



PROGRAMME

for

CELEBRATING THE WORLD SOIL DAY 2024



**150 YEARS SINCE THE BIRTH OF NIKOLA POUHKAROV – FOUNDER
OF THE SOIL SCIENCE IN BULGARIA**

and

SCIENTIFIC CONFERENCE WITH INTERNATIONAL PARTICIPATION

**ECOLOGY AND AGROTECHNOLOGIES – FUNDAMENTAL SCIENCE
AND PRACTICAL REALIZATION – BUSINESS MODELS FOR SOIL
HEALTH IMPROVEMENT**

5-6 December 2024, Sofia, Bulgaria

**UNDER THE PATRONAGE OF
THE PRESIDENT
OF AGRICULTURAL ACADEMY**

New Bulgarian University,
Library "Prof. Bogdan Bogdanov", Auditorium 2
1618 Sofia, Ovcha Kupel 2, 21 "Montevideo" Str.

ORGANIZING COMMITTEE

Chairs: Prof. DSc Irena Atanassova, ISSAPP
Prof. Dr Dimitre Nikolov, NBU

Deputy Chairs:

Assoc. Prof. Dr Gergana Kuncheva, ISSAPP
Prof. DSc Bozhidar Georgiev, STUSA
Assoc. Prof. Dr Biser Hristov, BSSS
Assist. Prof. Dr Ekatherina Tzvetanova, NBU

Members:

Prof. Dr Stefan Doerr, Swansea University, England
Prof. Dr Michel Boer, AnaEE, France
Prof. Dr Hristos Pashalidis, Greece
Prof. Dr Kristian Hadzhiev, NBU, Bulgaria
Prof. Dr Ivan Boevsky, NBU, Bulgaria
Prof. DSc Eng. Martin Banov, ISSAPP, Bulgaria
Prof. Dr Metodi Teoharov, ISSAPP, Bulgaria
Prof. DSc Eng. Snezhan Bozhkov, ISSAPP, Bulgaria
Assoc. Prof. Dr Milena Kercheva, ISSAPP, Bulgaria
Assoc. Prof. Dr Mariana Hristova, ISSAPP, Bulgaria
Assoc. Prof. Dr Zdravka Petkova, ISSAPP, Bulgaria
Assoc. Prof. Dr Tsenko Vatchev, ISSAPP, Bulgaria
Assoc. Prof. Dr Teodora Rizova, NBU
Chief Assist. Prof. Dr Vanya Bankova, NBU

Technical secretaries: Chief Expert Tonia Popova
Chief Expert Penka Kostadinova
Chief Expert Silvia Petrova

SCIENTIFIC COMMITTEE

Chair: Assoc. Prof. Dr Maya Benkova, ISSAPP

Members:

Prof. Dr Elena Todorovska, AA
Prof. DSc Alexander Sadovski, ISSAPP,
Prof. Dr Svetla Rousseva, ISSAPP
Prof. Dr Radka Donkova, ISSAPP
Prof. Dr Ekaterina Filcheva, ISSAPP
Prof. Dr Veneta Krasteva, ISSAPP
Prof. Dr Toma Shishkov, ISSAPP
Assoc. Prof. Dr Zhenya Ilieva, ISSAPP
Assoc. Prof. Dr Margarita Nikolova, ISSAPP
Assoc. Prof. Dr Plamen Ivanov, ISSAPP
Assoc. Prof. Dr Tsetska Simeonova, ISSAPP
Assoc. Prof. Dr Lyuba Nenova, ISSAPP
Assoc. Prof. Dr Hristo Valchovski, ISSAPP
Assoc. Prof. Dr Eng. Vesela Petrova, ISSAPP
Assist. Prof. Dr Krasimir Konstenarov, NBU
Assist. Prof. Dr Kristina Todorova, UNWE

