

NATIONAL CONFERENCE

# WHAT SHALL WE DO WITH OUR HARDWOODS?

*Management and marketing challenges for  
home-grown hardwoods in a softwood culture*



Johnstown House Hotel, Enfield, Co. Meath

Wednesday, 27 May 2015

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

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# Acknowledgements

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We acknowledge the continued support of the membership of both SIF and WMF. Special thanks to Minister Hayes and his staff in the Forest Service, Department of Agriculture, Food and the Marine for their support for the conference and other events organised by SIF and WMF.

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Pat O'Sullivan, Technical Director, Society of Irish Foresters and Donal Magner, Secretary, Wood Marketing Federation.

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# Conference Agenda

- 09.00

Registration and coffee.
- 10.00

Introduction: Dr. Niall Farrelly President  
Society of Irish Foresters and morning chairperson.
- 10.15

Keynote address: Tom Hayes TD, Minister of State at the  
Department of Agriculture, Food and the Marine with  
responsibility for forestry
- 10.45

What have we got? An assessment of our broadleaved forest  
inventory – John Redmond, Forest Service, Department of  
Agriculture, Food and the Marine.
- 11.15

Irish broadleaved tree improvement programme –  
Dr. Gerry Douglas, Principal Research Officer  
Teagasc Forestry Development Department.
- 11.45

Broadleaf silviculture for high quality timber production –  
Dr. Ian Short, Broadleaf Silviculture Research Officer  
Teagasc Forestry Development Department.
- 12.15

Open forum – Q&A.
- 13.00

Lunch.
- Afternoon chairperson: Nuala Ní Fhlatharta  
Head of Teagasc Forestry Development Department.
- 14.20

Hard won markets: silvicultural and marketing challenges facing  
hardwoods in a softwood culture – Secretary, Wood Marketing  
Federation, Forestry Editor, *Irish Farmers Journal*
- 14.45

Small is beautiful. Adding value to hardwoods in Ireland –  
William Bunbury, Managing Director Lisnavagh Timber Project Ltd.  
(Bunbury Boards) and Lisnavagh Estate
- 15.30

The wood scientists view on home grown hardwoods that  
could replace imports over time – Gordon Knaggs  
Gordon Knaggs and Associates, Fellow of the Institute of Wood Science
- 16.00

Open forum.
- 16.30

Closing address – Paul Harvey,  
Chairperson, Wood Marketing Federation.

# Foreword



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

The question being addressed by this conference – ‘What shall we do with our hardwoods?’ – is very relevant and I commend the Society of Irish Foresters and the Wood Marketing Federation for organising this conference to explore this specific issue. In fact, it follows very logically from the topic explored at the National Conference last year, namely ‘What shall we do with the timber?’

I was pleased to launch, in November 2013, the ‘Future Strategy for Broadleaves’ prepared by the Future Trees Trust. The overall aim of the strategy is to establish improved broadleaved trees as an integral part of British and Irish woodlands, which will, in the long-term, contribute to more productive forests with improved wood quality. While growing broadleaves tends to be a long-term business, it is a pre-requisite for high quality wood products so it is important to get the fundamentals right such as having the right planting stock. The genetic basis of the broadleaf resource is key to its productivity, quality and resilience. My Department is involved in a number of initiatives on this aspect.

The Second National Inventory, the results of which were published in December 2013, found that broadleaved forests represent just over a quarter of our forest cover and that this share has increased by 1% between 2006 and 2012. John Redmond from my Department will outline the findings of the Inventory at the conference.

The new Forestry Programme 2014-2020, which I launched recently, offers an ambitious set of forestry measures aimed at increasing timber production while at the same time improving the quality of our natural environment. The achievement of these objectives involves the commitment of €482million to underpin the Forestry Programme. While economic growth and activity is an important justification for the €482m investment, I am conscious that it must be done in a sustainable manner. Protection and enhancement of water quality, native woodlands, species diversity and renewable energy were all considered when designing the new programme.

A specific initiative in this regard is the incorporation of the existing native woodlands establishment scheme into the main afforestation scheme to harness the potential for planting native woodlands as part of more commercial forests.

