brothers – one of Ireland's largest and longest established sawmills. Through its plants in Ireland and Scotland, the company supplies Irish, UK and French markets with quality certified products for the construction, pallet wood and fencing industries. He is a major contributor to policy issues in the Irish forestry and forestry products industry through his involvement in the COFORD council and IBEC.

Since 1913, Glennon Brothers has been manufacturing high-quality timber products and is now the premier name in the Irish and UK timber processing industry. Through Glennon Brothers plants in Longford and Fermoy in Ireland and Windymains Timber and Adam Wilsons in Scotland, the company supplies the Irish, UK and French markets with a range of products for the construction, pallet wood and fencing industries.

Products include kiln dried strength graded carcassing, pallet and packing case material, machined whitewoods for the construction and garden shed markets as well as CLS for the timber frame manufacturing industry. Glennon Brothers operates two timber frame manufacturing companies, Dempsey Timber Engineering in Arklow, and Alexanders Timber Design, in Troon, who use home grown CLS to build innovative and environmentally friendly homes.

In October 2009, Glennon Brothers made history when it became the first timber processor in Ireland or the UK to send a shipment of timber to France. Since then, total sales to France, stand at over €15 million. Glennon Brothers remains the only timber processor, in these islands, to ship timber into the French market.

In October 2010, in recognition of their response to the catastrophic collapse of the Irish construction sector, Glennon Brothers was named Industry Entrepreneurs of the Year at the Ernst & Young Entrepreneur of the Year Awards.

In 2012, Glennon Brothers became a National Champion, in the European Business Awards.

In January 2013, Glennon Brothers was awarded a coveted Ruban d'Honneur in the 2012/2013 European Business Awards.

We are fortunate, in the timber sector, that we have a great, "green" story to tell. Every log that is processed produces approximately 50% sawn timber. However, there is absolutely no waste. Wood chips, are sold to the board mills, sawdust is sold for energy production or for animal bedding, and bark is sold predominantly to the horticulture industry.

We passionately believe in the value of long term relationships. As a family business with a flat structure, the customer is at the heart of what we do.

The timber industry is now export led and despite the worst recession in living memory, the shortage of softwood logs in Ireland means that the sawmills end up paying the highest prices for logs in Europe.

We believe that the onus is not only on the sawmills to add value but forest owners can also add value by growing quality, ensuring good access to plantations and pooling their resources to maximise timber mobility and supply.

WOOD MARKETING FEDERATION **THE SOCIETY OF IRISH FORESTERS** **FARMERS JOURNAL**

What shall we do with the timber?

Opportunities for Irish wood and wood products

06th June 2014

GLENNON BROTHERS

GLENNON BROTHERS

Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity

Mike Glennon

Content

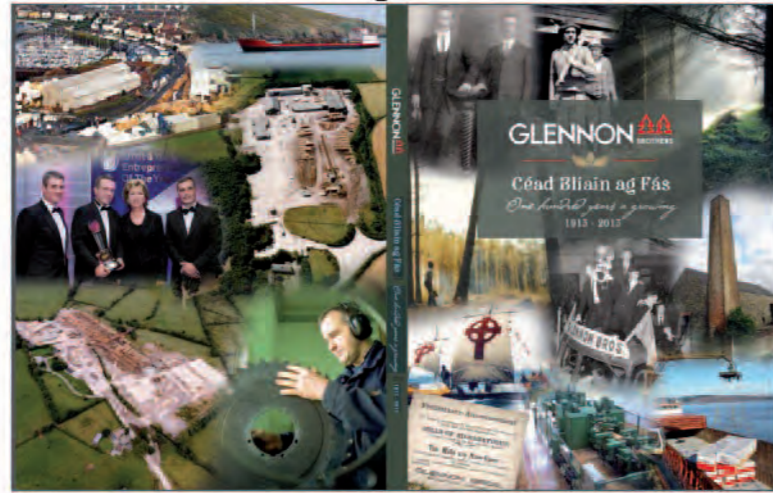
- Glennon Brothers
- Irish sawmilling sector
- Adding value in the sawmill
- Importance of log quality, price, certification, and continuity of supply.
- Industry Challenges

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Celebrating 100 Years



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2000 - €20M development at Fermoy (Linck sawline)



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Mike Glennon

Timber Processors



GLENNON BROTHERS

2003 – Importing logs Scotland



GLENNON BROTHERS

Glennon Brothers

- 3 sites in Ireland & 3 sites in Scotland
- 530 employees – direct & indirect.
- €100m Turnover
- 1991 – CLS for timber frame manufacturing industry
- 1998 – Acquired Woodfab from Smurfit Group

GLENNON BROTHERS

2005 - WINDYMAINS TIMBER



GLENNON BROTHERS

2007 - **DTE**
QUALITY TIMBER & ENGINEERING



GLENNON **AA**
BROTHERS

2009 – Shipments of timber to France



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2008 - **AW** Adam Wilson & Sons Limited



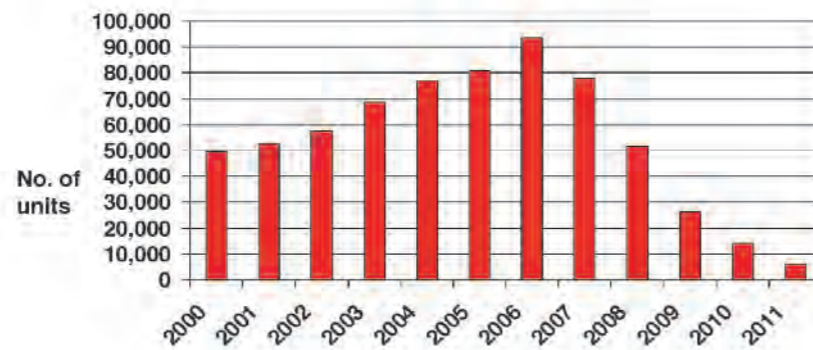
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2010 – Entrepreneur of the Year – Industry Winner



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Irish Housing Starts 2000 - 2011



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2012 – Longford GAA



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2012 – European Business Awards



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Adding Value in the Sawmill

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Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity

Mike Glennon

Irish Sawmilling Sector



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Adding Value in the Sawmill

- Log Scanning & Yield
- Kiln Drying
- Grading
- Planing
- Treatment

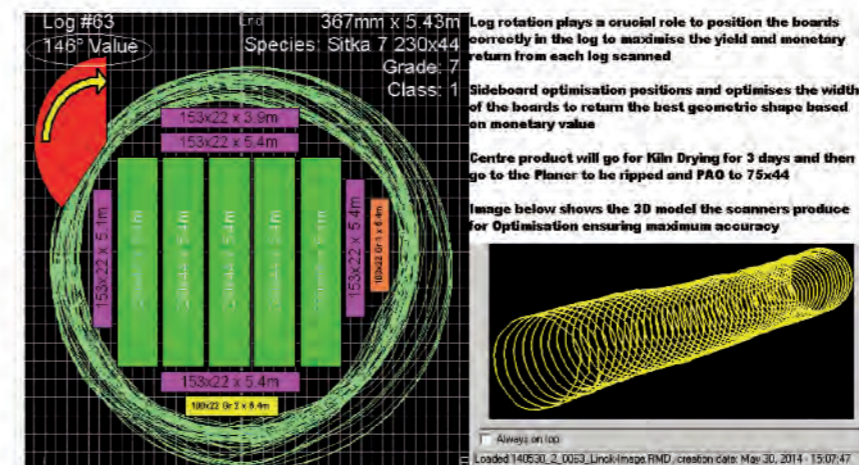
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Irish Sawmilling Sector

- 5 large & 3 medium – represent over 90%.
- Invested €200 million – modern, efficient, customer focused.
- Employs 2,500 people – majority in rural areas.
- 2012 Combined output – 1.2 million m³.
- 80% of round wood supplied by Coillte.
- Main Supplier board mills & energy sector.
- All major Irish sawmills are FSC certified.
- 2012 exports - €73 million.

