



Letterfrack



Small-diameter hardwood research and linking with hardwood users

Seán Garvey

Chair of Furniture Making & Architectural Woodworking programme at GMIT Letterfrack

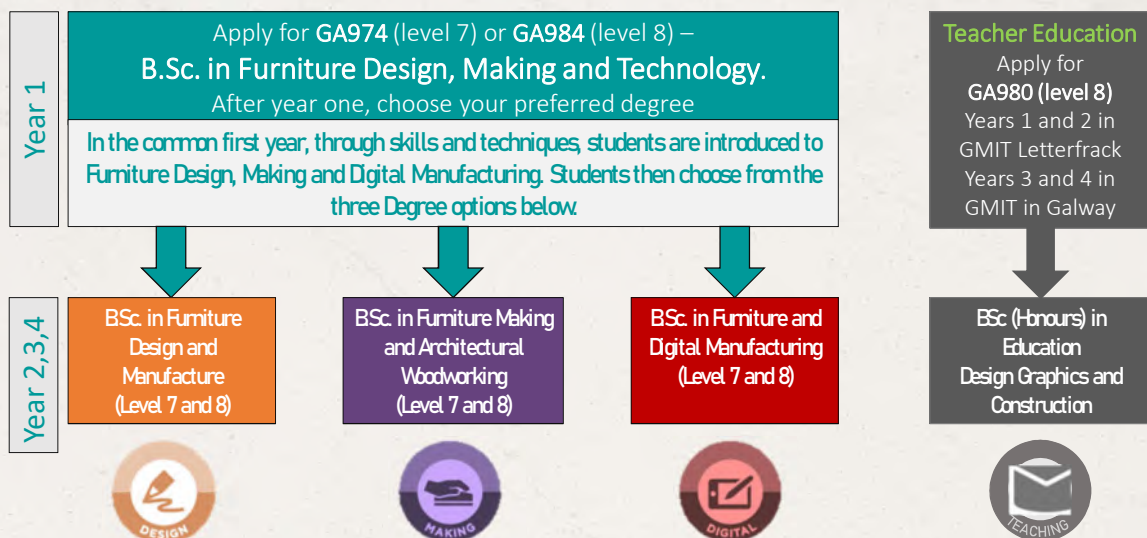
National Centre for Excellence in Furniture Design and Technology

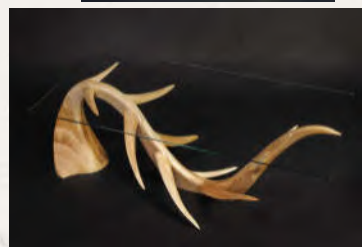
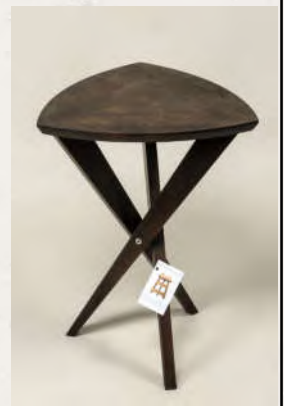
GMIT School of Design





Programmes at GMIT Letterfrack







Innovation

Creativity

Quality

Hardwood Imports

In 2018, Ireland imported 42,000 m³ of sawn hardwood

with a value of €41.1 million, which included 13,000 m³ of tropical hardwoods.

(DAFM 2018)

95% of the hardwood used in the Irish furniture industry is imported

During the period 2014-2018, wooden furniture imports increased by 54% to a value of €243 million (O'Driscoll and Moore 2019).



<https://www.timberindustrynews.com/eu-imports-african-sawnwood-fallen-dramatically/>



Future?

