.

Forestry and Wood Update

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# Forest Energy 2006 - A COFORD Technology Transfer Programme

## Production and supply systems to produce quality wood chip fuel

### will be demonstrated nationwide in 2006

COFORD has announced a major technology transfer programme on harvesting and wood fuel production in young forests. The main aim is to demonstrate thinning and machinery systems to produce a quality wood chip from first thinnings. Quality is the key message of the programme, involving a concept new to Irish forestry: prefelling to allow drying and needle loss before chipping.

Private forest owners and management companies will partner Pieter Kofman (Denmark), Tom Kent (Waterford Institute of Technology) and Teagasc in carrying out the programme and demonstration days. Funding is being provided from the COFORD R&D programme, under the NDP.

Crops will include a range of conifer stands, a broadleaf stand, and birch and lodgepole pine on Bord na Móna cutaway peat. In addition, the programme will document the performance, productivity and cost of each system. Moisture content, the critical factor in wood chip quality, will be tracked from felling, and over the summer drying period, until chipping in August/September.

Harvesting systems in first thinnings will be demonstrated in February and March 2006 at the sites, located throughout the country. Operations such as motor-manual felling by chainsaw, single-grip harvester and forwarder operations and a Danish feller-buncher will be shown. The feller-buncher, a machine not currently used in Ireland, is a harvester base with an accumulating head that cuts and accumulates two to six trees at a time, without any cross cutting or delimbing, before laying them on the ground. The trees are then allowed to dry in situ, before being chipped and shipped to the heating or power plant.

Chipping will commence in late August. Three chippers will be demonstrated: a tractor-mounted chipper with self-loading grapple and towing a chip trailer; a self-propelled terrain chipper with a chip forwarder; and a truck-mounted chipper. The tractor-mounted chipper and terrain chipper are capable of driving along the extraction racks, grabbing the felled trees and chipping into a trailer. The truck-mounted chipper will be used to chip energy wood stacks at the roadside.

Traditional assortments such as boxwood, stakes and pulp utilise only part of the felled tree. Wood fuel utilises the entire tree or the parts remaining after the more valuable assortments are removed. This additional production should provide a greater return to the grower and help to offset the cost of first thinning.

Thinning assortment quality and price are largely determined by straightness, branchiness and size. Wood fuel quality is related to moisture content (the lower the better), chip size and uniformity, and absence of fines such as a needle or leaf material. Freshly harvested Sitka spruce has a moisture content of 50 - 65%. Seasoning the wood over the summer and then chipping the wood in the autumn should reduce the moisture content and therefore increase the combustibility of the wood and its energy performance. A key point is that it is possible to air dry whole logs outdoors, whereas woodchips can only be dried at a high cost in ventilated, heated driers.

Supplying wood energy from forest thinnings successfully will require adapting present methods and operating new approaches to thinning. Different supply systems will be appropriate for softwood first thinnings, broadleaves and mixed plantations.

ForestEnergy 2006 aims to provide forest owners, managers and contractors with systems applicable to different crop and site conditions. Watch the COFORD website and the press for details about the dates and locations of the demonstrations, which will be open to all those interested in the developing wood energy market.

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# Seminar on Wood Modification: Opportunities and Challenges

This seminar will take place on 9 February 2006 at the University of Limerick. It will address the topic of wood modification, considering in particular the opportunities and challenges that it poses for the Irish timber industries. Wood modification through techniques such as acetylation and heat treatment, as an alternative to chemical preservation, is now well established in continental Europe and modified wood components are in extensive use in the construction industries. The major advantage of the modification approach lies in the elimination of potentially hazardous chemicals; but modification cannot be regarded as a simple alternative to chemical treatment and the processes introduce new technical and cost related challenges.

Topics covered in this meeting will be the scientific basis for wood modification, case studies of typical processes and modification plants, including cost-benefit balances, experiences with Irish timber and current European thinking on standards and norms for modified wood. The contributors have been selected to give a broad overview of these topics in the European context and to translate the opportunities and challenges of modification to the Irish situation.

Speakers include, Callum Hill of the University of Wales who has many years of modification research experience, Boke Tjeerdsma from SHR timber research in the Netherlands who has been involved in the establishment of heat treatment plants and the evaluation of heat treated timbers, and Dennis Jones of the Building Research Establishment who has been evaluating modification for that organization. In addition, as there have now been a number of modification trials carried out with fast grown Irish timber some of the results of that work will be described by Colin Birkinshaw of the University of Limerick. Click here for information about the programme.

