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Sustainability Impact Assessment of the Forestry-Wood Chain

M3 - Forest to Industry Interactions

WP 3.2 Harvesting Systems

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In WP 3.2 relevant harvesting systems for specific test chains and (regional) cases, linked to selected product lines, are identified. Their impacts on the environment and the economy, as well as social aspects, are analyzed and quantified.

Some objectives and main tasks

To analyze existing and future harvesting systems and their sustainability impacts

To identify and evaluate relevant harvesting systems for different harvesting conditions and product lines (solid wood, pulp & paper, bio energy)

To investigate existing and new concepts for integrated planning and organization of harvesting operations and to assess their influence on the sustainability

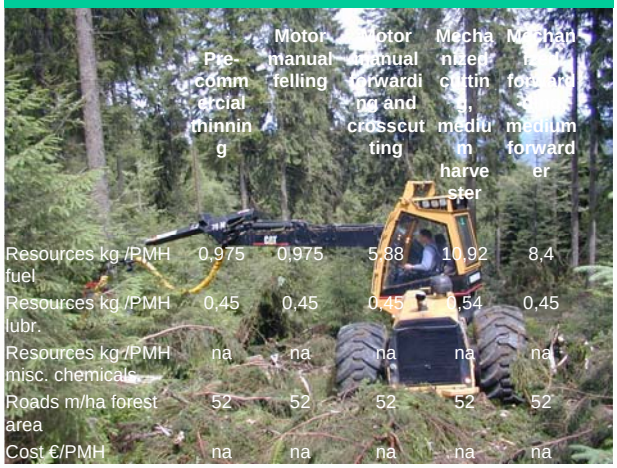
To analyze interactions between forest management practice and harvesting operations (techniques, systems etc.) in a sustainability impact perspective

To analyze interactions between harvesting systems/techniques and wood allocation (quality, defects, sorting) for selected product

Chains

A product defined fine paper chain with round wood sources in Scandinavia and Iberian peninsula

A regionally defined spruce chain natural and planting regenerations (Baden Württemberg)



	Pre-commercial thinning	Motor manual felling	Motor manual forwarding and crosscutting	Mechanized cutting, medium harvester	Mechan forwarding medium forwarder
Resources kg /PMH fuel	0,975	0,975	5,88	10,92	8,4
Resources kg /PMH lubr.	0,45	0,45	0,45	0,54	0,45
Resources kg/PMH misc. chemicals	na	na	na	na	na
Roads m/ha forest area	52	52	52	52	52
Cost €/PMH	na	na	na	na	na

A forest defined pine chain in Scandinavia - example emissions

Emission	process	value	unit
LI14.1 - Greenhouse gas emissions , GWP	Felling Final felling	2,51	kg/m³sub
LI14.1 - Greenhouse gas emissions , GWP	Forwarding final felling	3,44	kg/m³sub
LI19.3.a - Non-greenhouse gas emissions into air - SO_2	Felling Thinning	4,37	g/m³sub
LI19.3.a - Non-greenhouse gas emissions into air - SO_2	Forwarding Thinning	3,10	g/m³sub

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