PROGRAMME

THURSDAY, 5.12.2024

- 9:30 – 10:00 **REGISTRATION**
- 10:00 – 10:30 **OPENING AND GREETINGS**
- PLENARY SESSION**
- 10:30 – 11:00 **IRENA ATANASSOVA**, Policies and practices for sustainable agriculture, combating soil degradation and protecting natural ecosystems.
- 11:00 – 11:30 **BISER HRISTOV**, 100 years of Soil Science in Bulgarian Universities.
- 11:30 – 12:00 **DIMITRE NIKOLOV**, Inventory of incentives applied in some EU countries in terms of soil health practices for the period 2014-2022.
- 12:00 – 13:30 **LUNCH**
- 13:30 – 14:00 **SNEZHAN BOZHKOV**, 75 Years of Science for Mechanization of Agriculture in Bulgaria.
- 14:00 – 14:30 **ALEXANDER SADOVSKI**, Our Scientists Who Were Ahead of Their Time.
- REPORTS BY TOPICS**
- 14:30 – 14:45 **CHRISTOS PASCHALIDIS**, The Agro-Food Sector of Greece. The existing situation and prospects.
- 14:45 – 15:15 **NOVASOIL PROJECT SESSION**
EKATHERINA TZVETANOVA, Decision support tool framework for soil health business models.
- 15:15 – 15:45 **COFFEE BREAK**
- 15:45 – 16:00 **MARIANA HRISTOVA**, Soil Resources in the South-Central Region of Bulgaria: Boundaries Between Health and Degradation.
- 16:00 – 16:15 **MILENA KERCHEVA**, Integration of satellite-derived and ground-based data on soil water balance components and crop cover into simulation models.
- 16:15 – 16:30 **AVGUSTA STEPCHICH**, Application of remote sensing by unmanned aerial systems for wind erosion monitoring.
- 16:30 – 16:45 **TSETSKA SIMEONOVA**, Assessment of groundwater parameters using the water quality index (wqi) model in a region of western Bulgaria.

- 16:45 – 17:15 **DISCUSSION AND POSTER SESSION**
- 17:15 – 17:45 **TUdi PROJECT SESSION, SEST DEMO EVENT**
IRINA STANEVA, Analysis of the results from the soil restoring strategies implementation - experimental fields of the Institute of Fruit Growing, Plovdiv, Bulgaria.

FRIDAY, 6.12.2024

- 9:00 – 9:30 **REGISTRATION**
REPORTS BY TOPICS
- 9:30 – 10:00 **IRENA ATANASSOVA**, Effect of biochar application on the immobilization and bioavailability of heavy metals and other pollutants in Technogenic soils.
- 10:00 – 10:15 **MILENA MITOVA**, Simulating the moisture regime of a moderately eroded epicalcic chernozem with the swat model under wheat-maize rotation.
- 10:15 – 10:30 **KRISTIYAN PANAYOTOV**, Evaluating soil health and geospatial dynamics in the reclamation of the "Sedmi Septemvri" slag heap.
- 10:30 – 10:45 **SVILEN STOYANOV**, Investigating alternator output voltage variations in agricultural and transport equipment.
- 10:45 – 11:15 **COFFEE BREAK**
- 11:15 – 11:30 **MILADIN NAZARKOV**, Dynamics of absolutely dry biomass accumulation in maize depending on applied rates of fertilization with nitrogen, phosphorus, potassium and silicon on Alluvial-meadow soil.
- 11:30 – 11:45 **JONITA PERFANOVA**, Application of bioinoculants to increase the amount and quality of einkornwheat (*Triticum monococcum* L.) plant production in Alluvial-meadow soil.
- 11:45 – 12:00 **ZHENYA ILIEVA**, Nematode communities in coarse textured soils.
- 12:00 – 12:15 **MARIN-TEODOR NASER**, Foliar Fertilization as a Natural Insecticide, Fungicide, and Soil Improver.
- 12:15 – 12:45 **EKATERINA TSVETANOVA**, NOVASOIL PROJECT SESSION
- 12:45 – 13:45 **LUNCH**
- 13:45 – 14:00 **NIKOLAYA VELICHKOVA**, Application of inductively coupled plasma optical emission spectrometry (ICP-OES) in the determination of rare earths elements.
- 14:00 – 14:15 **MILENA HRISTOZOVA**, Cesium-137 content in soil samples from Haskovo and Kardzhali region, Southern Bulgaria.
- 14:15 – 15:00 **DISCUSSION AND CLOSING**

