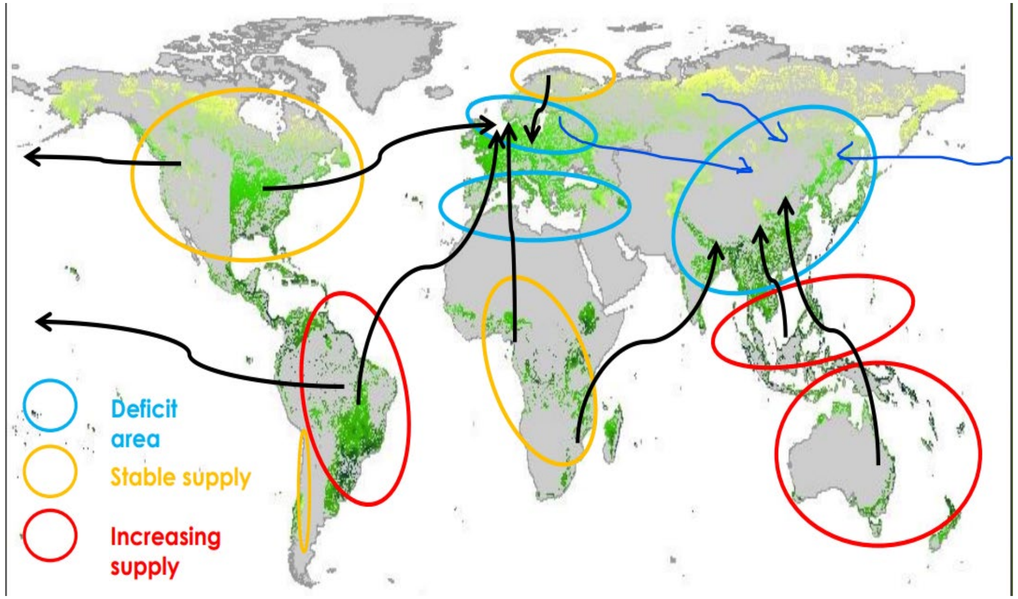
Current and future timber supplies: the UK timber resource for the UK construction sector

Andy Leitch, Deputy Chief Executive, Confor

Scope of presentation

- Global and domestic drivers for wood.
- Overview of the domestic timber supply and demand.
- Current and future opportunities for the use of homegrown wood in construction.

Drivers for future global scale demand for wood

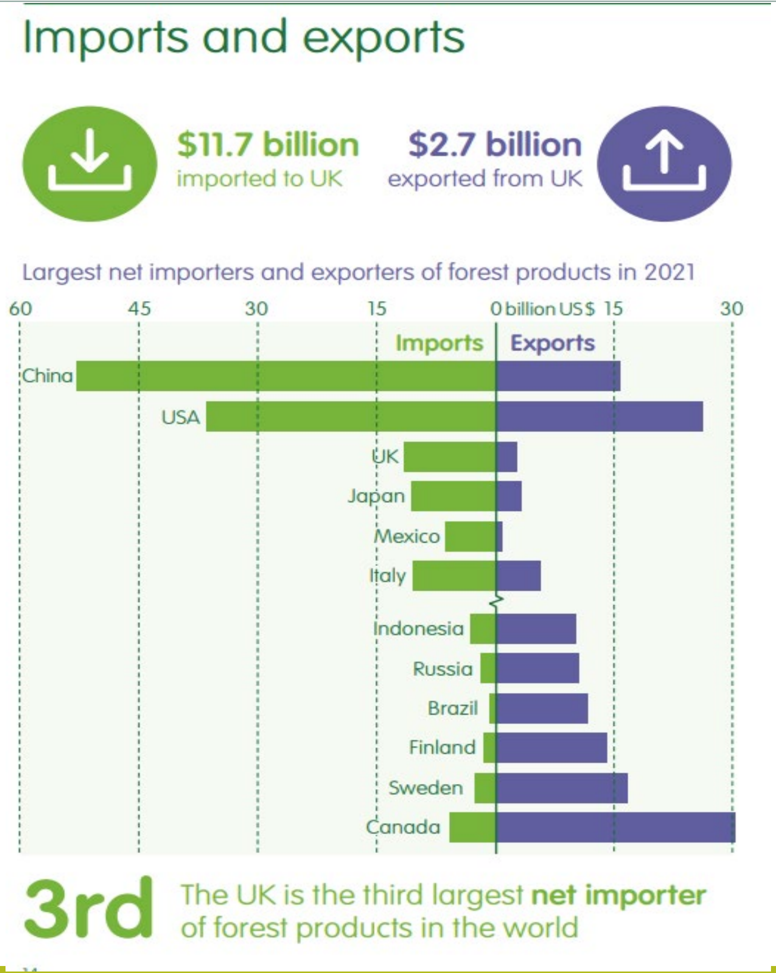


- **Population growth:**
  - 7.8bn now
  - 10bn by 2050 - ??
- **Improved health, wealth & urbanisation** – more housing.
- Increased understanding on the positive impact of **sustainably managed** trees and wood products to mitigate climate change:
  - E.g. Timber policies in France and Sweden. UK??

