

Latvia University  
of Life Sciences  
and Technologies



Circular  
Bio-based  
Europe  
Joint Undertaking



Latvijas Zinātnes padome

# Industry-academia R&D cooperation in Latvia in the context of bioeconomy

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Riga, May 24, 2024



# Bioeconomy driving forces

Technology and Innovation

Market organisation

Climate and  
environmental change

Consumer preferences

Economic development

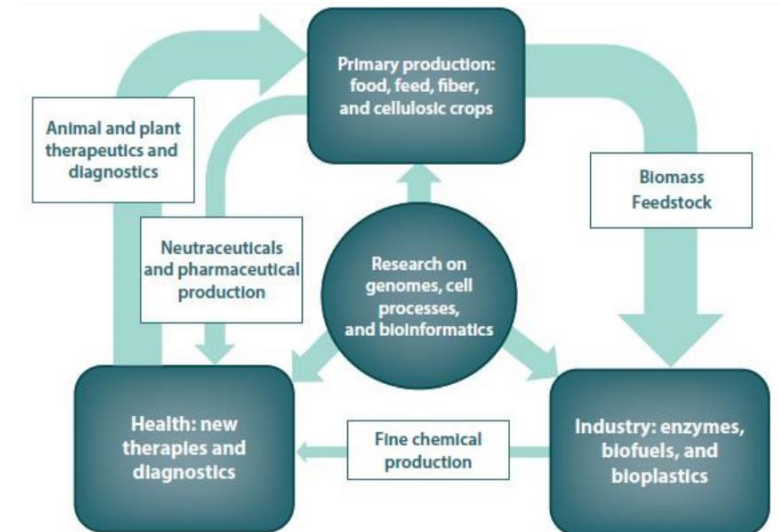
Demographics

Resource availability

Policies, strategies and  
legislation

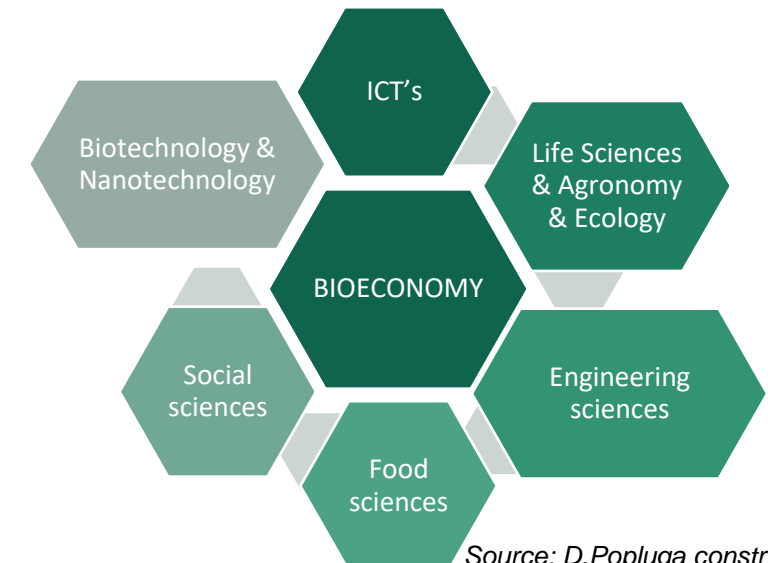
- ❖ Bioeconomy is driven by a number of forces.
- ❖ Knowing these driving forces, we understand how they influence the bioeconomy.
- ❖ Advances in sciences are a major supply driver of bioeconomy.
- ❖ Technological advances would not have been possible without investments and industry-academia cooperation.

## Process of development of biotechnology applications



Source: Wesseler, von Braun, 2017

## Multi-disciplinarity and bioeconomy



Source: D.Popluga construction



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## Strategic specialization fields

