



**TORREFACTION**  
FULFILLING THE  
POTENTIAL OF  
BIOMASS ENERGY

>> SEE PAGE 26



**HARMONISING**  
NATIONAL FOREST  
INVENTORIES ACROSS  
THE EU

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**IMPROVE**  
POORLY  
PERFORMING  
POLE-STAGE  
BROADLEAVES

>> SEE PAGE 14

# Forestry & Energy

REVIEW

Volume 5 Issue 2 Autumn/Winter 2015  
Price €3.95. £2.95 (Stg)



**THE VOICE OF FORESTRY & RENEWABLE ENERGY**





# Talking Timber

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# Forestry & Energy

REVIEW

Volume 5 Issue 2  
Autumn/Winter 2015

## Foreword

**W**elcome to the Autumn/Winter Edition of Forestry and Energy Review Magazine.

In this Issue, much of the 30,000 hectares of broadleaf which was planted is underperforming in terms of achieving sawlog wood of a good standard which will give a decent return. Dr Ian Short and Jerry Campion look at the various scenarios and outline ways to improve the wood being produced.

**Torrefaction.....** The process has been around for a long time. It is now at a stage that improved technology is making it viable to remove the moisture and the weight involved as well as having a fuel that is not subject to dampness and thus can be stored more easily.

**Forest Inventories:** As the industry becomes more international and a wider variety of users are interested in the finished product it becomes important to have a uniform and reliable basis of measurement of Forestry stock across Europe. The team involved includes Charles Harper of UCD. Marie Doyle of UCD provides an overview of the project.

**Miscanthus:** For quite a few people their venture into miscanthus was not a happy outing. However Paddy O Toole and David Tyrrell of Quinns of Baltinglass argue that if the crop is well-managed, protected and properly fertiised an excellent return can be made from good ground.

This edition also includes a selection of features and profiles including: John Deere Forestry, LB Gremo, Wood-Mizer and Oakleaf Forestry, Logosol and others.

We trust you enjoy reading this publication which will continue to provide a voice for the Forestry and Energy sectors.

**Until the next time.....**

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## Features

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The last 20 years has seen the planting of 30,000 hectares of broadleaf trees in Ireland. Action must be taken to achieve the best return on this investment, writes Dr. Ian Short and Jerry Campion, Teagasc Forestry Development Department.

### 18 THE FORESTRY PROGRAMME 2014–2020

Earlier this year, the Government secured State Aid approval for the new Forestry Programme covering the period 2014 – 2020. We look at the measures announced to date as part of that Programme, by Forest Service, Department of Agriculture, Food and the Marine.

### 22 INVESTIGATING THE VALUE OF HARMONISING NATIONAL FOREST INVENTORIES ACROSS THE EU

As a response to the challenges for the supply of forest information, a 4-year (2015–19) EU funded Horizon 2020 research project DIABOLO\* has begun. This article is compiled by the Diabolo team, including Charles Harper of UCD, has been adapted by Marie Doyle, UCD.

### 26 TORREFACTION – FULFILLING THE POTENTIAL OF BIOMASS ENERGY

Torrefaction is a roasting process in an anaerobic environment. It vaporises low energy elements in wood leaving a clean burning, low moisture, energy dense product writes Barry Clarke of Auxentios Energy.

### 36 SUPPLEMENTING FARMING PROFITS WITH LOCAL TIMBER PRODUCTION

For the last decade, Henry Brown from the North Yorkshire Moors has successfully diversified and made Grange Farm more profitable by adding holiday cottages and timber sales to his offer, making a rural hill farm viable for his growing family, by Jacob Mooney.

### 40 IRISH FORESTRY AWARDS

First established in 1988, as the RDS Irish Woodland Award Scheme, the Award was designed to focus public attention on the Forestry Industry by highlighting and celebrating those who are at the forefront of the development of the industry and to promote forestry as an alternative to the more traditional forms of farming.

## Profiles

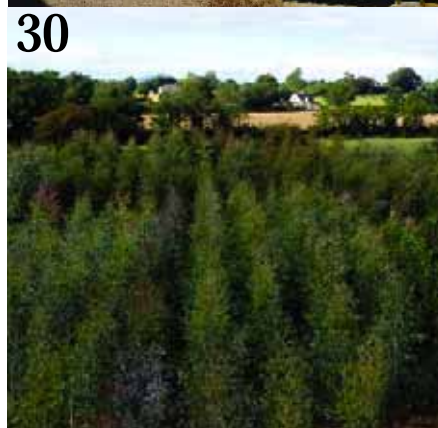
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## REMEDIAL BROADLEAF SILVICULTURE FIELD DAY

Over thirty members of the forest industry recently took part in a field day in Co Mayo on remedial management of poorly performing pole-stage broadleaves. Presented by Dr Ian Short, Teagasc broadleaf silviculture research officer, participants saw and heard about work being carried out as part of the CoFoRD-funded Broadleaf Silviculture Research and Development (B-SilvRD) project in a number of privately owned stands.

Novel silviculture practices of systematic thinning and underplanting, coppicing and singling, and conversion to coppice-with-standards, were viewed, described and discussed. The objective of each of the silvicultural interventions highlighted on the day was to increase



Dr Ian Short, Teagasc broadleaf silviculture research officer discusses remedial broadleaf silviculture with members of the forest industry on a field day in Co Mayo.

the potential for sawlog production of the previously poorly performing stands.

The first stand viewed and discussed was originally planted as a 4:1 line mixture of oak:ash. The ash, having had little competition, grew substantially more vigorously than the oak which became overtopped and shaded, stunting its growth. At 19 years old, any good quality trees were selected and all remaining trees were felled with the intention of rehabilitating the stand via coppice and, if required, underplanting.

The second site illustrated the systematic thinning of poor quality 19-year-old ash, caused by frost and incorrect species choice, and underplanting with alder together with management of the resultant ash coppice regrowth.

The final site illustrated different intensities of systematic thinning in 15-year-old sycamore, its effect on the resultant coppice regrowth, and then subsequent singling of the coppice shoots to create a two-tier sycamore stand.

The participants saw the results at each of the sites four growing seasons after the sites had received their respective treatments. Initial indications are that poorly performing broadleaf stands can potentially be improved with some novel silviculture interventions and subsequent timely management.

## NEXT EXCITING STEP IN TEAGASC'S BIRCH IMPROVEMENT PROGRAMME ANNOUNCED

Tom Hayes, T.D., Minister of State at the Department of Agriculture, Food and the Marine with responsibility for forestry, recently launched the next exciting step in Teagasc's Birch Improvement Programme: the Commercialisation of the Teagasc Birch Improvement Programme.

Teagasc and None so Hardy Nurseries are currently engaged in discussing a joint commercialisation plan to support and ensure exploitation of improved birch resulting from the Teagasc-led tree improvement programme at a national level, with potential expansion to cover alder and sycamore in due course. There is a clear commitment from both parties on partnering, with a view to long term exploitation of outputs from the state-supported tree improvement programme coordinated by Teagasc.

Nuala Ni Fhlatharta, Head of Teagasc's Forestry Development Department commented; "This announcement is the result of seventeen years of tree improvement research initiated and led by Teagasc with collaboration from UCC and UCD, and has been mostly funded through the Department of Agriculture, Food and the Marine.



Launch of the commercialisation phase of the Teagasc Birch Improvement Programme. (From left to right): Teagasc researcher Oliver Sheridan (Birch Improvement Programme); Lar Behan, None So Hardy Nurseries; John McCarthy, None So Hardy Nurseries; Tom Hayes, T.D., Minister of State at the Department of Agriculture, Food and the Marine with responsibility for forestry; John Kavanagh, None So Hardy Nurseries; Dr Frank O'Mara, Director of Research Teagasc; Nuala Ni Fhlatharta, Head of Forestry Development Department Teagasc.




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# NEWS

The research is now at the exciting stage of starting to build strategic alliances with commercial seed producers/nurseries to ensure that Teagasc's research output is brought to the next level by making improved planting stock available to landowners."

Teagasc researcher Oliver Sheridan explained the background to this research project: "Many stakeholders highlighted the need for more work on broadleaves, especially native species. Birch is considered to have potential for timber as it is the most important commercial broadleaf species in Northern Europe; highly valued in Scandinavian and Baltic countries. However, the poor form of birch in Ireland has prevented its listing on the recommended species list for commercial forestry. Attempts to import seed from good quality birch from other countries have failed, as birch is very closely adapted to the ecology of its origin. Nevertheless, over a million birch trees are planted every year in Ireland; mainly for biodiversity and native woodland schemes. Successful birch tree breeding programmes in other countries, such as Finland and Sweden, has resulted in silver birch of much higher quality (straight stem and reduced knots) and with about 26% higher volume growth."

## TEAGASC FOCUSED ON BENEFITS OF THE NEW FORESTRY PROGRAMME 2014 – 2020 AT TIMBER 2015

Teagasc's Forestry Development Department was delighted to be present at this year's very successful TIMBER 2015, the Irish Forestry, Woodland & Bio Energy Show. TIMBER 2015 took place over the weekend at the Stradbally Hall Estate, Co Laois. Teagasc had its own marquee and demonstration area highlighting its extensive advisory, research and training services. Forestry advisers, researchers, educators and specialists were available over the two days answering very wide ranging questions.



Teagasc Forestry marquee at TIMBER 2015

Teagasc's focus this year was very much on promoting and providing objective and unbiased support to the new Forestry Programme 2014 – 2020. This new Forestry Programme provides new opportunities to landowners including attractive forest establishment and support grants.

Nuala Ni Fhlatharta, Head of the Forestry Development Department with Teagasc commented "Teagasc was pleasantly surprised with the number of queries we received relating to the new Forestry Programme. It is clear that many landowners are considering developing a forest enterprise under this new attractive Forestry Programme."

She added "A new forest road construction scheme is also available with improved grant rates. This is important news for forest owners who are now preparing for their first thinning operation."

## TEAGASC PRODUCES SIX NEW FORESTRY PUBLICATIONS

To assist in providing a better understanding of the new Forestry Programme, Teagasc in association with the Forest Service (DAFM) have produced six new publications describing different elements of the new Forestry Programme.

Steven Meyen, Forestry Adviser with Teagasc provided more detail: "Three new titles were produced as part of Teagasc's popular Farm Forestry Series, while another three flyers were prepared by the Forest Service, DAFM and produced by Teagasc highlighting different measures of the new Forestry Programme."

### The three new titles in Teagasc's popular Farm Forestry Series are:

- Farm Forestry Series no 7, Establishing a Farm Forest – How do I get the work done? This 12–page leaflet outlines the options available to budding forest owners how to make a grant application.
- Farm Forestry Series no 18, Afforestation Grant & Premium Scheme 2014–2020 – A Guide to Grant and Premium Categories.

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Launch of six new publications highlighting different elements of the new Forestry Programme. These publications have been produced by Teagasc's Forestry Development Department in association with the Forest Service, DAFM.

(From left to right): Karl Coggins, Assistant Principal DAFM; Frances McHugh, Forestry Adviser Teagasc; Tom Hayes, T.D., Minister of State with responsibility for forestry; Dr Frank O'Mara, Director of Research Teagasc; Liam Kelly, Forestry Adviser Teagasc.





