



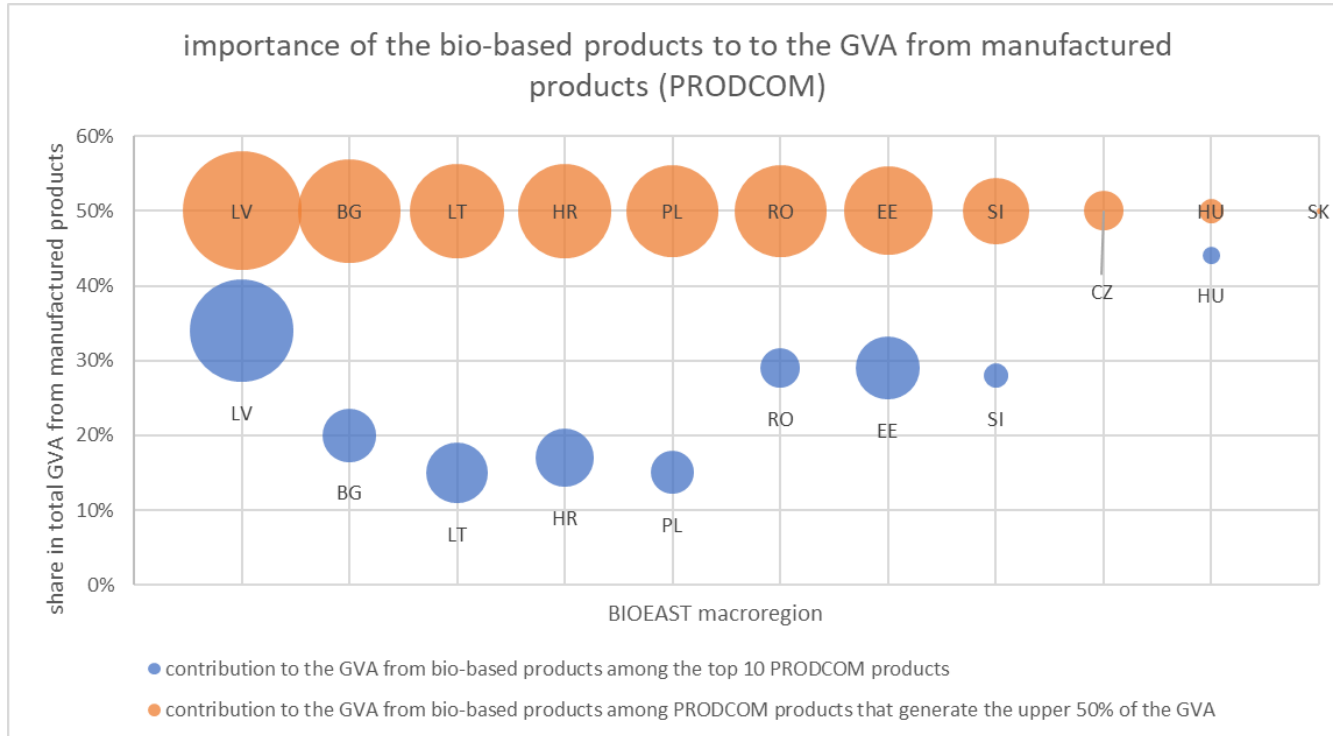
# BIOEAST strategic priorities for advanced bio-based materials & bioenergy

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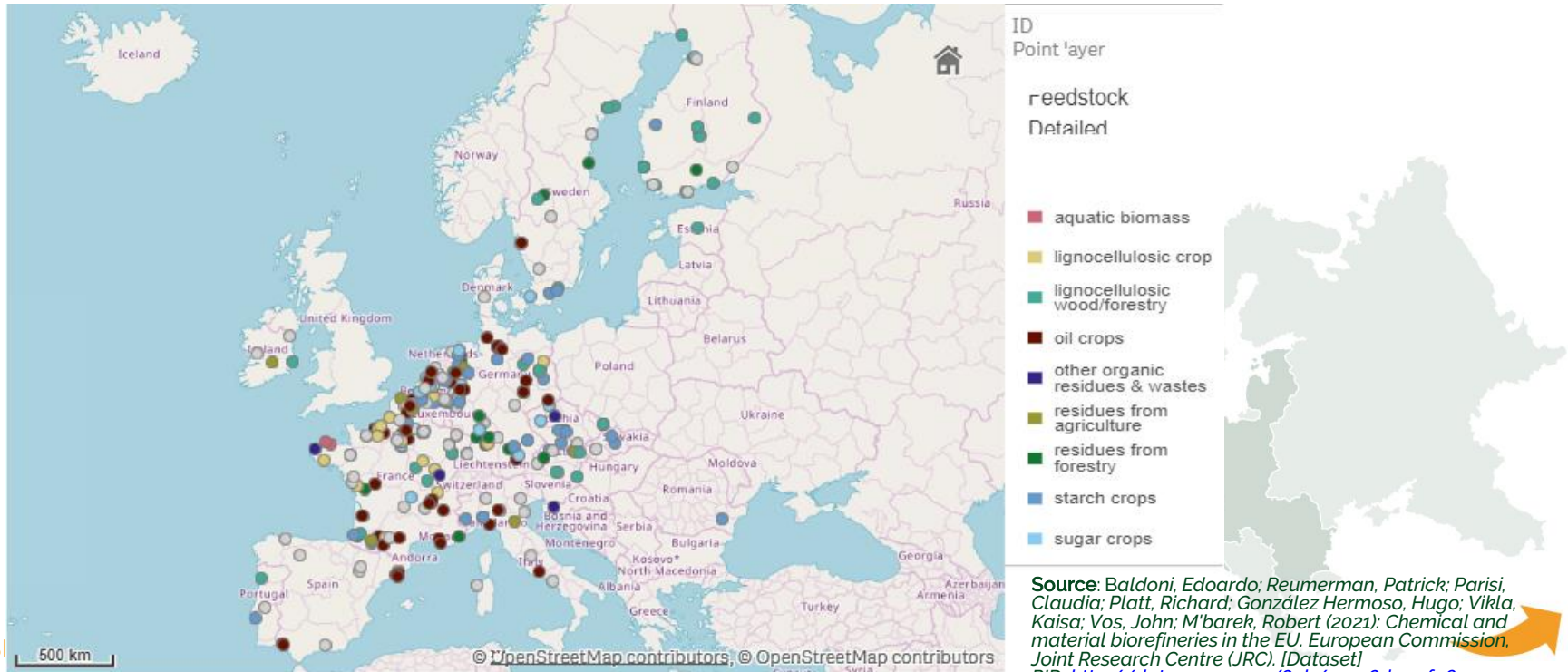


