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Forestry as a Climate Change Solution

National Forestry Conference

Production Forests and Climate Change - The right trees in the right places for the right reasons

Marina Conway

30th May 2019

At a glance...

83% of Ireland's forest product exports are destined for the UK

Forest product exports valued at **€423m**

21,000 owners of private forests

Ireland's forests store 312 million tonnes of carbon.

Each year, an additional 3.6 million tonnes of CO_2 are absorbed by Irish forests.

Each year, our forests absorb the annual CO_2 emissions from 80% of the cars on Irish roads.

51% of Irish forest estate is owned by Coillte

49% of Irish forest estate is privately owned

20 million visitors each year

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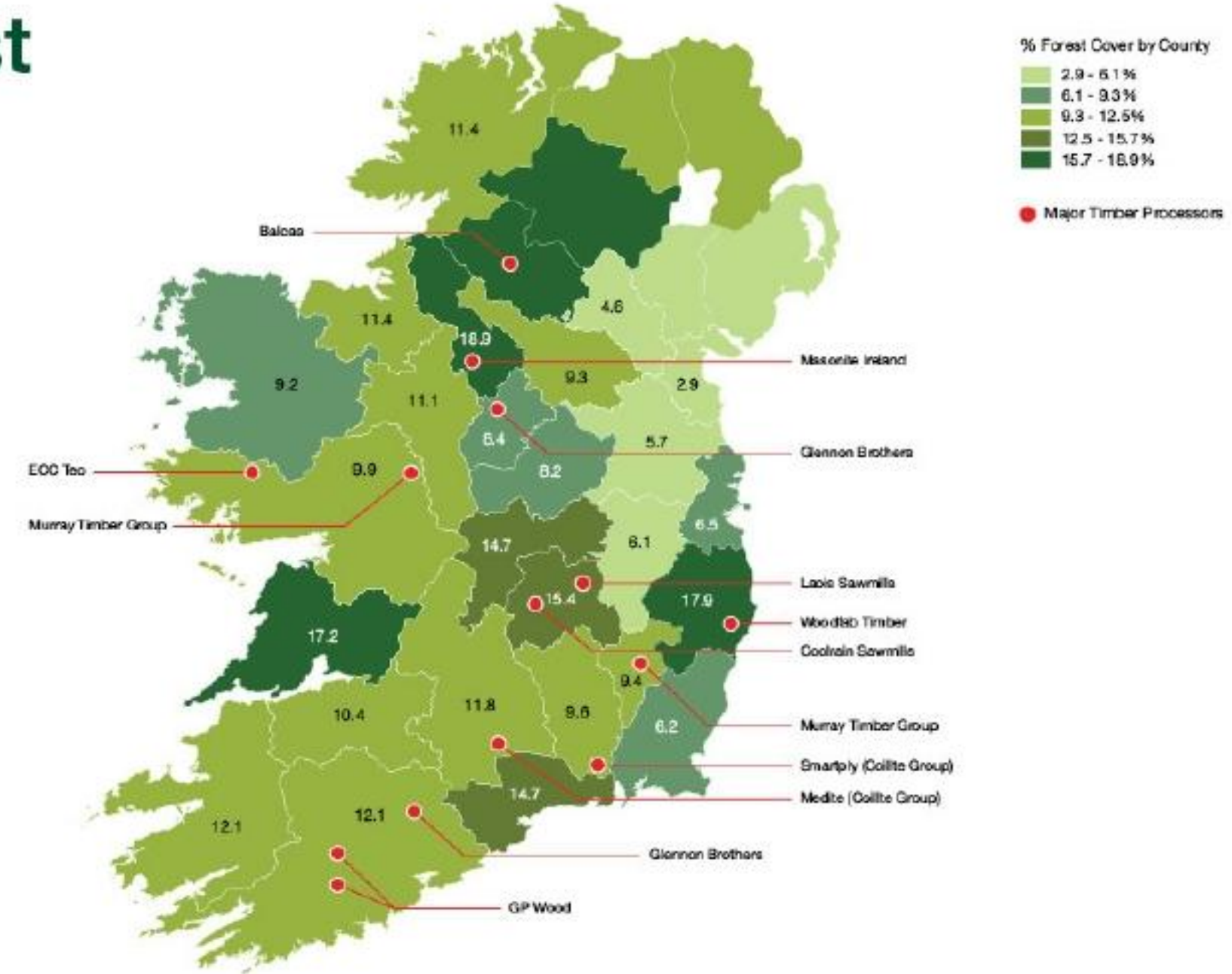
Ireland's forest cover and major timber processors



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Western Forestry Co-op

- Est 1985 by Dairy Co-operatives in Western Counties
- Response to a need for support services for landowners considering forestry
- Current Co-op shareholders

Aurivo

Kerry Co-op.