GLENNON  WOODS

Log Scanning & Yield



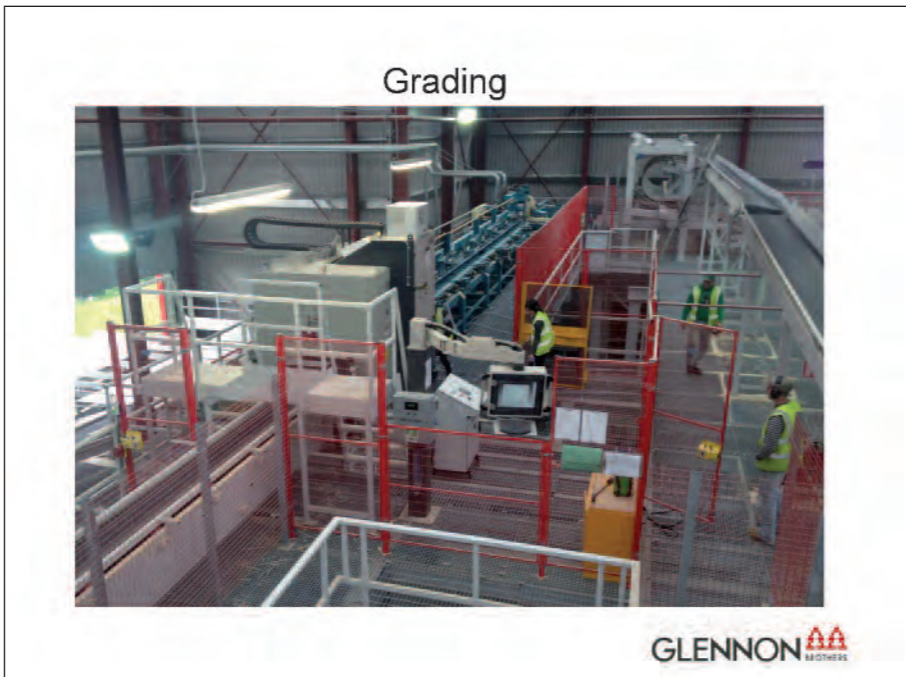
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Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity

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Home Grown CLS



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Cladding



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Certification



GLENNON  BROTHERS

Certification

- FSC or PEFC
- Glennon Brothers first certification in 2000.
- Credible link between responsible production and consumption of forest products
- Promotional tool for major builders merchants.

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Industry Challenges

- Future of Coillte
- Harvesting and Haulage
- Supply issues

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Future of Coillte

- Possible sale of felling rights
- Potential merger with Bord na Mona
- Review of Timber Sales System

GLENNON  BROTHERS

Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity

Mike Glennon

Harvesting and Haulage

- Flexibility of supply chain
- Carcassing for 5 distinct markets
- Potential loss of export markets

GLENNON 

A World Class Sector

- Grow trees twice as fast
- Robust & resilient processing sector
- Increased softwood production
- Remove barriers to wood mobilisation
- Lets work together

GLENNON 

Adding value in the sawmill in an export led industry and the importance of quality, price, certification and continuity

Mike Glennon


Supply issues



GLENNON 

Thank you



GLENNON 

Supply issues

- Shortfall in planting targets
- Deficit in Coillte NRV
- Softwood log shortage
- Log quality – breed from the best
- Log prices – Threat to the industry

GLENNON 

Market opportunities for wood in renewable energy



Joe O'Carroll, a forestry graduate from UCD and a masters graduate from UCC, set up OC Consulting in 2005 following five years as operations manager with COFORD (National Council for Forest Research & Development). OC Consulting provides management services for Imperative Energy Ltd., in developing 70 biomass projects in the UK and Ireland. It has also been involved with the creation of international forestry funds.

The EPA confirmed last week that Ireland will not meet its greenhouse gas (GHG) emissions targets and this will ultimately lead to the State paying a financial penalty. This is despite the enduring levels of depressed economic activity. The nation's addiction to imported fossil fuels shows no sign of abating – Ireland relies heavily on fossil fuels (95% of total primary energy requirement) and has 88% import dependence for all fuels.

The old adage that the world economy couldn't sustain crude oil prices above \$50 per barrel has long since been scrapped. Brent Crude hasn't been below \$100 per barrel for more than a few weeks since mid-2010, despite global economic recession.

The main volume user of biomass for energy generation is the co-firing of Semi-State owned peat burning power stations. While this has obvious carbon reduction merits, this demand seems set to be predominantly satisfied with imported biomass. In ironic defiance of this appalling situation:

- this week also sees numerous schools across rural Ireland issue tenders for the provision of oil boilers
- Despite "Green Public Procurement" sound bites, too many Public bodies continue to avoid looking at low carbon alternatives and are fixated on driving down fuel costs rather than looking at longer term energy efficiency and renewable energy projects
- It is still possible to get capital grants for "high efficient oil and gas boilers" but not for biomass boilers

On the positive side, SEAI has outlined its primary objectives as being:

- Energy efficiency first – implementing strong energy efficiency actions that radically reduce energy intensity and usage;
- Low carbon energy sources – accelerating the development and adoption of technologies to exploit renewable energy sources;
- Innovation and integration – supporting evidence-based responses that engage all sectors, supporting innovation and enterprise for our low-carbon future.

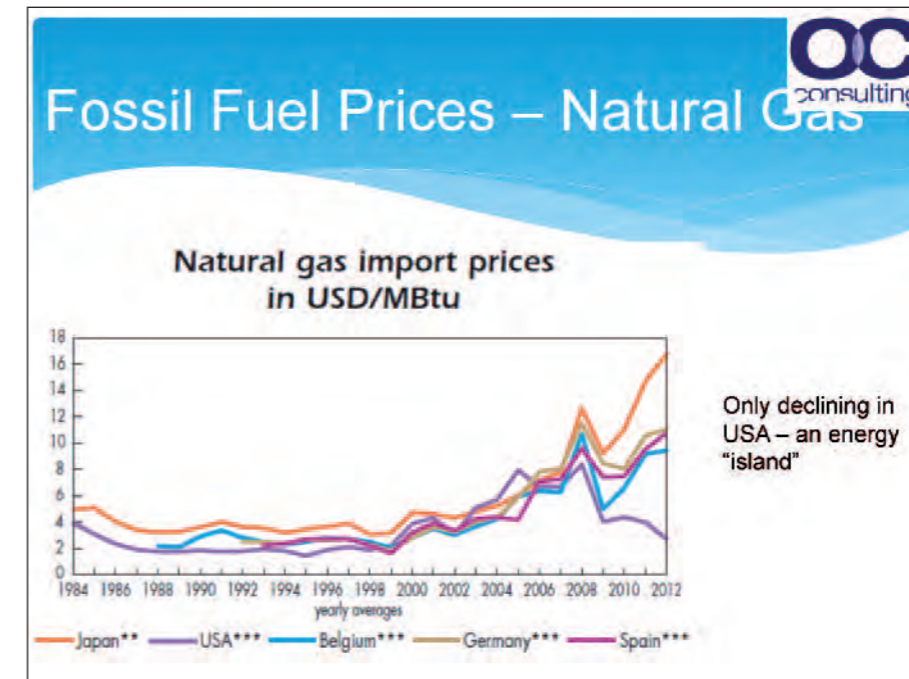
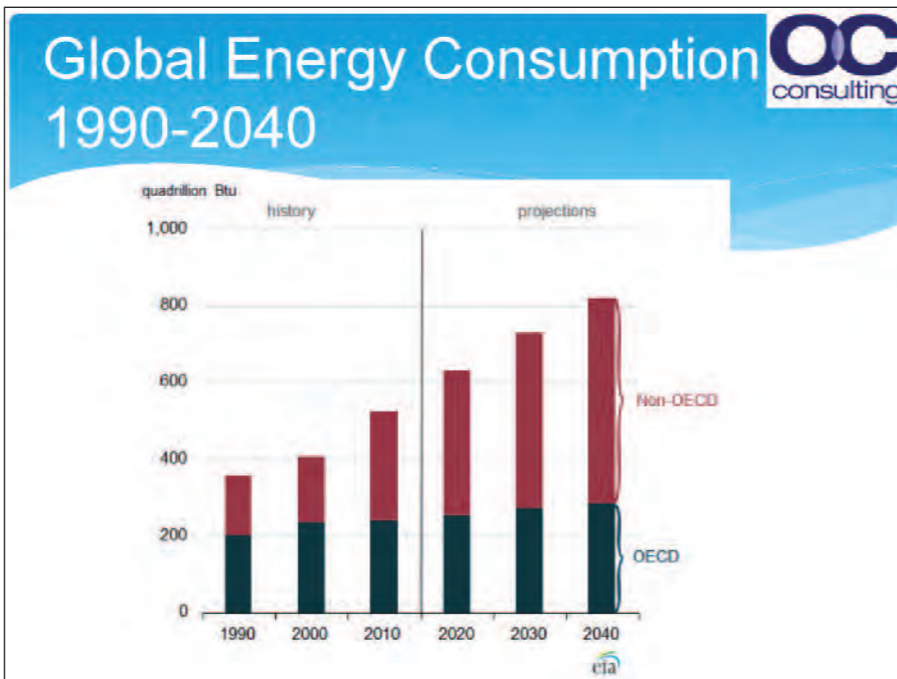
It is making really meaningful strides in pursuit of these objectives and this year has seen the launching of the Energy Efficiency Fund and the development of precedent Local Energy Supply Contracts, both of which will definitely support growth in the biomass to energy sector. New biomass projects at Pharma and Food companies over the past two years is a trend that will continue and these projects typically use locally sourced biomass from thinnings and sawmills.

