



SCALE-UP Information Package

Review and preparation of existing scientific and technological information supporting bio-based solutions

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Organization:	BioFuel Region

Biomass stream/value chains:	Logging residues & other forestry by-products
Bio-based solutions:	Natural rubber from bark and high value chemicals

This information package aims at reviewing and collecting information relevant to the SCALE-UP project and for the regional platforms. Relevant studies should aim at supporting the bio-economy rollout in the SCALE-UP regions and of the specific bio-based solutions.

Information on the following topics will be gathered:

1. EU Policies and legislation
2. Research projects
3. Local policies
4. Technical Information on specific biobased solutions
5. Biomass availability & Nutrient recycling

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1. EU Policies & Legislation

EU policies and legislation relevant to the SCALE-UP project and bio-based solution.

Other sources of interest:

[JRC Knowledge Centre for Bioeconomy \(English\)](#)

[JRC Knowledge Centre for Bioeconomy \(Swedish\)](#)

List of important EU policies and legislation

Date	Name	Link	Translation link	Summary of contents	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions	
1	02-2012	EU bioeconomy strategy	https://op.europa.eu/en/publication-detail/-/publication/edace3e3-e189-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-149755478	https://op.europa.eu.translate.google.com/en/publication-detail/-/publication/edace3e3-e189-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-149755478?x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	The 2012 European Bioeconomy Strategy paved the way for a more innovative, resource-efficient and competitive society that reconciles food security with the sustainable use of renewable resources for industrial purposes, while ensuring environmental protection. A comprehensive review concluded that it has been a success, notably at mobilising research and innovation, boosting private investments, developing new value chains, promoting the uptake of national bioeconomy strategies and involving stakeholders.	The EU bioeconomy strategy aims at strengthening and scaling-up bio-based sectors, as well as deploying local bioeconomies across Europe. Through: -The deployment of the bioeconomy will lead to the creation of jobs, especially in rural areas through the growing participation of primary producers in local bioeconomies. -The bioeconomy strategy sets as one of its main goals to support research and innovation and deployment of innovative solutions for the production of new and sustainable bio-based products. -A Strategic Deployment Agenda will be developed, which will provide a long-term vision on pathways to deploy and scale up the bioeconomy in a sustainable and circular manner. -Enhance synergies between existing EU instruments to support local activities. -CAP to support bioeconomies in rural areas.	Relevant to the specific bio-based solutions: -It aims at increasing the availability of secondary materials (such as feed and biowaste) for further exploitation through conventional technologies (e.g. composting and anaerobic digestion) and innovative ways of extracting valuable substances. Innovation is expected to support markets for bio-based products, where one industry's waste becomes the starting material for another. -It addresses new opportunities for the forestry sector, where non-sustainable raw materials in various sectors are replaced with forestry-based materials and chemicals. -Biowaste and residues can be used as valuable resources and can help reduce food waste by 50% by 2030.
2	2019	European Green Deal	https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en	https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/european-green-deal_en?x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	European Green Deal is a set of comprehensive and integrated to transform the EU into a modern, resource-efficient and competitive economy, ensuring no net emissions of greenhouse gases by 2050 and economic growth decoupled from resource use.	The Green Deal includes measures in agriculture on the reduction of environmental and climate footprint and increase of competitive sustainability from farm to fork (see below). In the energy sector the Green Deal includes measures to promote eco design of products and renewable energy from sustainable biomass resources.	
3		European Digital Strategy	https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en	https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_en?x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	The EU's digital strategy aims to make this transformation work for people and businesses, while helping to achieve its target of a climate-neutral Europe by 2050.	EU's digital strategy recognises that digital technologies are profoundly changing our world, and generate an ever-increasing amount of data, which if pooled and used properly, can lead to completely new means and levels of value creation, leading towards more sustainable solutions which are resource-efficient, circular and climate-neutral.	Real time tracking, new, added-value creations, interconnections, boosting bio-based solutions driven by new, high and/or deep technologies
4	02-2020	European data strategy	https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en	https://commission.europa.eu.translate.google.com/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en?x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	The European data strategy aims to make the EU a leader in a data-driven society. Creating a single market for data will allow it to flow freely within the EU and across sectors for the benefit of businesses, researchers and public administrations.	The EU is creating a single market for data where data can flow within the EU and across sectors, for the benefit of all European rules, in particular privacy and data protection, as well as competition law, are fully respected the rules for access and use of data are fair, practical and clear	By having more information, consumers and users such as farmers, airlines or construction companies will be in a position to take better decisions such as buying higher quality or more sustainable products and services, thereby contributing for example to the Green
5	05-2020	Farm to Fork strategy	https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en	https://food.ec.europa.eu.translate.google.com/horizontal-topics/farm-fork-strategy_en?x_tr_sl=en&x_tr_tl=fr&x_tr_hl=en-US&x_tr_pto=wapp	The Farm to Fork Strategy is a set of measures to accelerate the transition to a sustainable food system that should have a neutral or positive environmental impact help to mitigate climate change and adapt to its impacts, reverse the loss of	The Farm to Fork Strategy includes measures to promote sustainable food production and processing (including nutrient recycling). This includes measures on the compatibility of the EU food supply sector including use of residues for bioproducts	