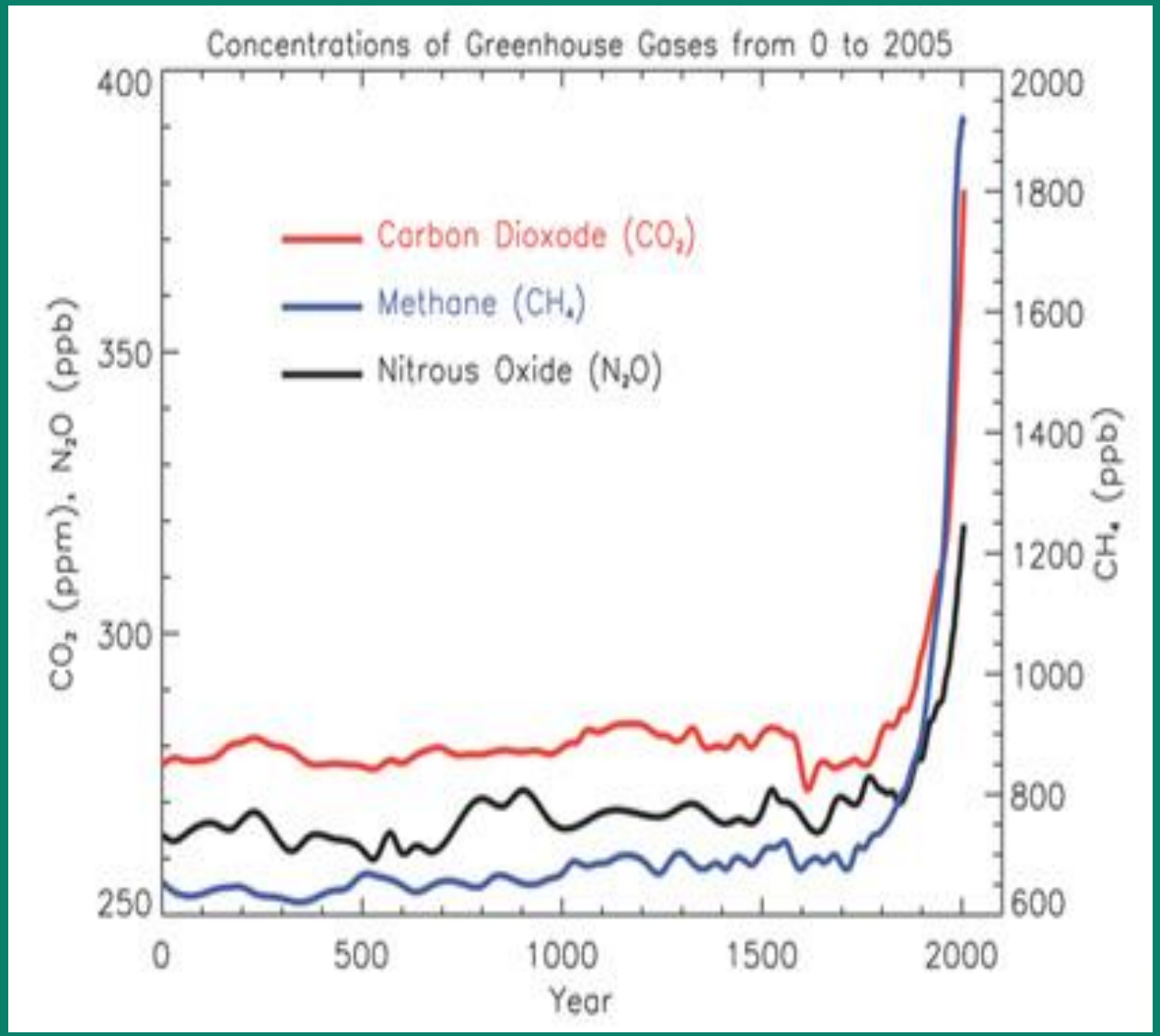
Western Forestry Co-op
Your Local Forestry Co-op