- Reported that global demand for **certified** forest products will double, possibly **quadruple**, by 2050.

Overview of domestic demand for wood products

- UK is the 3rd largest net importer of wood products in the world.
- ~81% of our wood derived products is imported.
- Forest cover:
  - Europe 46%
  - UK 13% (3.25M hectares)



Climate change drivers for growing domestic homegrown timber supply and demand

Net Zero

All GB administrations exploring how to encourage the increased use of sustainably sourced wood products in construction for carbon **storage** and **substitution** for higher embodied energy materials through **Climate Change Action Plans**.

- **Statutory new planting targets** (30k ha per year – around 750k ha to plant by 2050)
- **Timber in Construction Policy Roadmap**.
- **National Wood Strategy** (seeking a refocus on production forestry to address timber security.)
- **Wales Timber Industrial Strategy**

Future focus on **reuse and recycling** to extend life of wood fibre– **circular economy** and added economic activity.

Economic drivers for growing domestic homegrown timber supply and demand

ECONOMIC GROWTH

Timber security - Reduced dependence on imports.

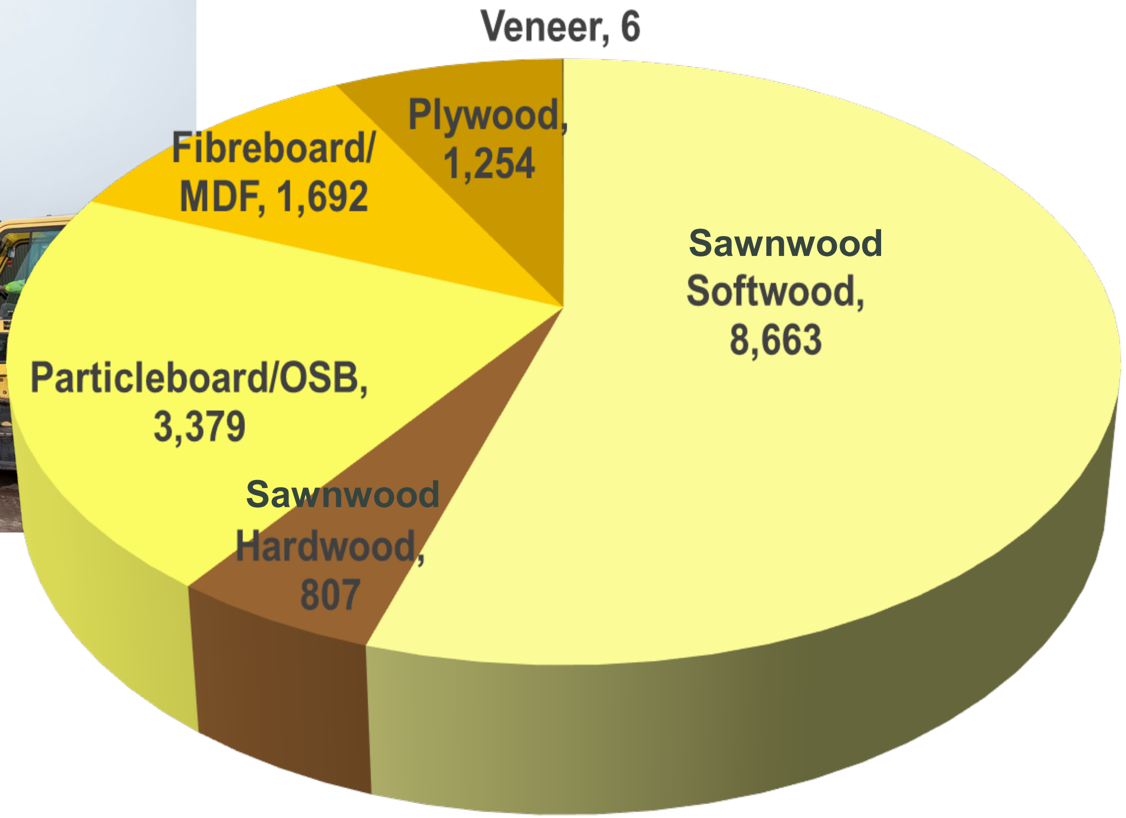
Onshoring processing, manufacturing and added value activity.