6	2018	REGULATION (EU) 2018/841 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework LULUCF	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018R0841	https://eur-lex.europa.eu.translate.goog/legal-content/EN/TXT/?uri=CELEX%3A32018R0841&x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	Pending formal adoption, the Council and Parliament set an overall EU-level objective of 310 Mt CO2 equivalent of net removals in the LULUCF sector in 2030. According to the provisional agreement, the current rules under which emissions do not exceed removals (the "no debit rule") will continue to apply until 2025. For the period from 2026-2030, where removals should exceed emissions, each member state will have a binding national target for 2030. The agreement maintains the distribution of targets between member states as proposed by the Commission.	Sweden's share of the overall objective is about 1/6. This will most probably affect the levels of harvest.	Lower harvest rates will affect both the abundance of harvest residuals and residual streams at the sawmills and pulp and paper factory. Sweden will vote no to the proposal in the council of ministers.
7		Revision of the Renewable energy directive. COM/2021/557	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0557	https://eur-lex.europa.eu.translate.goog/legal-content/EN/TXT/?uri=CELEX%3A52021PC0557&x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	The EU Parliament suggests that primary biomass should not be considered sustainable.	Primary biomass i.e. primarily logging residues is a crucial part of the district heating system in Sweden and has been calculated to replace sawdust when sawdust is upgraded to materials, chemicals and fuels in biorefineries	If adopted harvest residues will be seen as not sustainable and will stay to decompose in the forests and hinders the development of a number of biorefinery initiatives. The overall economy for the forest owner will be lower.
8	2023	REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the making available on the Union market as well as export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115	https://eur-lex.europa.eu.translate.goog/legal-content/EN/TXT/?uri=CELEX%3A32023R1115&x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	The legislation must prevent consumption and production in the EU from contributing to deforestation. Forestry within the EU rarely does. Deforestation mainly occurs when changing land use from forestry to agriculture or infrastructure	The council and the parliament set an innovative concept for the definition of 'forest degradation' meaning the structural changes to forest cover, taking the form of the conversion of naturally regenerating forests and primary forests into plantation forests and other wooded land and the conversion of primary forests into planted forests.	While complying to the Swedish forestry act the administrative burden for forest owners will increase significantly and especially the small forest owners will have problems to provide the requested data. Financial institutes and banks foresee problems to invest in forest related business. They are not allowed to do so if there are the slightest risk for degeneration of forests. The definition of degeneration is somewhat unclear regarding plantation forests and planted forests. Imports from the US, Canada and Russia will not be possible.
9	2022	Nature restoration directive	https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-law_en	https://environment.ec.europa.eu.translate.goog/topics/nature-and-biodiversity/nature-restoration-law_en?x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	The Commission has proposed a new law to restore ecosystems for people, the climate and the planet.	The nature restoration directive is a key element of the EU Biodiversity Strategy, which calls for binding targets to restore degraded ecosystems, in particular those with the most potential to capture and store carbon and to prevent and reduce the impact of natural disasters. This is related to the ecological boundaries studied in the project.	
10	07-2021	Forest strategy	https://environment.ec.europa.eu/strategy/forest-strategy_en	https://environment.ec.europa.eu.translate.goog/strategy/forest-strategy_en?x_tr_sl=en&x_tr_tl=sv&x_tr_hl=nl&x_tr_pto=wapp	EU objectives: The strategy sets a vision and concrete actions to improve the quantity and quality of EU forests and strengthen their protection, restoration and resilience. It aims to adapt Europe's forests to the new conditions, weather extremes and high uncertainty brought about by climate change. This is a precondition for forests to continue delivering their socio-economic functions, and to ensure vibrant rural areas with thriving populations.	The aim is: Significant systemic changes for the forestry sector, through a transition from primarily timber-based to more complex revenue streams. Stresses among other things the cascading principle. The strategy advocates other silvicultural management systems than clearcutting and non woody products management. SHarvest of forest biomass will most likely be effected	The overall economy for the Swedish forest owner will be lower. Continuous cover forestry management will make the removal of branches and tops too costly due to the low volumes per hectare. The cascading principle is good in theory, but doesn't work in practice in a forest rich country as Sweden. Due to its properties some of the biomass assortments are too costly to transport. This creates uncertainties regarding availability of rawmaterial.