Life  
sciences

Engineering  
sciences

Social  
sciences

**BIOECONOMY**

## Mission

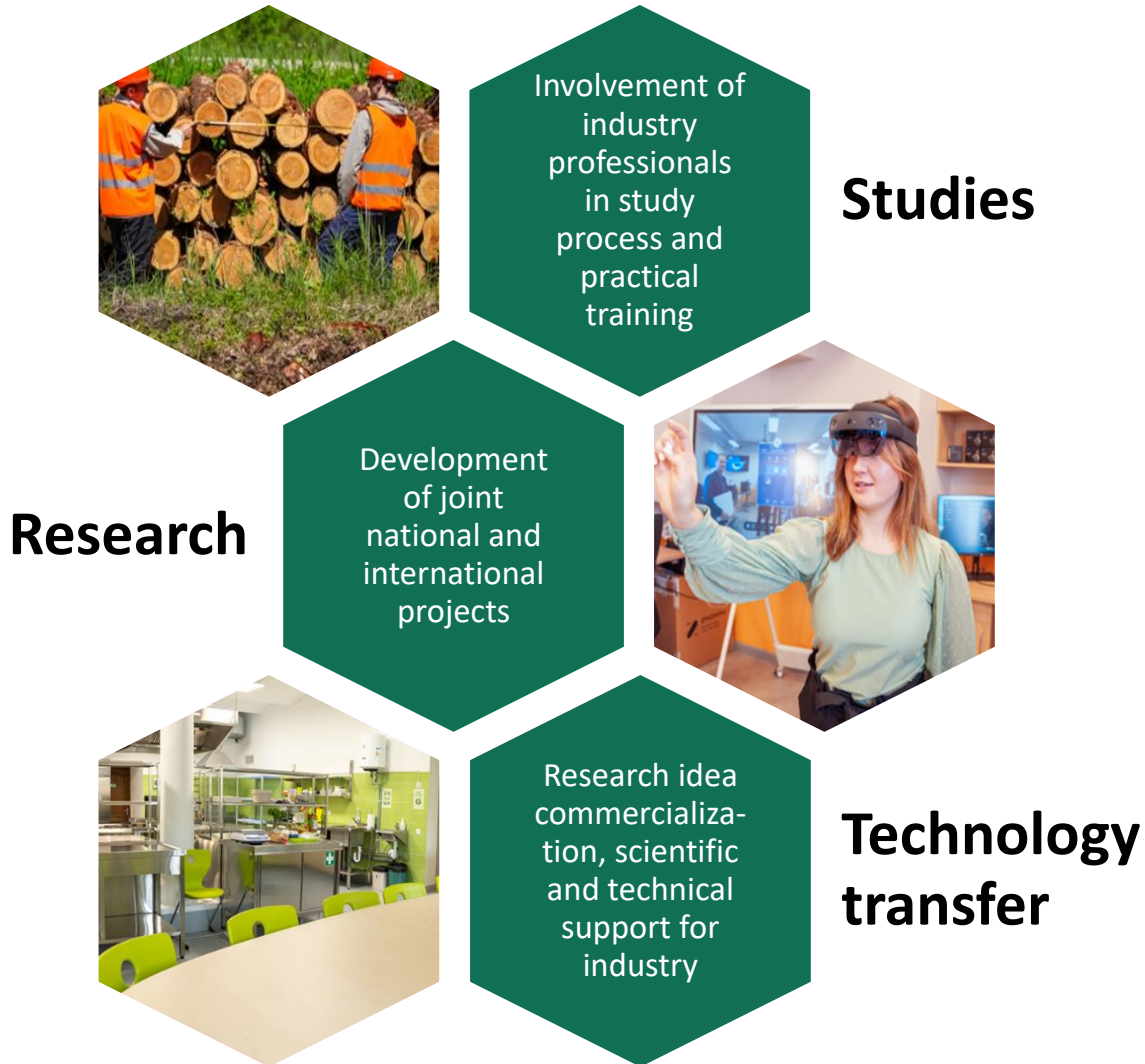
Creation of an internationally competitive, innovative, creative and sustainable future for the development of society.

