



Spotlight Session 13th October 2017

Mobilising additional wood fuel from conifer first thinning

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Target Group and Theory of Change

Target Group: Forest owners and Forestry practitioners

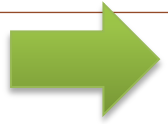
Theory of Change: Development and uptake of a DST and participation at demonstration events increases knowledge and skills required to mobilise wood sustainably among foresters and forest owners, thereby improving their attitudes towards wood mobilisation as an economically viable activity, and their confidence in their ability to use this method. This leads to its adoption and hence increased wood mobilisation

Why was this project relevant

- Economics plays a big role in a forest owner's decision to thin.
- The rationale behind our project is that by mobilising more material from the plantation we can increase revenue and profit for the forest owner thereby encouraging them to thin their plantation.
- Demand for biomass (fuelwood) for energy is rapidly increasing.
- Traditional harvesting methods leave behind a significant amount of woody biomass which, if extracted, can be sold as part of the fuelwood assortment of the harvesting operation.
- Veon used a method called Integrated Harvesting to extract more biomass from first thinnings.

Integrated Harvesting

- The harvester processes small sawlog, delimiting and presenting at the side of the rack in the normal way.
- The remainder, including stemwood is also processed into variable lengths of fuelwood leaving as much branches on the stem as possible.
- Tops and branches are set to the side of the rack in separate bunches.
- A forwarder removes the small sawlog and fuelwood to roadside.
- The tops and branches are left within the plot to dry.
- The sawlog is removed shortly after harvesting to a sawmill while the fuelwood is left to dry at roadside till the moisture content reduces to around 45%.
- Drying takes 6-9 months depending on the site and time of year.
- Once needles are cast from the tops and branches, this material is forwarded to roadside and chipped and chipped with the fuelwood already on roadside.

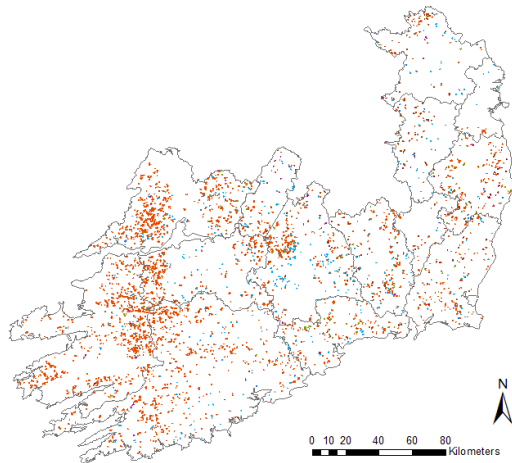


Potential market for harvesting of biomass

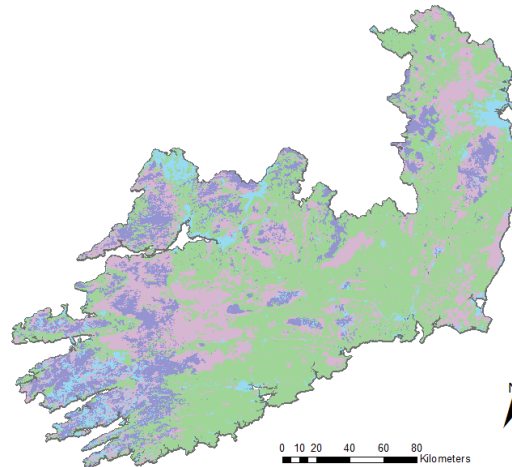
- With UCD, we developed a GIS from which we produced maps showing:
 - Potential plantations ready for thinning
 - Soil damage risk
 - Nutrient loss risk
 - Classified forests based upon soil and nutrient loss restrictions
 - Our analysis showed that 42,500 ha of plantations ready for thinning.
 - 28% of these could yield substantially more biomass with little risk
 - 64% are highly or completely restricted and Integrated Harvesting not recommended or modified to reduce damage risk

No restrictions	Low restrictions	Moderate Restrictions	High restrictions	Very high restrictions	Restricted	No Data
2,858	6,026	3,034	0	10,328	16,999	3,218
7%	14%	7%	0%	24%	40%	8%