The potential for this type of project is significant and with the right supporting environment could stimulate demand for over 1 million tonnes of biomass within the next few years. All of this would be sourced in the locality of these installations with a resulting lower transportation cost and higher price paying potential than the traditional outlets for such material.

The Irish forest resource is a wonderful asset with myriad end use options which are not entirely mutually exclusive. The resource is sustainable, but the number of processing facilities it can sustain is finite. Whether or not the forest resources can be all things to all men is doubtful. All end uses generate employment and economic activity.

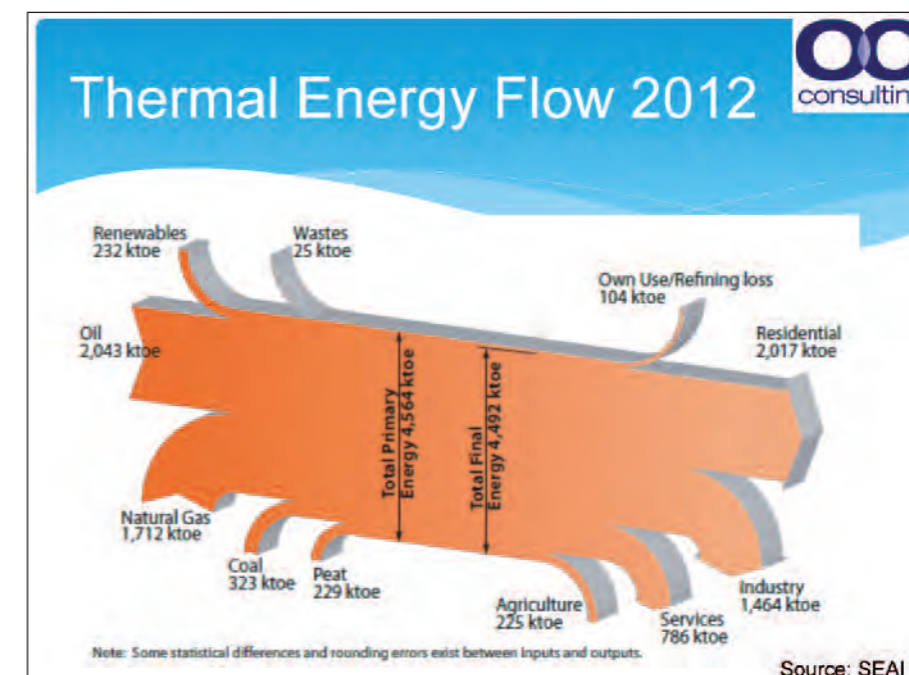
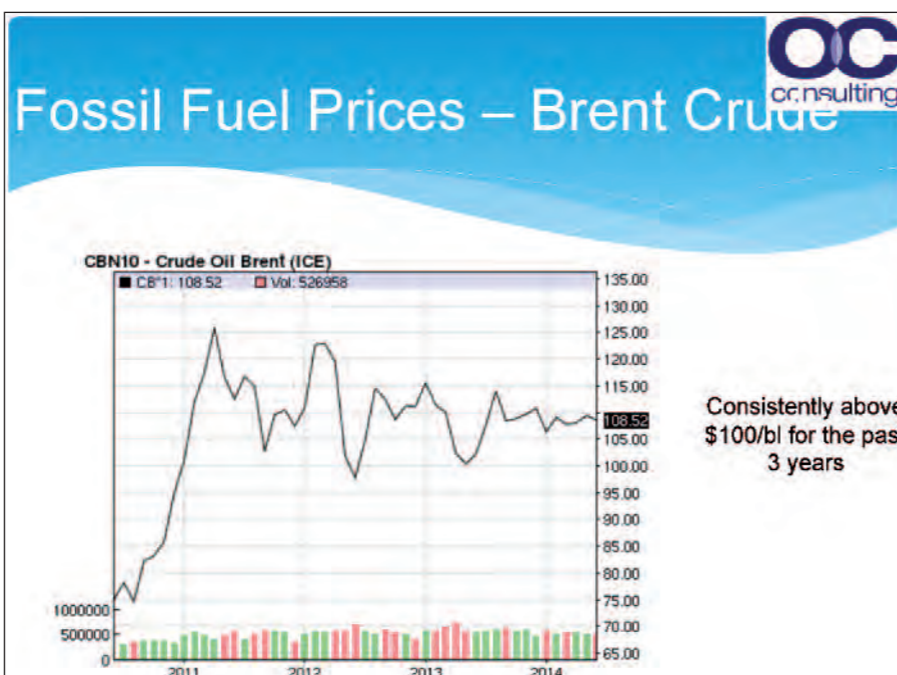
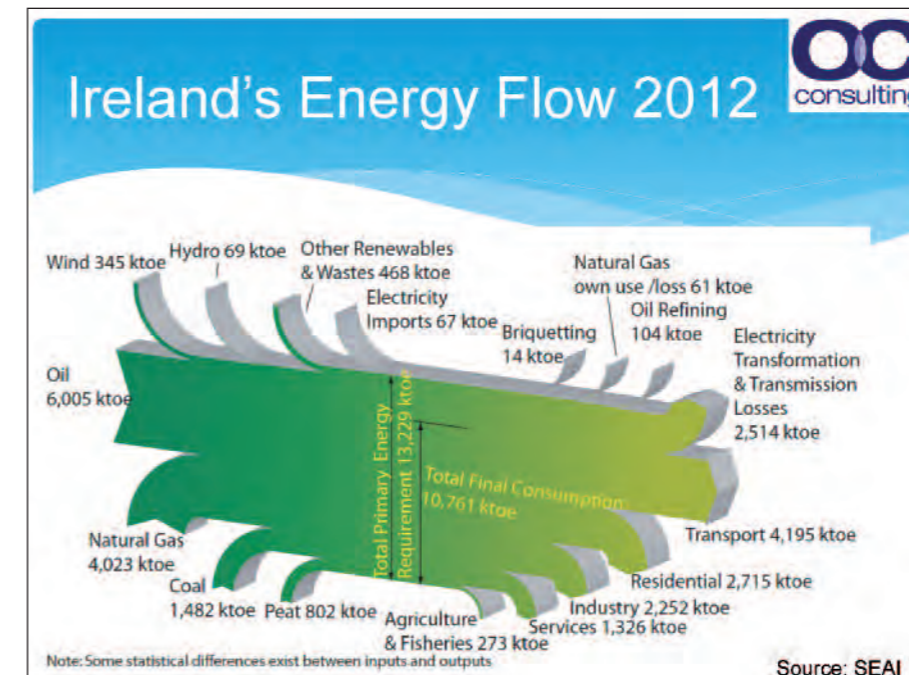
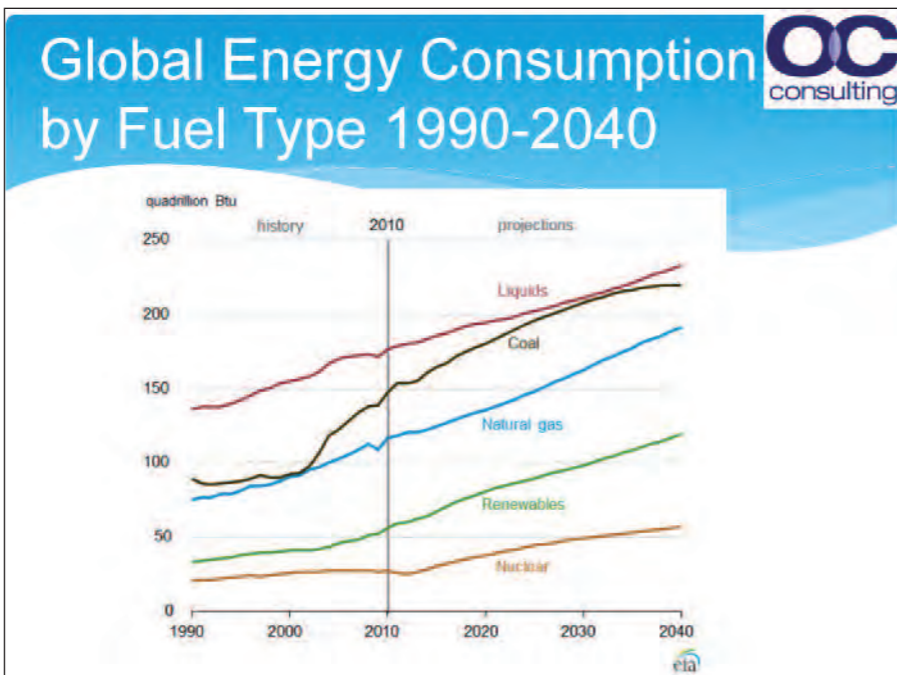
The question for the State is: "Which end uses are really important in a national context to merit promotion and support?" Displacing imported fossil fuels and lowering GHG emissions would seem like a pretty good place to start.