## Vision

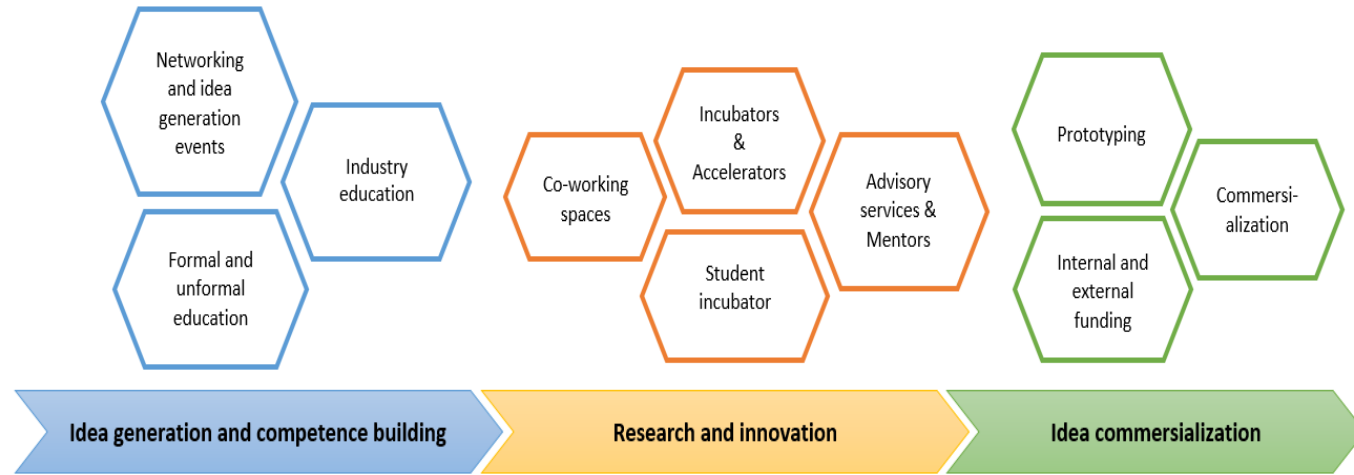
Modern, nationally and internationally recognised science university – a leader in the creation of innovations related to the bioeconomy and related industries and in the sustainable use of natural resources in the Baltic Sea region.



# Levels of industry-academia R&D cooperation



## Innovation ecosystem framework in LBTU



### NOBALIS consortium







Latvia University  
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**Bachelor study  
programmes** →

## Life sciences

Sustainable  
agriculture

Sustainable forestry

Veterinary medicine

## Engineering sciences

Biosystems machinery and  
technologies

Agricultural engineering

Applied energetics

Computer control and  
computer science

Information technologies for  
sustainable development

Geoinformatics and remote  
sensing

Environment and water  
management

Construction

Woodworking

Design and crafts

Food quality and innovations

Food technology

## Social sciences

Economics

Landscape  
architecture and  
planning

Sociology of  
organizations and  
public administration



Latvia University  
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**Master study  
programmes**



## Life sciences

Agriculture

Forestry

## Engineering sciences

Agricultural engineering

Information technologies

Construction

Geoinformatics and  
remote sensing

Wood materials and  
technologies

Environmental, land and  
water engineering

Food science

Food quality

## Social sciences

Economics

Business  
management

Landscape  
architecture and  
planning

Sociology of  
organizations and  
public administration



Latvia University  
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**PhD study  
programmes**