2. Research Projects

Please add Interreg, Horizon 2020, Horizon Europe projects, and other projects that you find relevant to the SCALE-UP project and for your bio-based solutions.

Other sources of interest:

[JRC Knowledge Centre for Bioeconomy \(English\)](#)

[JRC Knowledge Centre for Bioeconomy \(Swedish\)](#)

List of relevant projects

Start month	End month	Name	Project website	Translation link (English to German)	Project summary	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions	Activities of Interest	Comments	
1	1-9-2022	1-8-2025	MainstreamBIO	https://mainstreambio-project.eu/	https://mainstreambio-project.eu.translate.google.com/translate?hl=en&sl=en&tl=de&pt=wapp	MainstreamBIO sets out to get small-scale bio-based solutions into mainstream practice across rural Europe, providing a broader range of rural actors with the opportunity to engage in and speed up the development of the bioeconomy. Regional Multi-actor Innovation Platforms (MIPs) will be established in 7 EU countries (PL, DK, SE, BG, ES, IE and NL) to enhance cooperation among key rural players towards co-creating sustainable business model pathways in line with regional potentials and policy initiatives.	Innovation support services, Decision Support System, Multi-actor Innovation Platforms, Digitalisation and Practice abstracts.	Some cases related with our 12 bio-based solutions (potential exchange of good practices and Knowledge)	SCALE-UP sister project	
2	1-10-2022	1-9-2025	RuralBioUp	https://www.ruralbioup.eu/	https://www.ruralbioup.eu.translate.google.com/translate?hl=en&sl=en&tl=de&pt=wapp	RuralBioUp will strengthen the cooperation among regional key actors and knowledge holders, empowering them to establish an inclusive and long-lasting ecosystem (the RuralBioUp Regional Hubs) to support the mainstreaming of bio-based business models in rural areas. In particular, RuralBioUp will establish 9 Regional Hubs in 6 EU countries, that will co-design and implement 9 Action Plans on 18 value chains.	9 regional hubs (one multi-stakeholder hub) are established in 6 EU countries (France, Romania, Czech Republic, Ireland, Latvia and Italy). 9 Action Plans will be implemented in 18 value chains.	Biomass value chain development: Biomass logistic, Valorisation, Communities. Lessons learnt	WP4, WPS	SCALE-UP sister project
3	1-9-2022	1-8-2025	BioRural	https://biorural.eu/	https://biorural.eu.translate.google.com/translate?hl=en&sl=en&tl=de&pt=wapp	BioRural's goal is to create a European Rural Bioeconomy Network to promote small-scale bio-based solutions in rural areas and support the transition towards a sustainable, regenerative, inclusive and just circular Bioeconomy across all Europe at local and regional scale.	BioRural focusses on EU-level developments, it does not feature any regional case studies.	Rural Bioeconomy Alliance. Network. Cooperate to promote the currently available small-scale bio-based solutions	SCALE-UP sister project	
4	1-4-2019	1-7-2022	BE-Rural	https://be-rural.eu/	https://1-be-rural.eu.translate.google.com/translate?hl=en&sl=en&tl=de&pt=wapp	BE-Rural aimed at exploring the potential of regional and local bio-based economies and support the development of bioeconomy strategies, roadmaps and business models. To this end, the project focused on establishing Open Innovation Platforms (OIPs) within selected regions in five countries: Bulgaria, Latvia, North Macedonia, Poland and Romania.		Case study in North Macedonia (focussing on Mycelium-based packaging and insulation material); Case study in Latvia (focussing on wood wool)	D5.1 "Briefing paper: Analysing market conditions and designing business models within BE-Rural's OIPs"; D5.2 "Summary report on small-scale bio-based business models and their market potentials"; D5.4 "Note on the development of a sustainability screening for regional bioeconomy strategies"	Power4Bio sister project
5	1-10-2018	1-3-2021	POWER4BIO	https://power4bio.eu/	https://power4bio.eu.translate.google.com/translate?hl=en&sl=en&tl=de&pt=wapp	POWER4BIO project aimed at empowering regional stakeholders to boost the transition towards bioeconomy regions in Europe by providing them with the necessary tools, instruments and guidance to develop and implement sound sustainable bioeconomy strategies. POWER4BIO targeted 10 regions with a focus on regions in Central and Eastern Europe.		Case study in Andalusia (focussing on Bioeconomy Strategy and Available Biomass Sources At Regional Level (Olive Biomass, Intensive Horticulture and Seaweed production)) and Mazovia (agricultural residues)	D3.3 "Catalogue with bio-based solutions"; D6.4 "Training design and materials for increasing the bioeconomy capacity of regional stakeholders"	BE-Rural sister project; certain outputs related to the development of bio-based solutions were classified as confidential and are thus not publicly available.