Securing sustainable rural jobs.

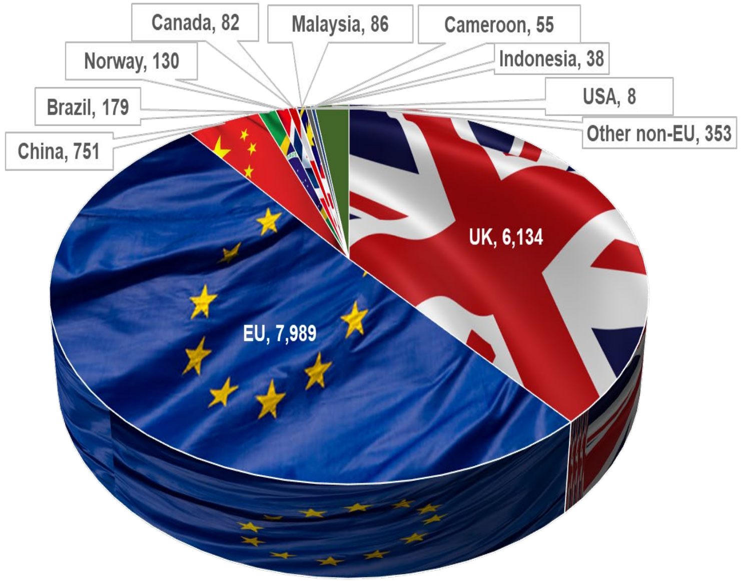
Environment and Plant Health Policies

Developing policies in Europe to reduce the stocked area of conifer in favour of native species and/or resilience to beetle. E.g. Sweden and Germany.

UK construction related timber consumption 2022 (Thousand m3*)

