

BREC - Summary Questionnaire

Meeting 2023-05-26

A 1.1 Mapping, design and pilot of solutions

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- Selected datas

Activities A1.1 Mapping, design and pilot of solutions

- **Step 1a:** Map available resources/feedstocks and needs in each region
 - Biomass potentials
 - Environmental loads, problem areas/prioritized action areas
 - Need/interest of output/products
- **Step 1b: Identify pilots**
 - Overview of existing pilots in each region/country (including ideas for improvement/development)
 - Identification and description of relevant technologies in each region/country
 - Potential project partners, research actors, schools for implementation

Activities A1.1 Mapping, design and pilot of solutions

- **Step 2: Analysis of stakeholders needs**

Workshops with external stakeholders to present and check our result

- **Step 3: Internal project meeting**

Discuss results and how embedded in lesson plans from A 1.2

Decide pilot plant for step 4

- **Step 4: Development and description of a possible pilot plant concept to serve as a basis for coming project**

Questionnaire - for identification of partner regions

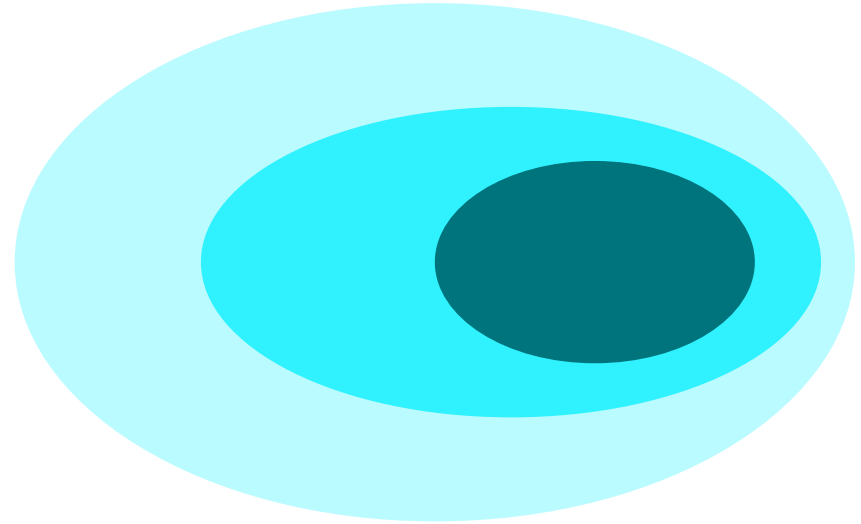
Aim of Questionnaire:

1. **Status quo** of the region
2. **Potential** in the region
3. **Fokus** of the region

Question:

What is the **Scope** of the survey of the region?

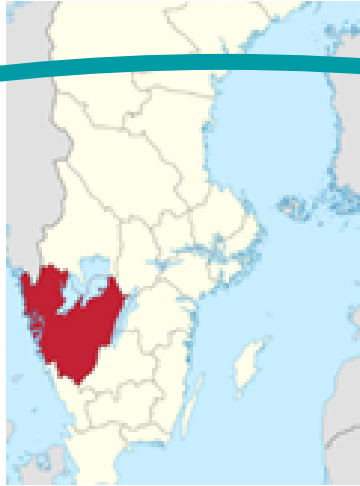
-> AGRICULTURAL RELATED CIRCULARE BIOECONOMY



BREC - Partner regions

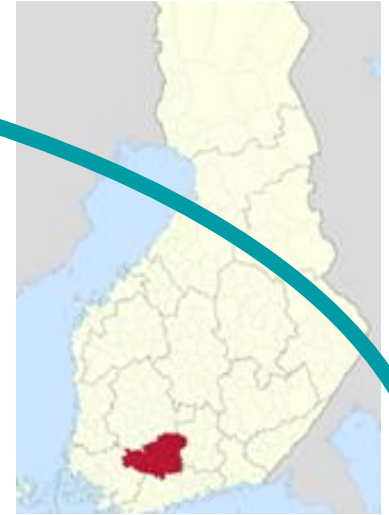


Norway / Viken-Region



Sweden / VGR-Region

Finland / Kanta-Häme-Region

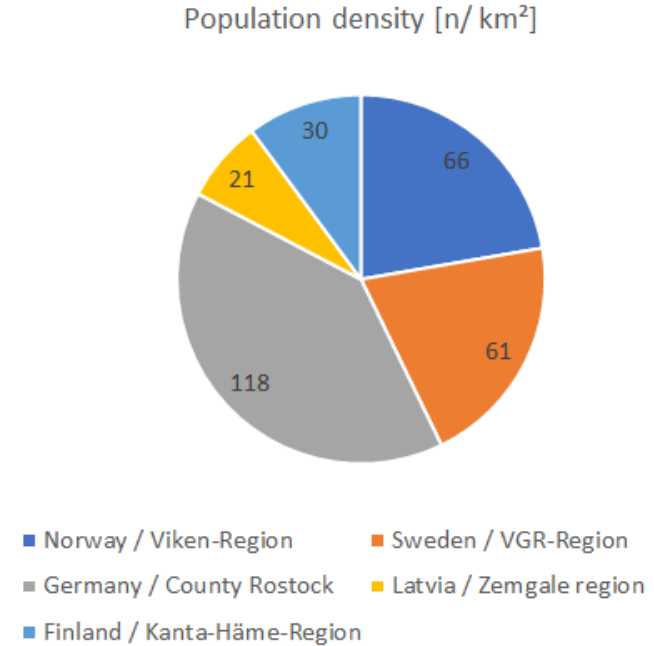
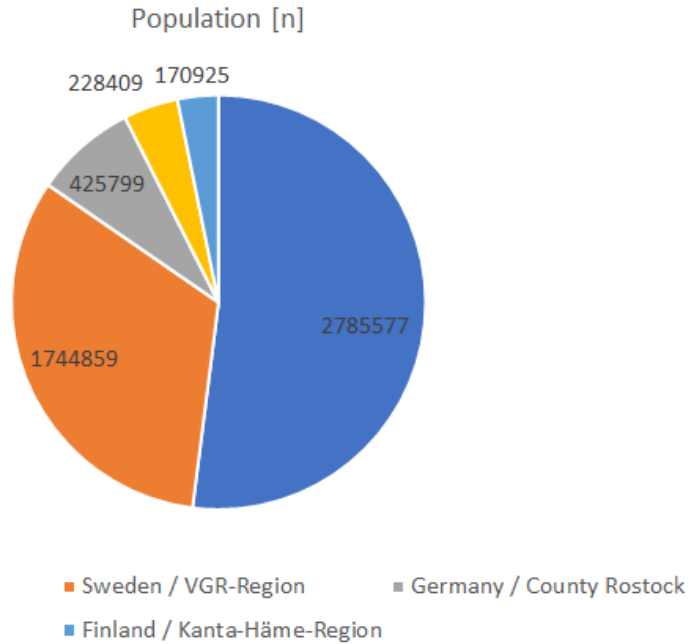