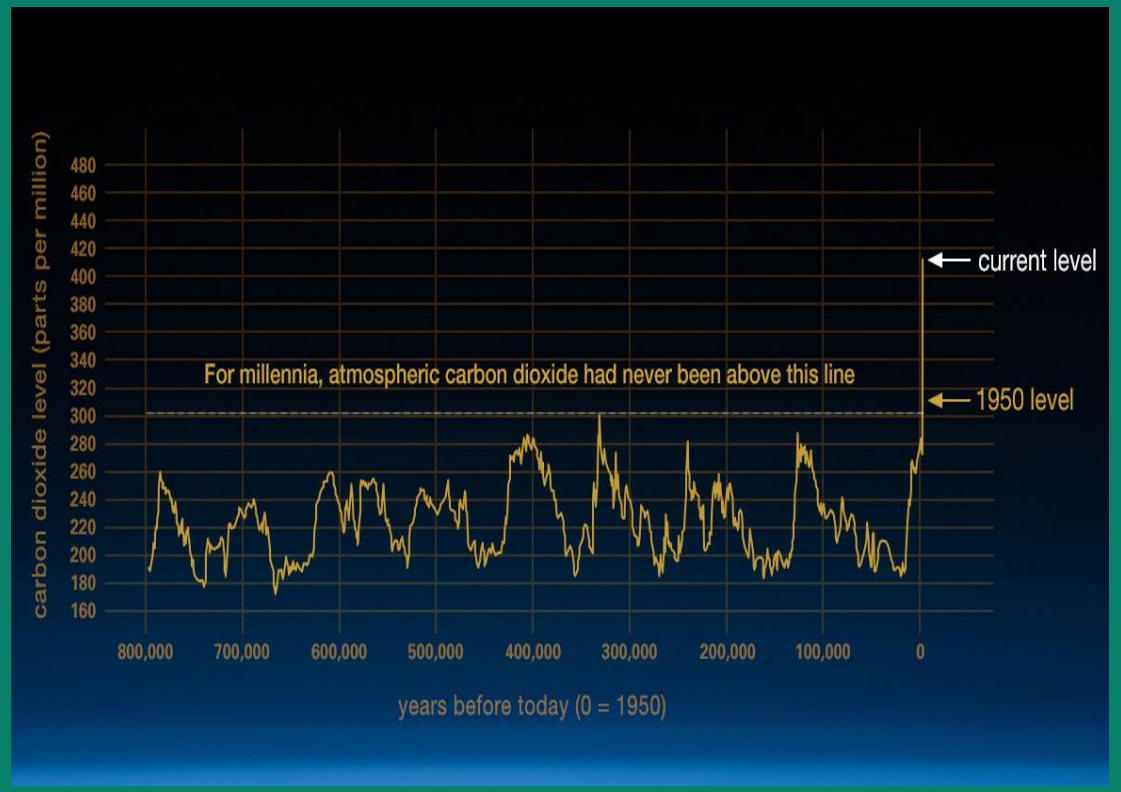
Lakeland DAIRIES

Clare Co-Operative Marts
www.claremarts.ie

- Longest established and largest forestry co-operative in Ireland providing professional forestry services

Climate Change – The Science





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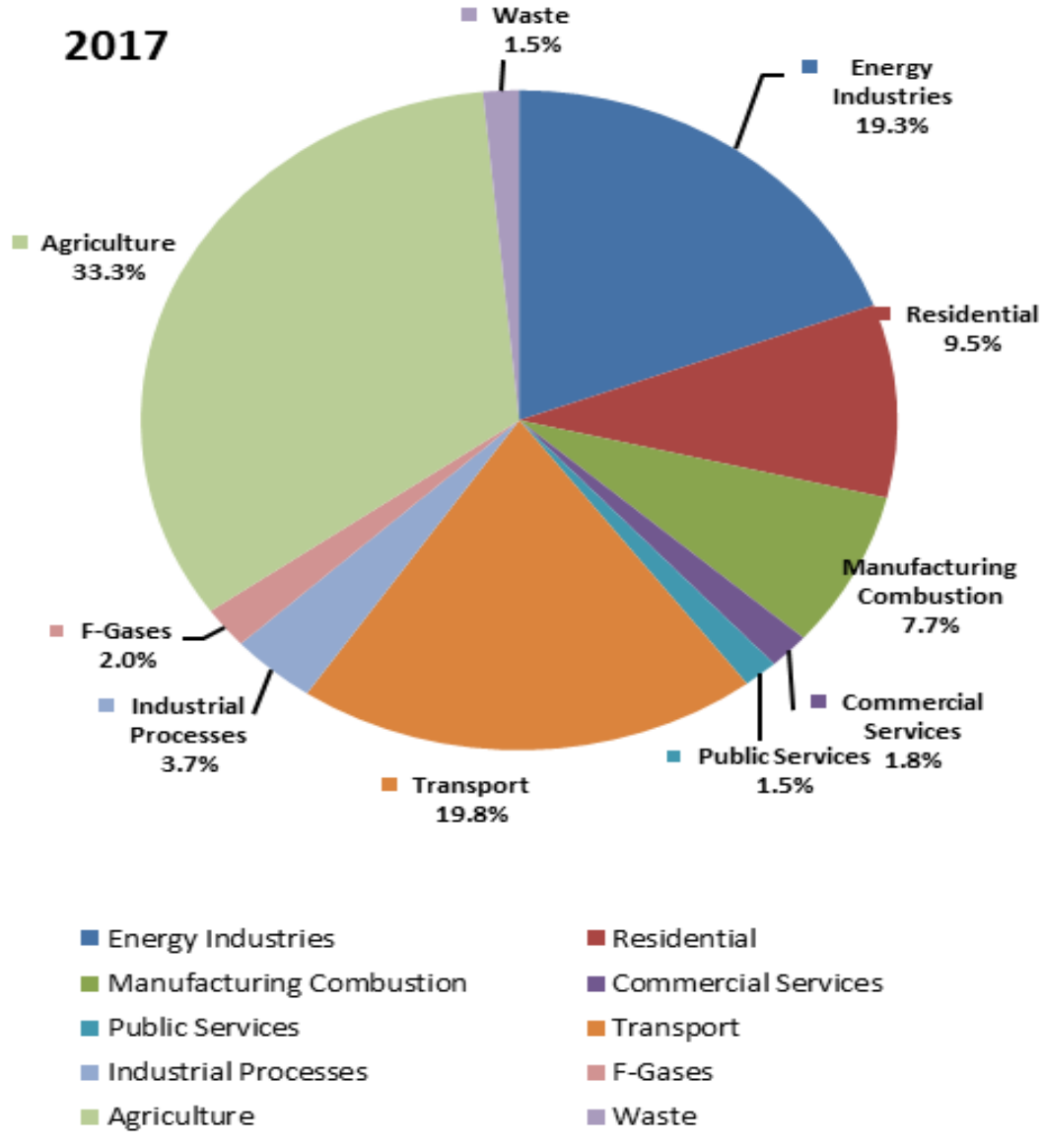
Climate Change – Ireland