The national target for broadleaf planting is 30%, which will be achieved through higher grant and premiums for broadleaf species, the requirement to include 10% broadleaves (where site quality allows) within all new individual afforestation projects and the availability of funding under the Native Woodland Establishment measure.

The inclusion of a grant aid scheme under the Forestry Programme for the maintenance of seed stands and the establishment of seed orchards with the aim of increasing the use of selected indigenous material and expanding the use of improved material from nationally funded research is another significant element which harks back to having the right planting stock.

Given that we acknowledge the importance of hardwoods and are seeking to increase broadleaf planting, it is timely for associated and downstream issues to be discussed now. I am impressed by the comprehensive nature of today’s conference and the way in which all aspects are covered. I appreciate the time and effort, both by the organisers and contributors, involved in this conference. I am sure that I and the rest of the attendance here today will find the presentations and discussions at this conference informative, thought-provoking and inspiring about the future of our hardwoods.

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



# Introduction from the Society of Irish Foresters



Dr. Niall Farrelly  
President, Society of Irish Foresters

The Society of Irish Foresters believes this conference, which focuses on hardwoods, their management and utilisation, is timely as many of the broadleaved crops planted in the late 1990s and early 2000s are now in urgent need of management intervention.

In recent years, as better quality land became available, broadleaves have become an increasingly important component of the afforestation programme. Thus an in-depth knowledge of the different site types prevalent in Ireland plus an understanding of the ecological and silvicultural requirements of a range of tree species is critical, if we are to maximise the production of high quality end-products.

Species selection should be driven by ecological and economic criteria and by the multifunctional values of trees in the landscape and their benefit to society. On the better site types, broadleaved species offer variety in high-end timber products and also serve valuable environmental functions, such as water management, the creation and restoration of native woodlands and associated societal benefits.

Diversification can also be fostered through the use of improved stock of native species such as birch and alder to produce improved vigour and tree form. It is vital that management interventions such as thinning and shaping are implemented early in the life of broadleaved crops, so that their beneficial impacts are optimised.

It is important that appropriate expertise is transferred via the various forestry training and development institutions in order to ensure a steady supply of competent, professional foresters. Neither should the importance of long-term research programmes be overlooked. They are critical in understanding the effects of silvicultural treatments, genetic improvement and the interaction of species and the environment, especially in the light of climate change.

The threat of invasive pests and diseases has alerted us to the need for increased diversity of tree species and to the need to develop best practice silvicultural recommendations for these species. In this regard we must look more closely at the requirements of a range of potential broadleaved species to ensure increased resilience of our forest estate in the future.

Professional foresters play a key role in ensuring that the benefits of these species are enhanced through good silvicultural practice. In return, our forests will provide the maximum contribution to mitigating the effects of global warming, CO<sub>2</sub> sequestration, improved water quality, recreation and improving the wellbeing of our society.

Dr. Niall Farrelly  
President  
Society of Irish Foresters

# Introduction from the Wood Marketing Federation



Paul Harvey  
Chairman  
Wood Marketing Federation

Promoting a conference on hardwoods may seem like a strange subject choice for the Wood Marketing Federation as our business concerns itself mainly with softwoods. Virtually all our members and supporters are involved in softwood processing, preservation, manufacturing, engineering, manufacturing and design.

But this is changing, as innovative architects, engineers, designers and woodworkers use hardwoods on their own or incorporate them with softwoods in new and exciting projects. This was demonstrated last year when we organised Wood Awards Ireland to celebrate our 25th anniversary. Many of the 63 entrants to the competition demonstrated the importance of hardwoods in design, construction and conservation.

While some home-grown timber was used in the various projects, most of the shortlisted architects, engineers, designers and conservationists used imported hardwoods. While these were all sourced in sustainably managed forests, home-grown hardwoods could have been substituted in many instances. Many of the Wood Awards Ireland entrants said they would use home-grown hardwoods providing they are produced to sufficient quality.

The Wood Marketing Federation has built up valuable links with the Royal Institute of the Architects of Ireland (RIAI), architects, engineers and designers through projects such as the Wood Awards Ireland and other initiatives. We will continue to emphasise the role that wood – including hardwood – can play in sustainable construction and design to these key stakeholders.