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This 12-page leaflet explains briefly the various Grant and Premium Categories and what they entail.

- Farm Forestry Series no 17, Timber Measurement in Conifer Forests - Preparing for the first thinning. This 8-page leaflet is a practical guide for those forest owners preparing for first thinning who wish to know the volume of timber they are offering for sale. The leaflet is of particular benefit to those who have attended a Teagasc Timber Measurement Course.

**The three joint new flyers highlighting different measures of the new Forestry Programme are:**

- Forest Roads Scheme 2014-2020
- Thinning and Tending of Broadleaves (Woodland Improvement Scheme) 2014-2020
- Reconstitution Scheme (Chalara Ash Dieback) 2014-2020

The above leaflets are available from your local Forestry Adviser or from the Teagasc Forestry website as PDF downloads.

## REFORESTATION EVENTS IN KILKENNY AND CLARE DEMONSTRATE BEST PRACTICE

Teagasc, in association with Coillte, the Society of Irish Foresters and the Forest Service, Department of Agriculture Food and the Marine, held three very successful events focusing on best practice in relation to reforestation after clearfell.

Over 250 people attended these events. These reforestation demonstrations provided guidance to forest owners whose plantations are now coming up for re-establishment. Most forest owners know that a forest must be replanted after the final timber crop has been harvested. However, the re-establishment of a forest is very different to afforestation. After a clearfell, there is an abundance



Dr Nuala Ni Fhlatharta and Frances McHugh, Teagasc examining brush bundling at one of the reforestation events. This event was held near Mullinavat, Co Kilkenny. Over 90 foresters and students attended.

of branch material on the ground. Ground preparation involves removing this material from the site, or tidying it up into piles called windrows. After this, prompt replanting with suitably sized and sturdy young trees can reduce reforestation costs and ensure the quick and successful establishment of the next forest. Vegetation such as briars, gorse and willow can encroach rapidly and timely control of vegetation is critical to successful reforestation.

Another important issue at the time of reforestation is the control of the large pine weevil (*Hylobius abietis*). Chemical control over the first two years of the reforestation process is necessary to limit damage. Such treatments should be done in accordance with the newly introduced Sustainable Use Directive (SUD).

Nuala Ni Fhlatharta, Head of Teagasc's Forestry Development Department commented: "There is an opportunity when reforesting to improve the forest both from economic and environmental perspectives in the second rotation. This can be done by using improved tree species and enhanced establishment and management practices. That is why these events are so important, so that forest owners can see best practice for themselves."

During these events, farmers had the opportunity to avail of the expertise of a range of speakers. The Forest Service outlined correct procedures when applying for felling licences, while Coillte shared their expertise on issues such as windrowing, plant quality, scrub control and weevil control.

## FOREST BIOENERGY DEMONSTRATION IN KILKENNY FOCUSES ON OPPORTUNITIES AND CHALLENGES FOR FOREST OWNERS

Teagasc and the Forest Service in association with Waterford Institute of Technology (WIT) and the Irish Wood Producers (IWP) held a very successful Forest Bioenergy Demonstration recently near Thomastown in county Kilkenny.

Approximately 140 people attended this Bioenergy Demonstration which focused on timber harvesting, logistics, quantifying wood fuel for payment and product quality. Speakers included staff from the Teagasc Forestry Development Department and WIT, the contractor (Worrell Harvesting Ltd.) on site and the supervising forest company (Forest Enterprises Ltd.).

The increasing demand for wood biomass in Ireland presents an opportunity for forest owners. The recent COFORD report 'Mobilising Ireland's Forest Resource' recommends increasing the use of full tree harvesting and the recovery of harvesting residues to help alleviate the increasing gap in the supply/demand of wood biomass in Ireland. The report estimates that by 2020 wood demand on the

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*or see:*

[www.agriculture.gov.ie/forestry](http://www.agriculture.gov.ie/forestry)



# NEWS



Approximately 140 people attended the Forest Bioenergy Demonstration held near Thomastown, Co Kilkenny. This event was organised by Teagasc in association with the Forest Service (DAFM), Waterford Institute of Technology and the Irish Wood Producers.

island of Ireland will exceed the expected supply by 2.1 m<sup>3</sup> million per year and that forest based biomass is projected to see the largest rise in demand due to government targets on renewable energy.

If forest owners are to take advantage of this increasing demand, it is vital that supplying the wood biomass market is done efficiently and economically.

Waterford Institute of Technology has studied the wood biomass supply chain over several years. Their most recent research examines the productivity of three different harvesting methods in conifer thinning while maximising the potential harvest through whole tree thinning. The research attempts to examine the efficiency and economics of each harvesting option.

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## POPULAR TALKING TIMBER EVENTS RETURN IN SEPTEMBER!

Teagasc's Forestry Development Department will run once again two Timber Marketing Days in September. Similar to the previous popular events, these events will provide a great opportunity for forest owners to meet with timber buyers, harvesting contractors and foresters.

Talking Timber are two timber marketing events organised by Teagasc with the co-operation of the Irish timber industry and the Forest Service, DAFM.

The first event will be held at the McWilliam Park Hotel, Claremorris, Co Mayo on Tuesday 8 September while the second event will take place one week later on Tuesday 15 September at the Mount Wolseley Hotel, Tullow, Co Carlow.

Both events will provide an opportunity for forest owners to find out more about the timber selling process and the harvesting options available to them. This will give forest owners a better appreciation of how the thinning selling process works and how timber value can be maximised.

Feedback from forest owners has also highlighted the need for a suitable forum to engage with key players involved in the harvest and purchase of timber. Both Talking Timber events will facilitate forest owners who have timber for sale to make contact with timber buyers in their area.

Registration is at 9.30 am and both events will run from 10 am to 2 pm. The day will start with an outdoor demonstration organised by the Irish Forestry and Forest Products Association where participants will have the opportunity to view the quality of timber required by Irish sawmills. This outdoor demonstration will be followed by short, snappy indoor presentations from Teagasc, the Forest Service and speakers from the forest industry.

There will be ample networking opportunities for both timber sellers and buyers at these timber marketing events as a number of companies and contractors will have a stand at these venues.

**Further information is available from your local Forestry Adviser or from [www.teagasc.ie/forestry](http://www.teagasc.ie/forestry).**

**This is a valuable opportunity for forest owners to meet with those buying timber in your area!**



Over 500 people attended last year's Timber Marketing Events in Kilkenny and Westmeath where forest owners were told that the quality of the timber has a very important bearing on the market price offered.



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# NEWS

## CONIFER THINNING EVENT AT KILBRIN, KANTURK, CO CORK

Teagasc and the Forest Service are organising a conifer thinning event in Kilbrin, Kanturk, Co Cork on a first and second thinning site, to take place on Tuesday October 20th 2015. This event will highlight Teagasc conifer research and will provide forest owners with valuable practical information on the reasons for, and timing of, thinning a Sitka spruce crop and how different thinning regimes can impact on crop development and profitability potential.

While there will be an emphasis on how different thinning regimes can impact on crop development, the open day will also highlight timber assortments and their overall effect on the profitability of thinning operations and road construction.

John Casey, Teagasc Forestry Development Officer, explained: "Many farm forests planted in the early to mid-nineties now require thinning. Thinning is a time-critical forestry operation to improve the quality and value of the timber crop and to maintain good forest health. Thinning intensity and the resulting timber assortments can have a huge impact on profitability". Dr Niall Farrelly, Forestry Researcher with Teagasc gave more details: "the crop has been thinned using a range of different regimes assessing the impact before and after the operation. The focus of the thinning trials is to observe the effect of different thinning intensities on the growth and development of the crop, and to identify the most suitable regimes to maximise the production of valuable sawlog material in the shortest possible time, while maintaining crop stability and sustainability".

This is a great opportunity for forest owners to learn about the latest thinning research and how to get the best out of their own forests. It is an essential event for forest owners whose crops are approaching first thinning stage or are at subsequent thinning stages.



The conifer thinning event taking place on Tuesday October 20th, 2015 in Kilbrin, Co Cork is a great opportunity for forest owners to learn about the latest thinning research and how to get the best out of their own forests.

The event will take place on Tuesday 20 October 2015 at 11am in Kilbrin, Co Cork. The venue will be signposted from Kanturk, Co. Cork. Kilbrin is located off the R580 between Kanturk and Castlecork. Garmin Loc8 code: QP3-40-2KJ.

The event will start at 11.00 am sharp and the event circuit will take approx. 2.5 hours to complete. The co-operation of the landowner and The Forestry Company are gratefully acknowledged. This is an outdoor event so it is advisable to bring appropriate raingear and footwear. All are welcome and the event is free.

**For further information, please contact John Casey, Teagasc (087 2242283) or visit [www.teagasc.ie/forestry](http://www.teagasc.ie/forestry).**

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# HOW REMEDIAL SILVICULTURE CAN IMPROVE POORLY PERFORMING POLE-STAGE BROADLEAVES

The last 20 years has seen the planting of 30,000 hectares of broadleaf trees in Ireland. Action must be taken to achieve the best return on this investment, writes Dr. Ian Short and Jerry Campion, Teagasc Forestry Development Department.



**Nineteen-year-old poorly performing ash plantation, systematically thinned and underplanted with alder.**

In comparison with previous decades, the last two decades have seen a substantial increase in broadleaf afforestation in Ireland with about 30,000 ha planted during this period, predominantly in green-field sites on agricultural land. Some of the resultant stands haven't performed as well as was hoped when planted. Whilst mistaken species or provenance choice can sometimes be a reason for poor stem form or poor growth rates, a host of other factors can also be a causal or contributing factor. Exposure, frost, insect and pest damage, amongst others, can all influence the quality and growth of trees.

The severity of the poor quality can impact the potential for producing a fully stocked stand of high quality sawlog in the future. If the production of sawlog is an objective of such a stand, some alternative silvicultural techniques may be required to increase the potential of fulfilling that objective. The type of silviculture to be carried out will be influenced by the cause of the poor quality and the number of potential crop trees (PCTs) that are available. (For more information regarding PCTs, see Forestry & Energy Review 1[2]).

If the species or provenance selection is the cause of the poor quality, replanting with more suitable planting stock will be required. If other factors are the cause, replanting may not be necessary but an alternative system may be suitable. The 5-year CoFoRD-funded B-SilvRD project (Broadleaf Silviculture Research and

Development) has been investigating, on a pilot basis, a number of alternative silvicultural options for poorly performing pole-stage broadleaves. One such system, coppice-with-standards, was outlined in a previous article (see Forestry & Energy Review 4[1]). This article will outline another system: systematic thinning with underplanting and/or coppice.

## SYSTEMATIC THINNING WITH COPPICING

As part of the B-SilvRD project, two pilot studies were initiated. One was in a 17-year-old poorly performing stand of sycamore (*Acer pseudoplatanus*). It was planted in 1996 at 2 m x 2 m spacing (2,500 stems ha<sup>-1</sup>). Elevation is 125 m and at the time of planting the site was exposed.