Germany /
County Rostock

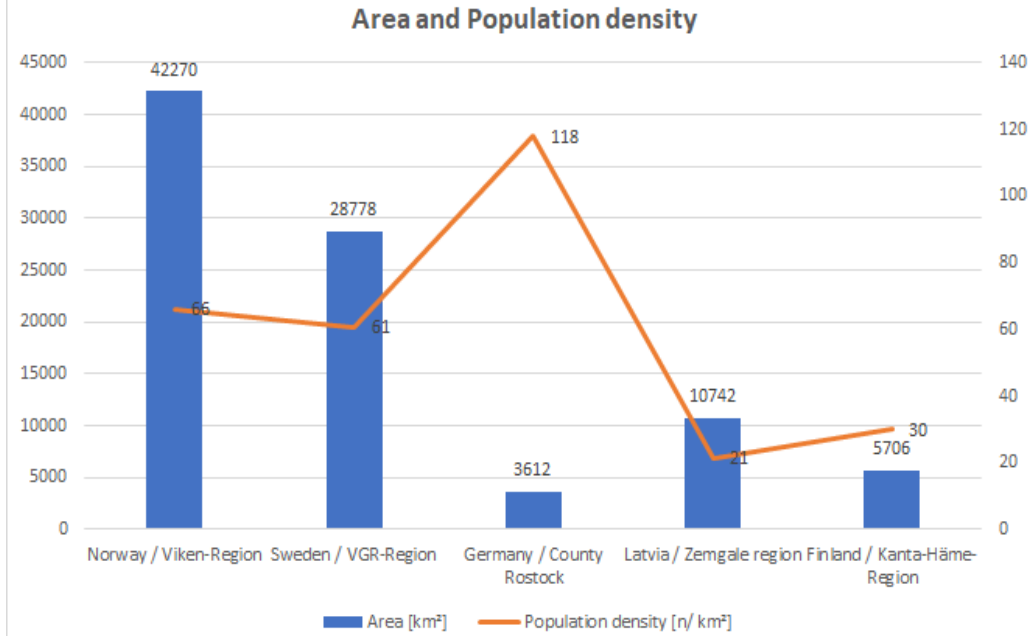
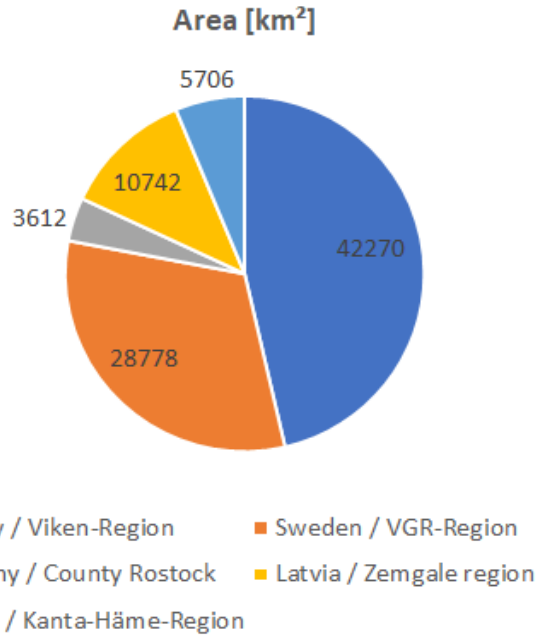
Latvia /
Zemgale
region