POSTER SESSION

1. **DAFINKA PANGAROVA, EKATERINA SERAFIMOVA** - Application of "traffic oracle" software package in the assessment of Cd and Pb contamination of roadside soil.
2. **STANISLAV STAMATOV, I. STAMATOV, M. PETROVA** - Determination of irrigation rate for sesame (*Sesamum indicum* L.) related to climate changes.
3. **IVKO STAMATOV, STANISLAV STAMATOV** - Influence of fertilizer rate and timing of potassium nitrate application on growth and leaf formation dynamics in oriental tobacco.
4. **IVKO STAMATOV, STANISLAV STAMATOV** - Economic indicators of oriental tobacco depending on the time of importation and the rate of potassium nitrate fertilizer.
5. **ANTOANETA GIGOVA** - Influence of different rates of mineral fertilization on the growth manifestations of an intensive apple plantation, grown with water-saving technologies.
6. **ANNA RACHOVA** - Comparative characteristic between the yield and some biometric indicators in the cultivation of eggplant variety Bulgarian 12, at different rates of irrigation and at the same rate of nitrogen fertilization for the Sofia field area.
7. **KALOYAN BERBEROV, NIKOLINA ATANASOVA, NIKOLAY KRUMOV, IVANKA BOYADZHIEVA** - Saline soils as a source of new antimicrobial compounds. A lesson from halophilic bacteria.
8. **AVGUSTA STEPCHICH** - Soil erodibility for the territory of Trastenik, Pleven region.
9. **CHRISTOS PASCHALIDIS, VIKTOR KAVVADIAS, STAVROS SOTIROPOULOS, DIMITRIOS PETROPOULOS, and ANTONIA KORIKI** - Effect of nitrogen and magnesium fertilizer on nitrate accumulation in the plant parts of potato (*Solanum tuberosum*) variety spunta.
10. **STAVROS SOTIROPOULOS, CHRISTOS CHATZISAVVIDIS, IOANNIS E. PAPADAKIS, VICTOR KAVVADIAS, CHRISTOS PASCHALIDIS, CHRYSOVALANTOU ANTONOPOULOU, ANTONIA KORIKI** - Effect of fertilizer treatments on the nutrition of young olive trees in calcareous and non-calcareous soil substrates.
11. **STAVROS SOTIROPOULOS, CHRISTOS CHATZISAVVIDIS, IOANNIS E. PAPADAKIS, VICTOR KAVVADIAS, CHRISTOS PASCHALIDIS, CHRYSOVALANTOU ANTONOPOULOU, SOTIRIOS KYRIAKOPOULOS** - Effect of fertilizer treatments on calcareous and non-calcareous soil substrates.
12. **MARIANA HRISTOVA, ANA KATSAROVA** - Fertility variation in Vertisols and Fluvisols under different fertilization systems - experimental fields of ISSAPP 'Nikola Poushkarov' in Sofia and Plovdiv Regions.
13. **STELYANA HRISTOVA** - Field protective forest belts in Dobrudja and their impact on adjacent agricultural lands.
14. **PLAMEN TOMOV** - The role of artificial intelligence in supporting researchers.
15. **GERGANA KUNCHEVA, GALIN GINCHEV, PETAR NIKOLOV** - Emissions of CO₂ and N₂O from soil in long-term mineral fertilization in the conditions of Degraded Chernozem.
16. **OLGA VELEVA, NIKOLAYA VELITCHKOVA, METODY KARADJOV, SERAFIM VELICHKOV, NONKA DASKALOVA** - Determination of trace elements in matrices with various compositions by inductively coupled plasma optical emission spectrometry (ICP-OES) strengths and limitations.