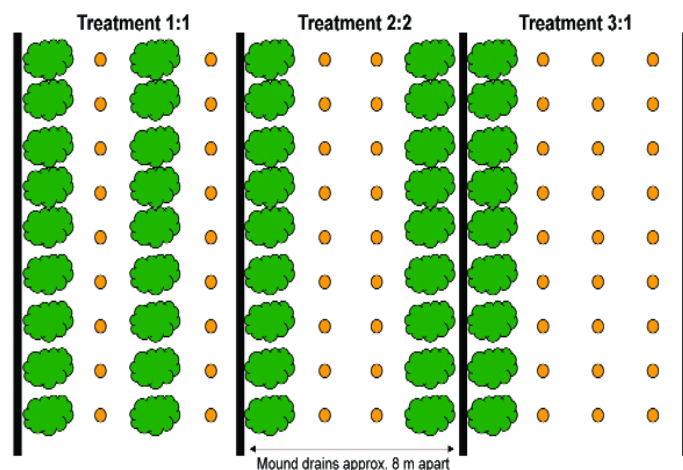
Possible causes for the poor performance included exposure, inappropriate species/provenance choice, mineral soil rooting depth limited to around 30 cm, and lack of early maintenance. With the agreement of the owner, it was decided to carry out line thinning in three treatments (Figure 1):

1. remove 50 % canopy cover by removing alternate lines (Treatment 1:1);
2. remove 50 % canopy cover by removing 2:2 lines (Treatment 2:2); and
3. remove 75 % canopy cover by removing 3:1 lines (Treatment 3:1).



The thinning was carried out motor manually in February 2011 with low impact quad. Any viable firewood cords were extracted with a timber arch. Top height of the stand was approx. 8 m. The growing season after the intervention resulted in strong coppice regrowth from the cut stools; much stronger than had been anticipated. They were clearly benefitting from improved sheltered conditions than had been the case at the time of initial establishment.

The site was now being surrounded by well-established conifer stands on three sides and an overgrown hedgerow on the west side, together with more intimate shelter from the remaining sycamore crop.



**Figure 1. Diagrammatic representation of the thinning treatments. It does not include the buffer areas adjacent to each measurement area.**

Three growing seasons after the intervention and the coppice regrowth was particularly strong in the 3:1 treatment (Figure 2). This provided an opportunity to examine the potential to reconstitute the sycamore crop, potentially as a two-tier, single species woodland, via singling of the resultant coppice in the 3:1 treatment. Singling is a practice whereby the best coppice shoot is selected and retained whilst the other shoots are removed. Selection is done on the basis of vigour, stem form, and strength of connection to the original stump. A singling operation was carried out in the 3:1 treatment in January 2014.

A pilot study of singling is being carried out in which some of the coppice shoots have been removed to leave either 1 or 3 shoots per stump (Figure 3). Those that have 3 shoots remaining will be further singled in a later operation. Any good quality stems in the overstorey have been selected and high-pruned. In later years the overstorey will require thinning to maximise their potential and to ensure that the understorey sycamore receive sufficient light to continue their growth. Over time the understorey will also require thinning and high-pruning to maintain sufficient stem quality for sawlog production.

### SYSTEMATIC THINNING WITH UNDERPLANTING AND COPPICING

The second pilot study was initiated in a poorly performing stand of ash (*Fraxinus excelsior*). Stem form and growth rate were both

**Figure 3. Singled coppice October 2014**



unsatisfactory. The cause of the poor performance was incorrect species choice and incidence of frost. The stand is on wet organic soils beside a river and at the bottom of a hill.

In early 2011, when the trees were 19 years old, they were assessed to be Yield Class 4 and in need of a remedial intervention to replace the ash with a more suitable species. Rather than clearfelling and replanting, a systematic thinning and underplanting operation was carried out. This consisted of either felling 2:4 or 3:4 lines of ash, and planting alder (*Alnus glutinosa*) within the felled lines between the stumps.

The standing ash trees that remain modify the microclimate relative to that when the plantation was first planted. They provide shelter and protection from frost. The felled ash have subsequently coppiced and are growing well. Both the ash coppice



**Figure 2. Sycamore coppice understorey three growing seasons after maidens were cut to three intensities: a) 1:1; b) 2:2; c) 3:1**



and the young alder are encouraged to grow upright as they reach for the available light above (Figure 4).



**Figure 4. Twenty-three-year-old poorly performing ash overstorey with 4-year-old singled ash coppice and planted alder understorey.**

Three growing seasons after felling, the coppice shoots were singled, resulting in one good quality shoot remaining per stump. Future thinnings of the remaining standing ash should ensure that sufficient light is available for the singled ash and for the alder in the understorey to continue their growth. These will also require thinning in later years to ensure that they do not impede each other.

In the meantime, the alder and ash coppice should be formatively shaped and pruned as required. This will make for easy selection of potential crop trees when the trees have reached 8 m height. Alder is a nitrogen-fixing species. Some of the fixed nitrogen will

**“If the species or provenance selection is the cause of the poor quality, replanting with more suitable planting stock will be required. If other factors are the cause, replanting may not be necessary but an alternative system may be suitable”**

become available to the ash and could have beneficial effects on its growth rate.

The remedial silviculture intervention has resulted in a two-tier forest system that has greater potential than the original stand had but will still require further management to ensure that the potential is realised.

### A FORGOTTEN PRACTICE?

The silviculture that we are carrying out in the pilot trials is not new but may have been forgotten. A book about oak silviculture, written by Billington and published in 1825, has a chapter specific to “reclaiming and bringing woods and plantations that have been neglected, or got into a ruinous stunted state for want of thinning, &c. into a healthy and profitable condition.” in which he says:

*“...I would begin to head some of them down (the weakest and those with the fewest branches on) to different heights from the ground, and perhaps cut some close to the soil, according to circumstances;... Trees of 20, 30, or even more years’ growth,*

*might probably be renovated, and set in a growing vigorous state again, which would be of immense importance.”*

Heading down of trees is synonymous with stumping back of young broadleaves: the act of cutting down a young tree at, or a few years after, planting to near ground level to encourage coppice shoots. The usual reason for doing so is to improve stem form and/or vigour. In his Memorial on the Culture of Woods to the French Government in 1742, de Buffon of the Royal Academy of Paris said this about young trees that had been stumped back:

*“... they shoot out with vigour the superabundance of their nutriment, and produce, the very first year, a shoot more vigorous and higher than the old trunk was after three years. I have repeated this experiment so often, that I can give it as a certain fact, and the most useful practice that I know in the culture of woods.”*

Two-hundred years later, in 1945, Madden reported his delight at the result of stumping back a partially cleared stand of ash in Ireland:

*“... extensive patches of crooked, deformed and diseased natural ash—neither a straight nor a healthy plant in the lot. There they stood, ten or twelve feet high, and, for all their deformity, their cutting back on the morrow afforded me no satisfaction. ... After one short year; however, this cutting back of natural ash has proved a definite success. What sturdy, straight shoots! No doubt of where they are going—the sky is the limit. Each stump has sent out from two to six shoots... The secateurs in my hand are itching for the work. Selection from such a pick will be easy and agreeable work.”*

Normally stumping back of trees is done within the first few years after planting when a concern with stem form or vigour first becomes apparent. The situation described by Billington, and those being investigated in the pilot trials, is a little unusual because the trees are older, but the practice could still be useful in their management.

### HISTORY REPEATING ITSELF?

Over 200 years after Billington wrote about managing a poor quality broadleaf stand, here we are again in a similar situation looking for answers.

The interventions carried out thus far in the pilot trial areas appear to provide an alternative management strategy for poorly performing broadleaf stands. With the continued management of the stands in the future, their full potential may hopefully be realised and good quality sawlog be produced.

We hope that, 200 years from now, there will be no need for the answers to be rediscovered once more.







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# THE FORESTRY PROGRAMME 2014 – 2020

Earlier this year, the Government secured State Aid approval for the new Forestry Programme covering the period 2014 – 2020. We look at the measures announced to date as part of that Programme, by Forest Service, Department of Agriculture, Food and the Marine.



**T**he Government sees huge potential for growth in the forestry sector. Already the industry contributes €2.3 billion per annum to GDP and employs approximately 12,000 people both directly and indirectly. Overseas markets for Irish sawn wood and panel board products have expanded over the past number of years despite the recession.

Further growth of up to 20% can be expected by 2030 according to a recent UNECE/FAO study. Increasing EU targets for renewable energy also means that there will be more demand for wood as fuel for domestic and industrial use. It is not surprising therefore that the Government secured State Aid approval for a new forestry programme covering the period 2014–2020; this followed a long and detailed process of negotiation with the European Commission ensuring unbroken financial support for forestry that has continued since the 1980's.

The Forestry Programme 2014–2020 which is 100% state funded, offers a range 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 will involve total expenditure of €262 million over 11 separate schemes. This in turn will generate downstream commitments of a further €220m, mostly relating to future premium payments. This level of investment will facilitate an increase in forest cover of almost 44,000 hectares and will provide funding to build almost 700 kilometres of new forest roads.

Under the redesigned Afforestation Scheme, both farmers and non farmers will be eligible for the same premium rate, paid each year for 15 years. Furthermore, the full cost of establishing new forests is covered by grants which have increased by 5% in comparison to the level of support provided under the previous 2006–2013 Programme.

Following the comprehensive review of forestry schemes, completed in 2014, new planting categories have been introduced to provide additional options to landowners who may not otherwise have been interested in planting their land. The new Agro Forestry and Forestry for Fibre measures are targeted specifically at farmers, providing them with options for grazing livestock alongside forestry and, in the case of Forestry for Fibre, the option to harvest timber after 10–15 years rather than 35–40 years as is the case with other types of forestry.

A further improvement is the incorporation of the existing Native Woodlands Establishment Scheme into the main Afforestation Scheme to encourage the planting of native woodlands as part of more commercial forests. This initiative will help achieve the national target for broadleaf planting of 30%; higher grant and premiums for broadleaf species and a requirement to include 10% broadleaves (where site quality allows) within all new individual afforestation projects will also assist in achieving this target.

In addition to meeting the growing demand for roundwood by sawmills and panelboard manufacturers, the programme also addresses the need to maximise the environmental and social

**Table No. 1: Afforestation – Premium Rates (same rates for farmer and non farmer)**

GPC	€/ha	Duration (years)	Increase (year on year)
1 – Unenclosed	185	15	19%
2 – Sitka spruce/lodgepole pine	440	15	19%
3 – 10% Diverse**	510	15	19%
4 – Diverse	560	15	23%
5 – Broadleaf	575	15	20%
6 – Oak / Beech	615	15	19%
7 – Beech	615	15	19%
8 – Alder	575	15	20%
9– Native Woodland Establishment (Scenarios 1–3)*	635	15	23%
10– Native Woodland establishment (Scenario 4)*	635	15	23%
11 – Agro-forestry*	260	5	–
12 – Forestry for Fibre*	180	10	–

\*new GPC's

\*\*Most popular GPC



benefits that can be delivered by forestry. Native Woodland and Neighbourhood Schemes will deliver ecosystems rich in animal, plant and insect life which can be enjoyed by society and which will generate revenues from recreation and tourism.

Forestry will continue to make an important contribution to climate change mitigation through carbon sequestration and fossil fuel replacement.

In fact the programme introduces for the first time a scheme for growing eucalyptus which is designed to allow farmers to grow wood for domestic heating, either for their own use or for selling into local markets. Wood fuel is estimated to be worth €33m per annum to the economy.