Broadleaf growing stock resource is maturing

Hardwood roundwood volume will increase

The firewood market continues to be buoyant

Scope for alternative markets to be sought for the increasing tree sizes and volume of "small-diameter" hardwood logs that will enter the market over the coming years

Prices GMIT have paid recently

Imported Solid Wood		
Species	Thickness	Price per cubic metre (ex vat)
American Ash	1"	€996.64
	2"	€1,192.41
Oak White	1"	€1,121.22
	2"	€1,833.10
Maple	1"	€1,228.00
	2"	€1,281.39
Steamed Beech	1"	€765.28
	2"	€836.46
Walnut	1"	€2,562.78
	2"	€2,918.72
Cherry	1"	€1,245.80
	2"	€1,388.17





Undergraduate research in Letterfrack

Major project

Small-diameter timber

Range of species

Objectives

Examine mechanical properties of a range of Irish-grown small-diameter hardwoods

Design of packaging for craft whiskey producer



Memorandum of Understanding

Undergraduate and postgraduate research in areas related to timber utilisation, forestry, agriculture and food

Joint research activities

Particular focus on small-diameter timber

(L to R.) Dermot O'Donovan, former GMIT Letterfrack Head of Centre, Dr Fergal Barry, former President of GMIT, Dr Nuala Ni Fhlatharta, Head of the Forestry Development Department at Teagasc and Professor Gerry Boyle, Director of Teagasc



COFORD & GMIT Letterfrack

Collaboration to support investigating utilisation potential of Irish-grown timber

- 6m³ steam kiln (Kiln Services, UK)
- Portable saw (Norwood HD36 - The Saw Doctor)
- Timber drying shed (Halcon Steel)

Particular focus on hardwoods

Building capacity for research



M.Sc. Research – Small diameter alder

“Exploration of the working properties and utilisation of small diameter Irish-grown alder (*Alnus glutinosa*)”


Teagasc Masters Walsh Fellowship

Researcher: Colin Marren

Co supervisors:

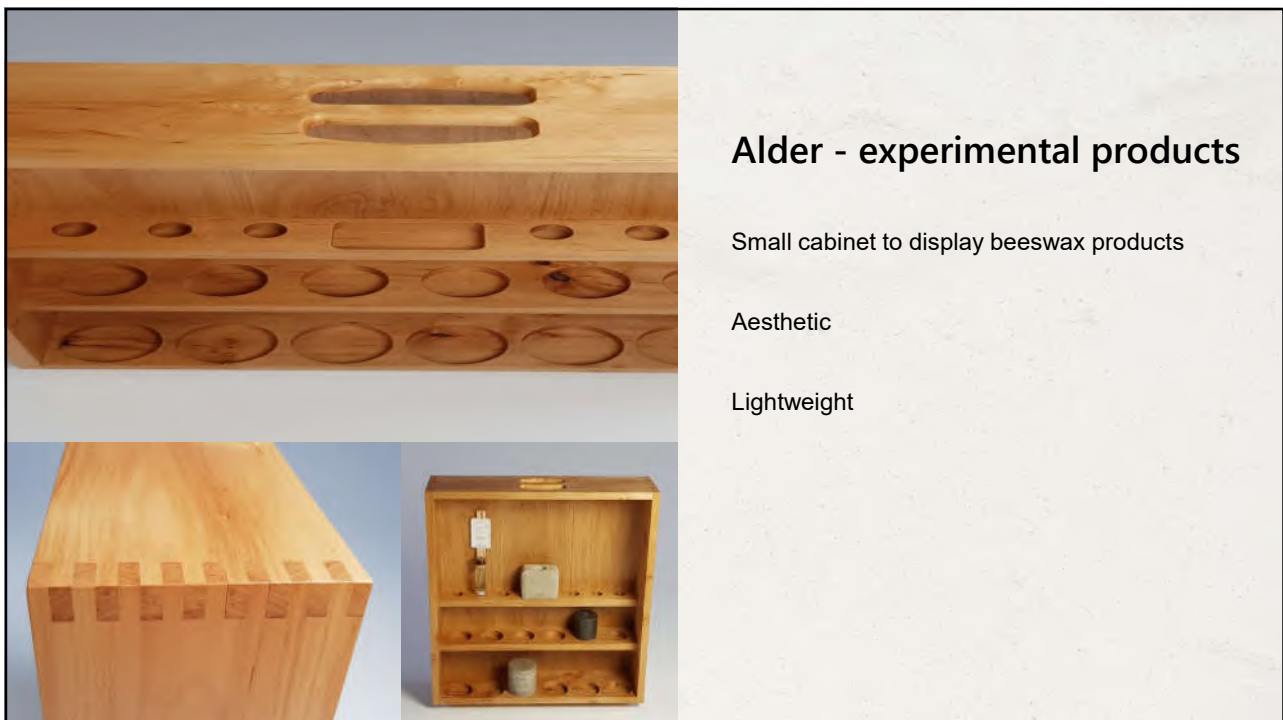
- Dermot O'Donovan (GMIT)
- Dr Ian Short (Teagasc)
- Seán Garvey (GMIT)