## Life sciences

Agriculture

Forestry

Veterinary medicine

## Engineering sciences

Agricultural  
engineerings

Information technologies

Construction

Wood materials and  
technologies

Environmental  
engineering

Food science

## Social sciences

Agrarian and regional  
economics

# Examples of involvement of industry professionals in study process

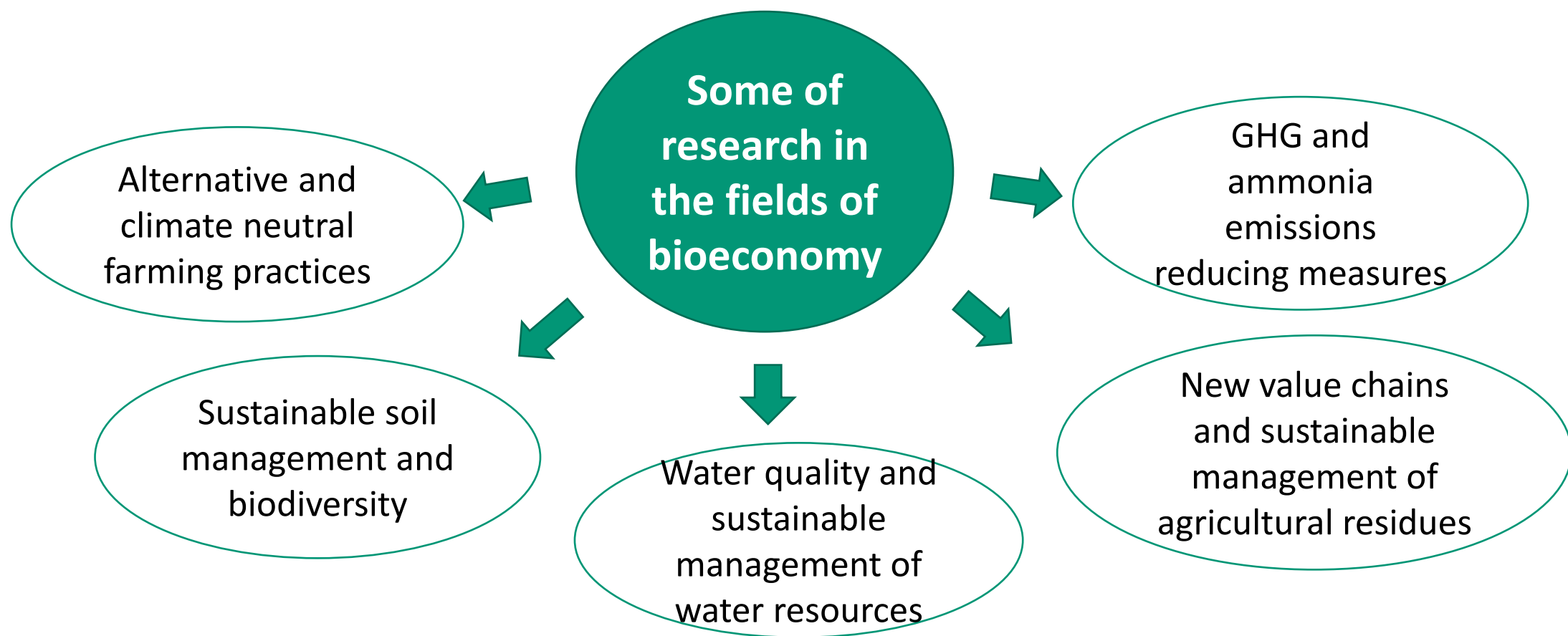


- ❖ Practical training at least 36 ECTS in every professional study programme.
- ❖ Regular study tours to enterprises.
- ❖ Alumni lecture week.
- ❖ Capacity building programmes for staff.
- ❖ Involvement of industry professionals in study process.