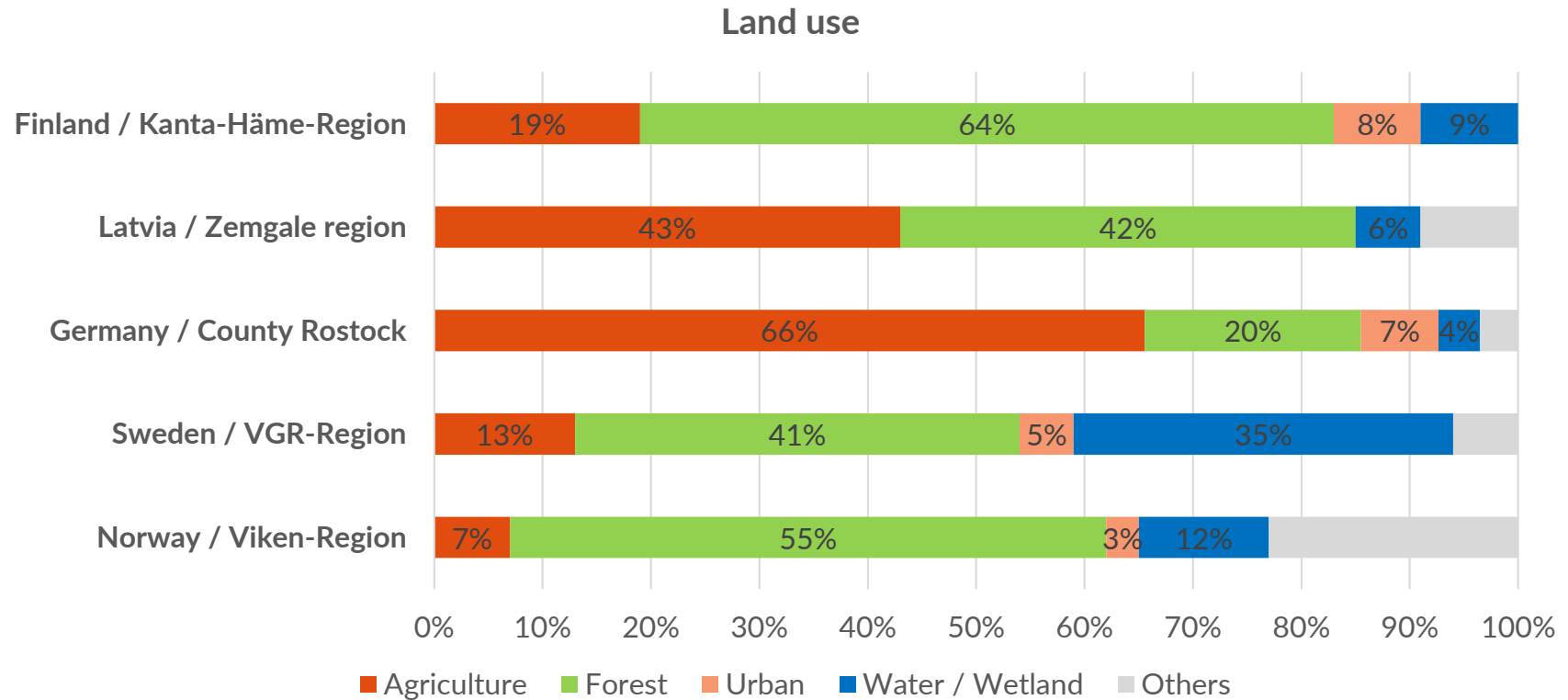
Population



Area



Land use



Regional goals in Bioeconomy

Region	Goals
Norway / Viken-Region	<ul style="list-style-type: none">• more production of renewable resources• assist industries in the development of renewable energy• Climate-friendly handling of manure through increased knowledge and practice of good agronomy (storage method and spreading technique)• Strengthen climate considerations in land and transport planning• Strengthen the municipalities' follow-up of the Regional plan for sustainable land policy• Oslo-Region: leading city in waste prevention, recycling and material recycling
Sweden / VGR-Region	<ul style="list-style-type: none">• Strengthening innovation• efforts to increase entrepreneurship and start-ups stimulating small businesses innovation• investment in internationally strong clusters and developed test and demonstration platforms• Priority: Food, bio-based materials and renewable energy with a focus on production and further processing, including in agriculture and forestry.

Regional goals in Bioeconomy

Region	Goals
Germany / County Rostock	<ul style="list-style-type: none">• improve efficiency of existing waste treatment facilities• more effective recovery and recycling processes• utilization of heat and increase of electrical efficiency in thermal waste treatment• increase efficiencies of energy recovery from green waste• increasing the share of anaerobic digestion in the recycling of biowaste• reduce greenhouse gas emissions by 55 % by 2030 compared to 1990 levels• use of renewable energy including fossil or biogenic CO2 through power-to-X technology.
Finland / Kanta-Häme-Region	<ul style="list-style-type: none">• Long term goal for 2035: A carbon-neutral transport system and a community structure that supports biodiversity (city bike systems in use, electric light transport, and biogas refueling points)• Identified and minimized waste in each part of the food chain.• pollution-free region (organic stormwater management, Water Shed Safety Plan), municipalities update water development plans. Sewage sludge for (biogas production, soil improvement, nutrient recovery, and fertilizer use),• exploring the possibility of using nutrient-rich agricultural run-off water, developing joint monitoring of groundwater quality, smart technology for water metering and energy recovery

Regional goals in Bioeconomy

Region	Goals
Latvia / Zemgale region	<ul style="list-style-type: none">• Region is a model of intensive agriculture and eco-farming coexistence.• The region aims to specialize in traditional and emerging niches in forestry, timber processing, and mining industries, including high-value-added wood production, energy wood processing, and gas storage facilities.• Sustainable forest management policies are in place to preserve ecological, economic, and social functions.• The target for the share of renewable energy in final energy consumption is set to increase from 40% in 2022 to 46.5% in 2030.

Relevant agricultural schools / Universities / Research Institutes in the region or nearby