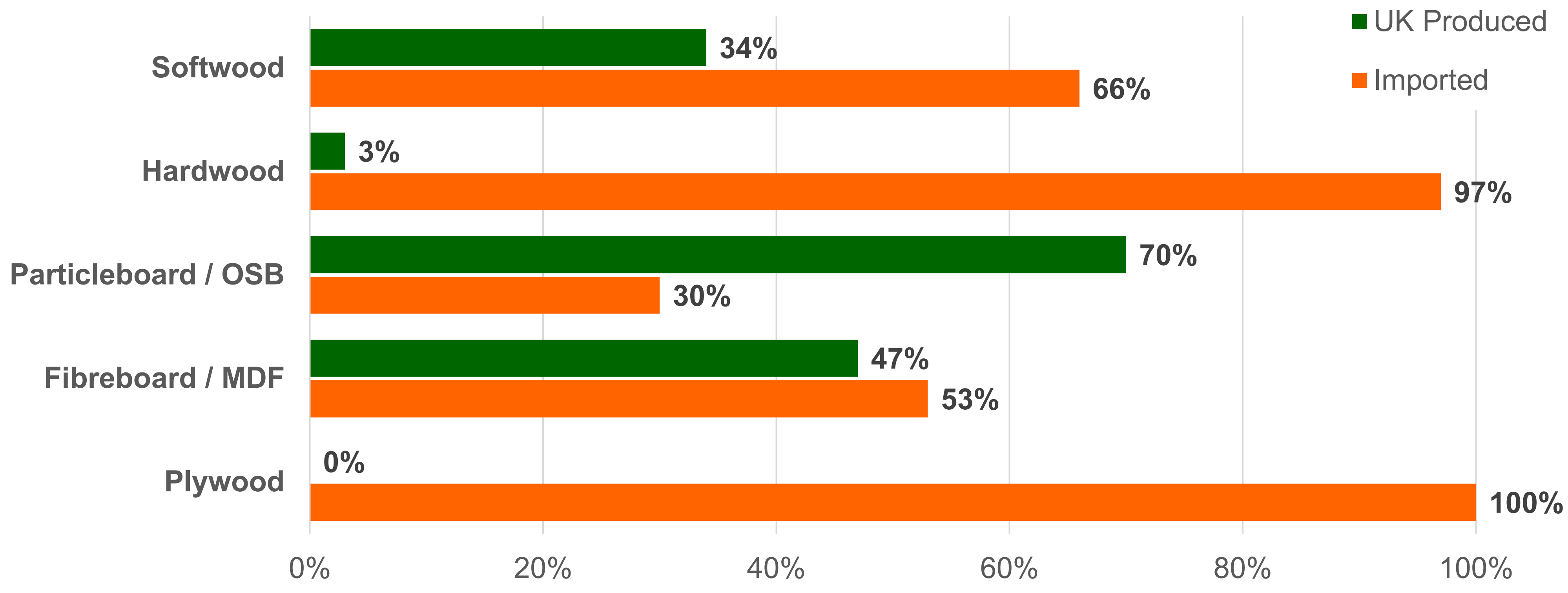


Total UK Consumption:
15.8 million m^3



***2023 Forestry Commission Statistics Report**
Figures exclude CLT & Glulam

UK timber market: UK supply v imports 2022*



