

Availability of Sustainable Feedstocks

Search for Novel Feedstocks

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JRC and IEA Bioenergy TCP Task 39 joint Workshop
“Biofuels Sustainability – Focus on Lifecycle Analysis”

Global businesses – local presence



54

production plants in

12 countries

93,600

stakeholders in

32 countries

12,600

customers in

110 countries

24,000

b-to-b suppliers in

75 countries

Driven by sustainable solutions for a future beyond fossils



ELECTRICITY
everywhere

**PLYWOOD
AND SAWN TIMBER**
for construction and
industrial applications

**GRAPHIC AND
OFFICE PAPERS**
for advertising and
home and office uses

PLYWOOD
for vehicle flooring

**PULP AND
SPECIALTY PAPERS**
for packing materials

**RENEWABLE
BIOFUELS**
for all diesel engines

BIOCOMPOSITES
for various outdoor
building material uses

LABEL MATERIALS
for information and
product labelling



UPM Lappeenranta Biorefinery

The world's first biorefinery
producing advanced renewable
diesel and naphtha from
sustainable, wood-based residue

179M€

UPM
investment

100,000+

t/a production
capacity

UPM
BioVerno
diesel

UPM
BioVerno
naphtha

Feed

Crude tall oil –
residue of pulp
production

-80%

Greenhouse gas
emissions

No

Direct or indirect
land use change

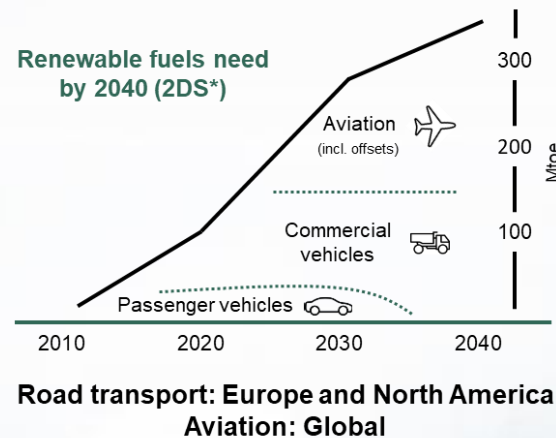
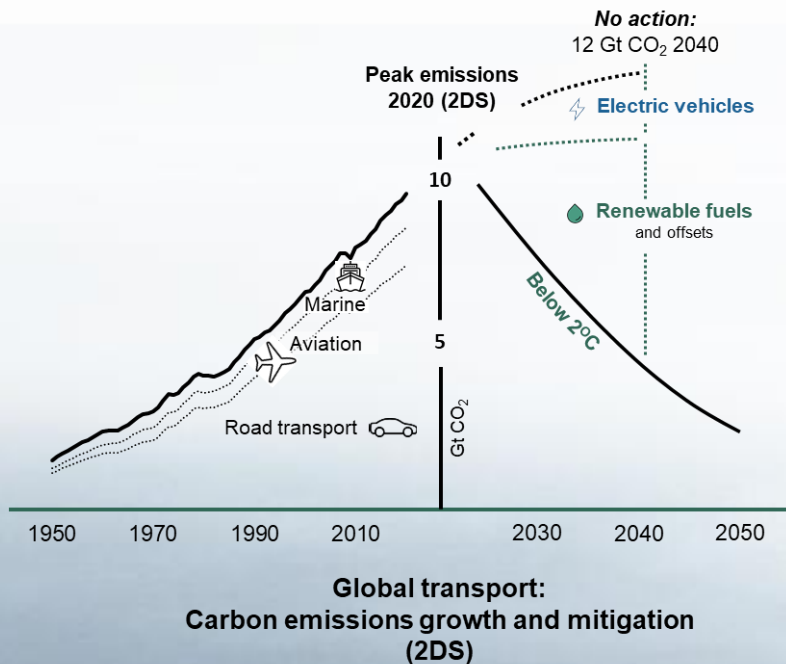


Driving cleaner traffic

UPM BIOFUELS

- Established producer of low-emission renewable diesel and naphtha for transport
- Sustainable use of wood-based feedstock alongside existing uses
- Uniquely certified with international sustainability standards ISCC and RSB

Green shift in transport requires new solutions to replace fossils – liquid fuels still in dominant role