Region	Agricultural schools	Universities / Research institutes
Norway / Viken-Region	<ul style="list-style-type: none"> • Buskerud vgs • Hvam vgs • Kalnes vgs • Kjelle vgs • Kongsberg vgs • Stabekk vgs • Tomb vgs • Fagskolen Innlandet • Gjennestad vgs • Melsom vgs • Nome vgs • Fagskolen Vestland • NORSØK 	<ul style="list-style-type: none"> • NMBU (Ås) • NIBIO (Ås) • Agri analyse (Oslo) • NOFIMA (Tromsø, Ås, Stavanger, Betgen, Sunndalsøra, Alta) • IFE (Kjeller) • Ruralis (Oslo/Trondheim) • USN
Sweden / VGR-Region	<ul style="list-style-type: none"> • Naturbruksskolan Sötåsen; Töreboda https://www.vgregion.se/f/naturbruksskolan-sotasen/ • Biological Vocational School; Skara https://www.vgregion.se/f/naturbruk/byss • Naturbruksskolan Svenljunga https://www.vgregion.se/f/naturbruksskolan-svenljunga/ 	<ul style="list-style-type: none"> • Chalmers University Göteborg https://www.chalmers.se/en/departments/see/research/energy-technology/ • SLU Skara (Swedish University of Agricultural Sciences) https://www.slu.se/en/about-slu/locations/slu-skara/; • University of Skövde; https://www.his.se/en/education/ • Agrar- und Umweltwissenschaftliche Fakultät • Landesforschungsanstalt für Landwirtschaft und Fischerei Mecklenburg-Vorpommern (LFA) • Fachagentur Nachwachsende Rohstoffe e. V. (FNR) • Fraunhofer-Institut • DBFZ – Deutsches Biomasseforschungszentrum, Leipzig
Germany / County Rostock	<ul style="list-style-type: none"> • Regionales Berufliches Bildungszentrum des Landkreises Rostock • Fachschule für Agrarwirtschaft "Johann Heinrich von Thünen,, • FS-Neubrandenburg 	<ul style="list-style-type: none"> • Landesforschungsanstalt für Landwirtschaft und Fischerei Mecklenburg-Vorpommern (LFA) • Fachagentur Nachwachsende Rohstoffe e. V. (FNR) • Fraunhofer-Institut • DBFZ – Deutsches Biomasseforschungszentrum, Leipzig
Latvia / Zemgale region	<ul style="list-style-type: none"> • Malnavas College – In Latvian: "Malnavas koledža" this college is under LLU, but not located in Zemgale region. • Dobeles Amatniecības un vispārīgā izglītības vidusskola – located in Dobeles, Latvia. In Latvian: "Dobeles Tehnoloģiju vidusskola" – checked - not related with agriculture • Jelgava Technical School – located in Jelgava, Latvia. In Latvian: "Jelgavas Tehnoloģiju vidusskola" – checked - not related with agriculture • Zālenieki Commercial and Crafts Secondary School located in Zālenieki, Latvia. In Latvian: "Zālenieku komerciālā un amatniecības vidusskola" • Bulduri technical school – nearby the region. 	<ul style="list-style-type: none"> • Latvia University of Life Sciences and Technologies (LLU) - located in Jelgava, Latvia, this university is focused on research and education related to agriculture, forestry, and environmental science. • Institute of Horticulture located in Dobeles • Latvian State Forest Research Institute "Silava" - located in Salaspils, Latvia, this research institution is focused on forestry and forest-related sciences, including forest ecology, forest management, and forest genetics
Finland / Kanta-Häme-Region	<ul style="list-style-type: none"> • Häme vocational school HAMI • Ahlmanni (agricultural school in nearby region) 	<ul style="list-style-type: none"> • Häme university of Applied Sciences (HAMK) • Helsinki University Lammi Biological research site • Natural Resource Institute Finland (LUKE) • SYKLI environmental College • Technical Research Centre of Finland Ltd (VTT) • Tampere University; • Pro Agria ; • Finnish Environmental Institute (SYKE) • Aalto University • FIELD LABit
Total		

Regional industrial companies and NGOs that could be relevant for establishing of biorefinery concepts

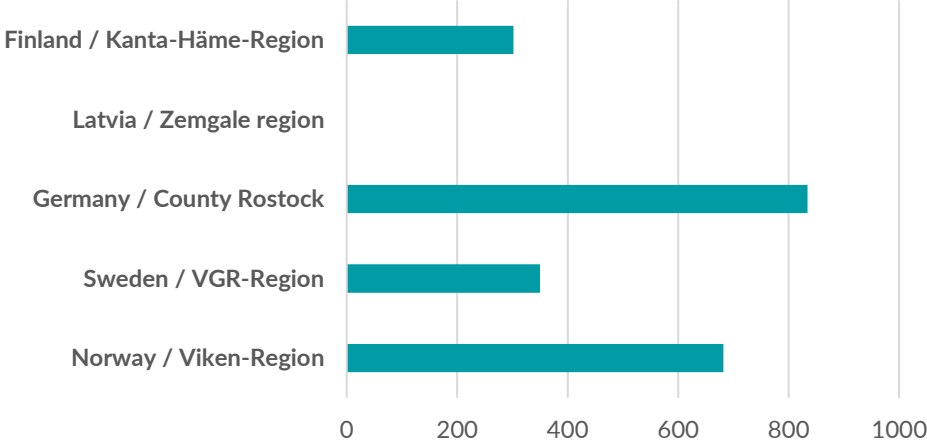
Region	Companies	NGOs
Norway / Viken-Region	<ul style="list-style-type: none"> ...?? 	<ul style="list-style-type: none"> Norwegian Agrarian Association (Norges Bondelag) Akershus bondelag Buskerud bondelag Østfold bondelag Norwegian Farmers and Smallholders Union (Norsk Bonde- og Småbrukarlag) Norwegian Forest Owners' Federation (Norges skogeierforbund)? Norsk gartnerforbund Norsk landbruksrådgivning ,NLR Viken NLR Østafjells, NOBIO, Energigass Norge, Biogass Norge, NCCE
Sweden / VGR-Region	<ul style="list-style-type: none"> Gryaab AB Göteborg Energi AB?? 	<ul style="list-style-type: none"> Agroväst Green Tech Park, Gråbrödragatan 11, 532 31 SKARA (https://agrovast.se/in-english/), non-profit association "Livsmedel i Väst" LRF Västra Götaland (The Federation of Swedish Farmers); SKARA;https://www.lrf.se/regioner/vastra-gotaland/kontakta-lrf-vastra-gotaland/) Länsstyrelsen Västra Götaland https://www.lansstyrelsen.se/vastra-gotaland/om-oss/other-languages/english.html Södra (forest owners association);https://www.sodra.com/en/global/
Germany / County Rostock	<ul style="list-style-type: none"> Cosun Beet Company mit Sitz in Anklam BIOÖKONOMIEZENTRUM ANKLAM Bioökonomisches Forschungszentrum Rügen EnviTec Biogas AG Gut Dummerstorf GmbH mele Energietechnik GmbH enviMV PRV – Planungsbüro Rossow GmbH, Neubrandenburg (Biogas plant engineering) 	<ul style="list-style-type: none"> Bauernverband MV IHK Rostock NABU Mecklenburg-Vorpommern e. V Wasser- und Bodenverband „Untere Warnow-Küste“ Planungsverband Region Rostock
Latvia / Zemgale region	<ul style="list-style-type: none"> Bioreactors.net (Biotehniskais centrs) Olainfarm and subsidiary company Silvanols JSC Latvijas Finieris Latvian State Forest Research Institute "Silava" Latvian University of Life Sciences and Technologies SIA Happy Fish 	<ul style="list-style-type: none"> Zemgale Regional Development Agency Latvian Rural Advisory and Training Centre Association of Latvian Organic Agriculture Latvian Agricultural Organization Cooperation Council (LAOCC) Latvian Agricultural Cooperatives Association (LLKA) Farmers' Parliament (ZSA)
Finland / Kanta-Häme-Region	<ul style="list-style-type: none"> HAMK Envor Oy Gasum Oy Local water purification plants (Forssa, Hämeenlinna, Riihimäki) FYK Business Park Linnan Kehitys Oy HKScan Oy Jokioisten leipomo (Bakery) Valio Oy (Milk processing plants) 	<ul style="list-style-type: none"> MTK Lounais-Häme MTK Hattula-Kalvola MTK Renko MTK Loppi MTK Hausjärvi-Riihimäki MTK Hämeenlinna MTK Hauho MTK Lammi-Tuules MTK Janakkala <p>(MTK = Agriculture and forestry producers association)</p>
Total		25
		38