*2023 Forestry Commission Statistics Report
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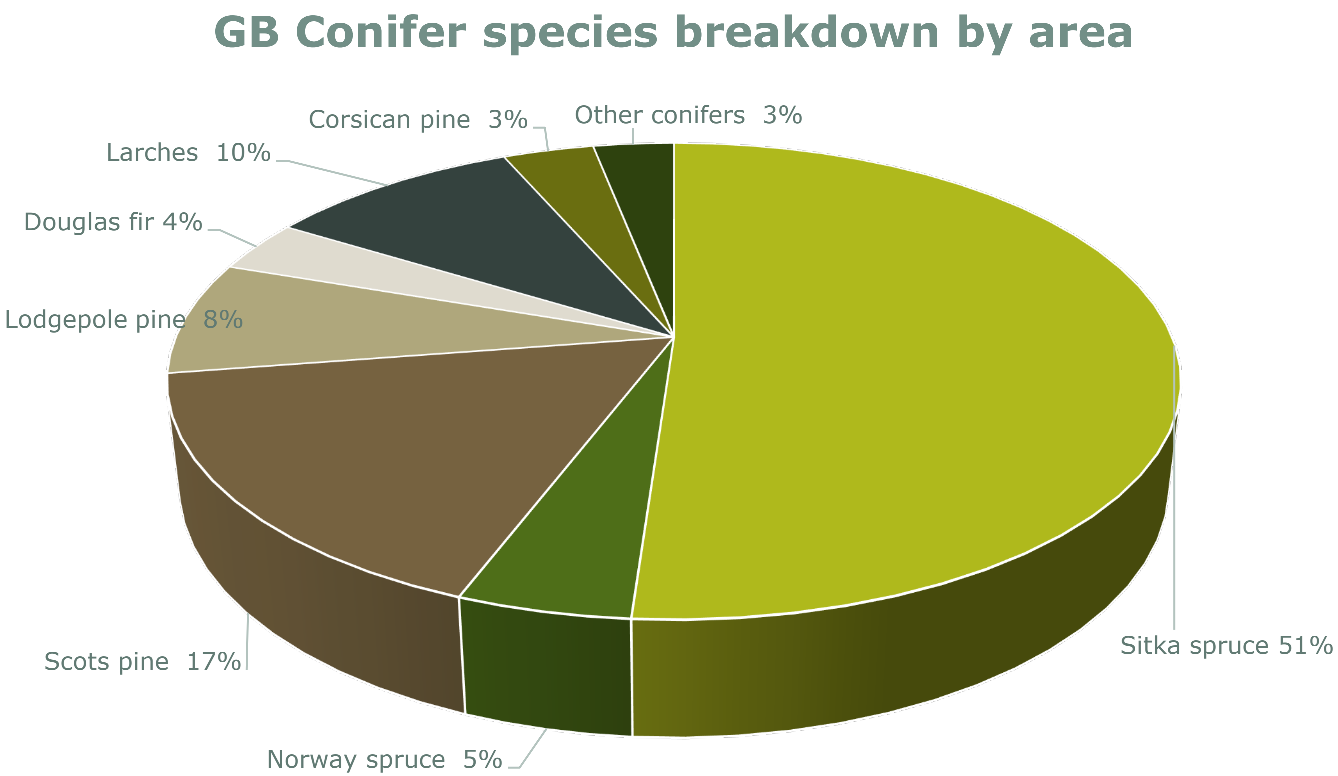
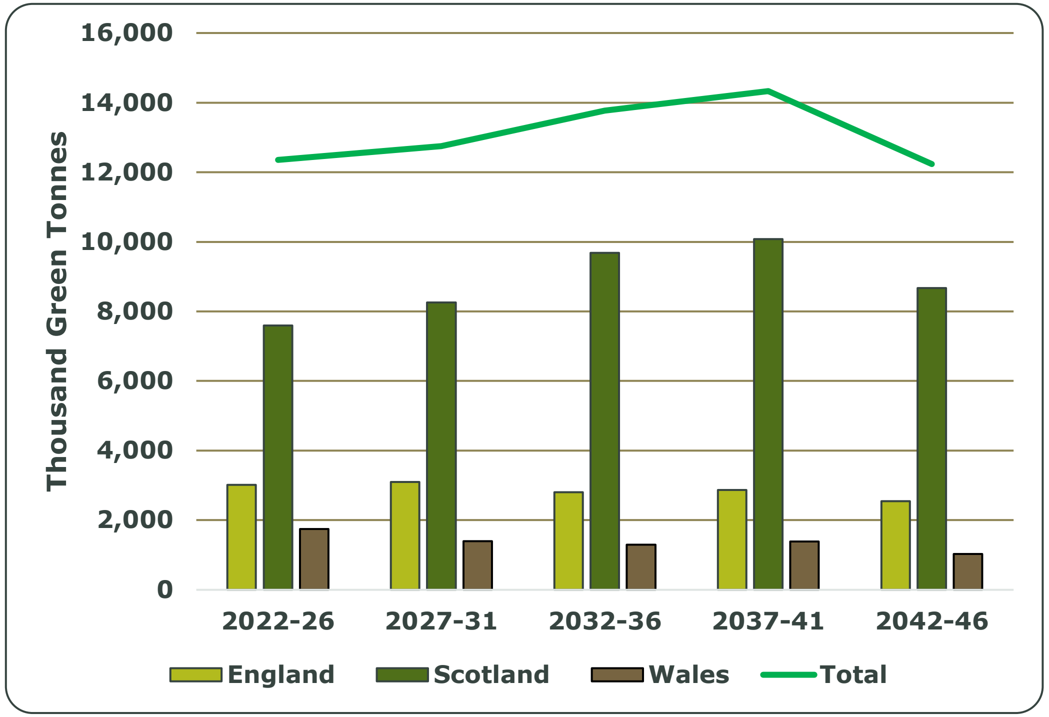
GB Conifer species breakdown by area.