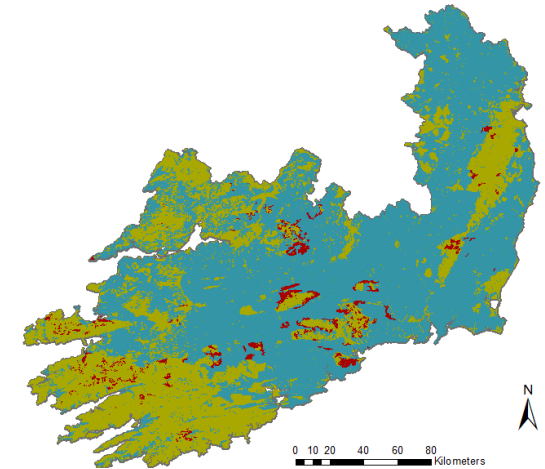
Maps



*Productive forests of
age for first thinning*



Soil Damage Risk



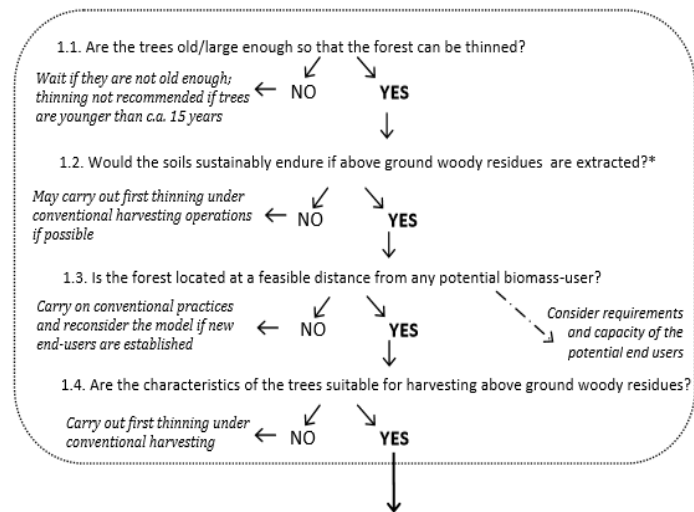
Nutrient Loss Risk

Work undertaken by Eva Ardao Rivera

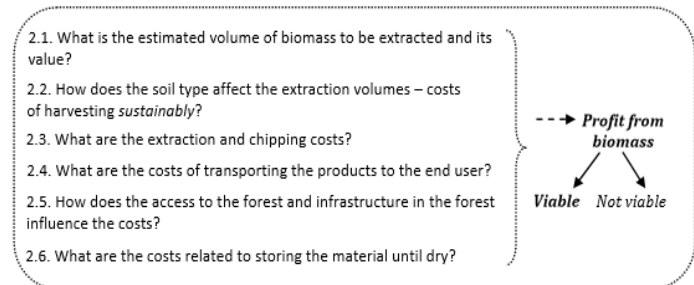
Decision Support Tool

- DST helps foresters and forest owners evaluate the suitability of Integrated Harvesting in their forests
- In 2 parts
 1. DST assess tree quality, soil suitability and location in a sustainability assessment
 2. Analyses volume of biomass, value, costs and access

1. Sustainability Assessment



2. Viability Analysis



Results from field trials

Site	Restriction category	Silvicultural Prescription	Estimated Cut-to-length M3	Actual M3 achieved	Variance	increase over cut-to-length
1	Very high	1 in 7 rack and selection, JL dominant and poor remove all	445	659	215	48%
2	Moderate	1 in 7 rack and selection. Site was a late first thinning where the average thin tree was large. This contributed to the large amount of biomass extracted.	512	1233	811	159%
3	Moderate	1 in 7 rack and selection. SP poor with very large biomass content. Extremely good recovery of biomass.	669	1658	989	148%
4	Low	1 in 7 rack and selection, JL dominant and poor remove all. Remove suppressed NS	1729	2963	1234	71%

Training and Events

- Held 4 field events with forest owners, foresters and policy influencers.
- Showed them Integrated Harvesting in action including other related forestry operations to widen the audience
- These were information and training events to promote the Integrated Harvesting
- In total the events attracted over 250 participants
- Surveys carried out – response level 40-50%
- Response to events was very positive
- Forest owners need more ‘touches’ to take up service



Achievements

- Integrated Harvesting is now a service offered by our company, the harvesting contractor and other foresters
- The fuel has found markets in two of the main bio-energy facilities in Ireland and a number of smaller ones.
- More foresters/forest owners know about Integrated Harvesting than before and are positively disposed to it.
- Extra biomass has been produced as a result of this project.
- Investment in new harvesting equipment to maximise potential biomass yield from forests



How was success achieved

- Knowledge of the challenges facing forest owners.
- Teamwork - UCD, WIT and Worrell Harvesting.
- Hard science behind the project provided credibility
- Veon's influence within the sector as a leading member of IFFPA, SIF and COFORD as well as experience in harvesting helped promote and attract participants.
- Publicity – SIMWOOD has become well known in the forestry sector in Ireland.
- 'Hands-on' events worked best to encourage foresters and forest owners.
- Surveys helped engage participants
- Test sites results disseminated built confidence

Take home message – Main Recommendation

- The use of wood for energy is a growing market for wood fibre. However, there is a danger that it impacts on more valuable uses for wood
- Integrated Harvesting increases the output from the forests while not impacting on other uses of wood.
- This is more profitable for the forest owner and makes a bigger contribution to the local economy.
- To build on this more investment is needed in larger scale bioenergy plants capable of using this material.

Acknowledgements

- University College Dublin
- Waterford Institute of Technology
- Worrell Harvesting Limited





Thank you



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 613762.