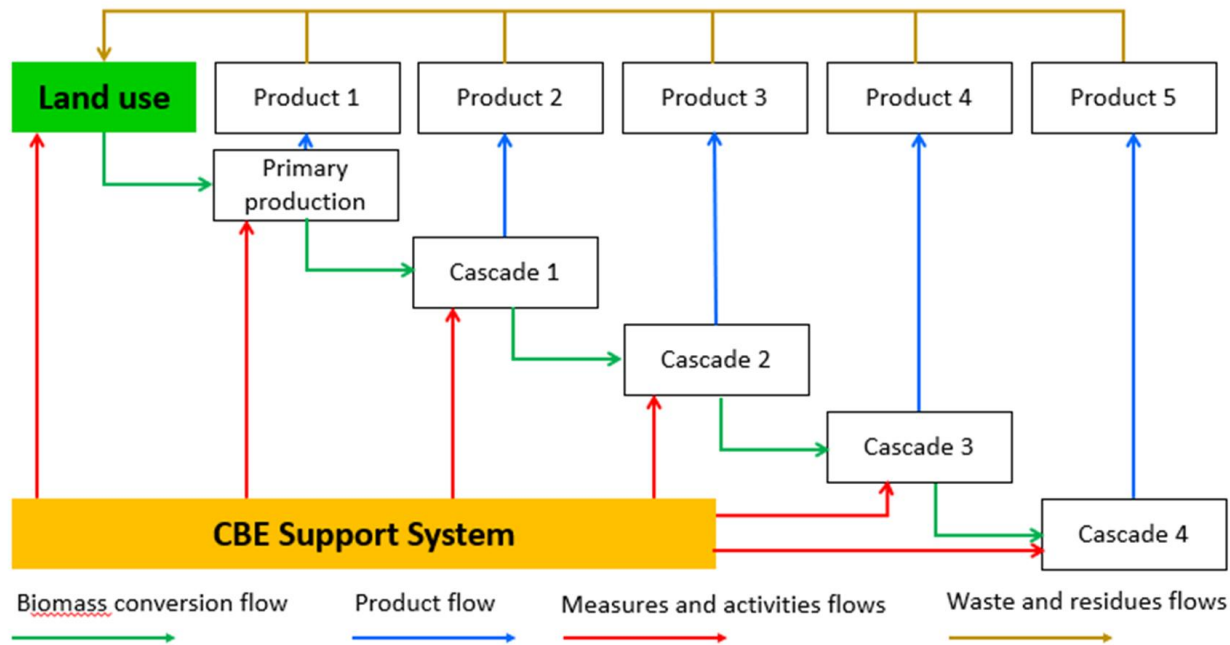


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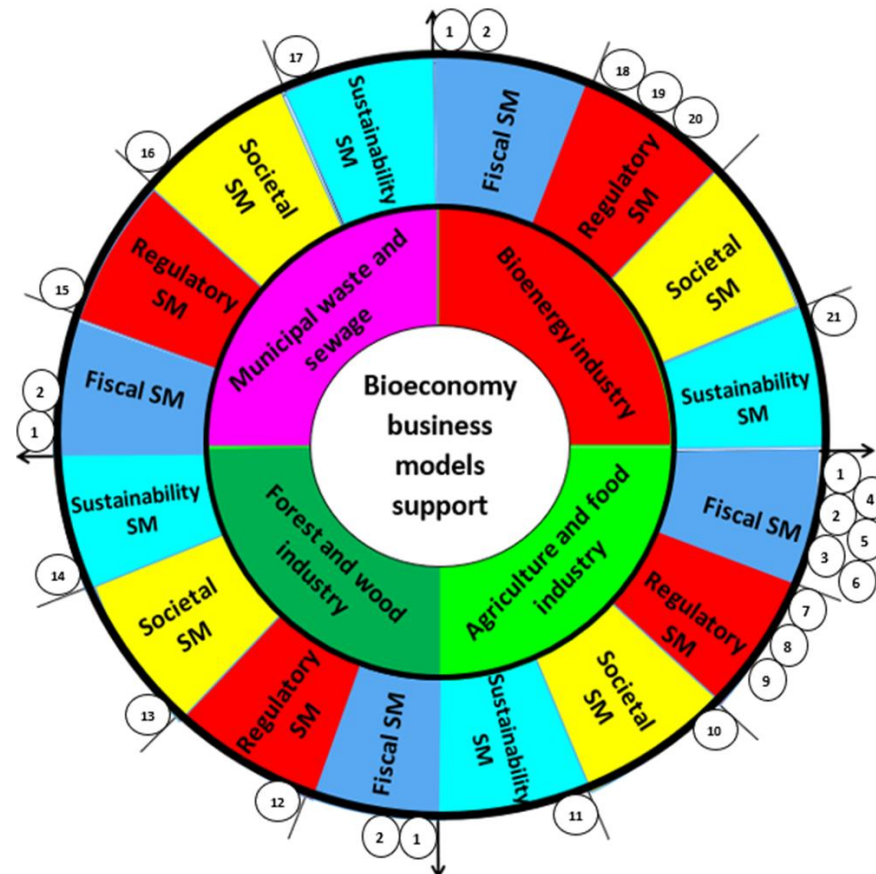


# Unlocking the Potential of Bio-based Value Chains in the Baltic Sea Region

## Business Models value chain support measures (example)



## Latvia's circular bioeconomy policy analysis



### List of the SM (Latvia)

1. Reinvesting in a company, including the bioeconomy, the tax rate for profit sharing is 0%.
2. Taxation on noxious air polluting emissions creates synergy effect with CO<sub>2</sub> taxation.
3. Loans and guarantees for rural entrepreneurs (4%).
4. Reduced VAT for fruits and vegetables characteristic for Latvia.
5. Promoting the use of advice and services (LRDP for 2014–2020).
6. Support for investment in agricultural holdings investment in recycling and infrastructure (LRDP for 2014–2020).
7. Management of nitrate use at vulnerable territories.
8. Improvement of manure management systems.
9. State categories of goods and services for which mandatory application of green procurement is stated.
10. Organic farming support (LRDP for 2014–2020).
11. Support promotes the use of biomethane.
12. Environment protection and resource usage efficiency.
13. Support small and medium establishment of merchants and development, especially bioeconomy (RIS3 priority industries).
14. Afforestation and improvement of stand quality in naturally afforested areas.
15. Incineration of collected green waste - leaves, grass and plant residues.
16. Development of the separate collection system for waste.
17. All biogas plants are equipped with biogas treatment (biomethane) plants.
18. Feed-in Tariffs for renewable electricity and for combined heat-power (CHP) production.
19. Promotion of self-generation and self-consumption of energy.
20. Guarantees for biomethane trade and further use as fuel in transport.
21. Increase of the RES share in electricity consumption.