Commercial biogas plants are in the region or nearby region

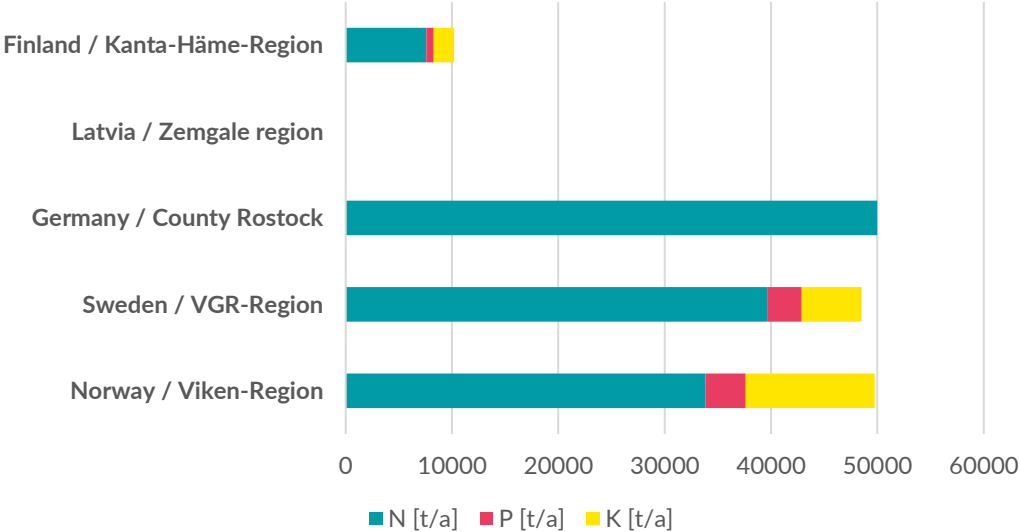
Region	Biogas plant	Biogas plant + upgrading / vehicle fuel
Norway / Viken-Region	40	7
Sweden / VGR-Region	45	11
Germany / County Rostock	43	1
Latvia / Zemgale region	16=15 (use agriculture biomasses)+1 (use municipal waste)	0
Finland / Kanta-Häme-Region	16	2
Total	161	21

Consumption in agricultural sector

Fossil fuel/ diesel in agricultural sector [GWh/a]