The number of delegates will be limited to 30, so please register as soon as possible if you wish to attend. There will be a registration fee of €50.00 per person – including refreshments and lunch. Contact COFORD, Arena House, Arena Road, Sandyford, Dublin 18. Tel: 01-2130725, Fax 01-2130611, Email: info@coford.ie

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# National Forestry Conference 2006:

## The National Forest Resource - Market Opportunities

This conference will take place on Friday 10 March 2006 at the Tullamore Court Hotel, Tullamore, Co Offaly.

It is predicted that there will be a significant increase in the volume of roundwood coming to the market from our forests within the next ten years, mainly from the private growing sector. It is now vital that policies are implemented to encourage and establish new markets for this anticipated surplus in small diameter roundwood.

An important recommendation in the 2004 Review and Appraisal of Ireland’s Forestry Development Strategy undertaken by Peter Bacon and Associates stated: ‘The understandable emphasis that has been placed on afforestation in the implementation of policy over the past decade must now be complimented by a new emphasis on the development of markets, training and good management practices to support the viability of the industry.’

An important first step in achieving this end is the establishment of a practical forest inventory and planning system incorporating regional roundwood production forecasts. This will assist industry in planning decisions and facilitate the development of wood-using industries in optimum locations in the future. This is one of the topics that will be addressed at the conference.

Wood for energy and other potential markets will also be covered at the conference to open discussion on appropriate policies to ensure that markets are available for the roundwood output.

While forests are mainly managed for wood production, multifunctional forest management is of increasing importance and the conference will look at markets for non-wood products such as foliage, fruit and the provision of services such as recreation, amenity, biodiversity and carbon sequestration.

This conference is being held at a critical time for the industry as the Rural Development Programme is currently being drafted and forestry legislation is being reviewed. Speakers have been invited to give presentations on topics ranging from forecasting the output from our forests and strategic planning to wood energy and non-wood forest products and other market opportunities.

The programme includes the following presentations:

* FORECASTING THE OUTPUT FROM THE FOREST ESTATE - FACILITATING STRATEGIC PLANNING - Jari Varjo, Metla, Finnish Forest Research Institute
* FROM THE FOREST TO THE MARKET - HARVESTING THE PRIVATE RESOURCE - Traolach Layton, Palfab Ltd.
* CURRENT TIMBER MARKET OPPORTUNITIES - Pat Twomey, Graingers Sawmill and the Wood Marketing Federation
* WOOD ENERGY OPPORTUNITIES - Joe O'Carroll, OC Consulting
* NON-WOOD FOREST PRODUCTS - MARKET OPPORTUNITIES - Henry Philips, IFIC Industry Consultant

The 2006 National Forestry Conference is jointly organised by COFORD, the Irish Forest Industry Chain, Irish Timber Growers Association and the Society of Irish Foresters. To reserve a place, please contact the Society of Irish Foresters - tel: 071-9164434; email: sif@eircom.net.

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# Conference on Small-scale Forestry and Rural Development

## "The intersection of ecosystems, economics and society"

This IUFRO 3.08 Small-scale Forestry International Conference takes place from 18 to 23 June 2006.

In the past decades, there has been a marked shift in the nature of small-scale forestry. This conference explores the evolving nature of small-scale forestry and the challenges and opportunities this evolution presents to sustainable rural development. The evolving nature of small-scale forestry presents a multitude of questions and challenges for the owners themselves, the practitioners working in the forests, the extension and rural development services that deal with forest owners and the public bodies who represent and regulate them.

The conference will be hosted by the Galway-Mayo Institute of Technology (GMIT). It is organised in collaboration with the International Union of Forestry Research Organisations (IUFRO) Research Group 3.08 Small-scale Forestry and supported by COFORD and Teagasc.

For enquiries please contact Sarah Wall (sarah.wall@gmit.ie) or check out the conference website: http://ns2.gmit.ie/information/conferences/Forestry/

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# Grants to promote and develop sustainable forestry

The Department of Agriculture and Food (Forest Service) invites applications for funding under the Forestry Development sub-measure of the Regional Operational Programmes 2000-2006 and the National Development Plan 2000-2006.

Applications are invited from individuals, organisations or corporate bodies for financial support towards pilot projects and initiatives which have the capacity to contribute to the promotion and development of the social, economic and environmental benefits of forestry.

Issues the Forest Service would like to see addressed in the current round of funding include (but are not confined to):

• Conservation and enhancement of biodiversity in Irish forests

• Active management of woodland

• Alternative timber use (in particular the potential for reducing dependence on fossil fuels)

• Alternative silvicultural systems, including agro-forestry

• Product development

• Marketing and promoting synergy between forestry and other areas of economic and social activity

• Conservation and enhancement of the native forest gene pool

Projects should be highly focused and capable of completion within 12-18 months.