In addition, through our work in organising the Third Level Student Wood Awards we promote wood usage and design to students of architecture, engineering and design and their lecturers. This year we organise the tenth awards and since these were established the students have continued to demonstrate greater appreciation of wood and how it can be incorporated in design and construction projects.

A key to the success of many of our projects has been the willingness of the Federation to collaborate with other organisations such as the RIAI and the Society of Irish Foresters in achieving our mission to promote wood as a renewable, sustainable and versatile natural material.

While the WMF is primarily aimed at promoting wood as a versatile and sustainable construction and design material, we also acknowledge the importance of addressing hardwood issues throughout the wood chain including our nursery seed and reproductive programmes, research projects and how our woodland owners manage this resource.

We are delighted to renew our partnership with the Society of Irish Foresters in organising this conference. We also thank the Minister and his staff for their continued support.

Paul Harvey  
Chairperson  
Wood Marketing Federation





**John Redmond** is a Forestry Inspector with the Department of Agriculture Food and the Marine, based in Johnstown Castle, Wexford. Prior to joining the Department in 2006, he worked with Coillte and also as a contractor collecting inventory data. In his current role John has responsibility for the National Forest Inventory (NFI). The NFI provides reliable, current and consistent data to inform domestic forest policy, support forest research and fulfil national and international reporting commitments. John is also involved in forecasting the private sector timber resource.

## What have we got?

### An assessment of our broadleaved forest inventory

In 2012, the National Forest Inventory (NFI) estimated that the area of forest was 731,650 hectares or 10.5% of the land area. Over half (53.2%) of forests are in public ownership and 342,296 ha (46.8%) are in private ownership. The private forest estate comprises two distinct forest types; the older non grant aided forests, referred to as Private (other), and the younger grant aided forests categorised as Private (grant aided), planted post 1980.

Afforestation, conifers: broadleaves, averaged 90:10 during the 1930s and 1940s. Thereafter, up to the early 1990s, broadleaves comprised just 4% of afforestation. As a result of the positive differential in favour of broadleaved species in both the afforestation grant and premium schemes the proportion of broadleaves planted significantly increased from 1993 up to the present, with an average of 23% broadleaves planted since that year.

From the mid-1990s onwards a wider range of tree species has been planted, with ash and oak dominating broadleaf planting. From 2006 to 2010 the species composition of afforestation remained largely stable. However the finding of *Phytophthora ramorum* in Japanese larch in 2010, led to its withdrawal from the afforestation programme. However, more recently, the fungal disease *Chalara fraxinea* was found in ash in 2012, resulting in the cessation of grant aid for this species.

Conifers account for 68.6%, broadleaves 17.5% and mixed forests 13.9% of the stocked forest area. Sitka spruce is the most common species, occupying 52.4% of the forest area. Over one quarter of the forest estate contains broadleaves with an area of 164,310ha. Out of this broadleaved forest area 33.9% (55,660 ha) is classified as 'Other broadleaf species' (both long living and short living), of which over half is willow. The next largest broadleaf species group is birch (22.7%), ash (12.5%), followed by oak (10.2%).

Afforestation dominates as the main method by which forests were regenerated with 64.2% of forests established in this way. Reforestation, the man-made establishment of trees on lands that have been cleared of forest within the relatively recent past, comprises 24.7% of forests. Semi-natural forest, which are forests established by natural regeneration, occupy 11.1% of forests. However, it is important to note that 61% of the broadleaf forests are classified as having regenerated through semi-natural means.

The mean annual standing volume harvested between 2006 and 2012 was 3.6 million m<sup>3</sup>, the majority (97%) of which was conifer. As part of the Forest Improvement Scheme (FIS) grants have been available for the tending and thinning of broadleaves. In total 4,760 ha has been tended or thinned up to the end of 2014, with ash accounting for 3,053ha.

John Redmond  
Forestry Inspector with the Department of Agriculture  
Food and the Marine

Opposite: hardwood species, ash oak and birch.  
Broadleaves account for 17.5% of Irish forests.