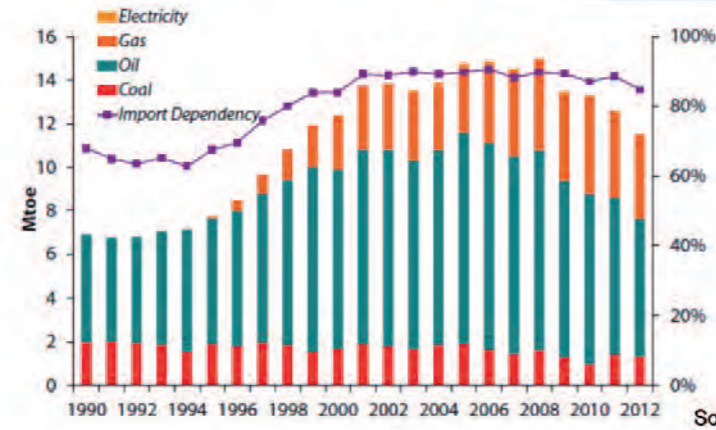


Market opportunities for wood in renewable energy

Joe O'Carroll



Energy Imports by Fuel 1990-2012



Source: SEAI

Economic & Environmental Challenges for Ireland

Market opportunities for wood in renewable energy

Joe O'Carroll

Imported Energy by Fuel



	Net Imported Energy (ktoe)							Shares %	
	1990	2007	2008	2009	2010	2011	2012	1990	2012
Coal	1,992	1,442	1,608	1,302	966	1,415	1,324	28.9	11.4
Peat Briq.	-4	-8	-10	-5	-10	-9	-9	-0.1	-0.1
Oil	4,912	9,051	9,162	8,079	7,800	7,180	6,300	71.2	54.4
Natural Gas	-	3,924	4,174	4,037	4,487	3,963	3,846	0.0	33.2
Electricity	-	114	39	66	40	42	36	0.0	0.3
Renewables	-	25	42	59	82	83	79	0.0	0.7
Total	6,899	14,549	15,014	13,538	13,365	12,674	11,577		

The Perfect Storm?



- * Energy Imports up by 68% since 1990
- * Imported Energy cost rising
- * National Greenhouse Gas Emissions will exceed limits

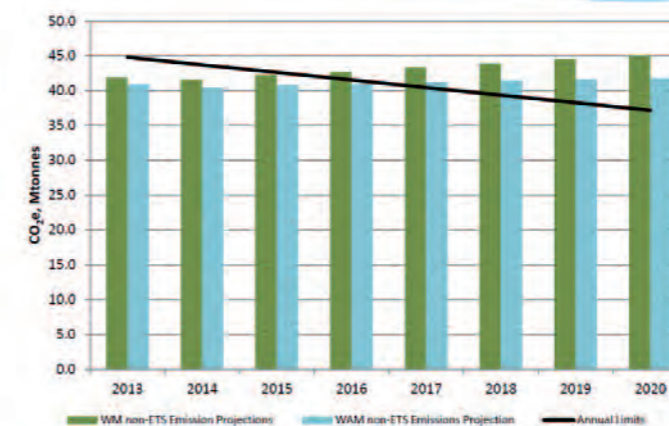
Biomass' Role



	Renewable Contribution to Gross Energy (ktoe)							Shares %	
	1990	2007	2008	2009	2010	2011	2012	1990	2012
Hydro	60	57	83	78	52	61	69	35.7	8.2
Wind	0	168	207	254	242	377	345	0.0	41.1
Solid Biomass	105	182	176	193	211	213	256	62.9	30.5
Landfill Gas	-	36	39	42	44	44	43	-	5.1
Biogas	2	10	10	13	14	14	13	1.4	1.5
Biofuels	-	22	56	78	93	100	85	-	10.1
Solar	-	1	3	4	7	8	10	-	1.2
Geothermal	-	12	16	17	17	18	18	-	2.1
Total	168	490	590	679	679	834	838		
Share of GFC	2.3%	3.5%	4.0%	5.0%	5.5%	6.4%	7.1%		

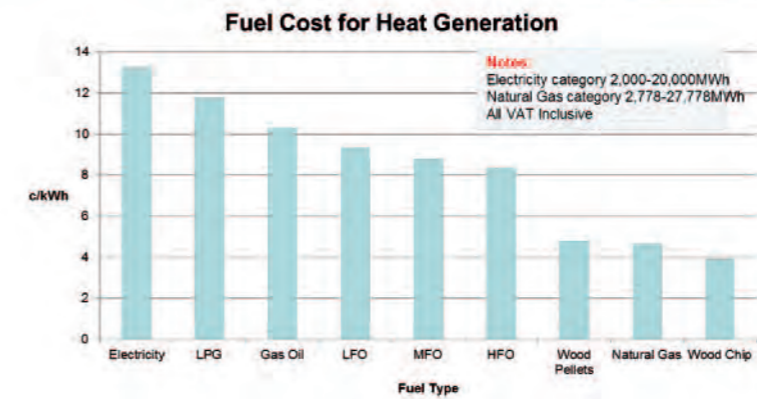
Note that solid biomass refers to wood, wood wastes and other wastes (such as tallow).

Ireland's Greenhouse Gas Problem



The Biomass Opportunity

Cost Competitiveness



Market opportunities for wood in renewable energy

Joe O'Carroll

Technology Proven



- * Three years ago, biomass technology was seen as a major concern.
- * Multiple reference sites across the country have removed this concern
- * Biomass now used to heat Dail Eireann, Seanad Eireann, many Government Departments, universities, schools, leisure centres, hospital and country estates

Market Opportunity



- * Best used to displace LPG and Oil (8-12c/kWh)
- * Off Natural Gas grid
- * NW: Donegal-Sligo-Leitrim-Roscommon-Mayo
- * SW: West Cork-Kerry-West Limerick
- * Conservative market potential for 1m tonnes of woodchip in these areas (excl power generation)
- * Significantly higher price paying potential than panelboard sector, in these areas

Market Opportunity



- * Best use for biomass is still where there is a continuous demand for thermal energy – hot water, steam or thermal oil
- * Target sectors:
 - * Wood processing
 - * Food & Drink manufacturing
 - * Hospitality sector
 - * Healthcare
 - * District Heating – Roscommon Town, Tralee, Killarney, Sligo, Letterkenny, etc

Seizing the Opportunity

Positive Momentum

- * Continuing number of high profile projects:
 - * Monaghan Education Campus
 - * Connaught Gold
 - * Astellas
 - * GSK
- * Development of Local Energy Supply Contracts by SEAI/DCENR
- * Launch of Energy Efficiency Fund – managed by SDCL

Barriers

- * Continuing, if misplaced, concern over the biomass supply chain
- * Continuing preference for oil and gas boilers in State sector – eTenders
- * Lack of clarity on air quality standards – festering concern for each new large project
- * Lack of National Bioenergy Policy – continuing delays in Bioenergy Strategy
- * Rumours of RHI – causing inertia

Additional Needs

- * Clarity
 - * Will an RHI be introduced or Not
 - * Will there be a Bioenergy Strategy or Not
- * Dynamism
 - * Bioenergy section of DCENR hopelessly under resourced – too much expected of too few

Barriers

- * Confusion over NewERA role in Bioenergy sector
 - * Adding to already excessive State overhang in the energy sector
- * REFIT – Not FIT for purpose. Needs to be scrapped, start again
- * Capital still difficult to access but improving
 - * Need for asset finance options for small biomass

Continuing Barriers

Impact on Forestry Sector

OC
consulting

Positive Impacts

- * Employment is a given – growing resource will create employment regardless of the end use
- * Upward price pressure for sawmill and small diameter roundwood
- * True market forces – multiple suppliers/multiple buyers
- * Myriad small business opportunities in:
 - * Harvesting
 - * Processing
 - * Transportation
 - * Biomass boiler sales and associated activity

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consulting

Policy Questions

- * Is maximising the contribution of biomass to the energy mix compatible with sustaining traditional uses for this material?
- * Can the Industry be “all things to all men”?
- * What forest derived products are strategically and tactically more important for Ireland?
- * Is the State willing to introduce the necessary policy changes to ensure that bioenergy plays a significant role in Ireland's energy supply?