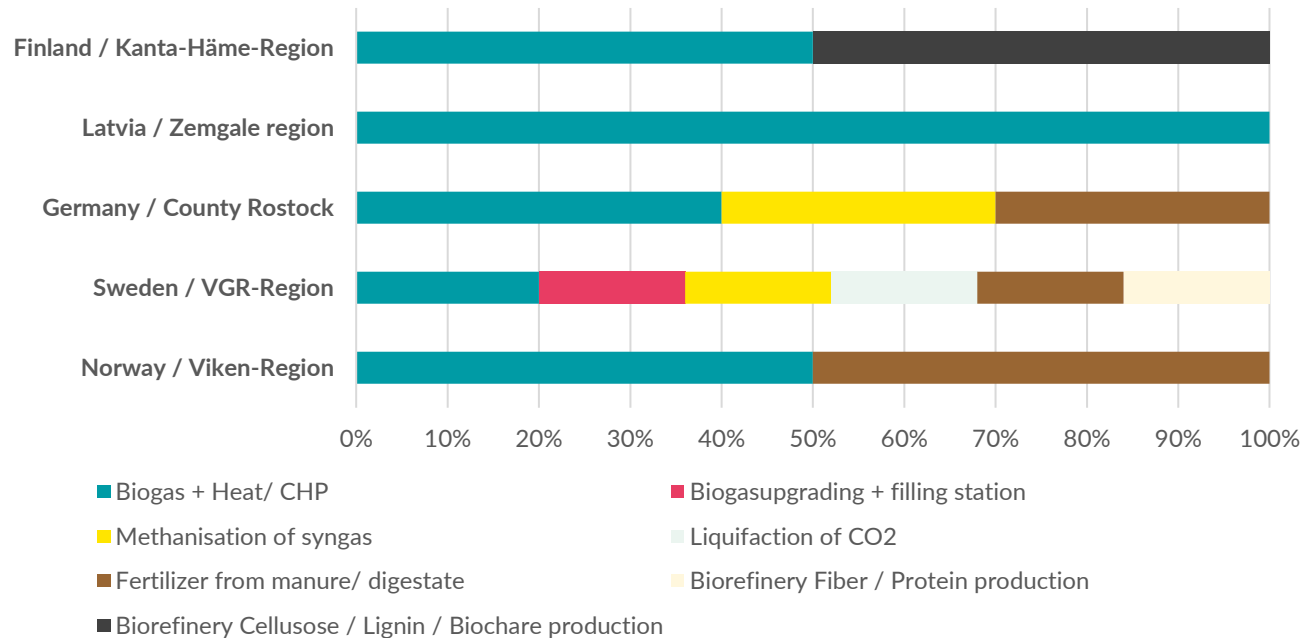
Mineral fertilizer N P K [t/a]



Types of existing Pilots / demonstration plants*

Region	Pilots / demonstration plants
Norway / Viken-Region	4
Sweden / VGR-Region	6
Germany / County Rostock	3
Latvia / Zemgale region	1
Finland / Kanta-Häme-Region	2
Total	16

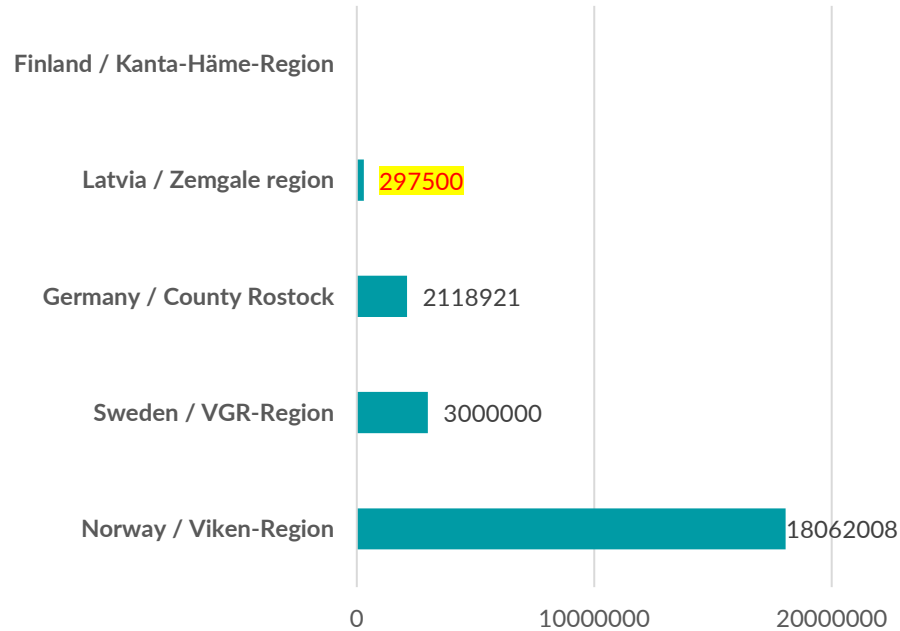
Pilot- / demonstration plants - Categories



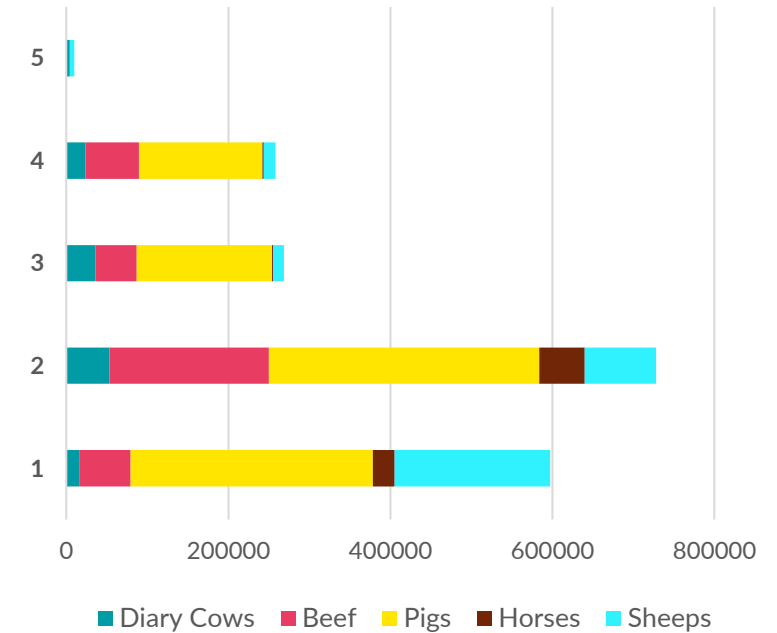
*Plants in the region and nearby regions within “reasonable distance”!