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Other projects

Start month	End month	Name	Project website	Translation link (English to German)	Project summary	Relevance to SCALE-UP	Comments	
1	09-2022	08-2025	ShapingBio	https://www.shapingbio.eu/	https://www-shapingbio-eu.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	The overall aim of ShapingBio is to support and accelerate bioeconomy innovation and the deployment of new knowledge in the EU and its member states. ShapingBio aims to provide evidence-based and concrete information and recommendations for better policy alignment and stakeholder actions to realize the cross-sectoral potential of the bioeconomy and to reduce the fragmentation across bio-based sectors and food system and policies across regions, domains and governance levels.	Promote innovation in the EU bioeconomy.	ShapingBio focusses on EU macro-regions, it does not feature any rural case studies.
2	07-2022	06-2025	BioModel4Regions	https://www.biomodel4regions.eu/	https://www-biomodel4regions-eu.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	BIOMODEL4REGIONS aims to support the establishment of the innovative governance models at local/regional level to achieve better-informed decision-making processes, social engagement and innovation to support and strengthen EU and international science-policy interfaces to achieve the Sustainable Development Goals.	Support regional bioeconomies.	
3	09-2022	08-2025	CEE2ACT	https://www.cee2act.eu/	https://www-cee2act-eu.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	CEE2ACT will empower countries in Central Eastern Europe and beyond to develop circular bioeconomy strategies and action plans through knowledge transfer and innovative governance models enabling sustainability and resilience to achieve better informed decision-making processes, societal engagement and innovation, building on the practice of experienced countries serving as role models.	Development of bioeconomy strategies.	CEE2ACT focusses on national-level developments, it does not feature any regional/rural case studies.
4	09-2022	08-2025	ROBIN	https://robin-project.eu/	https://robin-project-eu.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	ROBIN aims to empower Europe's regions to adapt their governance models and structures in ways that accelerate the achievement of their circular bioeconomy targets while promoting social innovation and accounting for different territorial contexts. In this context, ROBIN will support 5 regional authorities across Europe (Southern Region of Ireland, Central Macedonia, Andalusia, Baden-Wuerttemberg, Zilina) to adapt their governance models to support the scaling up of the bio-based value chains of their ecosystem.	Regional bioeconomy development, as well as social innovation in the bioeconomy, which is covered in WP5 of SCALE-UP.	
5	06-2022	05-2025	RELIEF	https://relief.uop.gr/	https://relief-uop-gr.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	RELIEF aims to develop and deliver an innovative approach for teaching bio-economy in farming, by developing specific learning resources addressing HEIs students and farming practitioners. RELIEF will deliver a training needs analysis and develop two curricula in bio-economy, for HE students, farming practitioners and farmers exploring the key areas that are critical for the implementation of business models and strategies towards bio-economy in farming.	Training courses on bioeconomy, also covered in WP3 of SCALE-UP.	
6	01-2021	06-2023	COOPID	https://coopid.eu/	https://coopid-eu.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	Wtin COOPID, a network of bioeconomy clusters from 10 European countries has been created, involving a range of stakeholders: primary producers, in cooperatives or associations, within agriculture, forestry and aquaculture; industry; public sector; research and academia. So-called COOPID ambassadors showcased success stories, organised workshops and conducted interactive dissemination and communication campaigns. The focus was on the uptake of sustainable bio-based business models in the primary production sector.	Development of bioeconomy clusters.	D4.2 "Success story factors for biobased Business models"
7	12-2022	11-2026	P2Green	https://p2green.eu/	https://p2green-eu.translate.goog/?x_tr_sl=en&x_tr_tl=de&x_tr_hl=en&x_tr_pto=wapp	P2Green will implement and demonstrate innovative N & P recovery solutions based on human sanitary waste from urban settlements and its conversion into safe bio-based fertilisers for agricultural production. The project will test the solutions in three pilot regions on a north-south trajectory.	Nutrient recovery is a part of SCALE-UP.	