David Murray

Opportunities for increasing international market share for Irish panel board products



David Murray is Innovation Manager with Coillte Panel Products, heading up the company's R&D drive. A UL graduate in Wood Science & Technology, David has 16 years' experience working in the timber industry in Ireland and the UK. His areas of expertise include Wood Panel Products, Off Site Construction and Engineered Wood Products. David is passionate about developing sustainable new value-added panel products that meet the needs of CPP's customers, specifiers and end users alike.

Coillte is playing a key role in the export led recovery and growth in the timber and forest products sector in Ireland. Since 2007, the company has focused increasingly on export markets for its timber panel products and, working with our sawmill customers, on developing export markets for Irish construction timber.

Coillte is an integrated forestry and forest products company, with businesses in land management and renewable energy, as well as the manufacture of market leading panel products, Medite MDF (Medium Density Fibreboard) and SmartPly OSB (Oriented Strand Board). Coillte Panel Products (CPP) is strongly dependent on export markets, selling more than 90% of what it manufactures outside of Ireland. Its focus is primarily on the UK and Europe, but in response to the Eurozone crisis, CPP has successfully developed new markets and now sells into 32 countries globally.

My presentation discusses how CPP adds real value to small diameter wood fibre – mainly sourced from first thinnings – and how panel products present the optimum use of valuable natural fibre resources.

CPP has a strong track record of developing new products and excels in collaboration with academia, key suppliers, industry experts and customers. Sustainability and Value for Money are the recurring customer requirements, and both are central to CPP's Innovation focus. This underpins Coillte's Strategy "Sustainable Value from Sustainable Living".

In the past two years alone, CPP has introduced several new innovative products in response to clearly identified market opportunities and these are gaining steady traction with our customers. These include SmartPly DryBacker which is designed to provide structural grounds for heavy fixtures and fittings on lightweight metal frame plasterboard partitions, with particular focus on hospitals and health care buildings due to its zero added formaldehyde resin technology. Medite Vent is a highly vapour permeable sheathing panel with high structural racking strength, for use in vapour diffusion open, low energy and passive buildings. SmartPly FR OSB sheathing and FR Build OSB flooring panels are flame retardant products developed in response to new fire safety guidance in the UK.

These brand new additions build on the success of other recent product launches by the company, most notably Medite Tricoya, lauded as the first major innovation in the wood composites industry in more than 30 years. Backed by a 50 year warranty, it is a modified wood panel with extreme durability and dimensional stability built in, that quite simply is in a league of its own.

With a strong pipeline of new ideas and current innovation projects, this is just the beginning. CPP is committed to meeting the requirements of its customers and end users, by solving industry 'problems' – or opportunities as I prefer to call them – created by various market drivers across Europe.

CPP's focus is to become the leading European supplier of innovative, market led MDF and OSB specialities, based on sustainable fibre and resin technology, thereby maximising the value from Irish small diameter fibre.

Exports by Coillte

Did you know that 90% of pallets used to export Irish goods are made from Coillte logs? Or that the fact that we export 92% of our panel products, you can certainly say that we're doing our bit to support Irish exports.

Coillte. Trees are just the start of it.

Supporting Irish exports throughout the globe.

International Market Opportunities for Innovative, Value Added Irish Wood Panel Products

David Murray
Innovation Manager
Coillte Panel Products

Natural resources, responsibly managed
www.coillte.ie

Coillte is an Integrated Forest Products Company

coillce

Sawmill

SmartPLY

Biomass

medite

— = Logs - - - - = Wood Chips - - - - = Biomass

Opportunities for increasing international market share for Irish panel board products

David Murray

Coillte 2018

Sustainable Value from Sustainable Living

Our purpose
Enriching lives locally, nationally and globally through innovative and sustainable management of natural resources.

CPP Strategic Vision:
To become the leading European supplier of innovative, market led MDF and OSB specialities, based on sustainable fibre and resin technology, thereby maximising the value from Irish small diameter fibre.

IFFPA
Irish Forestry and Forest Products Association

coillce
panel products

medite
Defining the standard of MDF

SmartPLY
The Smart OSB Answer to Plywood

- § Established in 2006, incorporating the brands Medite Europe and SmartPLY Europe.
- § Both leading brands in their respective markets.
- § Combined strength and market position provide a solid platform on which the Group can build a competitive position as an Irish based, international forest products group.
- § A clear focus on innovation, successful marketing, and product development.
- § The largest user of small diameter wood fibre in Ireland

"Trees are just the start of it!"

coillce forest

coillce panel products

coillce enterprise

At the recent European Business Awards, Coillte was the outright winner for Environmental and Corporate Sustainability, beating off competition from over 15,000 European companies.

Coillte. Trees are just the start of it.


It's official – Coillte is No.1 in Europe for Sustainability

No.1 in Europe for Sustainability

European Business Awards Winner

Panel Products = Optimum Use of Fibre Resource

Environmentally sustainable + Economically sound



<p>Wood Fibre from FSC Forest Resource to CPP</p> <p>Over 1m tonnes of fibre p.a. FSC certified as sustainable 40k+ truck movements p.a.</p>	<p>Manufacture sustainable building products, embedding CO2</p> <p>Embeds 1,300 kg CO2 per tonne of fibre Directly employs 310 and further 500 to 600 indirectly Spend of €140m p.a. – vast majority with Irish cos. Use recycled wood, process fines, forest waste for drying</p>	<p>90% exported (Rosslare and Belview – key port customer)</p> <p>20k+ truck movements p.a. to over 20 countries</p>	<p>Utilised to construct and fit out energy efficient, low carbon buildings</p> <p>Structural, decorative furniture, flooring, RMI Strong focus on innovative, value added products</p>	<p>Recycled at end of useful life for Energy generation</p> <p>Co-fire with energy crops, Waste streams (e.g. MBM)</p>
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Some End Uses for **SmartPly** OSB Products

The Smart OSB Answer to Plywood



Versatile panel primarily for structural uses

Culloden battlefield visitor centre, Scotland

Opportunities for increasing international market share for Irish panel board products

David Murray

Export focused. Customer led.



Over 90% of turnover derived from export sales. Core markets Ireland, UK & Benelux.

Exported to a record 32 countries in 2011, including Russia, Middle East, North America, South Africa.

Strategic partners include Distributors, Merchants and Industrial Users



Some End Uses for **medite** MDF Products

Defining the standard of MDF



Versatile panel primarily for decorative uses

Why do customers buy from CPP?

medite Defining the standard of MDF

SmartPly The Smart OSB Answer to Plywood




Exports by Coillce

DUBAI International Airport

CONCERT HALL, Copenhagen

ROYAL FESTIVAL HALL, London

MEDITE FR (Flame Retardant)

You'll find Coillce products exported to some of the most surprising places.

Innovation by Coillce

QATAR
Art Museum

Our innovative wood products are a work of art in themselves.

At Coillce, innovation is part of our DNA. In a modern world, we use Medite Ecologique wood panel products - with zero added formaldehyde - as the material of choice in some of the most iconic construction projects around the world, including the stunning new Art Museum in Qatar.

Coillce. Trees are just the start of it.

Natural resources, responsibly managed.
www.coillce.ie

coillce

coillce wood products

0 MEDITE ECOLOGIQUE (Zero added formaldehyde)

National Maritime Museum

Marks & Spenser, Silverburn

Planit A+

EXTREME medite tricoya

Strong Solutions

coillce wood products

Facade & Climbing Wall Combined, Nieuwegein (NL), 2012

Opportunities for increasing international market share for Irish panel board products

David Murray

medite tricoya

coillce wood products

The next generation of panel products with a 60 year service

Medite® Tricoya® "to take construction industry by storm."