Some Good News

- Decrease of 0.9% in GHG emissions 2017
- Decreases in energy and transport emissions

Some not so good news

- Greenhouse gas emissions are projected to increase for most sectors
- Over the commitment period 2013- 2020 Ireland is projected to cumulatively exceed its compliance by approx 17 Mt CO2
- At best, Ireland will achieve a 1 % reduction by 2020 compared to a target of 20%
- Agriculture emissions are projected to increase with expansion of animal numbers
- Per capita emissions third highest in EU

Source EPA

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Climate Change & Forests

Forests are a known stabilising force for the climate. After oceans, forests are the world's largest storehouses of carbon. They

- regulate ecosystems
- protect biodiversity
- play an integral part in the carbon cycle
- support livelihoods, and
- supply goods and services that can drive sustainable growth

Halting the loss and degradation of forest ecosystems and promoting their restoration have the potential to contribute over one-third of the total climate change mitigation that scientists say is required by 2030 to meet the objectives of the Paris Agreement.

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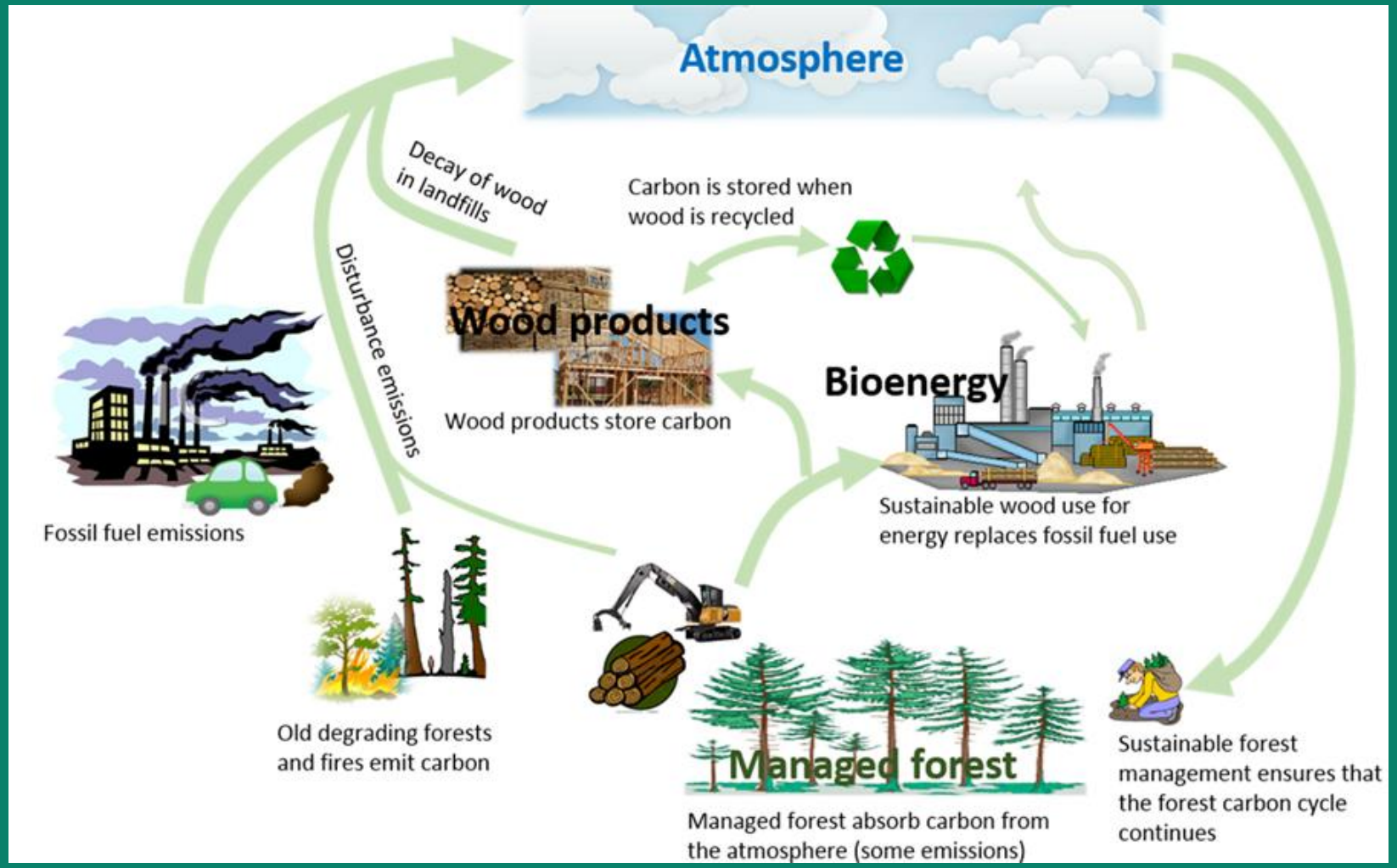
Climate Change & Forests

