

# CAPBIO4BG *Experts Workshop*

## State of affairs and practices in Research and Education on Bio-economy

**Coordinator: Agricultural University of Plovdiv**

**Speaker: Prof. Vladislav Popov, PhD**



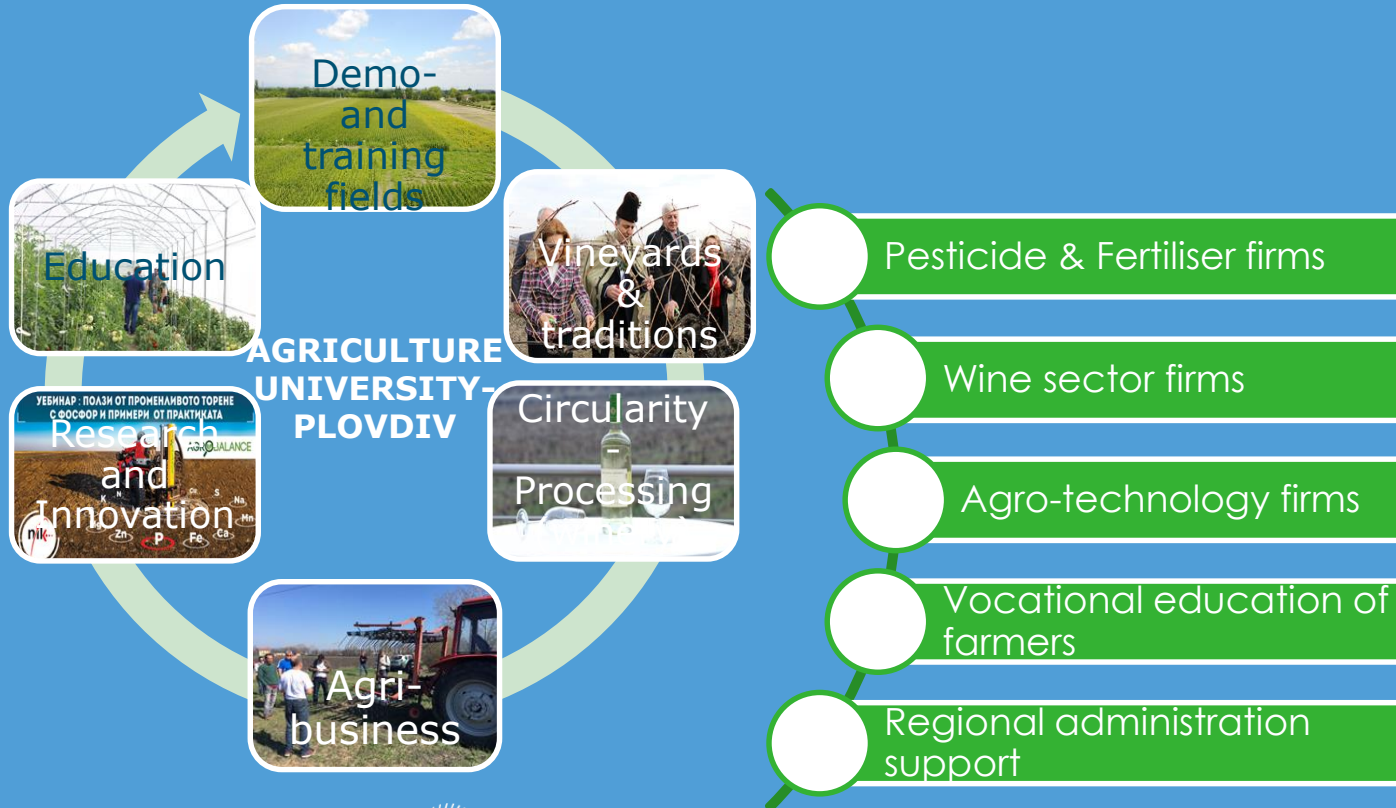
*National Programme European  
Scientific Networks Ministry of  
Education and Science of Bulgaria*