# Study of application of an innovative dehydration technology in sapropel production, application options of the products, produced based on sapropel

Development of sapropel dehydration method



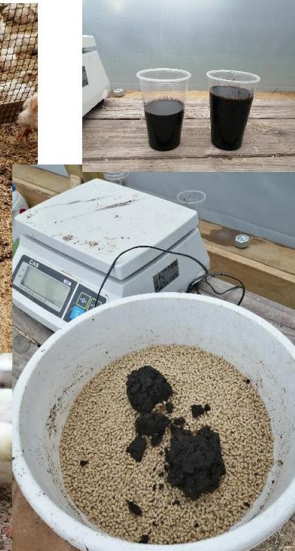
The studying of sapropel as a biological fertilizer and soil substrate product



The studying of sapropel as a biologically active feed additive in animal production



Economic calculations of the project results



Publication on project results



Publication on project results

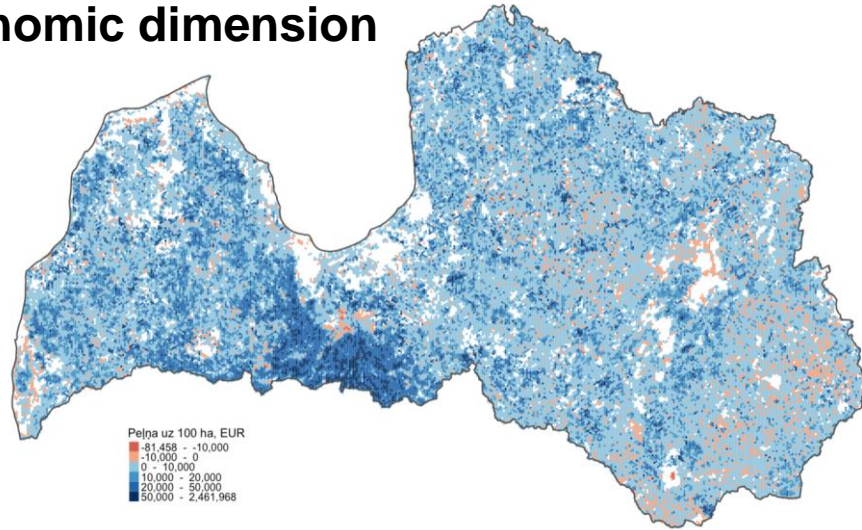




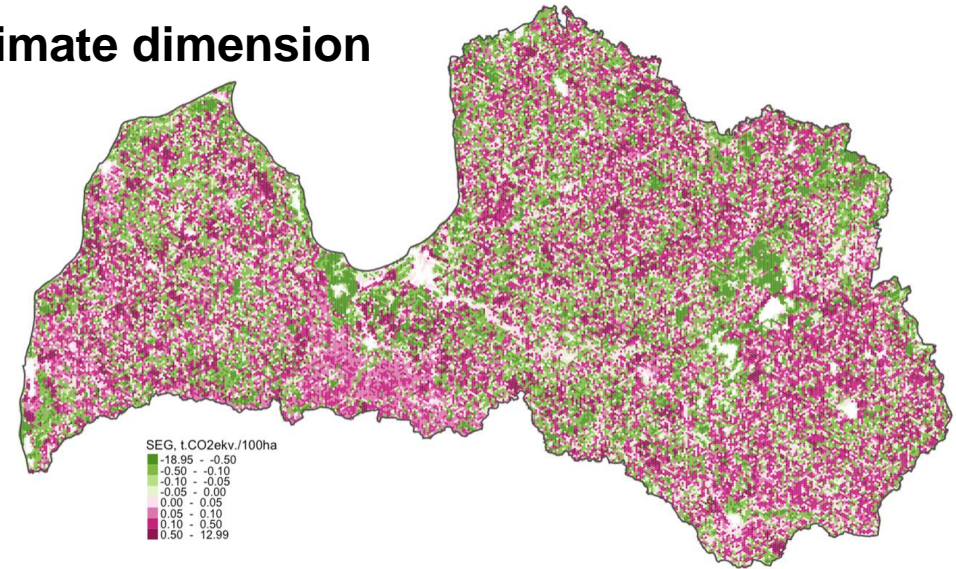
# Agricultural and forest land use efficiency assessment