There is also significant potential for forestry to contribute to economic activity in the area of tourism. Approximately 18 million people visit Irish forests each year, representing 4.5 visits per person. In the future, it seems likely that demand will increase for a higher quality of forest recreation experience (e.g. more

Forestry for Fibre), Forest Roads Scheme, Woodland Improvement (Thinning and Tending) Scheme, the Seed Stand and Seed Orchard Scheme and the Neighbourhood Scheme

## AFFORESTATION SCHEMES

Grant and Premium categories are determined by the category of land planted, the tree species and the area planted.

The rates payable under the Forestry Programme 2014–2020 are shown on Table No. 1

The new rates shown (Table No. 2) apply to new planting only. Total planting (based on payment date) up to the end of July 2015 is 3,949ha which is an increase of 32% from the same time in 2014.

## FOREST ROADS SCHEME

The mobilisation of timber from the private sector has been identified as vital for the further development of Ireland's forest industry.

**“The mobilisation of timber from the private sector has been identified as vital for the further development of Ireland's forest industry. To this end, the Forestry Programme will provide for almost €28 million of funding towards the building of roads over the six year programme period”**

organised and specialised recreation activities and a higher expectation in relation to visitor facilities).

The Irish figure of visits per capita is less than the European average of 6.5, and it is likely that the expansion of public use of forests for recreation will continue for the next number of years. The total economic activity generated by domestic forest users is estimated at €268 million. Walking tourism, generally by overseas visitors, accounts for €138 million per annum.

It is a basic requirement of the forest roads scheme that any infrastructure funded should be open to the public for recreational use without charge.

The schemes currently open are the Afforestation Scheme (incorporating Native Woodland Establishment, Agro-Forestry and

To this end, the Forestry Programme will provide for almost €28 million of funding towards the building of roads over the six year programme period.

Increased provision for building forest roads will provide for greater mobilisation of timber to market by encouraging forest holders to carry out first thinnings. The proper management of forests will lead to more productive forests as well as environmental benefits as light breaks through the canopy stimulating growth on the forest floor.

Financial support for forest roads is provided at a rate of €40/metre at a density of 20m/ha, representing a 14% increase over the previous programme. A special construction works grant for forest roads worth up to €5,000 has also been introduced under the new

**Table No.2: Afforestation – Grant Rates**

GPC	1st Grant €/ha	2nd Grant €/ha	Total €/ha	Additional Fencing Allocation €/ha IS436	Alternative Fencing Allocation €/ha Non IS436	Total Available Funding €/ha
1 – Unenclosed	1575	525	2100	500	350	2600
2 – Sitka spruce / LP	2310	735	3045	500	350	3545
3 – 10% Diverse Conifer	2360	790	3150	500	350	3650
4 – Diverse Conifer	2625	840	3465	500	350	3965
5 – Broadleaf	3780	1155	4935	500	450	5435
6 – Oak / Beech	3990	1260	5250	500	450	5750
7 – Beech	3990	1260	5250	500	450	5750
8 – Alder	2520	840	3360	500	450	3860
9- Native Woodland Establishment (Scenarios 1–4)	3990	1260	5250	500	450	5750
10- Native Woodland establishment (Scenario 4)	3780	1155	4935	500	450	5435
11 – Agro-forestry	2960	990	3950	500	450	4450
12a – Forestry for Fibre	1460	490	1950	500	450	2450
12b – Forestry for Fibre (Aspen, 1400)	1245	420	1665	500	450	2165





Programme. This additional support is aimed at minimising any adverse effects of harvesting on sensitive sites i.e. sedimentation of local watercourses.

### WOODLAND IMPROVEMENT SCHEME

**This scheme will be delivered in two elements.**

The aim of Element 1 is to provide financial support of up to €750 per hectare to forest holders towards the cost of woodland improvement works associated with tending and thinning of broadleaf forests planted post 1980 under grant aided afforestation schemes.

Funding may also be provided for brashing to improve access for manual application of fertiliser where aerial fertilisation is not possible. Foliar analysis may be required to establish nutrient status and determine the type and rate of fertiliser.

Element 2 relates to Environmental Enhancement measures which support actions within existing forests which effect structural changes that will contribute towards the protection and enhancement of water quality, archaeological sites, habitats and species, and sensitive landscapes. This element is scheduled for launch later in the year.

### NEIGHBOURWOOD SCHEME

The NeighbourWood Scheme enables local communities to create, in co-operation with Local Authorities or other public bodies, woodland amenities for the benefit of their community.

**The scheme consists of three components:**

NeighbourWood Establishment which funds new NeighbourWoods developed on open 'greenfield' sites.

NeighbourWood Enhancement which funds the silvicultural enhancement of existing woodland already used as neighbourwood or proposed for development as neighbourwood and

NeighbourWood Facilities which funds the installation and upgrade of appropriate recreational facilities within an area submitted under NBR Establishment or NBR Enhancement. Typical facilities include entrances, car parking, a variety of looped footpaths, information signage and waymarkers, nature trails, and seats and picnic tables.

- NBR Establishment: €5,000 / ha (plus an additional fencing allowance, as under the Afforestation Scheme)
- NBR Enhancement: €5,000 / ha
- NBR Facilities: €3,800 / ha

### SEED STANDS AND SEED ORCHARD SCHEME

The main focus of the scheme is to increase the resilience, productivity and quality of Irish forests. The scheme provides support aimed at the conservation and protection of Ireland's ancient oak woodlands by providing funding to increase acorn production from these forests.

This material can then be used in the Native Woodland Scheme which is also supported under the new forestry programme. The aim is to increase the supply of superior home produced seed which can then be used in nurseries to grow genetically improved trees for new planting and reforestation.

### FURTHER INFORMATION

**For further information on any of these issues, including full details of schemes and eligibility conditions, etc, are available on the Department of Agriculture, Food and the Marine's website at:**

**<http://www.agriculture.gov.ie/forests-service/>**

**There are three components of the Seed Stands and Seed Orchard Scheme with support as follows:**

	1st Instalment €/hectare (ha)	2nd Instalment €/ha	Total grant available	€/ha Premium
Broadleaf seed stands	400	125	525	-
Outdoor seed orchards	7,500	2,500	10,000	500/ha
Indoor seed orchards*	37,500/application	12,500/application	50,000/application	-

\*50% of establishment costs up to a maximum of €50,000 per application





# Miscanthus Information Day

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**Venue:** Thornhill, Tullow, Co Carlow

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# INVESTIGATING THE VALUE OF HARMONISING NATIONAL FOREST INVENTORIES ACROSS THE EU

As a response to the challenges for the supply of forest information, a 4-year (2015–19) EU funded Horizon 2020 research project DIABOLO\* has begun. This project when completed will enable better decision making in relation to forest use as it will provide updated reliable data on a European scale. This article by the Diabolo team, including Charles Harper of UCD, has been adapted by Marie Doyle, UCD. \*\*“Distributed, integrated and harmonised forest information for bioeconomy outlooks” (DIABOLO)



Countries involved in DIABOLO (the hatched countries are Work Package leaders).



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 633464.



## DEMAND AND SUPPLY OF FOREST INFORMATION FOR THE BIOECONOMY IN EUROPE

The need for the European economy to be more innovative, productive and competitive while using fewer resources and reducing its environmental impact has been widely acknowledged. The forestry sector, as part of the European green infrastructure, has an important role to play here and can contribute to tackling significant future social, ecological and economic challenges, such as unemployment, climate change and globalisation. However, these challenges will further increase the demands on forests, which besides wood and energy production, currently include carbon sequestration, biodiversity conservation, water protection, landscape management, soil fertility conservation, nutrient regulation and recreation. Moreover, the competition for land use between traditional agriculture, biomass production, and forestry is expected to increase in the future as sustainable biomass production has been identified as an area of key concern in recent European reports. These changing demands require the development of new policies, including a coherent European-level forest policy which should be based on reliable, comparable and comprehensive data on forest ecosystems.

While current forest inventories and other ecosystem monitoring activities of EU Member States are reliable sources of forest-related information, it would be advantageous to harmonise at EU-level both data collection (in terms of the type of data collected and the

methodology applied to its collection) and the processing and analysis of the data. This would result in information that could be amalgamated and used to support the development, and subsequent monitoring, of policies that are based on the actual condition of the forest resource. Such well-defined information on the status of forest resources could be used to predict developments in forest ecosystem goods and services and thus serve a broad range of stakeholders and create new opportunities for an innovative, sustainable and inclusive bioeconomy in Europe.

In addition to field data collected in national forest inventories, remote sensing data such as satellite images or aerial photographs provide important complementary information. Large area complete coverage information can facilitate the integration and harmonisation of national forest inventory data into an efficient European forest information system. Additionally, remote sensing data can be gathered at short intervals thus providing continuously updated information on forest change and disturbance. Apart from its importance for the bioeconomy, such a European forest information system would also constitute a pivotal tool for monitoring climate change effects on forest ecosystems.

## THE DIABOLO PROJECT

As a response to these challenges for the supply of forest information, a 4-year (2015–19) EU funded Horizon 2020 research project DIABOLO has begun. This project brings together 33 partners from 25 European countries with expertise in the fields of policy analysis, forest inventory and forest modelling who have direct links to European and national policy institutions and stakeholder networks.





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**The project aims include:**

- i) Strengthening the methodological framework for more accurate, harmonised and timely information derived from forest inventories and monitoring systems, which can be fed into the existing EU information systems (for example the Shared Environmental Information System (SEIS) and the European Forest Data Centre (EFDAC));
- ii) Supporting the development of EU policies and international processes that will be based on consistent forest information and
- iii) Making innovative use of field-collected data and Earth observation and satellite positioning systems.

## A NEW METHODOLOGY FRAMEWORK FROM DIABOLO

Work in the project has been divided into seven distinct work packages (WP). Five of these have direct deliverables:

**WP1:** developing a more effective interface between science and policy

**WP2:** developing a more efficient route to impact by sharing methods/techniques for harmonisation between the European National Forest Inventories (NFIs) on the state and changes of growing stock, biomass and carbon in European forest ecosystems;

**WP3:** creating a wider scope for NFIs by developing new models and indicators related to biodiversity, conservation status, forest risk assessments, non-wood forest products and services;

**WP4:** improving information on forest disturbances (e.g. forest fires, storm, drought, insect outbreaks) and their impacts utilising satellite remote sensing;

**WP5:** generating a better understanding of biomass supply dynamics and trade-offs between land-uses.

By incorporating 25 different European NFIs, the project team has immediate access to the data collected in the individual NFIs and can therefore start to formulate methods to harmonise processing methods and amalgamate data.

The project also aims to standardise and improve European estimations of biomass supplies and non-wood forest products, on the basis of NFI plot and tree data. The focus is to produce realistic bioenergy targets, secure the competitiveness of the industry, and monitor the paths towards achieving the targets, based on political responses.

DIABOLO foresees direct output links to EFDAC and its successor, the Forest Information System for Europe (FISE), for data on wood and biomass resources and their sustainable supply, and also for data on other forest ecosystem services, e.g. forest biodiversity and for the information on forests disturbances.