Forests have a Triple Carbon Benefit



1. Sequester Carbon (sink)
2. Long term storage of carbon in harvested wood products
3. Fossil Fuel Displacement – energy intensive materials such as concrete, steel, aluminium as well as wood fuels used for energy/heating

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Carbon Sequestration & Harvested Wood

- Irish Forests sequestered 3.6 MT CO2-e in 2016
- Allowable CAP of removals of 26.8 million tonnes CO2 over the period 2021-2030 (majority from afforestation)
- Annual Afforestation target
  - Forests, Products and People – 15,000ha per annum for 2016-2046
  - FoodWise 2025 – 15,000ha from 2021
  - Current afforestation 4 - 5000 ha
- Harvested wood products abated 0.8 million tonnes of CO2-e in 2016
- Every tonne of timber used instead of cement results in an avoided emission of two tonnes of CO2 (EFI)

Wood Fuel Substitution

McCauley Wood Fuels, Mohill, Co Leitrim

- 6,500 tonne pulp in 2018, process up to 400 tonne per week during peak times and still not near full capacity
- During peak weeks, sufficient wood chip processed to displace approx. 150,000 L of heating oil per week
- End users included Arigna Fuels, Cavan Swimming Pool, Clarke Fresh Fruits, Mushroom growers, piggery, Masonite and Edenderry Power

Aura Leisure Centre, Carrick on Shannon

- Leisure centre opening hours, 90 hours per week
- Annual biomass consumption 500 tonnes pulp or 300 tonnes woodchip @ 25% MC
- Average annual fuel saving €26,400
- CO2 annual saving = 308 ton

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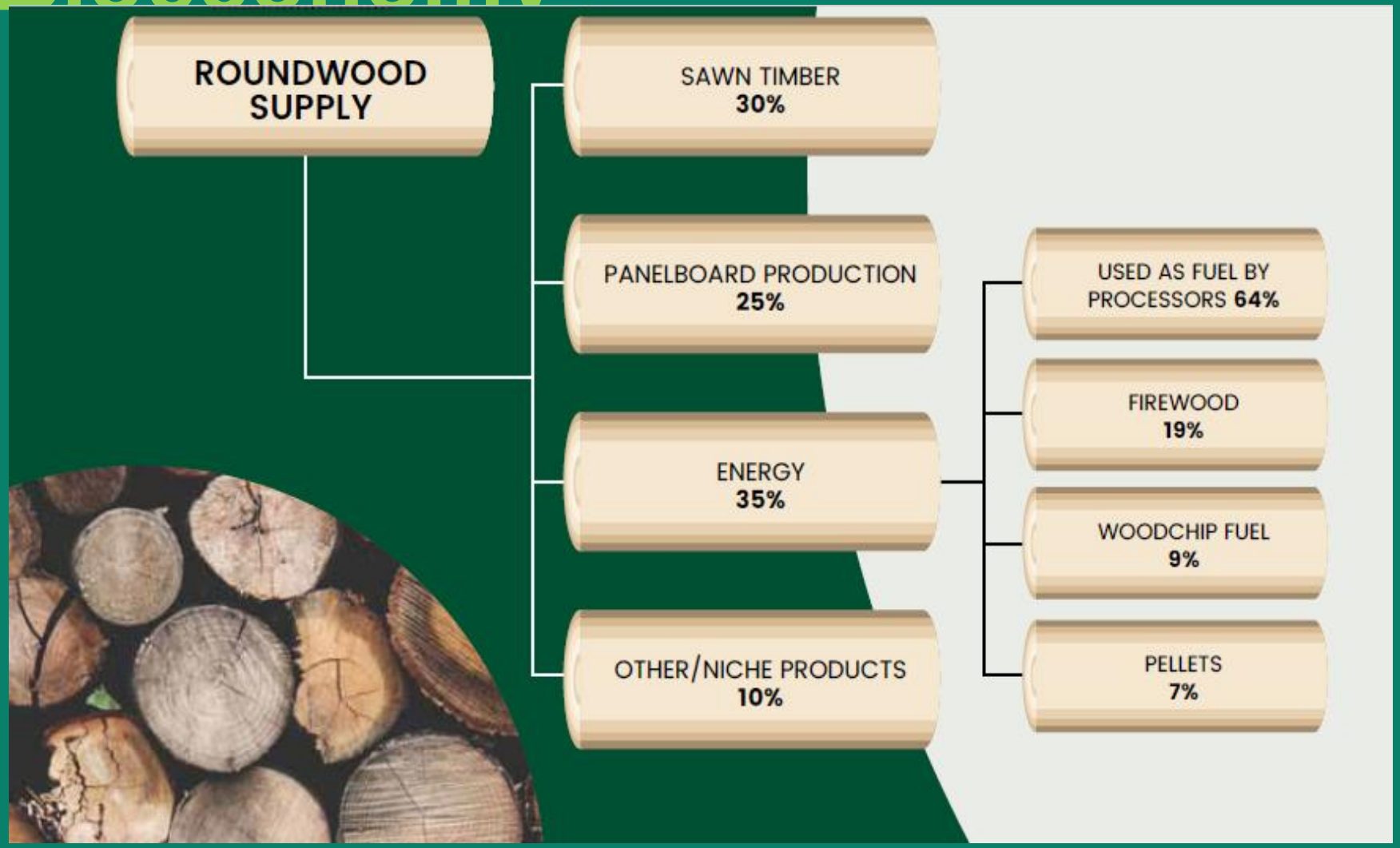
Structure of Irelands Current Forest Bioeconomy



