

# ▶ Project *brief*

Thünen Institute of Forestry

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## BIOKRAFT – Availability of woody biomass for biofuel production in GER and EU 2000 to 2040

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- **Supply and use of roundwood and woody residues in Germany and EU increased between 2000 and 2020.**
- **In Germany, substantial woody biomass potentials for production of advanced biofuels are not available.**
- **For advanced biofuel production only inefficiently energetically used woody biomass could be considered.**

### Background

Bio-based fuels can contribute to transport sector decarbonization and consequently to the achievement of climate protection objectives. This contribution to climate protection however, strongly depends on the sustainable availability of woody biomass.

In the BIOKRAFT project we assessed how much woody biomass could be made available for future advanced biofuel production under consideration of strict sustainability requirements.

### Approach

BIOKRAFT comprised five working packages in order to assess the availability of wood biomass quantitatively and qualitatively. At Thünen Institute of Forestry we carried out the quantitative assessment. We did an ex-post analysis of the historical development (2000 - 2020) of woody biomass availability. Subsequently, we conducted a systematic literature review to estimate future (2020 - 2040) woody biomass availabilities in Germany and the EU.

### Results

Compared to the year 2000, the domestic supply of **roundwood** increased by 34 % until 2020 (58.7 M m<sup>3</sup> to 78.6 M m<sup>3</sup>). A similar trend was observed for the EU (419.5 to 507 M m<sup>3</sup>). In Germany, the average share of coniferous roundwood of total roundwood removals was 74 % in the period 2000 - 2020.

Since 2018, the amount of **damaged timber** has increased considerably. Main factors are droughts and subsequent calamities. Thus, the resulting damaged timber largely contributed to the increase of the total fellings in forests.

Compared to the year 2000, **roundwood use** in traditional wood industries (sawmilling, production of pulp and wood-based panels) and in energy generation increased by 25 and 138 % (i.e. for energy from 9 to 21.3. M m<sup>3</sup>) until 2020, respectively.

The supply of **wood processing residues** is closely linked to roundwood use in wood-based industries. In 2020 a total of 51.2 M m<sup>3</sup> wood processing residues from primary and secondary sources were used in German wood-based industries. Due to missing data wood processing residue amounts at EU levels cannot be assessed.

In the reviewed literature it is assumed that less woody biomass will be available in the future, due to increasing nature protection and a subsequent reduction of fellings and roundwood removals from forests. Furthermore, it is assumed that carbon storage in the standing stock of forests will be prioritised over wood use. In the reviewed scenarios of future wood availability, the potential annual **roundwood supply** for Germany in 2050 is estimated between 41 M m<sup>3</sup> and 76,2 Mio. m<sup>3</sup>. At the EU level potential roundwood supply estimates range between 330 and 480 M m<sup>3</sup>. Information on future wood processing residue supply at EU level is scarce. However, it can be assumed that a reduction of roundwood use will also lead to a reduction of wood residue supply.

### Conclusions

Currently, woody biomass is fully used and no substantial amounts are freely available for the production of advanced biofuels. In the future, to date inefficiently used fuelwood could supply biofuel production, if this leads to reduced carbon dioxide emissions across all sectors.

## Further information

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<https://www.thuenen.de/en/institutes/forestry/projects-1/biokraft-biofuels-from-woody-biomass>

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### Partners

Deutsches Biomasseforschungszentrum (DBFZ)  
Hochschule für Nachhaltige Entwicklung Eberswalde (HNE)  
International Institute of Applied Systems Analysis (IAASA)

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