It is also envisaged that decision support systems for the bioeconomy industries (for example, the EU Bioeconomy Observatory (BISO)), will benefit from DIABOLO, at regional and local levels, on the basis of harmonised definitions and estimations of sustainable biomass supplies.

The bottom-up approach (the direct involvement of all national data providers) applied in DIABOLO should lead to the broad acceptance of outputs at EU member states' level. In addition, by integrating new Earth Observation data, DIABOLO will strengthen the capacity for assessing risks and monitoring forest disturbances on both a pan-European scale and at regional levels. The short revisit cycles that are intended will accelerate information flows and support the development of effective, timely and harmonised European policies. This in turn will allow both forest managers and policy makers to react effectively to address and prevent damage due to forest disturbances.

DIABOLO will also support the development of coherent policies by improving the understanding of trade-offs between biomass supply and other ecosystem products and services. This will be achieved by developing methodologies to incorporate land-use constraints and land owners' objectives into statistically sound, harmonised, comprehensive bottom-up (from national to European) model-based biomass supply analyses.

DIABOLO's extensive membership will facilitate knowledge transfer from countries with long traditions of NFIs to recently emerging

**“By incorporating 25 different European NFIs, the project team has immediate access to the data collected in the individual NFIs and can therefore start to formulate methods to harmonise processing methods and amalgamate data”**

ones. In addition, these emerging NFIs can take immediate advantage of newly developed methods, enhancing the quality of forest information in those countries.

UCD and the Forest Service are both members of the DIABOLO team.

**For more information on the DIABOLO project see the following website [www.diabolo-project.eu](http://www.diabolo-project.eu).**

### IRELAND'S NFI

Ireland's NFI is a relatively recent development as data collection for the first one took place between 2004 and 2006. The second NFI was completed in 2013 and recruitment for data collection staff for the third NFI is currently underway.

Our NFI is based on a series of permanent sample plots. A grid density of 2km x 2km provides 17,423 plots, each of which represents 400 ha; each circular NFI sample plot is 500 m<sup>2</sup> in area. An extensive range of timber and non-timber data is collected at each plot including growing stock, harvest levels, deadwood, species composition, plant diversity, forest health and carbon stocks.

The value of permanent plots is that not only does each NFI provide a contemporary evaluation of forest attributes, it also allows for direct comparison with previous inventories.



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# TORREFACTION – FULFILLING THE POTENTIAL OF BIOMASS ENERGY

Torrefaction is a roasting process in an anaerobic environment. It vaporises low energy elements in wood leaving a clean burning, low moisture, energy dense product writes, Barry Clarke of Auxentios Energy.



Drying Grades



In 2014 European consumers burned over 150 million cubic metres of wood fuel. If, for the purpose of this exercise, we suggest that each cubic metre of that wood weighed 400kg, and that it had all been dried to an optimistic 25% moisture content, then of that 61.2 million tonnes of woodfuel, about 15million tonnes was sold in the form of water/moisture. Torrefaction hopes to address this wastage by removing water from the equation. The technology to do this is becoming commercially available for the first time.

Torrefied fuel is 40% more efficient than traditional wood fuels and equals coal in term of heat and energy output. It is also cheaper to transport, easier to store, and can be used in large scale industrial applications as well as in domestic or smaller scale environments.

Torrefied Fuel is virtually smokeless



It is hoped that the arrival of torrefied fuels will help suppliers provide a more marketable renewable product to consumers. The science also looks positive with further improved efficiencies promised as more large scale UK and European energy providers adopt this technology.

One of the main selling points of torrefied fuel is that it costs less to transport in terms of its energy value. The transport density of torrefied woodfuel can reach as high as 750kg per cubic metre while the energy density of the wood fuel increases to around 25 mega joules per kilogram.

## TORREFACTION – THE KINDLE TO START THE REVOLUTION

“Torrefied wood is completely desiccated biomass, with devolatilised hemicellulose, which has not yet reached the point of ‘char’. That is to say – that pyrolysis, in any form, has not yet commenced. When the critical surface moisture content of the particle is reached, the evaporation is assumed to take place inside the particle in the moving front between dry and moist regions. In the next stage the surface temperature of the particle never exceeds the pyrolysis temperature. In this case, it means that the drying isotherm reaches the centre of the particle and vanishes before the pyrolysis isotherm appears at the particle surface. In the above context – the drying isotherm is meant to be the

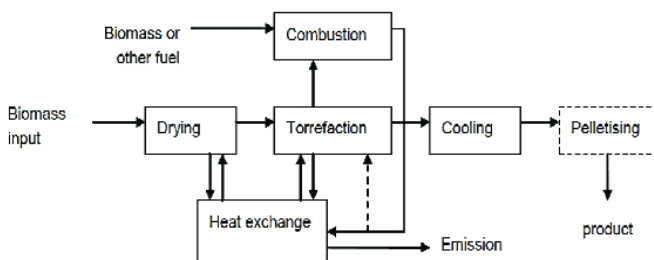




torrefaction temperature (from surface to core) that initiates and completes the devolatilisation of hemicellulose.”

Put simply, torrefaction is a very efficient process of slow-roasting biomass, in an atmosphere with zero oxygen concentrations, to remove all moisture and low energy volatiles to create a combustible product with an increased energy density.

**The energy contained in the released volatiles is equal to the heating requirements of the process so that a thermal efficiency exceeding approx. 95% is achieved.**



Torrefied biomass is on the brink of becoming a viable feedstock for utility-scale electricity generators, potentially displacing coal as well as some conventional untreated biomass and wood pellets.

**“Torrefied fuels have already been successfully test-fired at several power plants in the U.S., Europe and Japan. These have demonstrated the potential to displace coal in largely un-modified utility-scale power plants at high co-firing percentages and at minimal capital cost to the generator”**

Favourable renewable energy policies in Europe, North America and Asia will result in global demand of more than 70 million tons a year by 2020.

Torrefied fuels have already been successfully test-fired at several power plants in the U.S., Europe and Japan. These have demonstrated the potential to displace coal in largely un-modified utility-scale power plants at high co-firing percentages and at minimal capital cost to the generator.

A number of developers have commercial scale plants (> 5tonne/hr.) either under construction or in the early stages of operation. Significant volumes of torrefied biomass are expected to reach the market in the coming months. Several truly commercial-scale

torrefaction plants are likely to be operating by 2017. One of the main advantages for industrial-scale users of torrefied fuel is that it's higher energy density reduces sensitivity to the cost of transport. Each shipment of torrefied fuel carries about 40% more energy (by volume) than conventional white pellets and well over three times that of wood chips.

The carbon footprint of torrefied biomass is also significantly smaller than that of conventional wood pellets. This is due to reduced electricity consumption in the manufacturing process and to the lower transport emissions per unit of energy.

	LOGS/CHIP	PELLETS	TORREFIED
LOWER HEATING VALUE	10-12 mj/kg	15-17 mj/kg	23-25 mj/kg
ENERGY DENSITY (CV)	2-3.2 kWh/kg	4.7-5 kWh/kg	6 - 6.95 kWh/kg
MOISTURE CONTENT	30-50%	< 10%	< 1%
TRANSPORT DENSITY	230-400 kg/m <sup>3</sup>	600 kg/m <sup>3</sup>	750 kg/m <sup>3</sup>

During the torrefaction process approximately 70% of the mass is retained as a solid product containing 90% of the initial energy content. The remaining 30% of the mass is converted into torrefaction gases, but contains only 10% of the energy content of the biomass. Hence, considerable energy density can be achieved, typically by a factor of 1.3 on a mass basis.

### TORREFACTION FROM AN IRISH PERSPECTIVE

In less than 25 years, the woodfuel/biomass industry in Ireland has grown from a few hundred regional firewood businesses, to companies with large fleets of trucks shipping logs, sawdust, chip and pellets up and down the roads of Ireland. This is feeding the increasing number of public and private sector businesses that have switched from fossil-fuels to wood-based biomass.

The increased demand for 'biomass', driven by government subsidies, EU action plans and a desire from consumers to feed their energy demand from "renewable" fuels, has been encouraging for landowners, managers and woodfuel supply businesses alike. However, because of the fact that water persists in this fuel, efficiencies are not being maximised.





Torrefied Fuel Samples

Torrefaction has long been seen as the answer to the many problems associated with marketing 'low-value' hardwoods and softwood thinnings in Europe.

The static and mobile torrefaction reactors that are now available to the market are suited to processing smaller volumes of wood that can be harvested from the small woodlands and plantations, which are common to Ireland.

### EFFICIENT GENERATION OF BIOMASS-BASED RENEWABLE ENERGY

The most efficient place to generate renewable energy (thermal and electrical) is at the point of use! While feeding electrical energy back to the national grid is attractive, due to the subsidies paid for production, the fact remains that more than 60% of that energy is lost during distribution due to network inefficiencies.

**“The current trend with biomass is to generate (thermal energy) and co-generation (thermal and electrical) via district heating systems”**

The current trend with biomass is to generate (thermal energy) and co-generation (thermal and electrical) via district heating systems. Often, large woodchip/pellet boilers replace fossil-fuel systems, which usually result in a net reduction of greenhouse gases (CO<sub>2</sub>) and reduced energy costs for consumers.

The “golden egg” for energy production from biomass is a system which can be installed in individual households that can generate both thermal and electrical energy from technologies built specifically to run on improved biomass processed by local people, utilising the biomass resource growing locally. The development of small-scale torrefaction technology has helped advance the



Torrefaction Reactor

design of new, smarter forms of biomass combustion, which are not only more efficient than district-scale systems, but allow individuals to set the levels of both thermal and electrical energy production from within an individual household.

Micro Generating Units (HMGU) are now available in Ireland. Micro turbines driven by super-heated (dry steam) at generating capacities of 1.5 kWe/hour (single dwelling) and 15kWe/hour (multiple dwellings) running on torrefied and traditional pellets.



Torrefaction Pellet

This will enable users to produce increased levels of renewable energy (both electrical and thermal) from a smaller volume of

fuel. The aim now is to ensure that the maximum number of people can gain from this effort, and to achieve this, models have been set out which should benefit woodland/plantation owners and wood fuel/biomass supply businesses, while also trying to encourage models which benefit efforts to manage local resources by communities, owners of smaller woodlands and small, local wood fuel suppliers.

Auxentios Energy Ireland in partnership with Black Mountain Wood Fuels UK are proud to be the first suppliers of small scale commercial torrefaction reactors along with improved combustion pellet stoves in Ireland.

### KEY SUMMARY POINTS

- As a fuel, torrefied biomass is a relatively consistent and uniform product that has some advantages over wood pellets and chips.
- Pelletised torrefied wood has a higher bulk density and energy content than regular pellets, so more of the product (by weight) can fit into the same space for more efficient transport.
- Torrefied biomass is also hydrophobic; this ability to repel water may allow it to be stored outdoors without much preparation or worry.
- Torrefied biomass can retain 90 percent of the energy value of the original biomass, providing 9,000–10,000 BTU per pound, or 21–25.2 MJ/Kg.
- It has about twice the caloric value of green wood chips and up to 1.5 times the caloric value of wood pellets. Its moisture content is low, about 1 percent.
- A torrefied woody biomass product stores, travels, and functions much like coal. It can be burned in existing power plants, helping to lower their overall greenhouse gas emissions and improve air quality. Therefore it has significant market potential as a renewable fuel that can be co-fired along with coal in conventional electricity generation plants.
- The product shows great promise in domestic heating markets as a replacement for white wood pellets. Torrefied pellets have a much higher heat content, so fuel storage hoppers need to be refilled less frequently. In addition, the hydrophobic (water-repellent) nature of the torrefied pellets eliminates moisture problems that plague white wood pellet storage.