In general, aid will not exceed 75% of the total cost of the project.

Closing date for receipt of completed Application Forms is Friday 24th February 2006.

Further details and application forms (Form 7) are available on the Department’s website (www.agriculture.gov.ie/forestservice) or directly from Mr Colm Prendergast, Forest Service, Department of Agriculture and Food, Johnstown Castle Estate, Co Wexford, Tel: 053-60200 or 1890-20 05 09, E-mail: colm.prendergast@agriculture.gov.ie.

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# Hardwood Matters

The third issue of Hardwood Matters is now available - click here for on-line version, or contact COFORD if you would like to receive a printed version. This catalogue contains contact details of people wanting to buy or sell hardwood timber. The objective of Hardwood Matters is to bring growers and sawmillers/processors together through the provision of standardised sales information and create an increased market for hardwood timber in Ireland. COFORD has no commercial interest in the process apart from facilitating its development, and accepts no responsibility in cases where the information provided is inaccurate. Hardwood Matters is distributed to the forestry and processing sectors. Growers and buyers are encouraged to use the catalogue to build up a forum for trading hardwoods and to develop the hardwood sector in Ireland.

If you would like to contribute to the next issue of Hardwood Matters, please fill in the Catalogue Listing form (on-line or Word version) and return it to COFORD, Arena House, Arena Road, Sandyford, Dublin 18. Fax; 01-2130611, Email: info@coford.ie. Please note that the deadline for contributions for the next issue is 15 June 2006.

For further information, contact John Fennessy at COFORD (tel: 01-2130725; email: john.fennessy@coford.ie).

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# Carbon Corner

## Forests as methane sources?

Carbon Corner has received a number of queries following coverage in the media of a paper published in Nature (Keppler, F. et al. 2006. Methane emissions from terrestrial plants under aerobic conditions. 439:187-191). The paper states If our measurements are typical for short-lived biomass and scaled on a global basis, we estimate a methane source strength of 62–236 Tg yr-1 for living plants and 1–7 Tg yr-1 for plant litter(1 Tg =1012 g). We suggest that this newly identified source may have important implications for the global methane budget and may call for a reconsideration of the role of natural methane sources in past climate change. Such a finding needs to be taken seriously, as methane is a highly pernicious greenhouse gas, having about 25 times the global warming potential of carbon dioxide.

 The findings in the Nature paper were reported in a sensational fashion in the media, with headlines such as the one that appeared on the BBC web site fairly typical of the coverage: Scientists in Germany have discovered that ordinary plants produce significant amounts of methane, a powerful greenhouse gas which helps trap the sun's energy in the atmosphere. Other reports suggested that the whole basis of converting agricultural land to permanent forest cover to mitigate rises in greenhouse gases was open to question.

There are several issues relating to the conclusions reported in the paper and the methodology used that bear examination. In their work the team carried out two separate series of trials: one with excised leaves (of ash and beech) incubated at different temperatures, the other with plants in enclosed chambers. The excised leaves were incubated over a temperature range from 30-70 oC, and methane production measured. The release curve generated is exponential and comes close to zero at the 30 oC level. In other words one would expect a little or no methane production from leaf litter in temperate climates. Furthermore, these were laboratory experiments, field conditions will of course be very different, with diurnal and seasonal temperature variations, and varying levels of relative humidity. Once leaves fall to the forest floor they are rapidly colonised by bacteria and fungi, and the microfauna, all using leaf material as an energy source. Breakdown of leaf structural carbon components, and any remaining sugars (usually to CO2) can be very rapid. On this basis, to extrapolate to the global level of methane emissions from litter as reported is highly questionable.

The other element of work, examining methane emissions from intact plants in chambers, is in Carbon Corner’s view of greater validity, as the team report on precautions to eliminate soil derived methane evolution from their source estimation. However, here again we are speaking of highly circumscribed experiments, that need to be validated at the ecosystem level. As in the case of leaf litter, scaling up to global emissions of methane is a very dangerous exercise.

Scientific progress, to paraphrase Karl Popper, depends on postulating falsifiable hypotheses. There is ample scope for work to debunk the hypotheses presented in the Nature paper, and no doubt some of these experiments are already being planned. One issue that needs to be addressed immediately is to find the mechanism that results in the observed levels of methane production.

In relation to the sensationalist press headlines and the call for new approaches to take account of the findings in the paper in climate policy and carbon accounting, these should be not be given any credence until far more scientific work is done, particularly at ecosystem level.

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