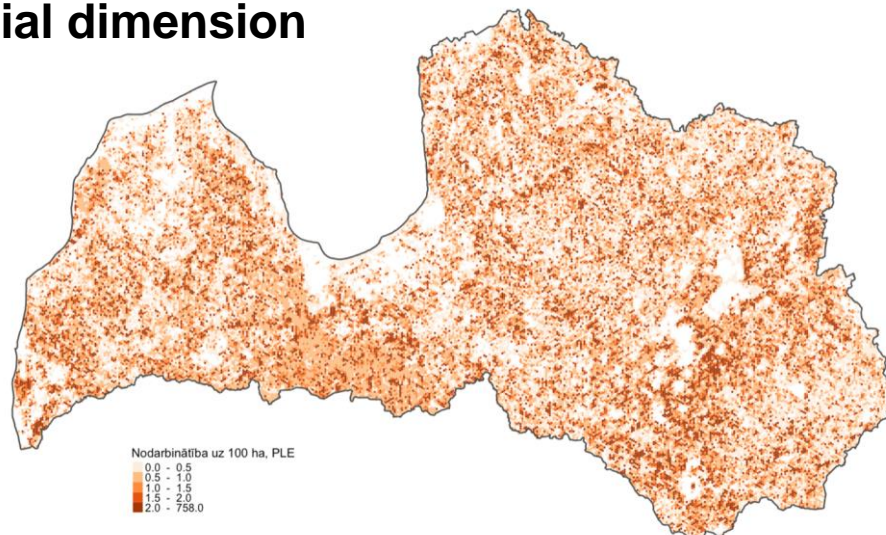
## Economic dimension



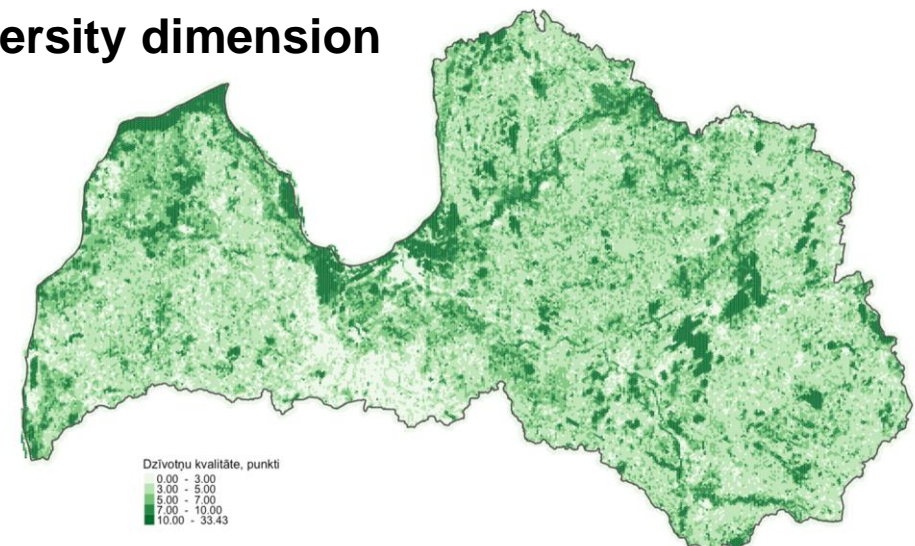
## Climate dimension



## Social dimension



## Biodiversity dimension







# New tendencies in higher education



Transfer of knowledge and technology to industry

Commercialization of knowledge

## Innovations

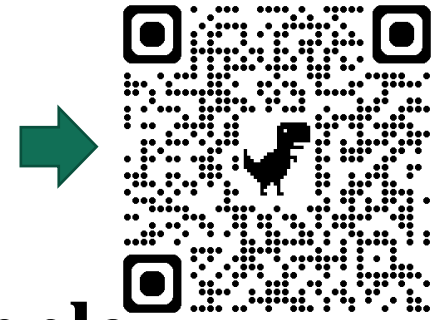
Driving force of the 21<sup>st</sup> century

## University

An important role in promoting innovation



# LBTU Technology and Knowledge Transfer Office



## Innovation Voucher program



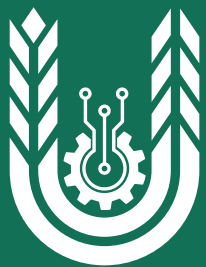
Within this program in 2021 40  
cooperation agreements were  
concluded for the total amount of  
632 234.96 EUR

## Cooperation example



Industrial research with the aim of creating  
innovative products for improving the taste and  
aroma of food with freeze-dried ingredients





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**Thank You for Your  
attention!**

For more information  
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