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# EUCALYPTUS GROWS FROM STRENGTH-TO-STRENGTH

Eucalyptus continues to be planted around the country with impressive growth rates. Farmers, domestic growers and wood fuel suppliers continue to invest in Ireland's fastest growing biomass, writes Brendan Doyle of D-Plant.

Eucalyptus Plantation at 3 years



**A**lthough the forestry industry in general has not embraced Eucalyptus as a worthwhile investment for new forestry planting, there seems to be quite a bit of interest in replanting of clear felled forestry sites. This type of investment would allow a forester to fulfil their obligation to replant their forestry site and have an opportunity to see a return in their lifetime. Almost all Eucalyptus species will coppice and regrow after harvest giving 3 crops over the useful lifetime of the tree at 8–12 year intervals. In terms of an investment, a forester at 45 years plus would have a useful return in 3 pay outs over 24–36 years.

Coillte continue to plant Eucalyptus on their sites around the country with the end product intended for their Medite panel board factories. With the huge deficit of biomass and pulpwood shortage forecast for the future in Ireland it makes sense to continue with as much planting as possible each year. More and

Eucalyptus Denticulata is a similar species to Nitens but has the ability to coppice. Its open form reduces wind sail making it more suitable to wind swept areas and coastal areas.

Like Nitens it's less hardy than other species and is better kept to coastal counties.

Eucalyptus Subcrenulata is a hardy species suitable for heavy clay soils. You will find it a slow starter, putting on basal branching down low for the first few years and then taking off after about 3 years. Fairly hardy and more suitable for the midlands.

Eucalyptus Rodwayi. A "swamp gum" suitable for peaty soils. Despite the label of swamp gum it doesn't do well in water logged ground. It will tolerate wet peaty soils but must be established up out of the wet.

**All of these species are available from D-Plant Horticulture in Wexford but must be ordered in advance. Details at [www.dplant.ie](http://www.dplant.ie)**

**"Eucalyptus Nitens continues to be the most vigorous species available. Although it has the drawback of not having the ability to coppice its impressive growth rates can exceed 3 metres per year on a well maintained fertile site. Suitable for coastal counties"**

more industry – factories, hotels etc. are moving to biomass for heating and processing and their requirement for fuel supply needs to be met. There is opportunity for contract growing for these markets if some organisation could be put in place. Guarantee of supply is the key and with a combination of existing forestry residue, local willow plantations and short rotation forestry Eucalyptus, these demands could be met.

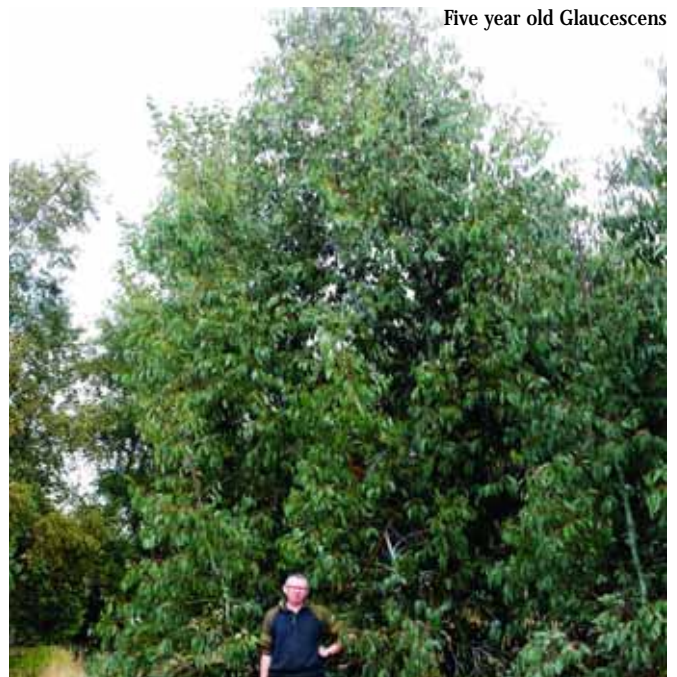
Growth rates from around the country and in our trial plots have been very good over the past year with some species putting on up to 3 metres.

Eucalyptus Nitens continues to be the most vigorous species available. Although it has the drawback of not having the ability to coppice its impressive growth rates can exceed 3 metres per year on a well maintained fertile site. Suitable for coastal counties.

Eucalyptus Glaucescens appears the best all round species. It can grow to exceed 2.5 metres per annum, likes well drained soil but will thrive in most parts of the country. Glaucescens continues to be our most popular species. Very hardy and suitable for most parts of the country.

Eucalyptus Urnigera is a close second to Glaucescens showing good growth rates. This species will tolerate a wide range of soil types as long as it's not too wet.

Five year old Glaucescens







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- Timber Harvester
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- **Tree Climbing & Aerial Rescue**  
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- **Aerial Cutting using Free Fall Techniques**  
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- **Felling Utility Poles**  
CS43



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- **Boom Sprayer**  
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- **Mist, Fog & Smoke Application**  
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- **Transport of Animals**

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- **Boom & Knapsack Sprayer**
- **Handheld Hedge Trimmers**



- **ATV**  
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- **Pesticides**  
PA4S Slug Applicator
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# OAKLEAF FORESTRY

Oakleaf Forestry offer services to customers who wish to convert their current machinery for work in the forestry industry.



**B**y adapting their existing machinery to suit another application customers can realise huge savings on the capital cost of machinery and also make better use of a machine that is underutilised or may be only used seasonally. We strive to meet the specific needs of all customers and provide practical advice and effective service for all.

## SERVICES WE OFFER INCLUDE:

- Fitting forestry cranes to tractors, roof mounted and axle mounted – including all window and underbody guarding systems from Jake, Finland.
- Installation of Kesla Stroke and Roller Harvesting Heads on diggers, including the integration of controls and computerised measuring equipment.

other forestry equipment such as armour plates, boom supports, hydraulic support legs, front axle stabilizers and forest fuel tanks.

Kesla's extensive experience in forest technology has given it superior expertise as a developer of harvesters. Kesla's harvester family offers the market's most comprehensive line of both roller and stroke harvester heads. The product family also includes excavator harvester packages as well as special harvesters for eucalyptus handling.

When developing the harvester head range, special attention has been paid on requirements of biomass harvesting. With optional accessories the Kesla harvester heads can be equipped for effective biomass logging in addition to conventional timber harvesting, without compromises.

**“With optional accessories the Kesla harvester heads can be equipped for effective biomass logging in addition to conventional timber harvesting, without compromises”**

- Bespoke timber handling attachments.
- Hoppers and conveyors for firewood, woodchip, etc.

All KESLA loaders are designed for efficiency and usability as well as working safety. Each loader is a combination of solid strength, reach and agility. In practice, this is demonstrated in the precision, comfort and power of the work: the loader responds to the controls almost like it is reading the driver's mind.

Many of the structural solutions used in the loaders are based on heavy-duty professional cranes used in trucks and forest machines, which makes KESLA an extraordinarily durable and reliable partner for forest work.

JAKE are renowned as being the very best in the business and have been developing the crane mounting systems since 1987, being the leading manufacturer of this sector in Finland since 1994. JAKE Mounting Kit range also includes



Kesla is a pioneer in the outfitting of excavators for harvester use and has an in-depth knowledge of almost all the excavator brands and their special requirements. When it comes to stroke harvesters, Kesla is also the world's market and technology leader. An extensive selection of cranes designed specifically for harvesting use supplements the range of harvester products. As a testimony to Kesla's quality, several harvester manufacturers around the world have chosen KESLA as their original equipment.

Oakleaf Forestry offer a full turnkey solution for your Excavator conversion, from sourcing a suitable base unit to supply and fitting the harvester head, replacement safety glass, fabricating bespoke forestry guarding and carrying out all other modifications required by the customer.

To find out more about the specialist services we offer or if you have any specific queries about our brands please get in touch.

Oakleaf imports and distributes forestry machinery from other leading brands, including Hypro, Vimek, Palax, Kesla, Jake, Kranman Rexion, Dorn-Tec, and Collino forestry machinery. The County Armagh based operation offers a complete, market-leading product range of modern low-impact forestry machinery – tough, reliable, fuel-efficient and service-friendly.

**For more details go to [www.oakleafforestry.com](http://www.oakleafforestry.com)**



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**Oakleaf**  
FORESTRY



# MISCANTHUS – WINNER ALRIGHT!

The much maligned Miscanthus crop will simply not go away and for many very good and sound reasons it's here to stay!, reports Paddy O'Toole and David Tyrrell, Quinns of Baltinglass Ltd.

Harvesting Miscanthus - the energy of the future



## YIELD AND PROFITABILITY

Many crops harvested in 2015 have yielded from 5 to 9 tonnes per acre at circa 30% moisture content.

At our Centre of Excellence for Miscanthus at Thornhill, Tullow, Patrick Nolan harvested 8.78 tonnes per acre on 45 acres of a Miscanthus crop planted in the Spring of 2011. It was planted in very good fertile continuous tillage land at a higher than normal seeding rate. The crop has received annual applications of organic manures and weed control measures have been taken when necessary. The crop was harvested in chipped form as was seen in a recent Nationwide Programme.

**At 8.78 tonnes per acre the economics of growing Miscanthus are both simple and clear cut;**

**8.78 tonnes per acre @ €76.61/tonne delivered to Edenderry Power Ltd. ....€672.64/ac**

**Cost of transport to EPL@€22.50/tonne €197.55 (90kms from EPL)**

**Cost of harvesting €100/acre**

**Cost of organic fertiliser €25/acre**

**Cost of potassium fertiliser €25/acre**

**Cost of weed control €20/acre**

**Contribution to establishment cost €50/acre**

**Total costs €417.55**

**Nett Margin €255.09/acre**

**b)** If a grower is not already registered for Vat, an additional 5.2% will also be paid to the grower.

**The following table gives the Gross Delivered value of product (based on €6.65/ GJ) pertaining to different combinations of yields /acre and moisture contents:**

YIELD TONNES/ACRE	MOISTURE CONTENT %			
	35	30	25	20
5	€361	€395	€429	€463
6	€433	€474	€515	€556
7	€506	€553	€601	€649
8	€578	€632	€687	€741
9	€650	€711	€773	€834

## ADDITIONAL MARKETS FOR MISCANTHUS:

At the Centre of Excellence for Miscanthus in Thornhill, a 2.5 MW burner has recently been installed to replace fossil fuel for the drying of almost 40,000 tonnes of grain. Replacing commercial heating oil with big bales of Miscanthus @€85/ tonne will result in a reduction in the cost of fuel to the equivalent of 21 cents per litre for commercial heating oil!

The capital cost of installing the plant was circa €150,000 and with a saving of circa 40 cents / litre on heating oil, Patrick Nolan reckons he will recover all his capital expenditure costs easily within two years.