- Standing volume approx. 400M m3obs
- Annual harvest around 10M m3
- Main species – spruce
- Grades at C16
- Rotation lengths: 30-35 years.
- Yield: 800m3 per hectare.

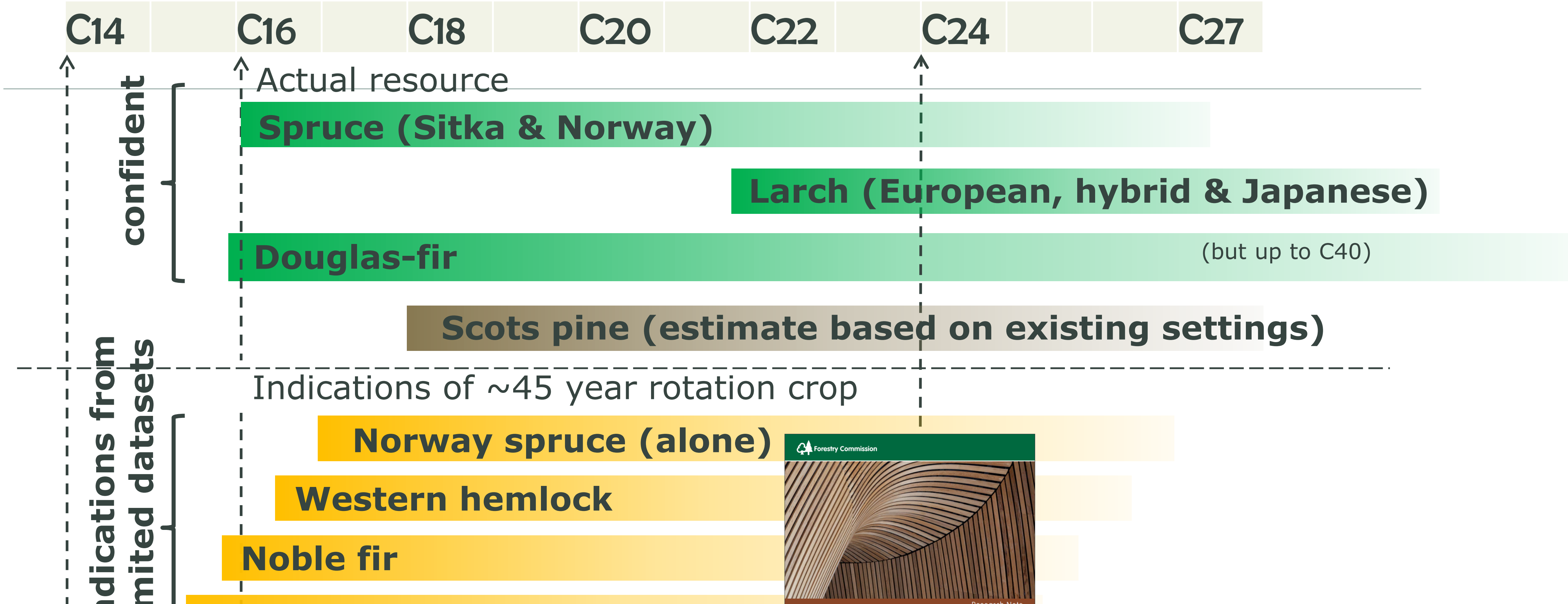
Annual Softwood Availability GB

AVERAGE POTENTIAL AVAILABILITY OF CONIFEROUS ROUNDWOOD IN 5 YEARLY INTERVALS FOR ENGLAND, SCOTLAND & WALES 2022 -2046



Established wood supply chains

UK-grown timber grading potential



Forestry Commission

Research Note

Timber properties of noble fir, Norway spruce, western red cedar and western hemlock grown in Great Britain

David Gil-Moreno, Dan Ridley-Ellis and Paul McLean — December 2016

The softwood processing sector in Great Britain has been built around the use of a very small number of timber-producing species – predominantly Sitka spruce. The recent increase in outbreaks of host-specific tree pests and diseases has led to an interest in diversification, through planting a wider range of tree species, to mitigate any risk to the softwood resource. However, there is a lack of evidence about how this diversification will impact on the future merchantability of timber. This Research Note investigates the structural timber properties of noble fir, Norway spruce, western red cedar and western hemlock grown in Great Britain and compares the results with published values for British-grown Sitka spruce. The study was carried out using timber from even-aged plantations growing in a range of latitudes representative of productive conifer forests. Twenty-seven trees per species were felled, processed into structural-sized battens, kiln dried and destructively tested in a laboratory according to current European standards. Characteristic values of mechanical properties and density were determined and indicative yields for different strength classes were calculated. The results showed that all of the species investigated can produce structural timber, but that western red cedar has the least desirable properties for this purpose. Some further work is under way in order to investigate the effect of rotation length on the timber properties of these species.

FCRN026 1 Forest Research

https://www.forestresearch.gov.uk/research/timber-properties-of-noble-fir-norway-spruce-western-red-cedar-and-western-hemlock-grown-in-great-britain/

https://blogs.napier.ac.uk/cwst/grade-britain2/

Timber grading for British Species – Spruce C16+

British spruce: Sitka spruce and Norway spruce combined from UK and Ireland

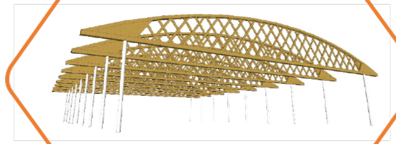
SIRT benchmarking validation, 957 pieces

British spruce			C14	**C16**	C18	C20	C22
Strength	20.9	N/mm^2	14	16	18	20	22
Stiffness	8.2	kN/mm^2	7	8	9	9.5	10
Density	338	kg/m^3	290	310	320	330	340

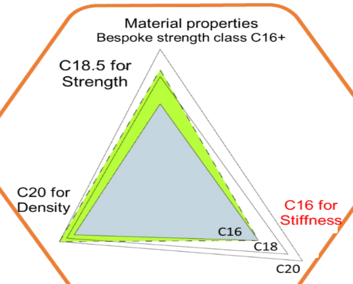
https://blogs.napier.ac.uk/cwst/c16plus/

Maximising the potential of C16+ spruce: Napier project

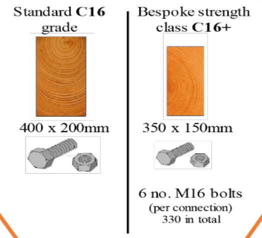
BELFAST TRUSS



MATERIAL PROPERTIES



DESIGN COMPARISON



IMPACT

METAL FIXINGS (BOLTS) SAVINGS

47.3%

TIMBER SECTION DIMENSIONS SAVINGS

34.4%

UK sawnwood production and markets

Table 2.14 Production of sawn softwood by country, 2011-2020					
					thousand m^3
	England	Wales	Scotland	Northern Ireland	UK
2020	1,007	271	1,683	349	3,311
2021	1,050	293	1,859	371	3,574
2022	945	245	1,570	349	3,108