# The Agricultural University of Plovdiv

- Lecturing staff – 200
- Administrative and supporting staff – 160
- Enrolled students – 3800
- Degrees awarded – BSc, MSc, PhD
- BSc courses – 14
- MSc courses – 37
- PhD programs – 25
- Faculties – 4: Agronomy, Horticulture and Viticulture, Plant protection and Agroecology, Economy
- Departments – 20

# Focus regional agri-food specialisation, business infrastructure and traditions + R&I and Education



# Bio-economy-related Education (1)

## ■ **Related edu programme:**

- Agronomy, Zooengineering, Zooengineering with Information Technologies;
- Plant Protection, Ecology and Environmental Protection;
- Viticulture and Horticulture and Organic Production, Agricultural Engineering
- Agricultural Economics, Business Economics, Rural Tourism, Economics and management of regional development, Bioeconomy (from 2021).

## ■ **Focus of education programme: Biomass production, Economics, Ecology**

- Acquiring competencies in the current and future agro-technologies, incl. environmental protection and socio-economic aspects

# Bio-economy-related Education curricula (2)

- Structure of programme, or specialisations (or list of courses):
  - Each programme provides qualified theoretical and practical training to students
  - BSc courses are of 4 years (8 semesters), MSc courses between 1 and 2 years (4 semesters)
  - Students have to collect certain amount of credits, they have to pass mandatory practical training (in the AUP demonstration farms or at private companies)
  - The specialty curricula are annually updated in line with the trends of agricultural development worldwide and the Ministry of Education and Science requirements.
- Infrastructure for Education
  - Sufficient auditoriums for theoretical education, labs, training and experimental fields on 185 ha comprising 1500+ biological units, vineyards with 600+ cultivars and an experimental winery.

# Bio-economy-related Education curricula (3)

- Structure of programme, or specialisations (or list of courses):

## 5th semester: Mandatory subjects:

- Bioeconomy
- Management of enterprises in the bioeconomy
- Bio-resources and sustainable nature management
- Environmental legislation

## 6th semester: Mandatory subjects:

- Development of the bioeconomy in rural areas
- Sustainable crop production
- Sustainable animal husbandry
- Biotechnology

## 7th semester: Mandatory subjects:

- Industrial logistics
- Technologies for sustainable horticulture
- Plant protection
- Pollution and protection of bio-resources
- Climate change and the impact on the economy
- Green chemistry
- Ecosystem services and public benefits
- Sustainable management of soil resources
- Regional aspects of the bioeconomy

## 8th semester: Mandatory subjects:

- Biomass processing and recycling technologies
- Development and evaluation of investments
- Circular economy and resource utilization
- Economics of the Public Sector
- Entrepreneurship in the bioeconomy
- Agricultural Economics
- Innovations and precision technologies
- Mechanized technologies in the bioeconomy
- Digitisation of agricultural holdings
- Investment policy

# Bio-economy-related Education (4)

## ■ Learning objectives and anticipated student competences:

- to create professionals with a modern vision and innovative attitude to economic processes and biological cycles of ecosystems, which combined with their qualifications and personal competencies to be realized in practice and create added value for society. Emphasis is placed on the creation of key competencies, such as critical and analytical thinking, the ability to solve complex economic problems and cases, innovation and entrepreneurship.

## ■ Formats

- 8 semesters: first 4 sem. focused on fundamental subjects in economy and the next 4 sem. on profiling subjects based on three key pillars: sustainable biomass production, bioprocessing and conversion, the biological circular economy and society in the bioeconomy.

## ■ Materials

# Bio-economy(-related) Research (1)

- Expertise of partner related to CAPBIO4BG:

Mainly in sustainable biomass production, including agroecosystem productivity, environmental soundness and economic viability.