Wood + Acrylic anhydride → Acrylated wood + Acrylic resin

Medite Tricoya is the first major innovation in the wood composites industry in more than 30 years. This panel has an expected service life of 60 years when used in exterior applications.

EXTREME medite tricoya

Large Scale Renovation

coillce wood products

Appartment Complex, Nijmegen (NL), 2014

coillce wood products

EXTREME medite tricoya

TriComfort®

Die nieuwe standaard voor vlakke houten deuren

*Hoge vochtstabiliteit • Glad oppervlak • Lang profiel • Hoge isolatiewaarde

GND

Weekend Room en

EXTREME medite tricoya

Innovative Building

coillce wood products

Stavanger (NO), 2013

EXTREME
medite trcoya

Unique Design

Chapel in Titchmarsh, Northamptonshire (UK), 2013

coilce
panel products

Medite Vent®

Medite Vent MDF is a high performance breathable external sheathing panel suitable for use in all types of timber frame structures. Combining high racking strength in excess of Category 1 requirements with excellent vapour permeability and high weather resistance, it is the perfect choice for the outer layer in 'diffusion open' wall and roofing applications.

medite
letting the breath of life

**MEDITE VENT
LET YOUR
BUILDING
BREATHE**

1 - inner lining
2 - Timber battens providing service void
3 - Vapour control layer
4 - Timber stud
5 - Insulation
6 - Medite Vent
7 - Gypsum membrane
8 - Stainless steel wall tie
9 - Ventilated and drained cavity
10 - rainscreen cladding

Medite Vent is a registered trademark of Coilce Ltd. © 2013. All rights reserved. Contact us today for more information and a free sample. medite-europe.com 01322 426000 info@coilce.com

Opportunities for increasing international market share for Irish panel board products

David Murray

EXTREME
medite trcoya

Design Freedom

The Vrouw Moeder Kind Centrum, Eindhoven (NL)

coilce
panel products

SmartPly
FR/FR Build

Added to the heart of the product...

...not just an outer coating

Flame Retardant OSB3: Protection when you need it.

- Flame retardant throughout the entire panel
- No structural degradation in panel unlike many post treated alternatives.
- Easy to cut and fix
- Lightweight
- CE Compliant
- FSC Certified timber from our own forests.
- Zero Ignition® water based fire retardant

coilce
panel products

SmartPly® DryBacker

New

Hidden Strength

Quick and easy. Ready prepared modular OSB3 panels providing secure anchorage for fixtures in drywall systems.

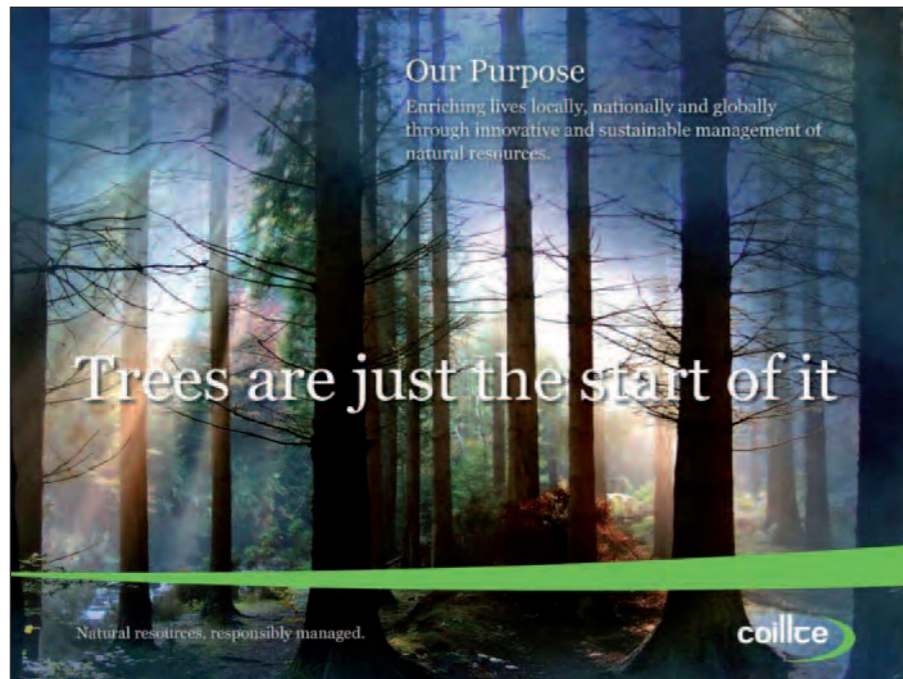
UCH, Cork
Temple St. Hospital, Dublin

coilce
panel products

SmartPly - building for the future

New Building

coilce
panel products



Dr. Annette Harte

Exploring new products for Irish timber including engineered wood



Dr. Annette Harte is Senior Lecturer in Engineering at the College of Engineering and Informatics, NUI Galway. Her research includes the development of engineered wood products, numerical modelling, design and optimisation of timber structures and sustainable construction. She is leader of an EU COST network on the Reinforcement of Timber Structures, comprising international researchers.

The largest consumer of solid wood products globally is the construction industry. Wood is one of the oldest building materials known to man and many examples of ancient wooden structures exist today. In the last century, steel and concrete displaced wood as the material of choice, particularly in the non-domestic market. In recent times, however, there has been a re-evaluation by designers of the materials used.

This has been driven largely by issues of sustainability and enabled by the development of new engineered wood products that have excellent structural, thermal, economic and environmental properties.

Engineered wood products are manufactured by gluing together smaller pieces of wood to produce larger products with greater load-bearing capacity and less variability in properties than solid wood. These products include panel products, such as plywood and OSB, engineered I-joists, LVL, PSL, and glued laminated timber.

These products are well established in the market and are widely used. The most recent development in this field is the introduction of Cross Laminated Timber (CLT).

This is a massive wood panel product with high load bearing capacity that can rival steel and reinforced concrete, has a low weight and so reduces construction costs, has very predictable behaviour in fire and has the capacity to store significant quantities of carbon over the life of the building.

CLT has been used in a number building projects across the world. The Stadthaus in London is a nine-storey apartment building having a concrete ground floor and eight upper floors of CLT. When completed in 2008 it was the tallest timber building in the world. The success of this project has sparked considerable interest in this form of construction for multi-storey buildings. In Melbourne, a 10-storey apartment building has been completed. There have been preliminary designs prepared for other buildings of up to 30-storeys.

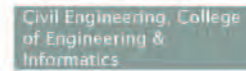
Recently, design codes for CLT have been approved in the US and Canada and the EU equivalent is nearing completion. This development should see an acceleration in the use of CLT in the construction sector.

The Timber Engineering Research Group at NUI, Galway is currently investigating the feasibility of producing CLT using Irish-grown Sitka spruce. This work is being carried out as part of the project 'Innovation in Irish Timber Usage' funded by the Department of Agriculture, Food and the Marine. Preliminary findings show excellent promise for the suitability of Irish timber for CLT production.

Exploring new products for Irish timber including engineered wood

Dr. Annette Harte, NUI Galway

National Forestry Conference
6th June 2014



Dr. Annette Harte

Historical timber structures



[Yang, 2007]

- Baling Bridge in Gansu Province, China
Completed in 1398, rebuilt in 1919 and 1923.
Total length 40.2m



[cic.doshisha.ac.jp]

- Five-storied pagoda at Horyu-ji Temple, Japan
Built about 1,300 years ago



[mcgurdyco.com]

- Historical timber roof Glastonbury
14th century medieval barn

Outline of presentation

- Timber in Building
- Engineered Wood products
- Cross-laminated timber – CLT
- CLT Buildings
- CLT using Irish Sitka spruce - current research

Timber structures today



[Dyken, 2003]

- Leonardo da Vinci bridge across E18 near Oslo



[HealthcareDesignMagazine, 2012]

- Credit Valley Hospital in Ontario



[rightmore.co.uk]

- Stadhaus, Hackney, London
- 9-storey apartment building

Timber in buildings

- Timber is one of the oldest construction materials
 - Competition from steel and concrete led to decline in use
- Resurgence in interest in timber for construction due to sustainability requirements and the emergence of new high-performance engineered wood products
- Research has led to greater understanding of behaviour leading to the development of new approaches to construction