Product market	England	Wales	Scotland	Northern Ireland	UK
Construction	11	7	34	27	25
Fencing	61	27	32	36	41
Packaging / pallets	23	47	26	30	27
Other	5	18	8	7	7
Total	100	100	100	100	100

Production of wood products in the UK included in 2022:

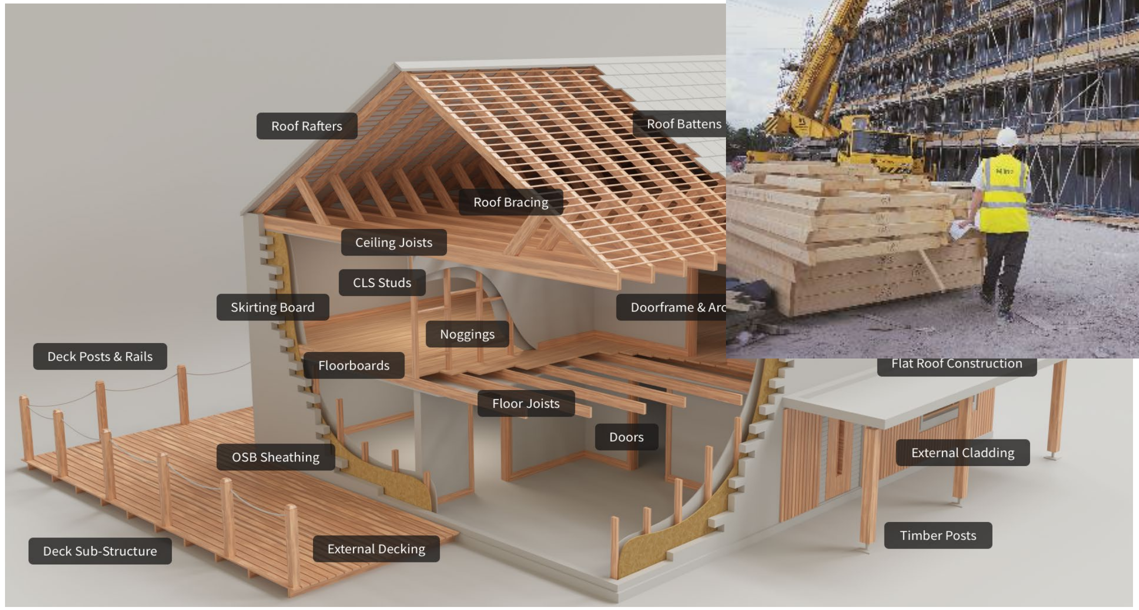
- 3.1 million cubic metres of sawnwood
- 3.5 million cubic metres of wood-based panels

Opportunities for homegrown softwood products – Construction

TiC Analysis: New Build house starts

- Increasing the timber frame activity in England.
  - **Current market share of new build 9%; Scotland @90%.**

  - Increased to 40% market share in England results in potential increase in demand in
    - **Graded sawnwood ~1.3M m3** (current GB grading capacity,)
    - **Panel board ~ 400k m3.**
    - **Wood fibre insulation ~ ??**



C16 Examples – Floor and roof joists

C16 Roof Trusses.

Photos: Alexanders Timber Designs

Other uses: Non-load bearing studs and open/closed panel


Photo: Willmott Dixon


Photo: STA

Confor
Promoting forestry and wood

Recent C16 rich projects

ALEXANDERS
TIMBER DESIGN

Ashleigh Construction – Butterbiggins Road, Glasgow

Photos: Willmott Dixon

Opportunities for homegrown softwood products (engineered wood) – Construction

New Build public buildings

Schools and sports halls e.g. Gen Zero

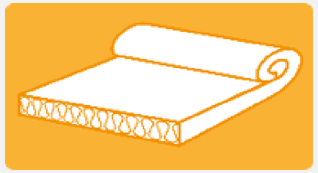
Photo: Ecosystems Technologies

Opportunities for homegrown softwood products – retrofit

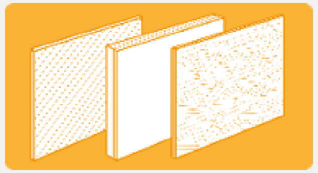
RETROFIT PRODUCTS

47 case studies were analysed to reveal the application of timber retrofit products.
Each of the **5 categories** of retrofit interventions included an in-depth case study.