Patrick is very happy with his investment so far. "The change to the biomass burner is really a no brainer – it is both very economical and efficient. Miscanthus, I find it gives a great burn and is very consistent in quality."

## NB

**a)** There will probably be under the new REFIT scheme an increase in price to €7.50 per GJ—representing an extra €10 per tonne for chipped product delivered to EPL in 2016.



## POULTRY AND EQUINE BEDDING

### “Adversity makes for the strangest of bedfellows”!

And so it is with Miscanthus – a dearth in the energy market sector up to now necessitated the acquisition of other potential markets. Would you believe that chicken feet is regarded as a delicacy in China and a significant export market exists.

Miscanthus bedding, one of two byproducts processed at Norman Bradley's recently installed bio energy chipping plant also near Tullow, Co Carlow is unlike straw bedding, excellent at eliminating “hock burn” which makes Miscanthus an ideal bedding for the poultry industry in the Cavan and Monaghan region. When the poultry sheds are cleaned out after circa six weeks, Miscanthus bedding, being biodegradable is reused as an excellent organic fertiliser.

Miscanthus Equine Bedding which is both Aspergillus free and unpalatable is being processed for Quinns by Straw Chip, in Athy and is being sold nationwide by David Webb of Woodpecker Shavings.

## CONSTRAINTS

### 1.

- Both Willow and Miscanthus are similar biomass crops in many respects.
- Both are biomass crops with similar energy values.
- Both are regarded as having positive biodiversity characteristics.
- For absolutely no good or practical reason Miscanthus alone has been excluded as an eligible crop for Greening or Crop Diversification in the new Basic Payments Scheme. Both EU officials and our own Department personnel readily admitted that this omission was due to an oversight but unfortunately nothing has been done to date to redress this mistake.

Norman Bradley carrying out a quality control check on Miscanthus Poultry Bedding



### 2.

Miscanthus alone has had the very significant Establishment Grant Scheme withdrawn – once confidence in the whole Miscanthus industry has been restored there will be a renewed interest in growing Miscanthus and the reintroduction of this scheme is vital to its success.

Remember that Ireland will face penalties of up to half a billion euros if it and it surely will fail to meet its heat renewable energy targets by 2020.

We just cannot sit idly by and allow this to happen when it is all the while very possible to significantly reduce these financial penalties by promoting and encouraging the efficient use of both Miscanthus and Willow biomass crops.

### 3.

The indefinite and prolonged gestation period with respect to the introduction of the long anticipated “Renewable Energy Heat Incentive Scheme” has resulted in the complete stagnation of the whole Heat Renewable Energy Sector. The Industry will not invest in renewable energy burners until it has clarity with regard to the minutiae of the much heralded REHI.

### 4.

There must be something very wrong and ridiculous when as a consequence of the new Glas Scheme the situation arises where if I plough up ten acres of a high yielding Miscanthus crop planted in 2006, and replace it with some bird seed and permanent pasture I will be rewarded with an annual cheque in the post to the amount of €550/ acre!

## THE TIME FOR ANY FURTHER DITHERING AND PROCRASTINATION IS OVER!

For further information visit [www.quinns.ie](http://www.quinns.ie) or call  
Paddy O Toole Tel. 087 2549234  
David Tyrrell Tel. 087 8257190



# SUPPLEMENTING FARMING PROFITS WITH LOCAL TIMBER PRODUCTION

For the last decade, Henry Brown from the North Yorkshire Moors has successfully diversified and made Grange Farm more profitable by adding holiday cottages and timber sales to his offer, making a rural hill farm viable for his growing family, by Jacob Mooney.



**H**enry Brown has worked the Grange Farm with his father and now as sole proprietor in Rosedale Abbey for just over 20 years now. On the 300-acre farm located in the heart of the North Yorkshire Moors, Henry and his wife manage 400 mule breeding sheep, 1,200 pigs, horses, two B&B cottages, and a timber business.

“I have such a varied job description,” Henry laughs. “Whether it is managing the cottages, the farming side, the timber side, every day is different!” However, a diversity of avenues in which he could keep the farm profitable was not always the case.

“As a young man, it’s a great idea to spend your days farming, running around on quadbikes, tractors, and it all seems great fun,” recalls Henry. “The next minute, you have a wife and children! And suddenly, it was appearing [to us] that a hill farm was not going to generate the income that our family required.” In the early 2000s, Henry and his wife really began looking into ways they could supplement farming with other ways to raise their profits.

“[Profitability] while farming is a common problem, certainly up in these areas,” Henry shares. “I have two or three friends that have also diversified – one into steel fabricating and another into stone. I wanted to make sure that when I diversified into something else, that it was actually a love, and not just because I had to do it.” His wife Jane had always wanted to run a B&B and holiday cottage. Together, they remodelled an old barn into a charming B&B, which they rent out to people looking to get away from the bustle of city life.

Henry had gone through a forestry apprenticeship at the nearby Castle Howard, and decided that he could make a go of producing timber. During the apprenticeship, he had worked for a year with a Wood-Mizer LT40 sawmill, and so contacted Wood-Mizer for a sawmill that he could get started with on a low budget. The result was the basic but competent LT15 sawmill.

“People are shocked when they see what [the sawmill] turns out, what it can produce,” Henry shares. “It was good to start with a mill like the LT15 to open up the marketplace, without having



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to spend vast amounts of money not knowing what the return would be. We started up slowly, just processing some oak locally for people. And it's grown ever since."

Timber can be a difficult market to get into, as established sawmill companies often have very loyal customers. Henry differentiated his services by being available for consultations and to make deliveries on weekends and being open to try anything to achieve the client's goals.

"We get a lot of different projects put in front of us," shares Henry. "And we never have the attitude of, 'Oh, that can't be done'. I like a challenge!"

"We have a varied client base, which I love – everyone from builders, architects, landscape gardeners, all the way to your weekend woodworking enthusiast." Clients visit, inspect the logs that Henry

In this last year, I have been astounded at how busy we've been!" Adding a kiln to dry timber for use in indoor projects has really helped to expand what he can offer clients.

"My love is with the small interior and exterior finishes, that's where I see the business going over the years," says Henry. "That is an area I would like to develop – showing wood off in its true, natural look. The great thing is, with this type of sawmill, you can do that. There are so many angles that you can mill a piece of timber on it. For a wedding, we cut oblique disks, because we could stand the log up and cut slices from it."

With the timber business expanding, Henry is considering hiring someone fulltime to manage the farm for him, which will free him up to focus on the timber side, which is his passion.

**"Timber can be a difficult market to get into, as established sawmill companies often have very loyal customers. Henry differentiated his services by being available for consultations and to make deliveries on weekends and being open to try anything to achieve the client's goals"**

keeps in stock, and can browse already dried timber to find the perfect piece they are looking for to complete a project.

"There was one chap who came and ordered a large load of ash – nothing unusual about that," Henry relates. "But it was for 10mm by 75mm strips... He was building coracle boats! He folds and intertwines the ash around." 75% of the timber Henry processes is oak, in addition to larch and silver birch.

"Most customers like to know where their new lintel or garden furniture is coming from," says Henry. "We like to source our timber locally. For example, I acquired a beautiful piece of sycamore that was destined to be chopped and burned, and milled it. It had stunning grain timber with stunning character in it. Here, there is no waste."

After several years, Henry decided to upgrade to a larger, mobile LT20 sawmill.

"I wanted to start to push the business on," Henry recalls. "I had a herd of Aberdeen Angus cows, which were inside six months a year and were not generating a vast profit. I sat down and decided I would rather grow my timber business. Selling the herd allowed the introduction of the LT20, and it has certainly produced a larger profit on a yearly basis than the herd had."

"Being able to go out and do mobile milling has helped to grow the business," explains Henry. "We are not on a main route, so that ability to go mobile sawmilling did open up our name. We also revamped the website, and it helped dramatically.

To others interesting in doing what he has done, he shares the following advice – "If you are going to buy a sawmill, know the direction that you are going to take it in. When I started here, we focused on the oak route, nothing else." He mentions that although they have received requests, they have turned down work for post-and-rails and flooring, choosing instead to focus and grow their niche for tailored projects for specialist clients.

**Watch an interview with Henry Brown and tour of Grange Farm: <http://youtu.be/PDF5Zo7Wj4>**

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# THE IRISH FORESTRY AWARDS

First established in 1988, as the RDS Irish Woodland Award Scheme, the Award was designed to focus public attention on the Forestry Industry by highlighting and celebrating those who are at the forefront of the development of the industry and to promote forestry as an alternative to the more traditional forms of farming.



The Award scheme re-established the Society's long history in the development of Irish forestry, which saw over 55 million trees planted in Ireland from 1741–1806 through the Society's land improvement and afforestation projects. The RDS was the first organisation in the world to introduce premia for tree planting.

The Awards were regarded as compatible with the Forest Service's own forestry programme which placed strong emphasis on farm forestry and it became involved in the Awards in 1992. The revamped programme known as the RDS–Forest Service Irish Forestry Awards were then designed not only to promote excellence in forest management but also to promote forestry as an alternative multifunctional land use system complimentary to mainstream agriculture. The award categories have changed significantly over the years and, in 2014, awards were made for Farm Forestry, Bio-Diverse Forestry/Woodland and Community Woodlands all of which promote the economic, environmental and community benefits that forestry provides.

For 2015 the RDS made a number of changes to the Irish Forestry Awards to ensure they are relevant to a growing and evolving forestry industry. These proposed changes are being made following an evaluation of the Awards by forestry consultant and author, Mr Donal Magner, of Magner Communications and the Irish Farmers Journal. This evaluation was commissioned by the RDS.

New categories, and amended criteria, will ensure that, as the forestry industry evolves, so too do the Irish Forestry Awards. The proposed changes will enable the RDS and the Forest Service

to identify the very best foresters and forestry practice in the country and, act as examples for others to follow and showcase the vast potential that sustainable forestry offers.

## **A KEY ELEMENT OF THE RDS AGRICULTURE AND RURAL AFFAIRS PROGRAMME**

There are three projects in the 2015 RDS Agriculture and Rural Affairs programme; the Irish Forestry Awards, the Champion of Champions Livestock Awards and Research and Development projects. These projects aim to promote Climate-Smart Agriculture through best practice and efficiency in farming to optimise profitability and help reduce and mitigate agricultural emissions.

Climate change mitigation is recognised as one of the most serious issues facing Irish agriculture today and the challenge to develop a vibrant, sustainable, agri-food sector, while continuing to reduce Ireland's greenhouse gas emissions is seen as one that will require the input of all agriculture organisations in Ireland. The RDS Agriculture and Rural Affairs programme, and its tradition of agricultural research and the promotion of best practice, sees itself as ideally placed to promote practical measures that can help reduce and mitigate agricultural emissions.

The Irish Forestry Awards recognise and reward farmers and woodland owners who are employing the principles of sustainable forestry management on their properties including; sound commercial silvicultural management; environmental protection; bio diversity in addition to the social, amenity and commercial potential of the sector.



They also compliment the challenges it faces and the measures it is taking to provide for commercial timber production while maintaining a rich ecosystem to pass onto future generations.