3. Local policies

The local policies (including strategies, roadmaps, incentives, subsidy schemes and regulatory information) relevant to the SCALE-UP project and bio-based solutions.

List of relevant local policies

Year	Regional/Provincial/National	Title	Title (original language)	Link	Translation link	Author/Publisher:	Summary of contents	Relevance to the SCALE-UP project	Relevance to the specific bio-based solutions	
1	2023	National	Bioeconomy Strategy for Sweden	En nationell bioekonomistrategi – ett verktyg för den gröna industriella omställningen, Dir. 2022:77	https://www.regeringen.se/rattsliga-dokument/kommitteredirektiv/2022/06/dir.-202277	https://www-regeringen-se.translate.goog/rattsliga-dokument/kommitteredirektiv/2022/06/dir.-202277? x tr sl=sv& x tr tl=en& x tr hl=nl & x tr pt=wapp	Ministry of Rural Affairs and Infrastructure	A special investigator must produce proposals for a strategy for a sustainable, competitive and growing Swedish bioeconomy and, if necessary, submit proposals for measures to promote the development of the bioeconomy. The purpose is to promote sustainable growth, renewal and employment throughout the country, to contribute to environmental and climate benefits and to create a strengthened ability to provide and reduced vulnerability in society, based on biomass from the forestry, agricultural and fishing industries as well as residual raw materials in food processing.	The investigation will be published in October 2023. The goal regarding reduces vulnerability in society may be relevant to the scale-up project	The investigation will be published in October 2023. The goal regarding reduces vulnerability in society may be relevant to the scale-up project
2		Regional	Regional development strategies		https://www.northsweden.eu/english/eu-in-the-region/regional-development-projects/					
3		National	The Swedish Forestry Act	Skogsvårdslagen	https://www.skogsstyrelsen.se/en/laws-and-regulations/skogsvardslagen/	https://www-skogsstyrelsen-se.translate.goog/en/laws-and-regulations/skogsvardslagen/? x tr sl=sv& x tr tl=en& x tr hl=nl & x tr pt=wapp	Swedish Forest Agency	The Forestry Act states the demands that society has on you as a forest owner. The law states that the forest is a renewable resource that is to be managed sustainably yielding a good revenue. At the same time you have an obligation to take consideration to nature, cultural heritage, reindeer husbandry and other interests. In addition to the Forestry Act the Swedish Forest Agency is also the authority responsible for the enforcement for parts of the Environmental Act. The Act contains regulations regarding 1)Reforestation 2) Felling of woodland 3) Natural conservation and cultural heritage 4) Reindeer Husbandry 5) Mountainous Woodland 6) Noble broadleaves woodland 7) Measures against insects	Sets the rules for forest management practices. Some are in conflict with proposed EU legislation	Sets the rules for forest management practices. Some are in conflict with proposed EU legislation
4	2021	National	Strengthened property rights, flexible forms of protection and increased incentives for nature conservation in the forest based on voluntariness (Government bill 2021/22:58)	Stärkt äganderätt, flexibla skyddsformer och ökade incitament för naturvården i skogen med frivillighet som grund (Regeringens proposition 2021/22:58)	https://www.riksdagen.se/sv/dokument-lagar/dokument/proposition/starkt-ageranderatt-flexibla-skyddsformer-och-H90358	https://www-riksdagen-se.translate.goog/sv/dokument-och-lagar/dokument/proposition/starkt-ageranderatt-flexibla-skyddsformer-och-H90358/? x tr sl=sv& x tr tl=en& x tr hl=nl& x tr pt=wapp& x tr hist=true	Swedish Government	The bill includes, among other things, a proposal that a national goal for increased sustainable growth in the forest should be drawn up. The target's focus should be on increased sustainable growth in biomass through improved forest management while climate adaptation and biodiversity increase	Increased sustainable growth requires active forest management - is in conflict with some of the proposed EU legislations	Increased sustainable growth requires active forest management - is in conflict with some of the proposed EU legislations