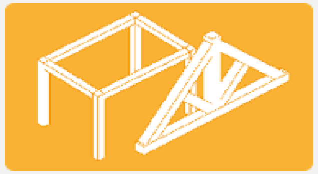
Retrofit intervention categories



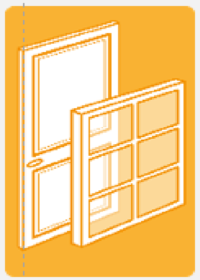
INSULATION SOLUTIONS (45%)
- Wood fibre
- Blown cellulose fibre



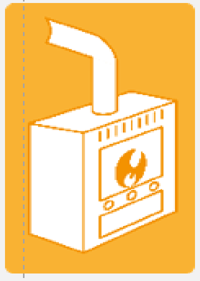
WOOD PANELS SOLUTIONS (36%)
- OSB
- Plywood
- Chipboard



OFFSITE SOLUTIONS (8%)



WINDOWS AND DOORS SOLUTIONS (47%)



FUEL SOLUTIONS (10%)
- biomass

Opportunities for homegrown softwood products: Hiltingbury Primary School retrofit.

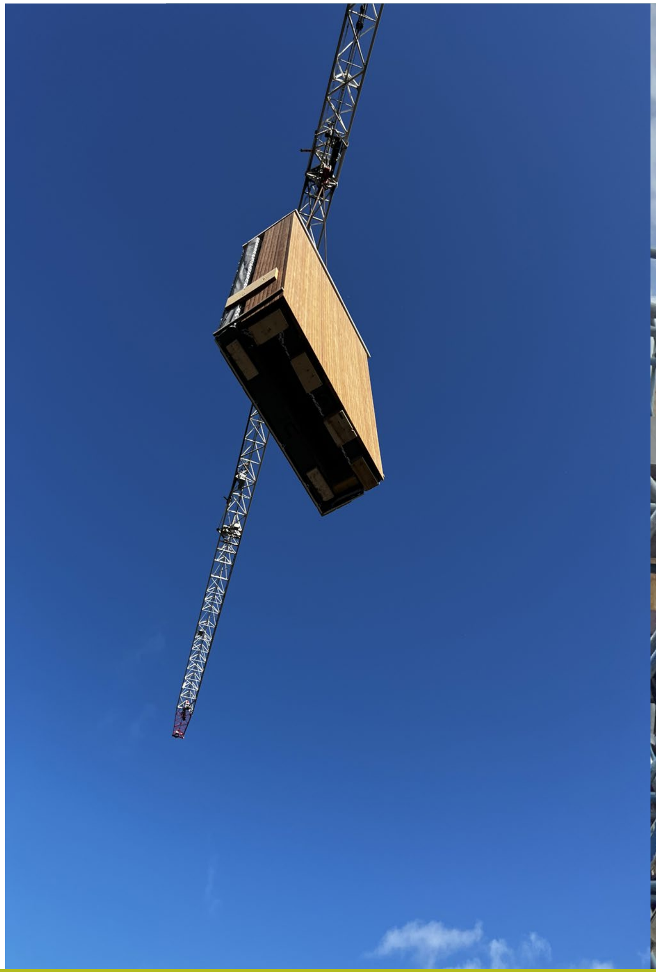


Photo: Ecosystems Technologies

Working together to move the TiC forward

- Identify blockers that are preventing the use of more homegrown timber/wood products.
- Provide guidance to construction professionals on the use of homegrown wood-based construction products (for example to support better use of strength grades .
- Invest in the additional capacity or infrastructure needed for processing homegrown timber in line with increased production in UK.
- Invest in manufacturing of new wood-based construction products where there is a viable market opportunity (for example in the areas of mass timber and insulation).

In summary

- The UK is one the **largest importers** of wood products in the world with a forest cover dwarfed by Europe.
- Global demand for wood products is forecast to **quadruple** in next 30 years. Therefore potential threat to medium to long term timber supplies.
- GB harvests around 10M m3 of timber annually, but could harvest up to 13M m3 if the domestic processors had confidence in the market.
- UK government states they want to produce more timber including for construction.
- Opportunities for onshoring manufacture of some wood products such as offsite timber systems, solid laminate wood products and wood fibre insulation. This will also deliver new skilled jobs.
- This could contribute significantly to increasing the use of wood fibre in construction **storing** carbon for long periods and **substituting** higher embodied energy products.
- Continued need to **research and develop** new products and systems that will increase the life of woodfibre including through **reuse and recycling**.
- Overall, the short to medium term future looks positive for the UK wood supply chain and it can contribute significantly to the UK Net Zero ambitions and green recovery.
- However, homegrown **softwood availability starts to decline by 2040**, hence we need to secure an increase in longer term softwood supplies through new planting for further growth.

Thanks for listening! Any Questions?