Farm animals in agricultural sector

Poultry

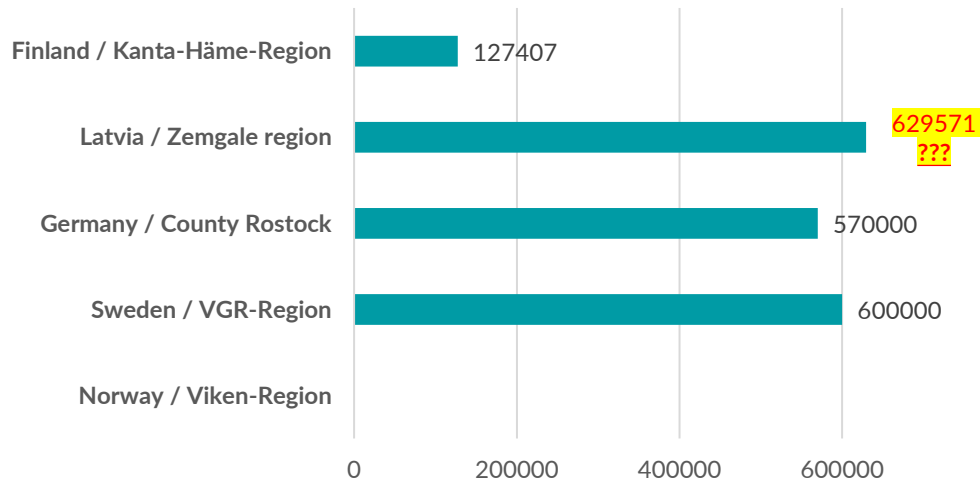


Livestock

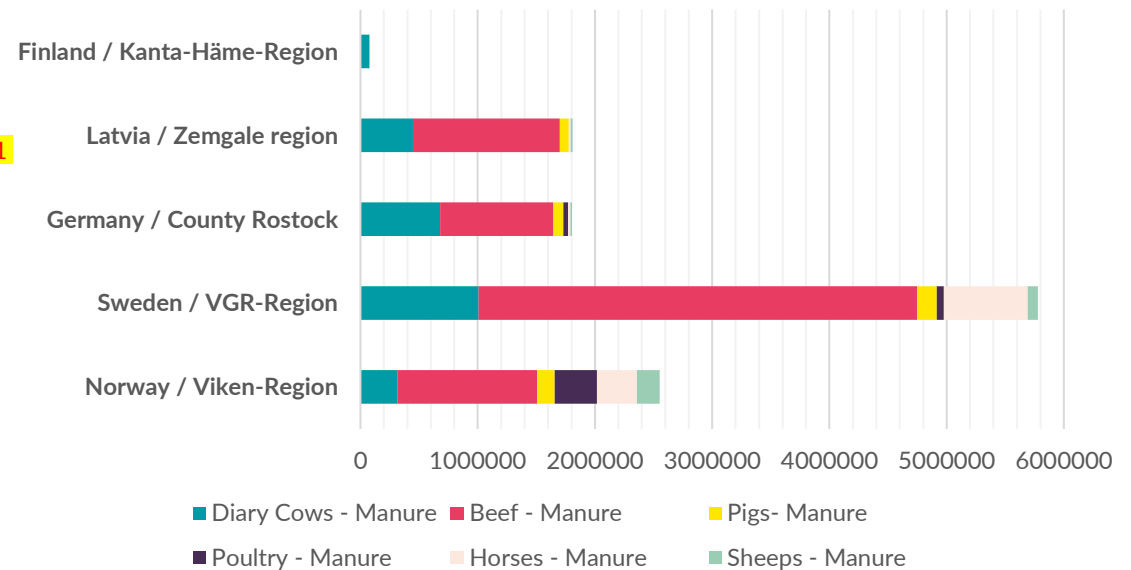


Annual Restproducts in agricultural sector

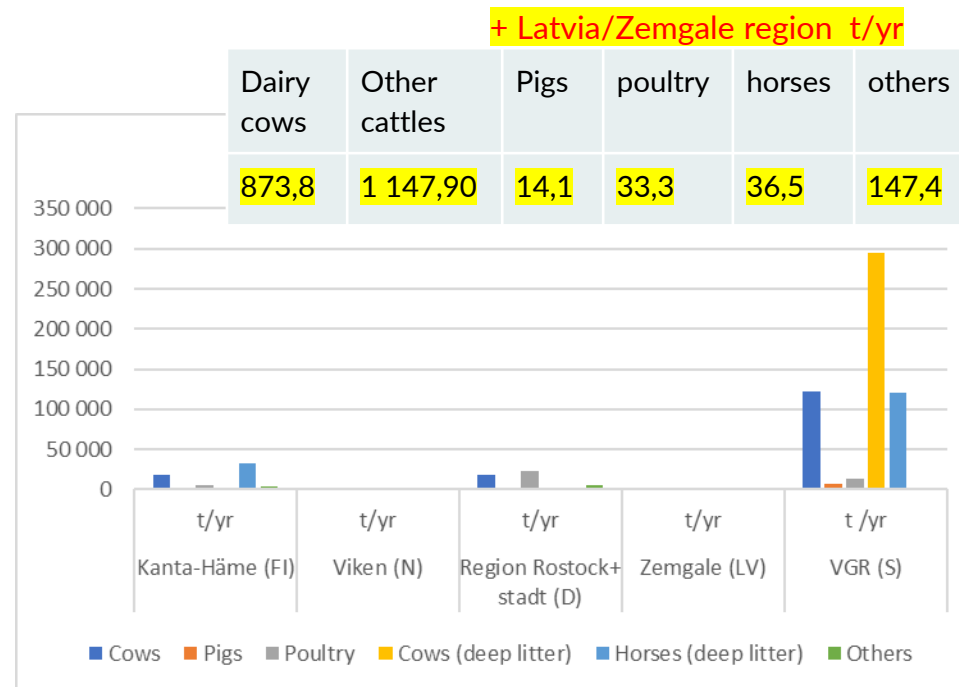
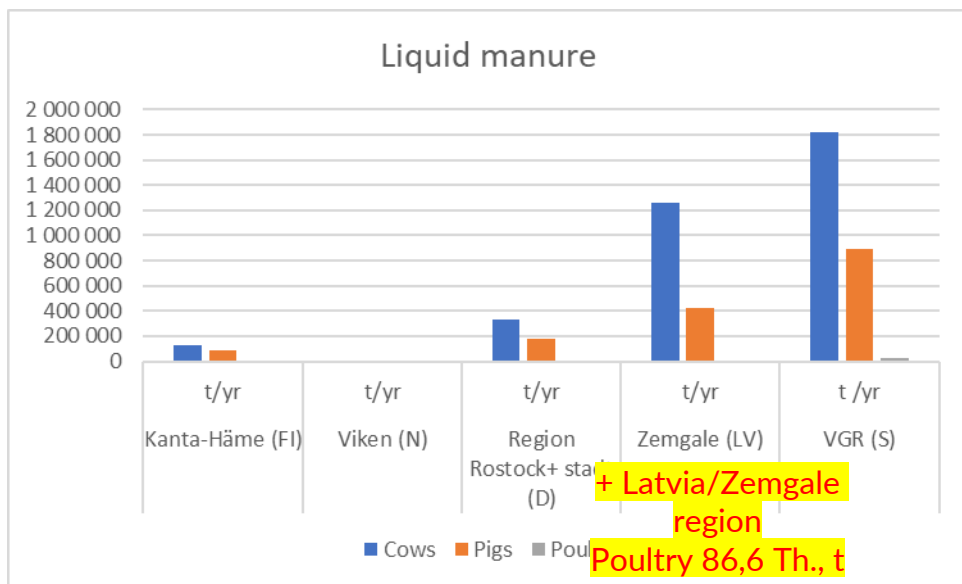
Cereal straw [t/a]