# IMPORTANCE OF BIOMASS RELATED PRODUCTS IN CEE COUNTRIES TO GVA





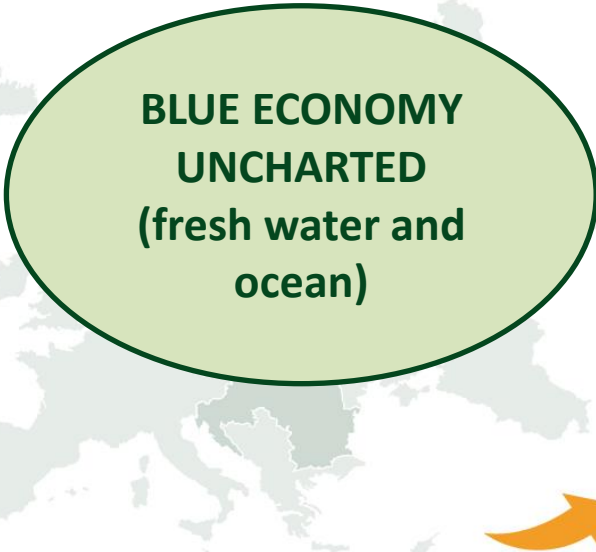
# BIOREFINERIES – CHEMICAL AND ENZYMATIC TRANSFORMATION OF BIOMASS



**Source:** Baldoni, Edoardo; Reumerman, Patrick; Parisi, Claudia; Platt, Richard; González Hermoso, Hugo; Vikla, Kaisa; Vos, John; M'barek, Robert (2021): Chemical and material biorefineries in the EU. European Commission, Joint Research Centre (JRC). [Dataset]  
PID: <http://data.europa.eu/89h/24e98d11-ef06-4233-8f69-1e123938e891>

## WHAT? WHEN? WHERE?

- **Upgrading the existing platforms with real data on secondary biomass availability:**
  - What type of biomass is
  - produced **where** exactly
  - and **when** that biomass is available (seasonality)?
- **Investigating the already existing value chains**
  - Where are the bottlenecks?
  - Where can and should we interfere?
  - How to improve their efficiency?
- **Creating new value chains**



**BLUE ECONOMY  
UNCHARTED  
(fresh water and  
ocean)**

## WHO? WHY? HOW?

- To learn **who** is in trouble if stuck in linear bioeconomy?
  - Where secondary biomass can be directed?
  - What are the bottlenecks?
- **Why** to keep biomass in the cycle?
  - Can a portfolio of default models help?
  - Can high replication reference business models help?
  - Will those reduce risks, costs and knowledge gap needed to implement the transition?
- **Allows framing How:** Expanding the existing and creating new business models to cycle the biomass in new value chains for bio-based materials and bioenergy



# BIOACTIVE COMPOUNDS AND BIOMATERIALS

- CEE region has a large biomass potential already accumulated at some hot spots – not utilized, lack of strategic partnerships and investments
- High value-added products:
  - Polymers, composites
  - Special applications
  - Pharmaceutical industry
  - Medical industry
  - Utilization of plant-based biomass
    - Fibre plants
    - Medicinal plants
    - Food waste
    - Wood etc.



# HOW CYCLING SECONDARY BIOMASS CAN AID TO CLIMATE MITIGATION AND ADAPTATION OF THE PRIMARY BIOMASS?

Example of implementing Methane Strategy:

- Production of meat, milk and dairy and related products is important in CEE rural areas and economies
- Manure-based biomethane for reduction of carbon footprint of meat and dairy products:  $\text{CH}_4$  emissions removed from the atmosphere plus bioenergy available
- Yet, that's only partial solution:  $\text{N}_2\text{O}$  remains in digestate which has to be integrated in crop production and soil management.



- CEE region needs to interpret cascading use of biomass for bioactive compounds, biomaterials and bioenergy
- Develop strategic partnerships – create accelerators who can catalyze change
- Expanding the existing bioenergy plants to small-scale biorefineries





## AS CONCLUSIONS

- CEE region needs:
  - multiple input – multiple output biorefineries
  - easily accessible information on already existing demo plants
- Largest potential in high value-added products especially in the chemical industry
  - Interdisciplinarity
    - starts with agriculture
    - output of biorefineries can be uptaken by multiple industries/markets
    - funding agents should take this into consideration
- Bioenergy and biorefinery sectors are complementing each other





THANK YOU FOR YOUR ATTENTION!

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