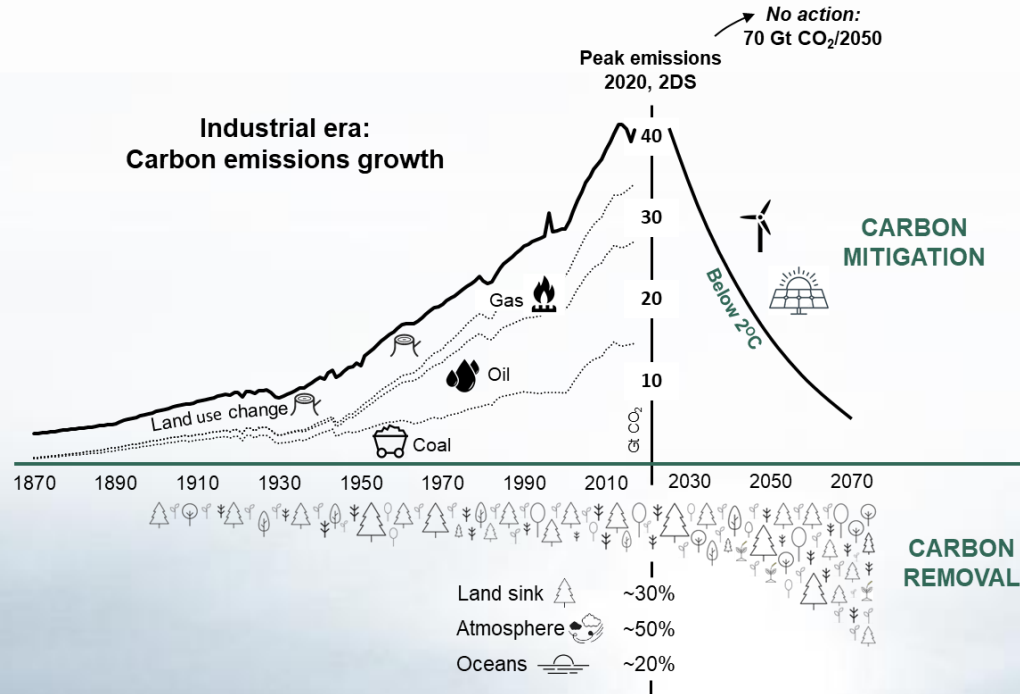
Source: UPM based on WoodMackenzie, Bloomberg, ICAO, EIA, IEA

*The two degree scenario (2DS) is calculated vs. 2005 reference per sector (-30% 2030, -40% 2040, -50% 2050)

Limiting warming to 1.5°C requires major and immediate transformation and sustainable land use



IPCC: "All 1.5°C emissions pathways rely upon carbon removal"



SUSTAINABLE FORESTRY ENSURES FOREST GROWTH



Facts on forest growth



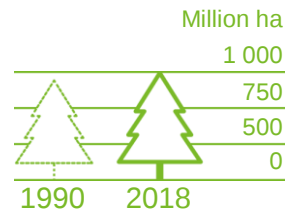
**In Finland alone
150 million
new trees
grow every year**