**Dr. Gerry Douglas** is Principal Research Officer, Teagasc Forestry Development Department whose aim is to develop and adopt applied biotechnologies for the advancement of forestry in Ireland. The unit carries out research on vegetative cutting propagation, micropropagation, grafting, mutagenesis and molecular analysis. He is working in collaboration with the Future Trees Trust on the genetic improvement of the broadleaves wild cherry, sycamore and oak and their deployment in mixtures and in agroforestry. He is Ireland's representative on the international COST Action research project FRAXBACK which aims to select ash trees that show resistance to ash dieback.

## Irish broadleaved tree improvement programme

The genetic improvement of broadleaved tree species generally lags behind that of conifers worldwide. Currently most of the broadleaved plant material that is used in Irish forestry is derived from unimproved stocks because of the costs and difficulties in procuring improved seeds and plants.

Government policy now aims to facilitate the development and greater uptake of germplasm which is improved genetically i.e. using material derived from seed stands (category 'Selected') and/or from seed orchards (category 'Qualified').

This is especially the case for broadleaves because the final value of a broadleaved crop is, as much and perhaps more, dependent on stem quality as on volume. Therefore it is highly desirable that seeds and plant sources of broadleaved species which are in the higher categories of genetic improvement are made available to the forestry sector.

The Teagasc projects on genetic improvement of broadleaves is shared and developed with the UK in the framework of the Future Trees Trust: [www.futuretrees.org](http://www.futuretrees.org). It is based on selecting and procuring 'Plus Trees' which have superior stem form and other traits and facilitating their propagation and utilisation to generate improved seeds.

The overall aim is to increase the amount of seeds that are available in the improved category of 'Qualified' for deployment in forests. This is achieved by using selected 'Plus Trees' as the parent material and establishing seed producing orchards with them.

Evaluation of the performance of progeny from improved sources is also an important part of our work which includes testing improved wild cherry in mixed forestry plantations and in agroforestry.

Our presentation will outline the Teagasc programme on genetic improvement of birch, alder, sycamore, wild cherry, oak and work on ash which is relevant to the threat posed by ash dieback disease.

Dr. Gerry Douglas  
Principal Research Officer  
Teagasc Forestry Development Department

*Presentation outlines the Teagasc programme on genetic improvement of birch, alder, sycamore, wild cherry, oak and work on ash (opposite) which is relevant to the threat posed by ash dieback disease.*





**Dr. Ian Short** is the Broadleaf Silviculture Research Officer with Teagasc and is the principal researcher of B-SilvRD, a five-year project on broadleaf silviculture. He completed a B.Sc. agroforestry degree at the University of Wales in 1999 and has studied in the University of Guelph, Ontario, Canada. He was appointed research assistant at Waterford Institute of Technology in 1999 and completed a Masters in 2001 followed by a Ph.D. in silvopastoral agroforestry in Queen's University Belfast in 2006. He has authored and co-authored a number of publications and has been researching the silviculture of broadleaves since 2006.

## Broadleaf silviculture for high quality timber production

The majority of the broadleaves in Ireland are less than 20 years old. Most of these are privately owned. If they are to reach their potential for high quality timber, silvicultural interventions are required.

This presentation will outline some of the silviculture practices that can have a positive impact on high quality timber production, such as species choice, formative shaping, high pruning and thinning.

For those pole-stage stands that are performing poorly, some alternative silviculture practices will also be introduced which have the objective of producing future high quality timber. These will be illustrated with examples currently being investigated by the B-SilvRD (Broadleaf Silviculture Research and Development) project.

The five-year COFORD funded B-SilvRD project began on 1 July 2010. It is led by Dr Ian Short, Teagasc Forestry Development Department, and is in collaboration with Dr Conor O'Reilly, UCD. The project has the following objectives:

- To provide a suite of silvicultural options and guidance for broadleaf plantation management regarding:
  - o Establishment of mixtures
  - o Thinning of pure and mixed stands
  - o Rehabilitation of poorly performing broadleaf stands
- To provide a national network of well-designed experimental and demonstration sites that can be used into the future to inform forest policy and the industry
- To build a critical mass of broadleaf silviculture expertise.