Source: Growing the Irish Forest Bioeconomy, COFORD 2017

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World Needs Wood

- World popn projected to increase 7.6 billion to near 10 billion by 2050 (FAO)
- Approx 3.4 billion m3 of wood consumed annually
- Global demand for wood growing 1.7% annually, 50% of existing forests either protected or too remote to harvest
- Forests supply about 40% of global renewable energy – as much as solar, hydroelectric and wind power combined
- The max sustainable rate of timber extraction from natural forests as low as 2 m3 ha−1 yr−1, current level of demand will exceed supply
- Alternative is to farm trees in plantations. Plantations only supply ~12% of the total amount of wood consumed (FAO)

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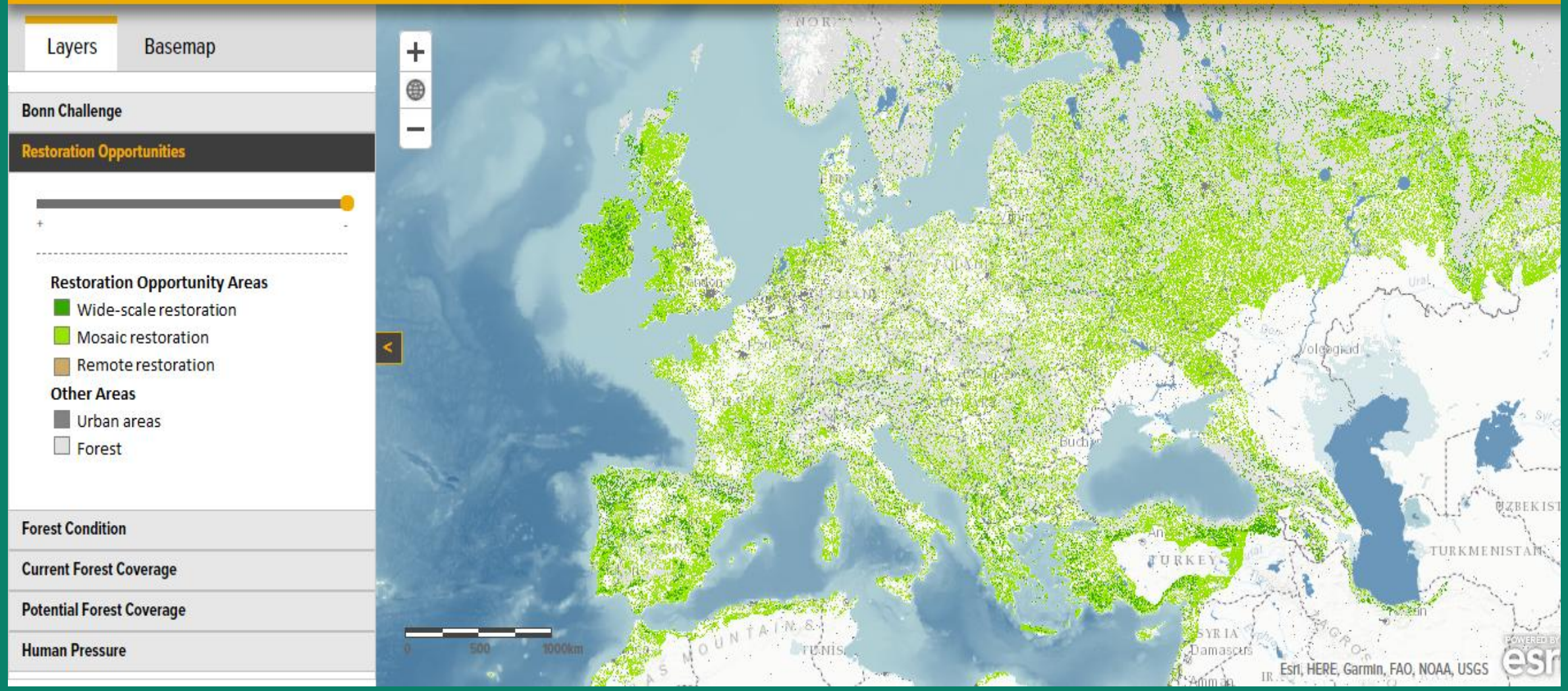
How to Restore our Forests – Sir David Attenborough