Timber structures of the future



[DZineTrip, 2013]

Stockholm:
Proposed 34-storey tower



Vancouver:
Proposed 30-storey tower

Timber engineering

- Traditional timber structures – solid wood sections
 - Section and length limited by size of tree
- Requirement for large span, high structural capacity members
- Advances in timber engineering has led to the development of Engineered Wood Products (EWPs)
 - use of timber in more demanding applications
 - small size timber bonded together with adhesive to form composite

Engineered wood products

- **Glued laminated timber (Glulam)**
- **Duo, Trio, Quattro Beams**



Engineered wood products

- **Oriented strand board (OSB)**
- **Structural insulated panels (SIPs)**



- **Timber frame**

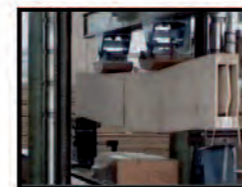


Engineered wood products – the next generation

- **Cross laminated timber (CLT)**
- High performance material
- Massive timber construction
- Utilises small timber sizes
- Panels made of at least 3 orthogonally bonded layers of timber
- Successive layers of boards placed cross-wise



Engineered floor joists



Cross-laminated timber (CLT)

- CLT panels used as wall floor and roof elements
- Joined using simple metallic connectors
- Light weight – easy to handle, construction speed, smaller foundations

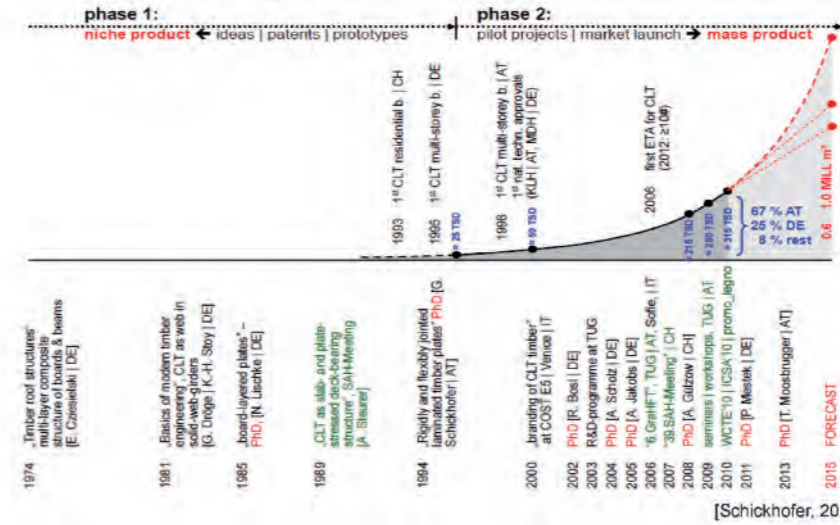


CLT Production

- Individual design
- Max. panel size: 4m x 18m
- Precision manufacturing
- CNC machining for
 - Window & door openings
 - Chases for services



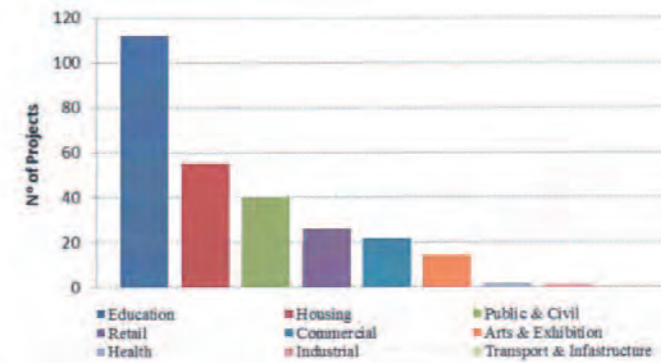
CLT – life cycle



CLT Properties

- High strength and stiffness in two directions
- Lowers the energy used in construction
- Reduces operational heat loss by improving insulation and airtightness
- Very easy to demolish and recycle at end of life.

UK CLT buildings 2003-2011



CLT Fire Performance

- Thick cross sections, when exposed to fire, char at a slow and predictable rate
- CLT construction has fewer concealed spaces within wall and floor that reduces risk of fire spread
- Adhesive type used in CLT panels has significant impact on charring rate
- 3-storey SOFIE building 2007 – 1 hr fire test – maintained structural integrity



[Frangi, 2008]

CLT multi-storey buildings trend



Stadthaus apartment building, London

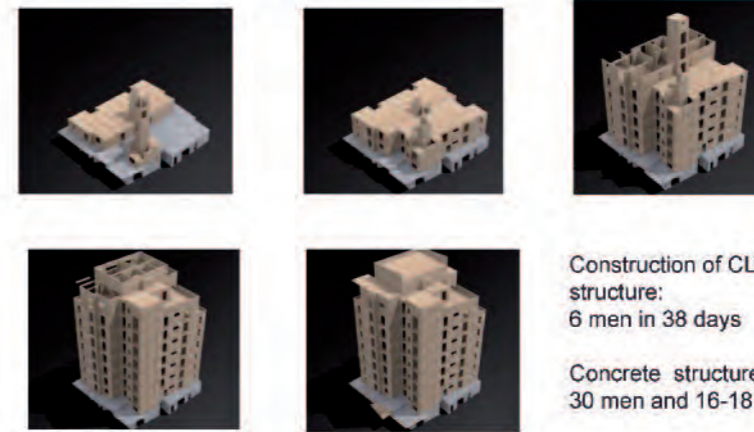


[Architect Journal, 2008]

STRUCTURE

- 9 storey building
 - Concrete ground floor
 - CLT upper floors
 - CLT stairwell & lift shaft
- 900 m³ timber
- CLT panels manufactured in Austria
- Installation of CLT structure
 - 4 men with large mobile crane
 - 27 working days over 9 weeks
- Total construction time 49 weeks
 - Equivalent concrete building 72 weeks

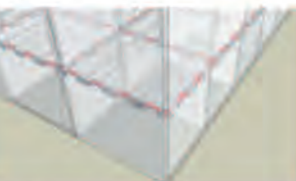
Forte building construction



Construction of CLT structure:
6 men in 38 days

Concrete structure
30 men and 16-18 weeks

Stadthaus apartment building, London



[Techniker, 2008]

THERMAL PROPERTIES

- External 128mm wall + 100mm insulation
- U = 0.13 W/m²/K

FIRE RESISTANCE

- Charring - 60 minutes
- Plasterboard - 30 minutes
- Total - 90 minutes

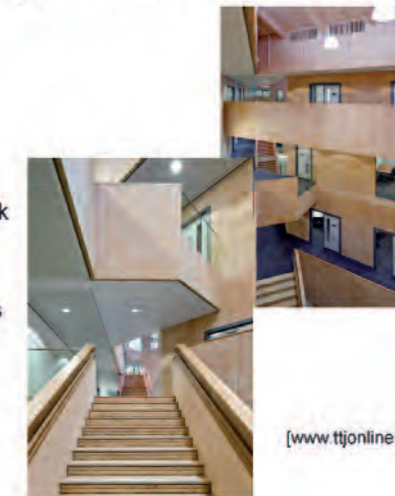
ENVIRONMENTAL PROPERTIES

- Sequestered carbon - 188 tonnes
- Concrete replacement - 124 tonnes
- Total carbon offset - 310 tonnes

[TRADA, 2009]

William Perkin High School London

- UK's largest timber building
- Opened Spring 2014
- £19m four-storey complex
- 3,800m³ CLT (KLH Austria)
- Above-ground floors 230mm-thick and span 7.5m with a 2.5m cantilevering walkway.
- Structure assembled in 19 weeks



[www.tjonline.com]

Tallest timber apartment building in the world

Forté

Victoria Harbour
Melbourne

Height: 32.17 metres

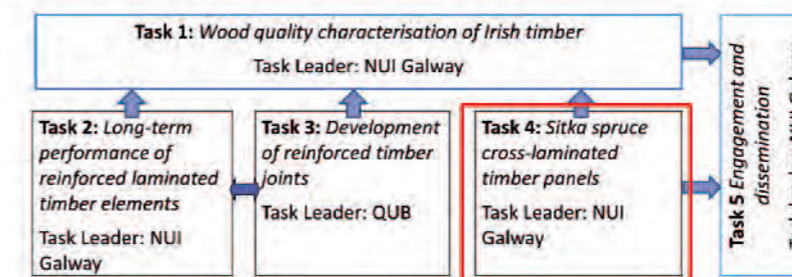
23 apartments, over 10 storeys

Start on-site: February 2012
Begin CLT installation: May 2012
CLT structure complete: August 2012
Construction completion: October 2012