Dr. Ian Short  
Broadleaf Silviculture Research Officer  
Teagasc Forestry Development Department



*The emphasis is on producing quality timber when managing broadleaves. This continues throughout the growing cycle and includes shaping or pruning young trees such as oak (main picture) to encourage straight stems. Shaping and judicious thinning result in quality crops of ash (far left) and oak (left).*





**Donal Magner** is Forestry Editor of the Irish Farmers Journal, and Secretary of the Wood Marketing Federation. He is the author of *Stopping by Woods – A Guide to the Forests and Woodlands of Ireland* and has co-edited a number of publications including the wood design manual *Woodspec – A Guide to Designing, Detailing and Specifying Timber in Ireland*. His masters degree in forestry from UCD was on juvenile wood and wood quality. He has wide experience in forest management and marketing and has organised a number of major Irish wood awards including the Third Level Student Wood Awards and Wood Awards Ireland which reward excellence in wood design, construction and conservation.

*Marine Institute HQ, Galway. Detail of timber glazed screen separating the open plan offices from the corridor. Beech and cherry veneered doors combine with the cherry timber glazed screen.*

## Hard-won markets

### Silvicultural and marketing challenges facing hardwoods in a softwood culture

Hardwood is the generally accepted name for the timber of broadleaved trees as opposed to softwood, which refers to conifers. The term is not accurate as some conifers such as yew and European larch are harder than many broadleaves including poplar, balsa and lime. But broadly speaking, the timber of broadleaves is harder and has a higher wood density than conifers so the term is accepted especially in the timber trade.

The forester will point to other differences between broadleaves and conifers. Conifers grow straighter and faster than broadleaves as well as being less demanding on site conditions. In general, they are easier to manage and provide a return on investment within the lifespan of most forest owners.

The silvicultural and marketing challenges facing broadleaved woodland owners can be arduous and uncertain, especially in a softwood culture which has grown used to uniformity of growth and ready markets. These challenges are acknowledged by the Forest Service which provides higher grant and premium payments to forest owners who choose to plant broadleaves over conifers.

While more generous State aid partly compensates hardwood growers, profit is rarely their sole objective. Despite the challenges – both silvicultural and marketing – an increasing number of woodland owners in Ireland have an attachment to broadleaves and are planting them in increasing numbers.

Aesthetics, landscape enhancement and biodiversity are cited by growers as some of the non-wood reasons for opting for broadleaves while woodworkers extol the positive timber characteristics of hardwoods which are ideal for furniture making, panelling, flooring, veneers, joinery, craft and sports goods.

Little more than 5% of our forests were planted annually with broadleaves for most of the last century so our reliance on hardwood imports is likely to continue. However there has been a dramatic increase in annual broadleaved planting over the past 20 years, which reached 38% of all planting in 2008.

While Ireland is now a net exporter of home-grown softwoods, we rely heavily on imports.

The increase in broadleaved planting in recent years will reduce our dependence on imported hardwoods but this will take time. Most hardwood plantations will only produce sizeable volumes of timber from thinnings between 20 and 40 years, while species such as beech and oak are unlikely to reach final harvest until at least 100 years.

It is in Ireland's long-term interest to reduce our reliance on imported hardwoods especially from some tropical forests where sustainable forest management is not practiced. Unsustainable tropical hardwoods can be replaced by home-grown broadleaves over time and by engineered softwoods. For example, new products such as Thermowood, Accoya and more recently, the Coillte Panel Product Medite Tricoya reduce the pressure on rain forests. These new products are as hard and durable as many tropical hardwoods and are ideal for external applications.