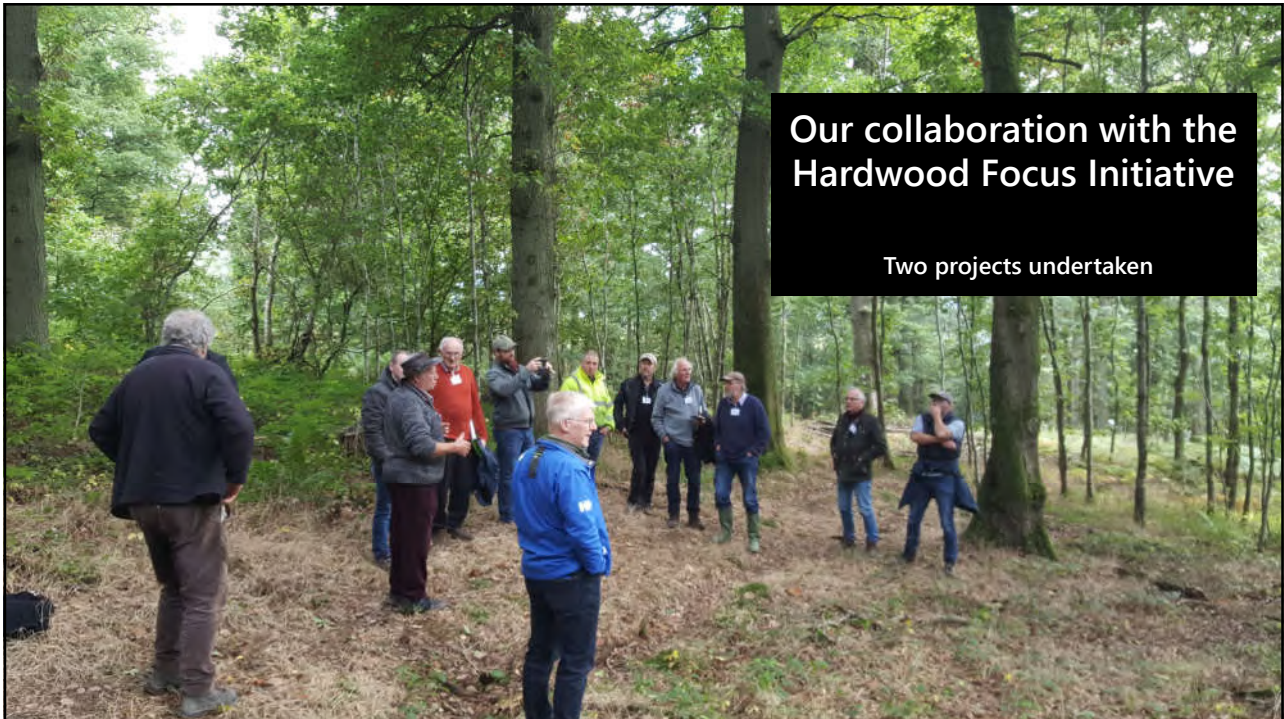
Progress so far

<p>Showing potential</p> <p>Developing novel products</p> <p>Alternative markets</p>	<p>Early signs</p> <p>Good stability</p> <p>Ease of machining</p>
--	---