17. **BISER HRISTOV, KAMELIYA PETROVA, PAVEL PAVLOV, BILYANA GRIGOROVA – PESHEVA** - Physico-chemical properties of Cambisols from Vitosha Mountain (Bulgaria).
18. **MILENA HRISTOZOVA, RADOSLAVA LAZAROVA, IVANKA YORDANOVA, VIKTORIA NEDYALKOVA** - Natural radioactivity of soil and volcanic ash on Livingstone Island, Antarctica.
19. **MILENA HRISTOZOVA, YOSHIFUMI WAKIYAM, KENJI NANBA** - Environmental effects of radiation, 13 years after the Fukushima nuclear accident.
20. **KATERINA DONEVA, MILENA KERCHEVA, GERGANA KUNCHEVA, VIKTOR KOLCHAKOV, PLAMENA NIKOLOVA** - Thermal properties of chernozems as a result of agricultural practices for mitigation of agroecological risks.
21. **TSVETELINA METODIEVA, ANI KATSAROVA, TSVETINA PAPARKOVA, MILADIN NAZARKOV, ILIANA IVANOVA, RALITSA GAVRILOVA, HRISTO VALCHOVSKI** - Influence of biological preparations and *Beauveria bassiana* strains on the soil microbiota of Leached Chernozem (Rousse region) during bean cultivation.
22. **VIKTOR KOLCHAKOV, MARTIN BANOV, IRENA ATANASSOVA, VENETA KRASTEVA, ILYANA GERASSIMOVA, MILADIN NAZARKOV, DIMITRE NIKOLOV, IVAN BOEVSKY, EKATHERINA TZVETANOVA, KRASIMIR KOSTENAROV** - Analysis of the results from the soil restoring strategies implementation - Bozhurishte experimental field.
23. **ZORNITSA MITREVA, IVANKA LYUBENOVA, MARIA IVANOVA, IRENA ATANASSOVA** - Land evaluation of agricultural lands in the region of Stara Zagora, Bulgaria for growing cultivated hazelnut (*Corylus avellana L.*).
24. **JECHKO YORDANOV, ALEKSANDR TRIFONOV** - Feasible low-carbon practices in order to implement the main strategies and programs of the European Union in the agricultural sector, to achieve the objectives of the European Union in the field of climate until 2050 and of the Regulation of the European Union on the elimination of carbon emissions and certification of carbon agriculture.
25. **SPIRIDON STOEV** - Combined machine for forming a high arc-shaped bed, laying drip irrigation hoses and mulching foil.
26. **KRUM STANCHEV** - Classification of technologies for thermal decomposition of wood.
27. **ELENA DIMITROVA, IVAN MORTEV, BLAGOJ ELENOV, GEORGI KOSTADINOV** - Optimization of the drop coating of a hydraulically driven rotary sprayer for environmentally friendly plant protection.
28. **ELENA GRANCHAROVA, PETYA IVANOVA, BLAGOJ ELENOV, ELENA DIMITROVA** - Influence of water and nutrient regime on diameter and weight of white strawberry fruits.
29. **IVAN MORTEV** - Three-module system for plant protection in greenhouses.
30. **GEORGI KOSTADINOV, TODOR PENYASHKI, ELENA DIMITROVA, IVAN MORTEV, BLAGOJ ELENOV** - Increasing the durability of wearing parts and working elements of agricultural techniques and equipment through electric spark and gas flame coating.
31. **TODOR PENYASHKI, GEORGI KOSTADINOV** - Creation of a new type of coatings with increased hardness, wear resistance and tribo-efficiency for agricultural equipment through electric spark and gas flame coating.

32. **VESELA PETROVA - BRANICHEVA, EMIL DIMITROV** - Effect of location of irrigation drip pipe under different irrigation regimes on yield of Bulgarian sort Garlic.
33. **YURIY ENAKIEV, K. STEFANOV, T. KRUMOV** - Theoretical prerequisites for the use of a portable hydraulic double-drum winch in the harvesting of small-sized timber in managed forests.
34. **IVO GANCHEV** - Biosynthesis of surfactants by *Streptomyces* strains.
35. **IVO GANCHEV** - Biosurfactant by *Streptomyces* ssp.: structural features and antimicrobial activity.
36. **MARIA HRISTOVA** - Bioecological and plant sociological characteristics of designed wildflower meadows in urban environment.
37. **PETR I. OSADCHUK, K. A. SHEYDA GOLBAD, T. A. REVENIUK, D. A. DOMUSHTI, YURIY I. ENAKIEV** - Basic requirements for the use of electrophysical fields for the purification of vegetable oils.
38. **MERILI TOOM, MART LAUGIS, TIINA KÖSTER, KERTTU TAMMIK, KALVI TAMM, TAAVI VÕSA** - Impact of seed production on soil functions: insights from the NOVASOIL PROJECT SEMINAR IN ESTONIA.
39. **RUMEN GADZHEV** - On dimensional dependences in pipelines for drip irrigation.

The event is supported with funds allocated under the NOVASOIL research project “Innovative business models for soil health”, HORIZON 2020 research and innovation action, with Grant agreement No. 101091268, funded under the HORIZON 2020 program of the European Commission.