While most of the research into engineered wood products has focussed on softwoods over the past century, innovative architects, engineers, wood scientists and designers continuously push the boundaries for creative use of hardwoods to take them in new and exciting directions. For example, the architect Renzo Piano worked





*Irish architects would prefer to use home-grown hardwoods if available in sufficient quantities and produced to quality specifications.*

*McCullough Mulvin Architects opted for American oak in this restoration project in the Dublin Dental Hospital. The project won the restoration/conservation category in Wood Awards Ireland 2014 organised by the Wood Marketing Federation.*

with acoustic consultant Helmust Muller to explore the use of lasers to trace reflections of soundwaves when designing the three concert halls of Parco della Musica in Rome. As a result, cherry was chosen as the main design medium not just because of its aesthetic appeal but also because it satisfied demanding acoustic and architectural criteria.

A similar approach was taken in the design of Wexford Opera House where black walnut sourced in eastern Canada was used because of its acoustic and aesthetic qualities. Matt O'Connor who produced the initial feasibility study for the opera house said: "Its rich dark brown colour similar to the appearance of wood used in stringed musical instruments, added enormously to the rich aesthetic of the auditorium."

Ciaran O'Connor, State Architect with the Office of Public Works has been designing buildings in wood for decades. O'Connor acknowledges that we have a masonry rather than a wood culture in Ireland so he often combines both media. This is apparent in the Marine Institute, Galway which has a total area of 10,500 m2. In this building O'Connor combined natural materials such as timber and limestone for reasons of site suitability, lifecycle costs and sustainability. Like other innovative architects, he would prefer to use Irish hardwoods but these are not available in sufficient quantities for large projects. He relies on imported hardwoods from sustainably managed forests in Europe and the eastern states of the US for species such as oak, cherry and ash.

The Irish designer Joseph Walsh, Riverstick near Kinsale is a designer/maker of innovative furniture which he fashions from ash because of its elasticity, versatility and appearance. Walsh has been commissioned to produce works for the international market place where clients place a high value on the unique sculptural qualities of his one-off pieces.

Walsh is just one of a number of Irish practitioners including architects, engineers and designers to explore timber as a creative and innovative design medium. .

Wood Awards Ireland 2014, organised by the Wood Marketing Federation and supported by the Royal Institute of the Architects of Ireland (RIAI) demonstrated that these practitioners are using more and more timber in buildings – large and small – furniture and conservation projects.

These projects illustrate that hardwoods have a different market place than softwoods. They also show that we have innovative designers and woodworkers with the skills and expertise to use hardwoods.

The presentation on 'Hard won markets' will provide a brief history of hardwoods and softwoods and will look at the approach to hardwoods by international and Irish architects, engineers, designers, furniture makers and other woodworkers.

It features shortlisted projects in Wood Awards Ireland 2014 and also includes projects from our other competition the Third Level Student Wood Awards. These awards demonstrate a new way of seeing and working with hardwoods by the new wave of Irish designers.

The awards prove that there is now a greater awareness of the potential of hardwood by our architects, designers and wood workers. What they require in return from woodland owners and timber processors is a quality product for a market, which places a high value on sustainable wood, our greatest natural and renewable resource.

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





**William McClintock Bunbury** and his wife Emily returned to Lisnavagh in 2000 with a view to creating a financially sustainable life and business on the estate. In 2001, The Lisnavagh Timber Project was established which includes sawing and kiln drying home-grown hardwoods as well as conservation of the estate's woodlands. More recently the project has evolved into producing hand crafted Bunbury Boards described by the Irish Design Shop as 'affordable gifts as well as functional and beautiful kitchen utensils'. Emily looks after the house, which is now a very successful wedding venue. William and Emily live in the main house along with their three children.

*Cheryl Stanley, Sales Executive, Bunbury Boards. displaying one of the whiskey boards commissioned by Bushmills.*

## Small is beautiful

### Adding value to hardwoods in Ireland

The increased planting of broadleaves or hardwoods in recent years is a positive move in Irish forestry. However, most of these woodlands will not produce significant volumes of timber until well into this century so the objective is to maximise our existing limited resource in a sustainable manner.

One of the advantages of hardwoods over softwoods is their capability to produce a wide range of high added value end uses from relatively small volumes of timber. Innovative architects, designers, craftspeople and other woodworkers acknowledge this as they turn to hardwoods for end uses such as bespoke furniture, joinery, craft goods and panelling.