The twin goals of promoting the economic and environmental benefits of good forestry and farming are key to what the RDS hopes to achieve through our agriculture and rural affairs programme. Highlighting excellent Irish farmers and communicating what they are able to accomplish through the application of best practice and innovative management techniques continues an RDS tradition that stretches back to the foundation of the Society in 1731.

## THE IRISH FORESTRY SECTOR – A CHANGING CONTEXT

When the Awards were initiated in 1988, there was little interest in private forestry in Ireland. The area of privately owned forestry was 107,923 hectares. Private growers had planted an average of 254 ha annually – or 16,500 ha in total – since the foundation of the State. However, the RDS and the Forest Service correctly sensed the changing mood towards private afforestation in Ireland and, in the decade after the Awards were established, annual private afforestation had reached 14,000ha.

The Awards acknowledged and continue to acknowledge that Ireland lacks a forest and wood culture compared to other European countries. The new wave of forest owners that emerged after various State and EU incentives were introduced in the 1980's to encourage private afforestation had little knowledge of silviculture or even the basics of forest management. The Awards endeavoured to change this and, while its reach was limited in terms of entrants, its influence spread beyond the Awards themselves as Award Winners opened their forests for field days and other events.

The Irish Forestry Awards continue to promote forestry including commercial forestry and the need to plant a greater diversity of species, particularly native trees such as Ash, Birch, Oak, Willow, etc., to ensure greater efficiency and quality in the development of the sector.

The Awards create positive interest towards forestry and the various schemes operated by the Forest Service including commercial forestry, biodiverse forestry and initiatives such as the Neighbour Wood scheme, which connects with the Community Woodland Award.

The Awards judging, ceremony and associated communications promote knowledge transfer and highlight the potential of forestry among farmers using peer to peer learning.

## STRUCTURE OF AWARDS

For the 2015 Awards, categories have changed to represent new approaches to forest management and the scale of forests.

Plantations need to be at the stage where they are required to submit a Forest Management Plan (FMP) to qualify for the Awards. Forests should be brushed, accessible and easy to inspect. The RDS will impose a minimum age 10 years for entries unless the plantation has a mixture with different age classes.

## RDS–FOREST SERVICE IRISH FORESTRY AWARDS 2015

The Awards are Ireland's only national forestry awards and are divided into three main categories which highlight, celebrate and reward those who are at the forefront of the economic, environmental and community development of the forestry sector in Ireland.



### Production Forestry

The Production Forestry Category is divided into two sections; Under 15 Hectares and Over 15 Hectares and is open to Farmers and landowners using sound silvicultural management on their farms.

With the aim of recognising excellence in the management of production forestry, the winner in each section will receive €2,000 and an RDS Silver Medal. The runner-up in each section will collect a cheque for €1,000 and an RDS certificate of merit.

While the focus is on the management of the area for wood production, judges will also take into account diversity of species, particularly native trees such as Ash, Birch, Oak, Willow, etc., to ensure greater efficiency and quality in the development of the sector.

### Multipurpose Forestry

The Multipurpose Forestry category is open to individuals and organisations who are expanding or developing existing or new forest habitats through natural and environmentally sensitive methods. Judges will take into account the planning and management of the area, ecological awareness, social benefit, silviculture methods, control of grazing animals and invasive species as well as sensitive felling and thinning.

With a prize fund of €10,000, everyone with woodlands is encouraged to enter the Awards as all woodlands, large or small, are of merit.

A Best New Entrant Award will be awarded in each category and the winner will receive €500 and a Certificate of Merit. This Award is open to anyone who has not entered the competition before.

### Community Woodlands

The Community Woodland Award is designed to encourage and reward projects involving community woodlands and forests which have been established and managed in a way which is sustainable and beneficial to the landscape, the local people, biodiversity and the economy.

This Award is open to woodland owners or managers from the public and voluntary sectors and the winner of this Award will receive a special presentation trophy and an RDS Silver Medal.





A **Special Judges' Award** will also be made. This prize is entirely at the discretion of the judging panel and will be made in recognition of outstanding achievement in forestry not covered by the three award categories. If you wish to nominate someone who you think would be a worthy recipient of the Special Judges' Award please feel free to put their name forward to the RDS stating your reasons why.

### 2014 IRISH FORESTRY AWARD WINNERS

Two Cavan forests won top spots at the 2014 Irish Forestry Awards. Justin Good from Belturbet won the Farm Forestry award, while Cavan Burren Park in Blacklion won the Community Woodlands

Speaking at the 2014 Award ceremony, Minister Hayes said: *Something about the awards being a great showcase for Irish forestry. This year's winners are true examples of best practice. Line about Government targets in this area and the support that his Dept is providing for Irish forestry industry.*

"Good farmers make good foresters" said RDS President Matt Dempsey. "Sometimes undervalued by other agricultural communities, forestry is an important element of our agricultural sector. The long tradition of RDS commitment to quality and excellence in agriculture is maintained by these annual awards. Indeed, the RDS has been involved with Irish Forestry since 1740".

### JUDGES SPECIAL AWARD MICHAEL PATRICK HYDE

This Award is intended to give recognition to the exceptional skill and dedication shown by a either an individual or group involved in forestry. This Award is intended to recognise their achievement and also to provide encouragement to many other aspiring foresters who are considering planting trees on parts of their land.

The winner of the 2014 Judges Special Award is **Mr Michael Patrick Hyde from Aghrim, Ballinasloe Co. Galway** in recognition of his commitment to forestry industry, his excellent management of his own land in Galway and willingness to share this expertise.

With over 100 hectares planted the judging panel wish to commend the Mr Hyde and his family for their management of one of the largest environmental areas in private ownership in Ireland.

**“The Community Woodland Award is designed to encourage and reward projects involving community woodlands and forests which have been established and managed in a way which is sustainable and beneficial to the landscape, the local people, biodiversity and the economy”**

Award. The Forestry awards are jointly awarded by the RDS and the Forest Service. Minister Tom Hayes and RDS President Matt Dempsey were on hand to award Justin Good and Cavan Burren Park their respective prizes.

Winning a prize of €2000 and the RDS silver medal for the Farm Forestry award, Justin Good's 20.24ha farm is mostly populated with native broadleaf such as Ash, Oak and Beech. Other residents include pigs, geese and turkeys all of whom help keep down the vegetation, a throwback to the traditional farm that was in place prior to Justin's planting in 1991.

Located near Milltown, a few miles from Belturbet, Justin's farm has seen additional plantings in 1999 and 2007, and has in recent years played host to local schools, Coillte and Teagasc as an example of bio-diversity, private forestry enterprise and broadleaf management respectively.

Justin has managed to combine reliable income from the land with an eye to the aesthetic. Overlooking one of Cavan's many lakes, the farm has woodland and marsh flowers, pig-runs through the beech wood and a healthy pine marten population.

Making it a Cavan double, Cavan Burren Park won the 2014 Irish Forestry Award for Community Woodland.

Opened in May 2014, this new community facility boosts easy access trails, an interpretative centre and an array of archaeological sites.

Located close to the Fermanagh border, the park acts as a gateway facility for the Marble Arch Global Geopark, a cross-border initiative that showcases the geology of the local landscape.





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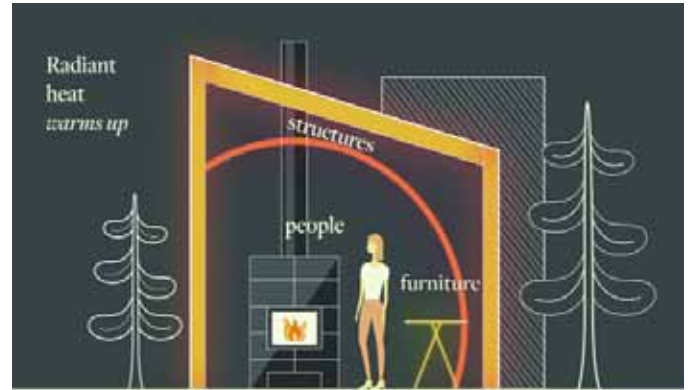
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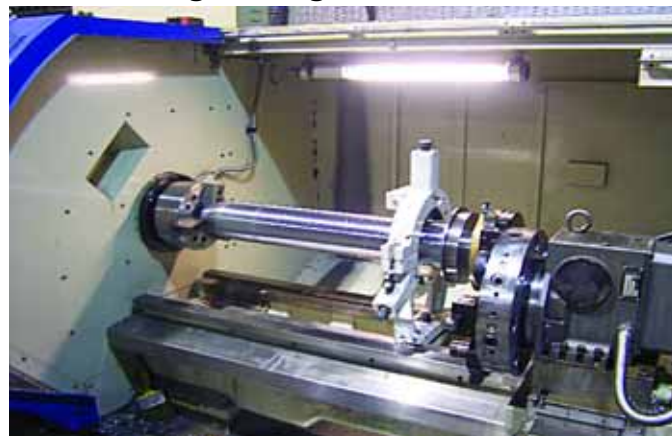
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# HOW TO VALUE AND SELL FORESTRY PROPERLY

Forestry is a particular market and requires expert knowledge and experience to value forests accurately and present them to the correct market in the correct way.



**T**his is particularly true when marketing mature forests or semi-mature forests, forests over the age of twenty years. When a forest is over twenty years of age, all the premiums are paid and the current value of the crop is dependant solely on the value of the future timber income. Therefore, the higher yielding crops would be more valuable than lower yield class. Lower yield class crops take much longer to reach maturity and therefore final payment is many years away. Whereas with fast growing high yield class, yield class 24+, a crop of Sitka spruce, may have a rotation or may be ready for clear fell at year thirty, compared to yield class 14 crop which may not be ready for clear fell until year 45 which is 15 years later.

Standard practice for valuing forests is to apply a discount rate. That is applying the present value of the future clear fell value. Crops which are discounted 15 years more than another are much

There have been quite a number of storms in the last few years. These storms have been the first big test for many private forests that have been recently thinned and from what has been seen around the country, that mounding and cultivation method used in many private forests has proved to be a very successful and correct method of establishing forests as many of these forests have been recently thinned and have not suffered major wind blow. This is because the drainage is good and allows the root to develop and provides strong anchor for the tree. However if this drainage system has been damaged such as animals trespassing, the lands which invariably causes damage to ground and blocked drains can lead to water logging, poorer root development and subsequent wind blow.

**For further details, contact Paul Lafferty, [forestsales.ie](http://forestsales.ie) or log and register to: [www.forestsales.ie](http://www.forestsales.ie).**

**“Standard practice for valuing forests is to apply a discount rate. That is applying the present value of the future clear fell value. Crops which are discounted 15 years more than another are much less valuable than the other rotation crops”**

less valuable than the other rotation crops. Different buyers and valuers apply different rates of discount i.e. different discount rate, depending on their experiences, risk etc. and of course, the demand for profit margin.

However all investors and buyers which buy property and forests are no different in this regard, wishing to buy their assets at as low a price as possible which in the long term gives a better return, if there is competition for forests, investors compete with each other and invariably the price goes up as they review their level of risk, discount rate, margin of profitability etc. Therefore it is important that someone considering placing a forestry property on the market would place it in the busiest market place for any forest property.

That place is [www.forestsales.ie](http://www.forestsales.ie). It is vital to get a qualified, professional opinion and place your forest in the appropriate market if one wants to get the full market value for their forest.







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