- *"Wood is an extraordinary renewable resource and taking it from well managed forests benefits forests and the planet, but on their own natural forests can't supply all the wood that we need."*
- *"So we also have to farm trees, and create a new generation of plantations. Plantations that allow wildlife to pass through natural forest corridors, that benefit local communities and economies and that are planted on existing cleared land so they don't replace natural forests."*
- *"Around the world there are approx 2 billion ha of degraded land where forests could be restored, twice the size of Europe. As we become more efficient farmers and adopt healthier diets, we'll free up land for our plantations and for our forests to return, to rewild."*
- *"Better farming = more forests"*
- *"If we do all these things, we'll have:*
  - *Protected our natural ancient forests*
  - *Be able to harvest all the timber we'll ever need*
  - *We'll have stabilised our climate, and*
  - *Have more natural forests than any of us have ever known"*

Atlas of Forest Landscape Restoration Opportunities



Production Forests & Climate Change

As well as supplying much-needed timber, well managed plantations have many related benefits, including:

- Ensuring timber is sold for the most appropriate end use, thus reducing waste
- Divert logging from natural forests
- Once trees are harvested, it is replanted and the carbon cycle starts again
- Growing and harvesting trees more efficiently than would occur in natural forests, thus using far less land and resources to meet a certain demand
- Adding more trees to the earth's surface to slow global warming through increased carbon sequestration in shorter timeframes
- Providing employment and economic growth in areas where plantations are managed

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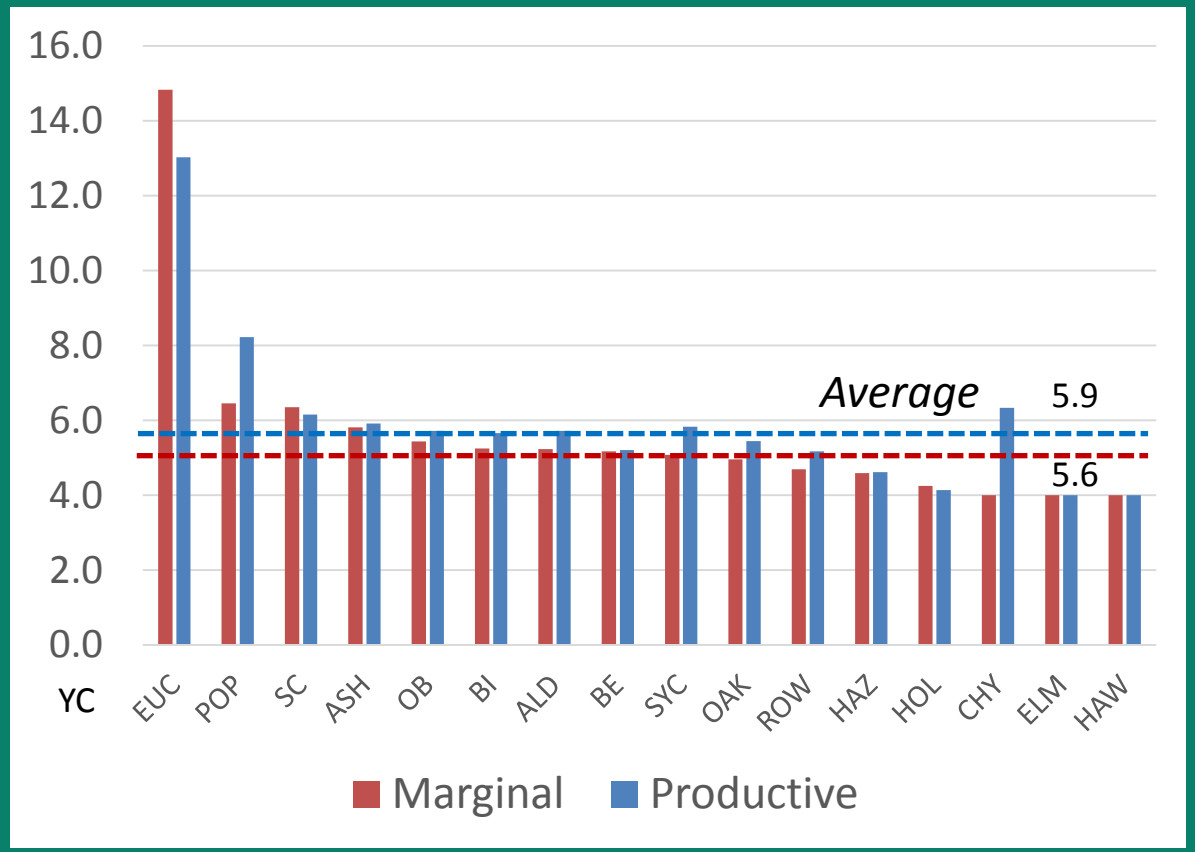
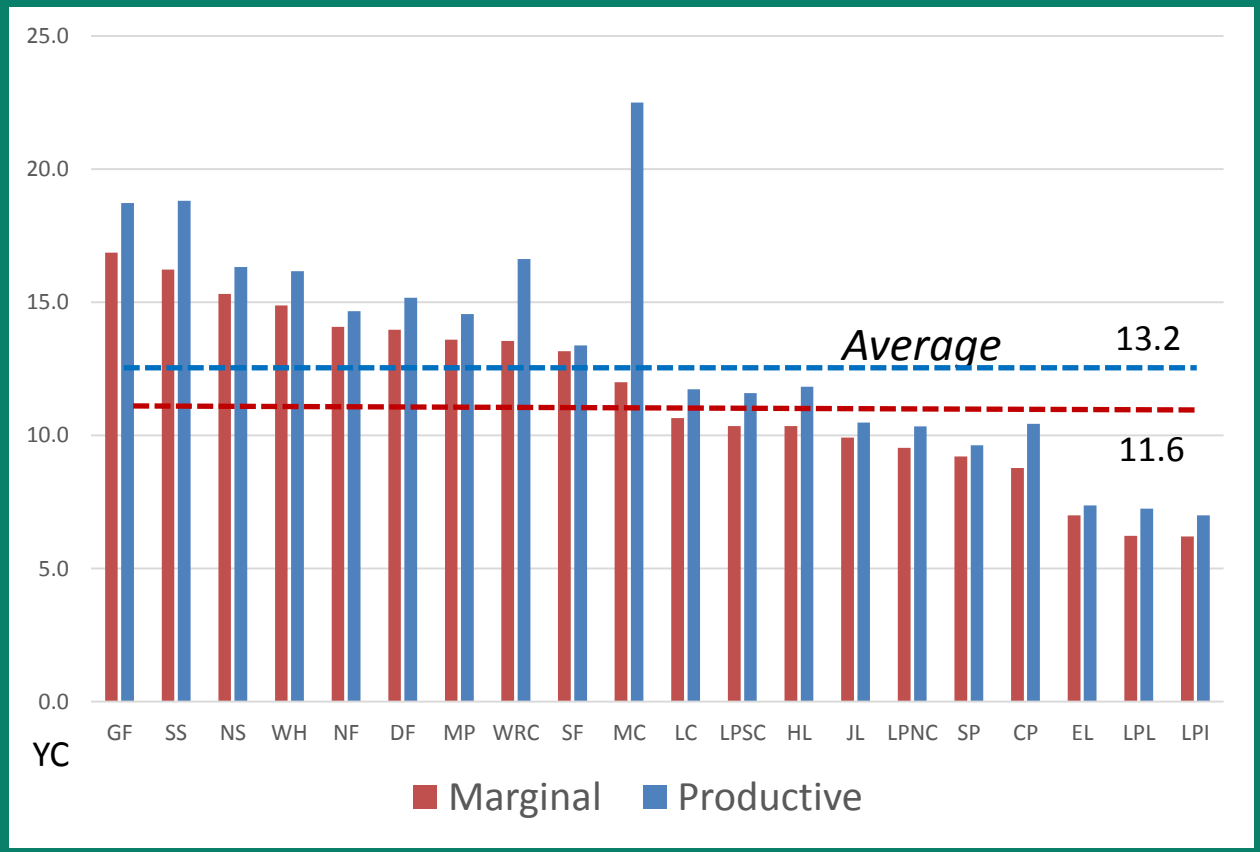
Production Forests & Climate Change