However, to maximise the added value potential of hardwoods in these niche markets, end users require a quality product which includes accurately sawn and dried timber. When we established the Lisnavagh Timber Project in 2001, we placed strong emphasis on producing quality hardwoods by precision sawing, and kiln drying home-grown oak, beech and other hardwoods. In addition we incorporated a woodland reforestation and conservation programme using mainly native broadleaves which ensure our future forests are restocked and managed sustainably.

Given the range of attractive hardwoods at our disposal, we recognised that we could further increase their value by producing our own range of products, known as Bunbury Boards. The range includes carving, chopping, soda bread, and pizza boards as well as tea caddies, bread-boxes, magnetic knife holders and coasters. Described by food critic Tom Dorley as "the most beautiful chopping boards you will ever own," Bunbury Boards are individually hand crafted and are now sold around the world.

The hallmark of this project is traceability. The trees we harvest on our estate or other woodlands are carefully catalogued and this information is carried through to the sawn timber and ultimately to each individual Bunbury Board. Apart from the quality of design, the attraction of this approach guarantees that every piece can be traced back to its place of origin.

So, the whole project is built on traceability, which is at the core of sustainable forest management, and sustainable timber processing and manufacturing. We carry the sustainability theme through to other aspects of estate management including energy generation. The house and buildings are heated by an efficient wood chip boiler, which has significantly reduced energy costs in Lisnavagh and is further reducing our carbon footprint.

The presentation at the conference will provide an overview of what may be achieved by careful management of hardwoods from woodland to the end product. It will also demonstrate that there is a future in growing hardwoods but it takes time, patience and careful management.

**William Bunbury**  
Managing Director  
Lisnavagh Timber Project Ltd (Bunbury Boards) and Lisnavagh Estate





**Gordon Knaggs** is a Fellow of the Institute of Wood Science. He was Senior Scientific Officer with Enterprise Ireland before he established his own successful consultancy, Gordon Knaggs & Associates. He has wide experience in research into the properties of Irish-grown timber and has drafted monitoring standards relating to timber and timber products as well as providing advice on materials, equipment and processes used in the timber industries. He is co-editor of *Woodspec – A Guide to Designing, Detailing and Specifying Timber in Ireland* and has devised and provided courses on aspects of timber technology.

*Opposite: Oak has excellent strength properties and is favoured for decorative flooring as in this example in the Waterway Centre, Grand Canal Dock, Dublin.*

## The wood scientist's view on home grown hardwoods that could replace imports over time

The timber and timber-using industries are currently almost totally dependant on imported material for supplies of hardwood timber i.e. from broadleaved trees. Ireland imports around €32 million (2013) worth of hardwood timber annually, and almost as much again in basic products such as flooring. Much of this is of temperate species (€26 million) and there is considerable potential for home-grown species to replace a significant portion of that. For this to happen, the timber from Irish forests must be comparable in quality to that on the world market, and be presented in a condition (dried and graded) ready for further processing.

To produce high quality material, it is essential that the forests are given considerably more attention in respect of spacing, pruning and thinning than has been usual with our dominant softwood species. The market for knotty, low-grade hardwoods is, and will remain, limited.

### The market

If we look at the present-day uses of hardwoods in Ireland, the bulk of them goes directly or indirectly into construction, principally as joinery, flooring and cladding. There is also a wide range of minor uses such as decking, marine work, and assorted crafts. For external use, natural durability is a primary requirement and here species from the tropics predominate at present.

With the current emphasis on sourcing timber sustainably, certification is being demanded more frequently, and this will also be the case with home-grown material. For internal use fashion can play a large part in the selection of species, with swings between dark and light timber species.

### Properties

Hardwood species vary enormously in their properties, ranging from pale, light species such as obeche to dense dark species such as greenheart. Most temperate species are light to moderately heavy. Other properties such as durability and stability also vary widely. For external use, or where timber can come into contact with moisture, natural durability is essential. In this context, it is important to note that the sapwood of all species is non-durable and in pale species there may be little or no colour difference between sapwood and hardwood.

