



AGRICULTURAL UNIVERSITY - PLOVDIV
4000 Plovdiv, Bulgaria12, Mendelev Blvd.
tel. +359/32/654300 www.au-plovdiv.bg



Research and Innovation Profile

General information

Description

Title of the research entity/group

AGROECOLOGY AND BIODIVERSITY

Field of expertise

/in conjunction with Horizon 2020-Societal Challenge 2 (SC2): 'Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy'/

Priority 3: Fostering functional ecosystems, sustainable food systems, healthy lifestyles:

- Assessment of agroecological conditions in conventional and organic agriculture (OA) and adaptive solutions to climate change
- Smart technological solutions for OA based on new approaches (e.g. digital tools, decision support systems, modeling and prognosis).
- Ecofunctional biodiversity in agroecosystems and relation to intensification of agricultural practices
- Sustainable practical models for valuation of agrobiodiversity in organic farming
- Temporal and spatial scale in assessing the dynamics of biodiversity and its relation to farming systems, the surrounding landscapes and throughout value chains. Impact of agrobiodiversity on quantity and quality of agri-food production
- Ecosystems services for crop production, in relation to pest and disease control, nutrient cycling, soil fertility and productivity.
- Carbon sequestration in grassland ecosystems.
- Investigating the impact of bio-fertilisers and bio-pesticides on target agroecosystems and crops.

Research products and services provided by the entity/group

Research results, technological solutions, advice and knowledge transfer to farmers, advisers, decision-makers, state control bodies, policy (ministerial) work-groups, etc. on:

transition to more sustainable (incl. organic) farming practices that maximise the use of ecological processes,

- transition to more sustainable (incl. organic) farming practices that maximise the use of ecological processes,
- alternative practices that rely on functional agrobiodiversity and organic farming for reduced use of inputs (e.g. synthetic fertilisers and pesticides) with potential negative impacts on the environment,
- testing and validation of biological inputs for organic farming, e.g. bio-fertilisers, biopesticides, plant varieties, etc.
- sustainable management of environmental resources (soil, water, air, biodiversity of plants and animals)



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**Participation in previous/
ongoing H2020 or other EU
projects**

2018: CSA, SC2-Presidency-2017 Call: H2020-IBA-SC2-PRESIDENCY-2017: 2nd FOOD 2030 High Level Event "Research and Innovation for Food and Nutrition Security: Transforming our food systems".

2015-2018: Horizon 2020, ERA-NET Cofund actions, BiodivERsA: Sustaining agricultural change through ecological engineering and optimal use of natural resources, STACCATO /<http://www.staccato-project.net/>

2018-2022: National Science Program of the Ministry of Education and Science (MES) "Healthy Foods for Strong Bioeconomy and Quality of Life" www.nnp-food.au-plovdiv.bg WP 1.2: Agricultural practices and impact on biodiversity and ecosystem services.

2009-2014: the Avalon Foundation international project "The New Thracian Gold - partnership of organic farming, ecotourism and wilderness in the Eastern Rhodope mountain" in Bulgaria /www.newthraciangold.eu/.

**Number of researchers involved
/including young researchers
e.g. doctoral, post-doctoral,
habilitated, etc./**

A total of 12 researchers from the Agroecology and Crop husbandry Departments. Specialised in biology, zoology, ecological monitoring, plant protection, agroecology, (agro) biodiversity, organic agriculture, ecological monitoring, ecosystem protection from xenobiotics' pollution, etc.

Research infrastructure used

Demonstration and Research Farm for sustainable and organic farming as a part of AU-Plovdiv Research and Experimental Station. A10 ha under organic crops, vineyard and orchard since 1994. A base for research on biodiversity, ecofunctional intensification, organic crop methods, crop varieties and product quality, organic inputs, etc.

Laboratory of Zoology:

Thulgren apparatus for extraction from the soil of macro-arthropods; Nikon Monarch binoculars for bird monitoring.

Laboratory of Soil Science:

Soil sampling apparatus; Fritish Photo Sedimento-grapher; pH meter; KERN electronic balance; etc.



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Profile of the leading researchers in entity/group

- Prof. Vladislav Popov, PhD, an acting Professor at the Dept. of Agroecology, Director of Agroecological Centre. Expert in agroecology, agrobiodiversity and organic farming. Member of the Standing Committee of Agricultural Research (SCAR) at the European Commission (EC) and the Advisory Board of the 2nd FOOD 2030 High Level Event of the EC (held in June 2018 at AU-Plovdiv). Chairman of the Executive Board of the National Science Program of the MES “Healthy Foods for Strong Bioeconomy and Quality of Life” 2018-2022. Evaluator of projects at the EC agencies such as REA, TAIEX, ETF, EIT-Food, etc.
- Prof. Hristina Yancheva, PhD, an acting Professor at the Dept. of Crop Husbandry, Rector of the AUP. Expertise in crop production, sustainable grassland management, landscape design, seed production, organic farming, etc. Expert in scientific team developed “Management plan for Kaliakra reserve” and “Management plan for National Park Pirin”. Foreign co-supervisor of 2 scientific projects in Kazakhstan. Legal Entity Appointed Representative(LEAR) for the AU - Plovdiv in European Commission. Member of the National Council for Science and Innovation.
- Assoc. Prof. Tatyana Bileva, PhD at the Dept. of Agroecology & Environmental Protection. PhD in Zoology. Expert in ecology, biodiversity, ornithology, nematology, soil ecology and ecosystem services. Team leader of STACCATO project for AU group.
- Assoc. Prof. Atanas Sevov, PhD at the Dept. of Crop husbandry
- Assoc. Prof. Ekaterina Valcheva, PhD at the Dept. of Agroecology
- Assoc. Prof. Veselka Vlahova, PhD at the Dept. of Agroecology

In which calls of Horizon 2020-SC2 or Horizon Europe the entity/group is ready to participate and how

The group is ready to participate and contribute to H2020 calls:
SFS-01-2018-2019-2020: Biodiversity in action: across farmland and the value chain
C. [2020] From agrobiodiversity to dynamic value chains
B. [2019] Efficiency and resilience of mixed farming and agroforestry systems (RIA)
SFS-04-2019-2020 (IA): Integrated health approaches and alternatives to pesticide use
B. [2020] Alternative to contentious pesticides
SFS-21-2020 (RIA): Emerging challenges for soil management
A. [2020]: Soil biodiversity assessment



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Organising sustainable food and non-food value chains under changing conditions:

RUR-06-2020 (IA): Innovative agri-food chains: boosting sustainability-oriented competitiveness.

Research, involving laboratory and field testing and assessment, on:

- Exploration of key agro-ecological factors for growth in the soil-plant-atmosphere system in typical organic holdings and for the spread and growth of priority plants
- Analysing and assessing the impact of agricultural practices on:
 - biodiversity and ecosystem functioning as a component of a sustainable and favorable living environment;
 - soil, water, air and behaviour of pollutants in these resources
 - carbon sequestration in grasslands.
- Advanced agrobiodiversity monitoring and use of a national network for testing sustainable practical models for valuation of agrobiodiversity in sustainable (incl. organic) farming;
- Analysing and assessing the environmental pressures (land use changes and biodiversity loss) on ecosystems services in agriculture and natural and semi-natural landscapes.
- Implementing the 'multi-actor approach' engaging key stakeholders and experts for an open-source collaboration, data collection from diverse agri-ecosystems and effective transfer of biodiversity knowledge to farming, research, policy and society.

Research entity/group contact person /name, postal address, e-mail, phone number/

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