- Research areas:

- [Agroecology and biodiversity](#)
- [Plant health](#)
- [Plant eco-physiology](#)
- [Bioeconomy](#)
- [Digital technologies in agriculture](#)
- [Climate change and sustainable agriculture](#)
- [Sustainable horticulture /Hortbio/](#)
- [Sustainable agriculture /Fruit growing/](#)
- [Agroecological approaches for sustainable mechanized production of fruit and rootstocks](#)
- [Plant systematics and floristic studies](#)



# Bio-economy(-related) Research (2)

## Ministry of Education and Science /MES/ National Scientific Programs

"Healthy food for stronger bioeconomy and quality of life"  
/2018-2022 - AUP coordinating,  
<http://www.nnp-food.auplovdiv.bg/en/>

"Smart crop production"  
/2021-2023 - AUP coordinating 9 R&I partners/

"Smart animal production"- AUP partner

"Young Researchers"

## MES National Roadmap for Research Infrastructure

PLANTHEALTH Centre for Diagnostics and Technologies in Plant Health

AUP coordinating

**To be financed by the EU Structural funds** - Operational Program Science 2021-2027

## MES European Scientific Networks

**13 project with above threshold score in H2020 Twinning** - Widening Participation

AUP coordinating; partners WUR, UCD and UNIBO  
/2021-2022/

CAPBIO4BG - Developing the research & innovation capacity at the AUP to boost the regional innovation potential in Bio-economy

## MES National Scientific Fund

AUP participating to annual calls for fundamental research /~1 mln. Euro for projects in Agri-Food domain/

To be moved to the framework of the newly established National Agency for Research and Innovation at the Ministry Council

## H2020

H2020-EU:  
Topic: CE-FNR-15-2020 - A network of European bioeconomy clusters to advance bio-based solutions in the primary production sector

COOPID - COOPERation of bioeconomy clusters for bio-based knowledge transfer via Innovative Dissemination techniques in the primary production sector

AUP partner in a consortium of 10 EU partners

## EIT - European Institute for Innovationa and Technology

**EIT Food CLC North-East** - EIT Regional Innovation Scheme

EIT Food Hub in Bulgaria  
/2021-2023/

/AUP is coordinating + Sofia Univ. and CleanTech Bulgaria/

EIT's High Education Institutions (HEI) Initiative: EIT programme to enhance agrifood innovation capacity of high education institutions

# Bio-economy(-related) Research (3)

- Further Research projects: BE capacity building, regional BE ecosystems, BE governance

1	2	3	4	5	6
Horizon Europe			LIFEWATCH ERIC	ERASMUS +	Regional Municipalities
<b>HORIZON-CL6-2021-CIRCBIO-01-08 CSA – MainstreamBIO</b> , Greek coordinators  /2021-2023/	<u>CL6-Governance-01-07: Regional governance models in the bioeconomy</u> , Spain, WUR  /2021-2023/	SCAR Coordination & Support Action (CSA), proposal <b>“Fostering strategic advice and synergies between national and EU research and innovation agendas, including SCAR foresight”</b> . /2021-2023/	<b>Smart Food ERDF Andalusia</b>  /2021/	„CoVE - A partnership in agri-food vocational excellence”  /2021/	Project BGLD- I . 00 2-000 I „Growth through stimulating local - GALOP”, financed by the Norway funds, EEA mechanism  /2021/

# Examples of networks

- University-internal networks:

- intra-department research groups, Centre for Scientific Research and Transfer of Technologies, Centre for Professional Education, Centre for Biological Testing of Plant Protection Products, Agroecological Centre, etc.

- National collaborations with government, businesses, community, universities, science foundations, etc.

- Ministry of Education and Science, Ministry of Agriculture Food and Forestry, Ministry of Environment,
- National Agriculture Advisory Service, Regional Administration, Municipalities,
- Associations in agri-business; private agri-companies,
- NGOs

# Examples of networks

## ■ International networks for collaborations (EU, global)

1. EFF - European Food Forum - members of the European Parliament
2. SCAR – Standing Committee on Agricultural Research at the European Commission
3. LifeWatch ERIC - <https://www.lifewatch.eu/web/guest/home>
4. EERA Bioenergy - European Alliance for excellent research in sustainable bioenergy  
<https://www.eera-bioenergy.eu/>
5. BIOEAST – Central and Eastern European initiative for knowledge-based agriculture, aquaculture and forestry in the bioeconomy <https://bioeast.eu/republic-of-bulgaria-ministry-of-agriculture-food-and-forestry/>
6. IFOAM – International Federation of Organic Agriculture Movements
7. EURAGRI - EURAGRI - EUROpean AGRicultural Research Initiative
8. EFSA /European Food Safety Authority/.