In general, the dark species are more durable. Ease of machining, and the ability to take a smooth finish, are universally desired. Strength is obviously important in structural applications and hardness, or the ability to resist wear, for flooring. Timber should also be dried to a moisture content which is appropriate for the intended use. Unlike softwoods, little work has been done on the properties of Irish grown hardwoods but all the indications are that, species for species, these vary little from their imported counterparts. Indeed ring-porous species such as ash and oak, when fast-grown, can be stronger than slow-grown material.

### Irish-grown hardwood species

In addition to the remnants of estate grown timber, now sadly diminished, we are now growing quite a range of species but ash, oak and beech predominate, and the



bulk of these plantings are less than 20 years old. Hopefully we will be able to retain our ash to maturity. Lesser species include birch, sycamore, alder and cherry. Most of these, with the exception of oak and cherry, are pale in colour with limited durability and hence will be largely confined to interior uses.

Oak and ash have excellent strength properties and are favoured for decorative flooring. Beech is a recognised furniture-making wood. Of the lesser species, both cherry and birch have an attractive appearance. Alder has potential as a furniture wood and takes stain readily, as does sycamore.

To compete in high-end uses, Irish species must be grown and tended to produce a reasonable proportion of straight-grained, knot free wood, typically referred to in the importing trade as FAS – first and seconds, and this will command premium prices. Such material will only be produced at maturity, and alternative outlets must be sought for thinnings and poorer material.

There is now a thriving market for firewood, especially when it is properly dried and consistent in quality. The denser species, ash above all, are favoured, but it should be pointed out that the calorific value of all species *on a weight basis* varies but little. At present the use of hardwoods in board manufacture is not feasible due to the mix of species and limited supply although technically feasible – for example eucalyptus species are widely used for the manufacture of MDF in Chile and is being explored in Ireland by Coillte. Other potential outlets for small-diameter and low-grade logs include fencing (durable species or preservative treated) and pallets.

At present the sawmilling industry is geared to processing large volumes of soft-woods, and the large mills are not equipped to handle hardwoods. There is a small number of mills currently handling a mix of species including hardwoods and these, with the addition of appropriate kiln-drying facilities, should be able to process all available supplies for the near future.

Gordon Knaggs  
Gordon Knaggs and Associates  
Fellow of the Institute of Wood Science



Overleaf: Specimen ash, Townley Hall, identified as a seed source for the national tree improvement programme.

# Information on Wood Marketing Federation and Society of Irish Foresters

## The Society of Irish Foresters

The Society of Irish Foresters is an all-island organisation which was founded in September 1942. Its main aims are to spread knowledge of forestry and to improve professional standards in the Irish forestry industry. To that end the Society publishes an annual scientific journal and a twice yearly newsletter, organises four field days, two public lectures, conferences and an international study tour each year.

The Society regularly makes submissions to government on policy initiatives which are likely to impact on the forestry industry and it is represented on several interdepartmental working parties. Our Continuous Professional Development (CDP) programme provides an opportunity for members to engage in the lifelong acquisition of knowledge and skills.

The Society currently has almost 700 members, most of whom are professional foresters who work across the whole spectrum of Ireland's forest industry. There are five categories of membership: Technical, Retired Technical, Associate, Student and Honorary.

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## The Wood Marketing Federation

The Wood Marketing Federation (WMF) was founded in 1989 to promote wood and wood products providing they are sourced in sustainably managed forests. Membership and supporters include sawmills and other timber processors, State agencies and stakeholders involved in wood promotion and research. Our promotional programme covers wood processing, manufacture, design, preservation and usage from traditional applications to product development and innovation.

Our audience includes architects, engineers, designers, specifiers, timber processors and manufacturers, researchers, preservation companies, State agencies and educational bodies. The WMF mission is to *promote wood as a renewable, sustainable and versatile natural material*.

Projects include:

- Wood Awards Ireland – aimed at architects, engineers, designers and timber conservationists.
- Publication of *Woodspec – A Guide to Designing, Detailing and Specifying Timber in Ireland*.
- All-Ireland Third Level Student Wood Awards for students of architecture, engineering and design.
- The establishment of the Irish Timber Information Centre hosted by NUI Galway.

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Society of Irish Foresters

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