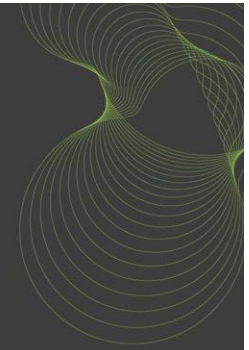


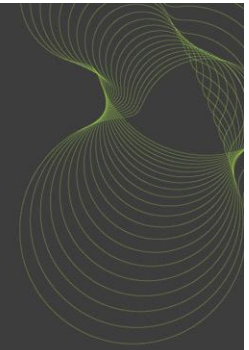
Machine settings for Scots Pine

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Aim of the project

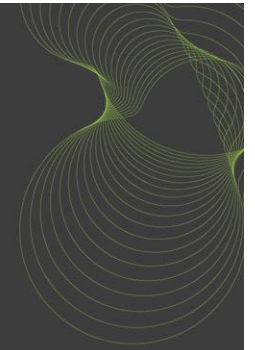
- **Derive settings for three machines:**
 - Ø **Bending type machines**
 - Ø **X-ray machines**
 - Ø **MTG machine**
- **Explore the possibility of higher machine settings above C24.**
- **Machine setting above C24 open possible new markets such as truss rafter construction and glulam.**
- **Investigate the current supply of UK grown Scots pine, including the pine quality work of Northern Research Station of the FC and the laminating falling boards project, and new machine settings.**



The work program

- 800 pieces of Scots pine was collected from private growers and FC sites in Scotland and Thetford in England
- X-ray data was gathered using the X-ray grading machine at James Jones Aboyne.
- Grading data for bending type machines was collected at BRE using the Cook-Bolinder
- MTG was collected at BRE by an MTG engineer
- Strength stiffness and density data has been collected plus additional data asked for by the may manufactures
- **A testing protocol was sent to Microtec before work commence**

What is the MTG machine?

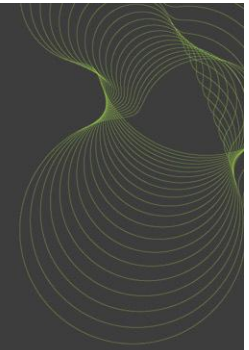


- Hand held acoustic tool
- Wireless connectivity to a lab top and scales
- Scales used with recorded moisture content to determine density. With accurate density the stiffness can be determined.
- Output in terms of a strength class and stiffness.

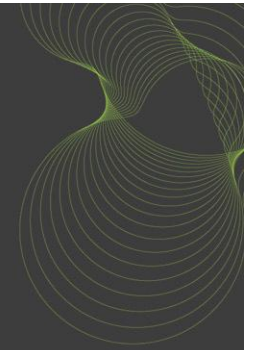
The machine



Comparison with a bending type machine



The MTG in use

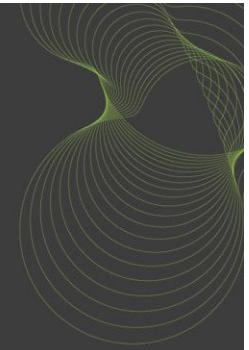




Results

- Results from the MTG grading using on a Northern European data based model indicate yields of:
 - Ø C16 = 95%
 - Ø C24 = 40%
 - Ø C30 = 15%
 - Ø C35 = 4%
- The MTG results fall approximately inline with what we would expect from the test results.

Results



	MOE	MOR	Density
Site 1	9008.8	15.8	513.4
Site 2	4159.9	22.2	490.8
Site 3	8769.8	20.3	487.5
Site 4	7608.9	14.7	480.9
Site 5	11687.9	21.3	540.6
Site 6	15516.9	21.13	512.6
Site 7	13497.1	26.7	478.98
Site 8	17208.7	20.6	551.8
Site 9	12255.8	28.5	524.8
	11079.3	21.2	509.1

Final stage

- Machine settings to be derived for the all 3 of the machines under investigation.
- Timescale is early to mid-spring for setting to go for approval to TG1. The MTG setting may be achieved before then due to the simplicity of the system.