4. Technical information on specific bio-based solutions

Technical information, including scientific information, peer-reviewed articles, reports, and other data or research relevant to the bio-based solutions.

List of relevant technical information

Date	Author(s)	Title	Link	Translation link	Organizations	Summary of contents	Relevant to which solution?	Why is it relevant?
1	Bergström, Dan; Matisons, Magnus	<u>Forest Refine</u>	https://publications.slu.se/?file=publ/show&id=63323	https://publications.slu.se.translate.goog/?file=publ/show&id=63323&x_tr_sl=en&x_tr_tl=sv&x_tr_hi=en-US&x_tr_pto=wapp	Finland: Naturresursinstitutet (LUKE) Vasa universitet, Seinäjoki yrkeshögskola, Central Ostrobothnia Rural Institute, CENTRIA University of Applied Sciences, Kokkola University, Consortium Chydenius Sverige: Sveriges lantbruksuniversitet, BioFuel Region, RISE Processum,	The report describes ways to optimize biomass supplies for refineries in the Botnia-Atlantica Region from existing, planned or potential procurements areas.		
2	Skogsstyrelsen	<u>Skogliga konsekvensanalyser</u>	https://www.skogsstyrelsen.se/mer-om-skog/skogliga-konsekvensanalyser/	https://www.skogsstyrelsen.se.translate.goog/mer-om-skog/skogliga-konsekvensanalyser/?x_tr_sl=sv&x_tr_tl=en&x_tr_hi=en-US&x_tr_pto=wapp	The Swedish National Forest Agency makes forest impact analyzes (SKA) in collaboration with the Swedish university och agricultural Sciences - SLU.	In the analyses, they start from a number of scenarios where Sweden's forests are used and managed in different ways and then calculate what consequences this will have over a 100-year period. The latest forest impact assessment was presented in October 2022 and is called SKA 22.	The scenarios show how different political decisions and legislations affect the potential to use forest raw material	The scenarios show how different political decisions and legislations affect the potential to use forest raw material
3	Official Statistics of Sweden, Swedish University of Agricultural Sciences	<u>Skogsdata</u>	https://www.slu.se/en/Collaborative-Centres-and-Projects/the-swedish-national-forest-inventory/foreststatistics/skogsdata/	https://www.slu.se.translate.goog/en/Collaborative-Centres-and-Projects/the-swedish-national-forest-inventory/foreststatistics/skogsdata/?x_tr_sl=en&x_tr_tl=sv&x_tr_hi=en-US&x_tr_pto=wapp	Swedish University of agricultural sciences and the national Swedish forest Agency (data regarding fellings/harvest)	Current data about the Swedish forests from the Swedish National Forest Inventory. The annual publication Skogsdata presents the most up to date statistics about the Swedish forests. Each publication also includes an indepth analysis of a specific theme. Skogsdata is a part of Official Statistics Sweden	In order to calculate potential and realistic numbers of available forest biomass, this data is crucial	Gives us data on harvests, thinnings and potential volumes of branches and tops