Carbon sequestration – coniferous forests will achieve higher sequestration rates in shorter time frames, carbon sequestration increases with forest yield

Hardwood Suitability - Marginal/Productive Land



Conifer Suitability - Marginal/Productive Land



Source - Teagasc

Right Tree, in the Right Place, Right Reasons

Environmental

- Triple Carbon Benefit
- Soil & Water Protection
- 15% Broadleaves, 15% Biodiversity (70/30 mix – acceptable?)

Economic

- Highest return in shortest timeframe (conifer wood construction)
- Best use of marginal land
- Efficient use of all of the timber - sustainable building
- Production forestry finances broadleaves and retained biodiversity areas

Social

- Employment, Income, farmer/forest owner return
- Recreation

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How do we increase forest cover?

- Larger Incentives?
- Link to agriculture expansion – opportunity of CAP 2020, forests under carbon navigator welcome step but driver needed
- Review forest land such as Unenclosed area's, remove pressure from concentrating afforestation programme in one province
- Payment for ecosystem services (PES) (water, carbon, biodiversity)
- Replanting Obligation (ratio of afforestation to deforestation)
- Broadleaves such as Pioneer Birch Woodland – degraded lands – Native Woodland huge potential in these areas (15yrs not enough, compliment with PES)

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Irish Forests & Climate Change

- Triple Carbon Benefit
- Forestry Act 2014 – ensures that forests are managed sustainably and replanted
- Forestry Guidelines – 15% Broadleaves; 15% ABE; 70% conifer
- 1.3 million ha of land marginal for agriculture identified as having significant scope for afforestation (Farrelly & Gallagher 2015)
- Native Woodland Support Schemes
- Net exporter of wood products – highly efficient sawmilling sector
- Healthy Forest Bio and Circular Economy

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Where will the Wood Come From?

Trevor M. Fenning and Jonathan Gershenzon

"For the world to be supplied with the wood it needs on a long-term sustainable basis, it needs to invest much more in the development of high-yielding, short rotation plantation forests.

The alternative is that the world's remaining natural forests will continue to be degraded, probably at an accelerating rate, and/or pollution from wood substitutes will increase.

Those who oppose plantation forests, need to be clear what the choices really are, rather than what they might like them to be."

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