=



**Doubled growth
in 50 years**

**In Europe, forest
area has grown
17.5 million ha
in 25 years**



Sustainable forestry preserves forests and increases carbon sinks



WE PLANT

100

trees per minute

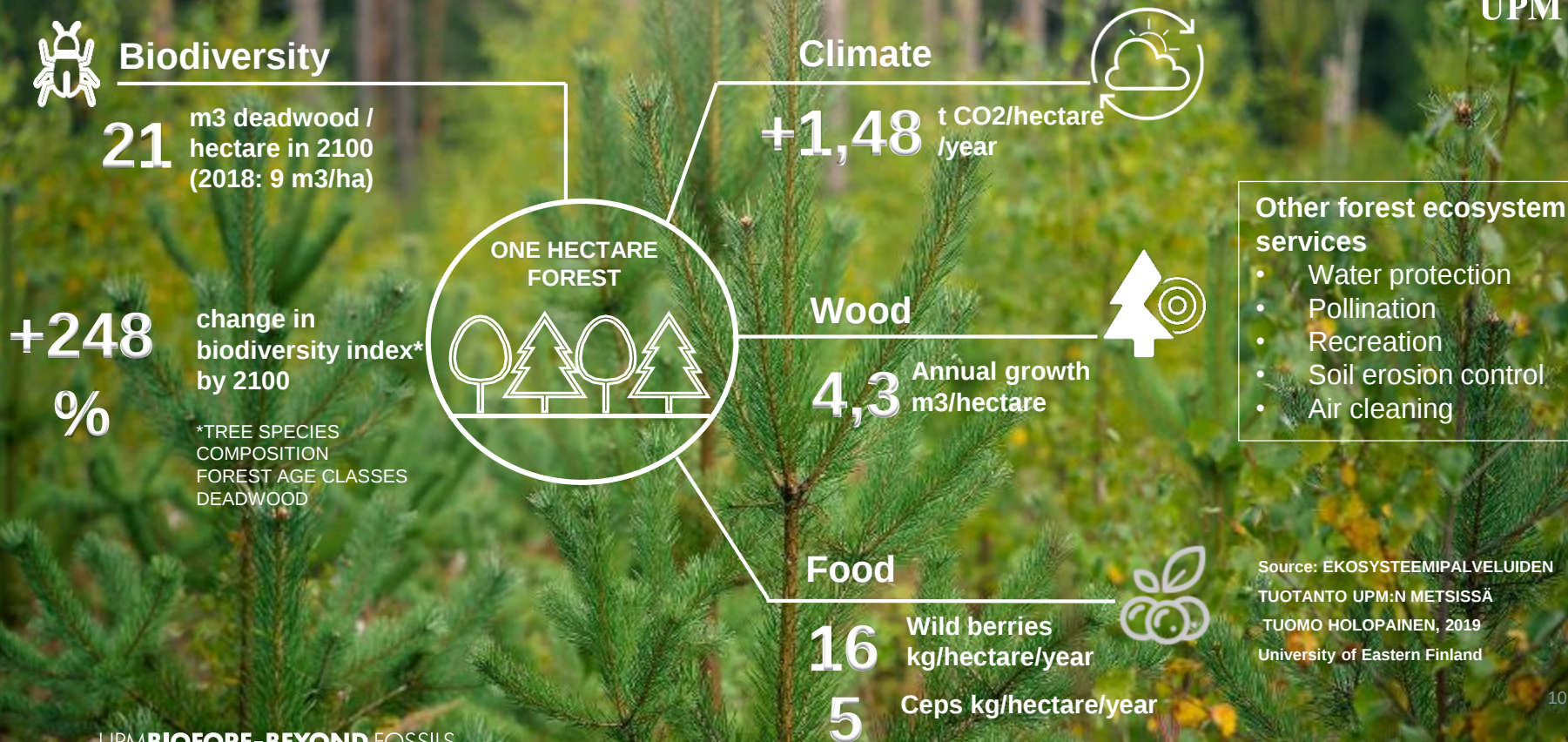
WE PLANT

50 million

trees in a year

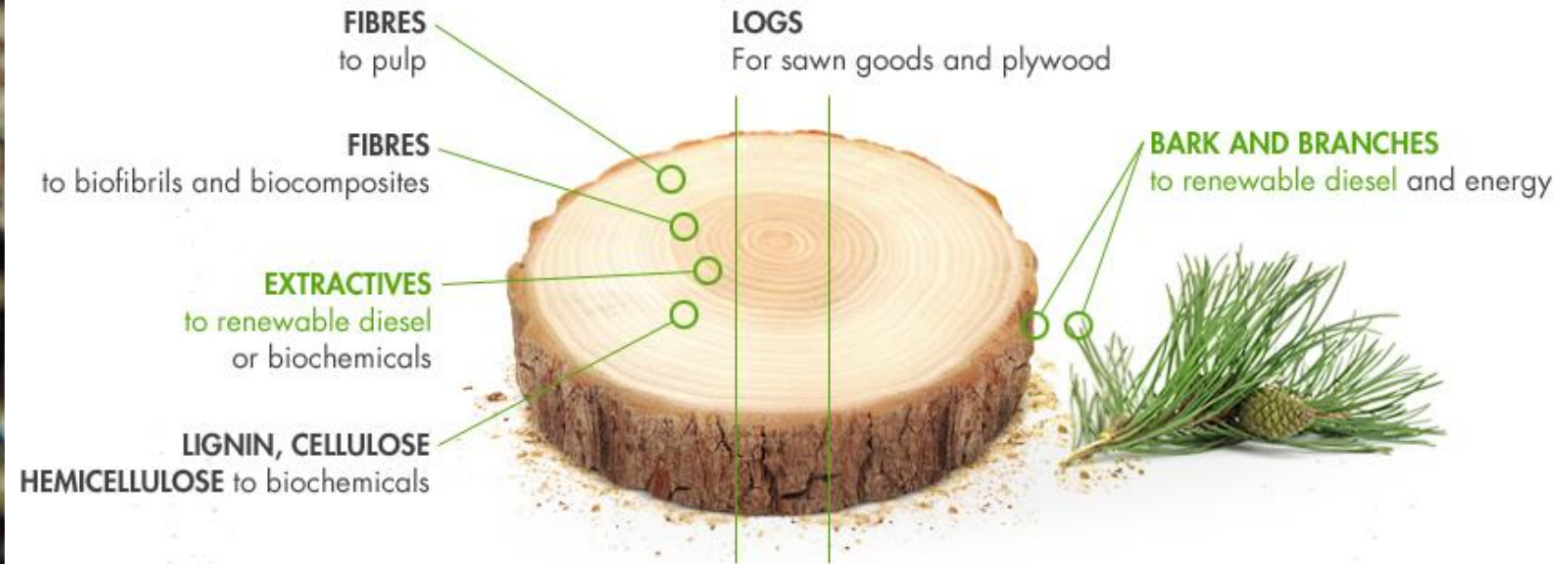


Ecosystem service co-production - The best way to use land?



Source: EKOSYSTEEMIPALVELUIDEN
TUOTANTO UPM:N METSISSÄ
TUOMO HOLOPAINEN, 2019
University of Eastern Finland

The wood based product market is an economic mechanism that mitigates climate change, and sustains forests and forest carbon sink effect when done in a responsible way

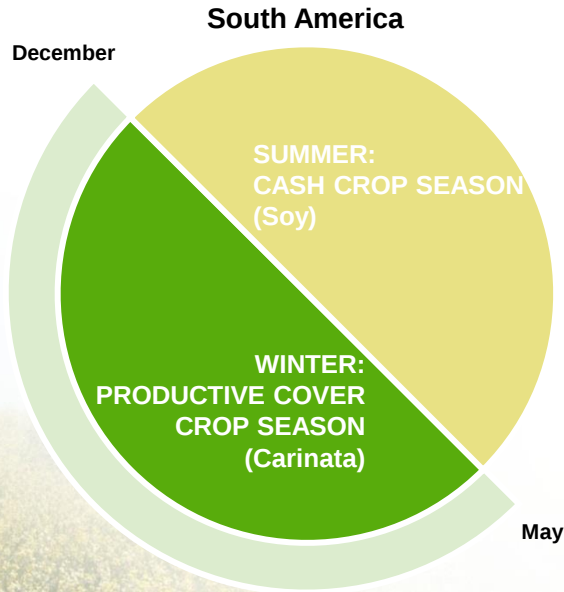


Sustainable land use enables new alternatives for biofuels feedstock – Case Brassica Carinata in Uruguay



Oil	42%	2200 kg/ha
Meal	58%	

Additional biomass generated through productive cover cropping (Carinata)



Additional biomass

Non-edible oil for biofuels production
High protein animal feed

Soil cover around year Crop residues left on soil

Erosion control
More biomass to soil and enhanced soil carbon balance

Deep rooting system Diversification of crop rotation

Better growth conditions
Soil quality improves
Efficient nutrient uptake
Better pest and weed control for main crop

Benefits of carbon farming through Brassica Carinata



High GHG savings through sustainably managed agriculture and carbon farming

Brings additional biomass using underutilized periods → No LUC/ILUC

Increases soil carbon levels and improves soil health

Non-food technical oil for HVO / Fame production

Summary



**Utilize
untapped,
sustainable
potential of
wastes and
residues**

**Promote
production
routes from
solid biomass
residues**

**Develop
additional and
sustainable
agricultural
practices**

UPM **BIOFORE**
BEYOND FOSSILS