Alder - experimental products

- Small cabinet to display beeswax products
- Aesthetic
- Lightweight



Our collaboration with the Hardwood Focus Initiative

Two projects undertaken



Initial log testing

Current project

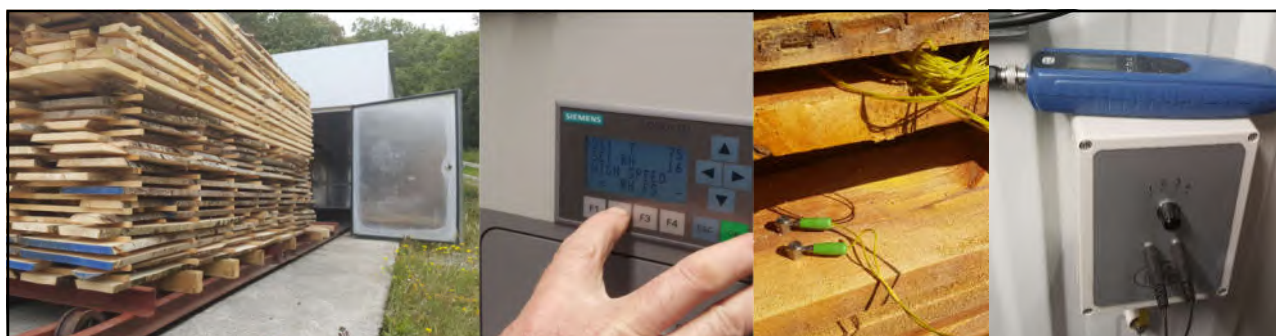
Small diameter logs

Various species

Range of quality

Details of the 8 logs

Log	Species	Length (m)	Over bark circumference (cm)	Diameter (cm)	No of 1" boards yielded
A	Ash	3.1	66.0	21.00	5.00
B	Sycamore	3.1	56.0	17.82	4.00
C	Ash	3.3	110.0	35.01	10.00
D	Ash	3.2	63.0	20.05	5.00
E	Sycamore	2.8	68.0	21.64	6.00
F	Beech	2.8	75.0	23.87	6.00
G	Beech	3.0	62.0	19.73	6.00
H	Oak	2.9	78.5	24.98	6.00



Some details on the drying process

No. of days in kiln	Starting set temp.	Final set temp.	Starting set humidity	Final set humidity	Initial MC recorded	Final MC recorded
20	35°C	58°C	75%	30%	High (above 40%)	12.1%



Limerick dresser project

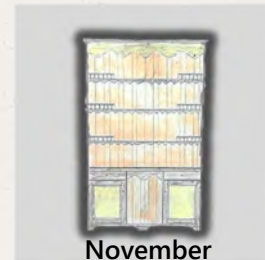
Delivery of Chestnut

Initial mc tests
Preparing boards



Product manufacture

Delivery to local cabinet
maker for manufacture of
dresser



Stacking and Drying

Remainder of stack built up
with compatible species

Drying to 12%mc



Opportunities and the need for Quality

Knowledge and skill required

Need for leadership regarding training

Avoid defects

Develop a good reputation for home grown

Produce timber fit for purpose



SUMMARY

- ✓ All about quality
- ✓ Need to recover hardwood processing/drying skills
- ✓ Need for growers /mangers /processors /designers /end users to connect through a partnership approach to create a new 'Irish-grown' hardwoods value chain
- ✓ Scope for brand development

Thank you

I look forward to questions later

For more information: Sean.garvey@gmit.ie
Head of Department: Paul.leamy@gmit.ie