5. Biomass availability studies and nutrient recycling

Biomass availability and nutrient recycling studies of interest to the deployment of the bio-based solutions.

List of relevant studies

Year	Author(s)	Title	Link	Translation link	Summary of contents	Why is it relevant?	Comments
1	Syved	Aktivt skogsbruk	https://www.syved.se/aga-och-bruka-skog/vart-erbjudande/syveds-magasin-aktivt-skogsbruk	https://www.syved.se.translate.goog/aga-och-bruka-skog/vart-erbjudande/syveds-magasin-aktivt-skogsbruk? x_tr sl=sv	The magazine for all forest owners who want to conduct active forestry. The magazine conveys forestry knowledge and inspiration to those who like forests.		
2	2021 Mona N. Högberg, Peter Högberg, Håkan Wallander and Lars-Ola Nilsson	Carbon–nitrogen relations of ectomycorrhizal mycelium across a natural nitrogen supply gradient in boreal forest	https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.17701	https://nph.onlinelibrary.wiley.com.translate.goog/doi/full/10.1111/nph.17701? x_tr sl=en& x_tr tl=sv& x_tr hl=nl& x_tr pto=wapp	The supply of carbon (C) from tree photosynthesis to ectomycorrhizal (ECM) fungi is known to decrease with increasing plant nitrogen (N) supply, but how this affects fungal nutrition and growth remains to be clarified. We placed mesh-bags with quartz sand, with or without an organic N (15N-, 13C-labeled) source, in the soil along a natural N supply gradient in boreal forest, to measure growth and use of N and C by ECM extramatrical mycelia. Mycelial C : N declined with increasing N supply. Addition of N increased mycelial growth at the low-N end of the gradient. We found an inverse relationship between uptake of added N and C; the use of added N was high when ambient N was low, whereas use of added C was high when C from photosynthesis was low. We propose that growth of ECM fungi is N-limited when soil N is scarce and tree belowground C allocation to ECM fungi is high, but is C-limited when N supply is high and tree belowground C allocation is low. This suggests that ECM fungi have a major role in soil N retention in nutrient-poor, but less so in nutrient-rich boreal forests.	Describes the role of N in boreal forests	
3	2019 RAPPORT 2019/14 Skogsstyrelsen (Swedish Forest Agency)	Regler och rekommendationer för skogsbränsleuttag och kompensationsåtgärder	https://www.skogsstyrelsen.se/globalassets/om-oss/rapporter/rapport-er-20222021202020192018/rapport-2019-14-regler-och-rekommendationer-for-skogsbransleuttag-och-kompensationsatgarder.pdf		The report describes the rules and recommendations regarding extraction of harvest residues (branches and tops) it includes for example 1) Obligation to notify extraction of harvest residues 2) Rules for compensatory measures 3) Rules regarding serious driving injuries and other considerations 4) Rules regarding the allowed amount/levels per hectare of brood material for harmful insects.	Describes the variety of limitations connected to extraction of harvest residues.	
4	Energimyndigheten	Konsekvenser av ett ökat uttag v skogsbränsle	https://www.slu.se/globalassets/ew/org/centrb/cbm/dokument/publikationer-cbm/low-2012-konsekvenser-av-okat-uttag-skogsbransle.pdf		Report "Consequences of an increased withdrawal of forest fuel".		