Project cost (construction):
Apartment tower: \$11 million

Innovation in Irish timber usage (IITU)



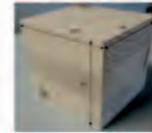
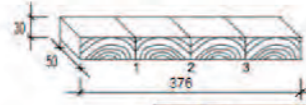
Website: www.irishtimber.org



CLT research at NUI Galway



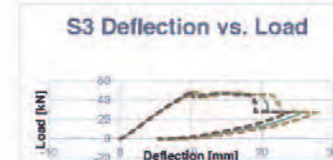
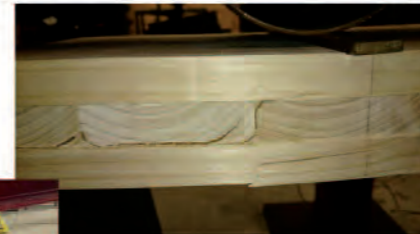
- Adhesive selection
 - type & pressure
 - Solid v glued
- Delamination
 - accelerated aging
 - pressure soaking & drying



CLT research at NUI Galway



- Strength & stiffness testing



CLT research at NUI Galway

Next steps

- Investigate rolling shear properties of Sitka spruce
- Manufacture and test large scale panels
- Investigate the technical requirements for upscaling to commercial manufacture in Ireland

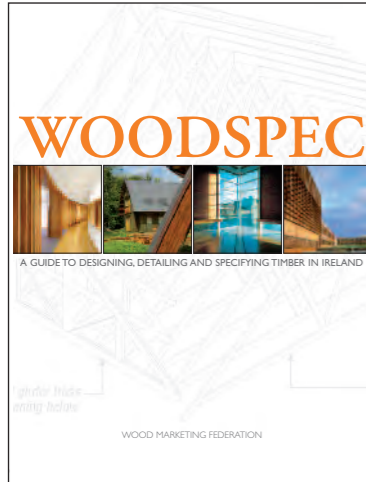
Thank you



CLT constructions - videos

- Construction of a single family house with CLT
http://www.youtube.com/watch?v=SC7ND_dMnT4
- Bridport House - timelapse of the construction
<http://www.youtube.com/watch?v=jDrfVYdhpGQ>
- Forte Build - time lapse video
<http://www.youtube.com/watch?v=cqXygHyU5ws>

WOOD MARKETING FEDERATION



WMF published a 376-page hardback book *Woodspec – A Guide to Designing, Detailing and Specifying Timber in Ireland* in 2007.

The Wood Marketing Federation (WMF) was founded in 1989 to promote wood in all aspects including wood products, standards, design and usage. It recognised the need to promote wood especially to builders, architects, engineers, designers, specifiers, State agencies and educational bodies as there was a dearth of good information on wood usage and design in Ireland up until WMF was formed.

Mission and objectives

Our mission and objectives reflect these changes and also acknowledge the role wood will play in sustainable living and climate change. The WMF mission is:

To promote wood as a renewable, sustainable and versatile natural material

WMF members and other stakeholders support a range of projects, which meet with the Federation's objectives:

- **Quality:** to support the development of the highest standards.
- **Education:** to increase the knowledge and understanding of wood and wood products.
- **Innovation:** to promote and encourage new uses and applications for wood.
- **Representation:** to support member organisations in improving and developing their markets.

Projects

Most projects have a strong educational content because we recognise that there is a lack of information relating to wood usage and design specific to Ireland. Our programme is aimed at a number of audiences including wood users, designers and specifiers along with our future audience such as students currently studying engineering, architecture and design in third level colleges. Projects to date include:

- Wood Awards Ireland – competition launched in association with RIAI for building and design projects using wood as the inherent medium.
- Publication of a 376-page hardback book *Woodspec – A Guide to Designing, Detailing and Specifying Timber in Ireland*.
- 3rd level student wood awards which now has entrants from Irish universities and third level colleges – North and South.
- Wood promotional and educational literature including posters, website, *Talking Timber* series, *Pride in the Product* and newsletters.
- Wood promotion campaign to 3rd level colleges.
- Studies and seminars on wood usage, design in construction, fencing, leisure use, renewable energy, sustainable forestry and wood certification, aimed at architects, engineers, designers, wood specifiers, planners and other specialist groups.
- Shows and events including Plan Expo-Ecobuild in the RDS showcasing wood use and design and Timber Expo in England.
- Collaboration with other organisation such as the Tree Council of Ireland to promote wood to Primary and Secondary Schools
- Events such as Garden of Plenty – Sustainable Living Silver Gilt Medal winner at Bloom (2013) and Meitheal-Wood Collaborative at Electric Picnic (2009-2013).
- Lobbying Government, State agencies, EU and other organisations.



WMF publishes a range of wood promotional and educational literature including posters, website, *Talking Timber* series and *Pride in the Product* (above).

E info@wood.ie W www.wood.ie

THE SOCIETY OF IRISH FORESTERS



Society of Irish Foresters



Title page of facsimile edition of *The Trees of Great Britain and Ireland* published by the Society in 2012.

The Society of Irish Foresters is an all island body which represents the forestry profession in Ireland. It was founded in September 1942 'to advance and spread the knowledge of forestry in all its aspects'.

Objectives

The Society fulfils this objective by organising field days, study tours, workshops, public lectures, conferences and publications. It has more than 670 members who are predominantly professional foresters but includes, through its Associate and Student membership, a wide cross-section of people who are involved in, or share an interest in, Ireland's forest industry. Our objectives are:

- To promote a greater knowledge and understanding of forestry in all its aspects, and to advance the economic, social and public benefit values arising from forests;
- To support professionalism in forestry practice;
- To establish, secure and monitor standards in forestry education and professional practice;
- To provide an appropriate range of services to members.

The Society is currently contributing to a number of government policy documents including the ongoing Forest Policy Review, the Forestry Bill 2013 and the Consultation Paper on the Forestry Programme 2014-2020.

Since 1943, the Society of Irish Foresters has published *Irish Forestry*, a peer-reviewed journal of current research work; a bi-annual newsletter *The Irish Forester*; and a range of Policy Position Papers. In 2012, to celebrate its 70th anniversary, the Society published a limited edition reprint of Elwes and Henry's masterpiece *The Trees of Great Britain and Ireland*. Our most recent publication is *Glimpses of Irish Forestry*, a concise yet comprehensive overview of Ireland's forests and forest products industry.

The Society of Irish Foresters is deeply committed to promoting and maintaining professional standards in Irish forestry and the regulation of the forestry profession in Ireland. More than a decade ago, we introduced a Programme of Continuous Professional Development for members as a means of confirming that professional foresters are up to date in current forestry practice. Members of the Society are also bound by the Society's Code of Ethics and Professional Conduct. The Society of Irish Foresters also assesses forestry education courses in Ireland to ensure the highest professional standards.

These are exciting times to be involved in Irish forestry. Times of change bring us challenges and opportunities. When the Society of Irish Foresters was founded in 1942 the major challenge was to establish and develop a forest industry in Ireland.

Our challenge today is to protect and consolidate the valuable resource that has been created and to develop markets for the wood from these forests. Today's conference is a step in that direction.



Glimpses of Irish Forestry published by the Society in 2014.

Society of Irish Foresters
Glenealy
Co. Wicklow

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Wood Awards IRELAND 2014

WOOD AWARDS IRELAND 2014 is a major new competition to reward Irish architects, engineers, designers and wood workers who create work in Ireland and overseas, incorporating wood as an inherent medium in their projects. The emphasis is on creativity and innovation using wood from sustainably managed forests.

Submissions accepted for following categories:

- Large-scale public buildings
- Small-scale buildings
- Restoration and conservation projects
- Innovative structures
- Furniture
- Other innovative projects

Image: Marine Institute HQ, Galway, courtesy of CRV

Closing date

16 July 2014

Site visits and shortlist: September

Awards ceremony: 28 November

Further information and entry form

e info@wood.ie www.wood.ie/wood-awards-ireland

WAI is organised by the Wood Marketing Federation

Supported by the Royal Institute of the Architects of Ireland





www.wood.ie



Society of Irish Foresters

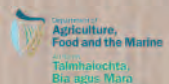
www.societyofirishforesters.ie



www.farmersjournal.ie



www.coford.ie



www.agriculture.gov.ie