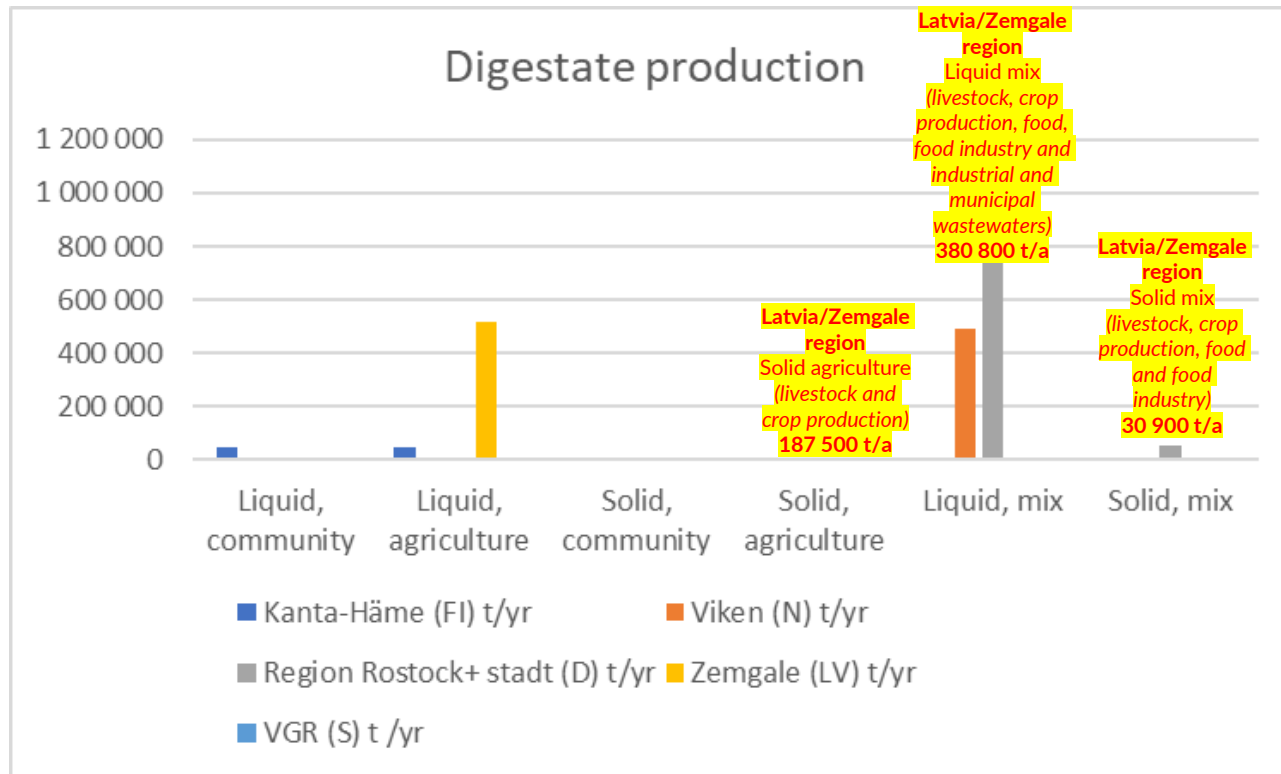
Manure [t/a] - calculated



Annual manure production



Annual production of digestate from biogas plants (incl. agricultural and biowaste)



Next steps:

- **Step 2: Analysis of stakeholders needs**

Workshops with external stakeholders to present and check our result

- **Step 3: Internal project meeting**

Discuss results and how embedded in lesson plans from A 1.2

Decide pilot plant for step 4

- **Step 4: Development and description of a possible pilot plant concept to serve as a basis for coming project**

Next step: Which Concepts and Products are interesting in Regions?

Region	Field of interest / Technology/ Output products	Lokal Stakeholders / NGOs involved
Norway / Viken-Region		
Sweden / VGR-Region		
Germany / County Rostock		
Latvia / Zemgale region		
Finland / Kanta-Häme-Region		



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THANK YOU FOR YOUR ATTENTION