



International Conference and TUDI Workshop on
Alternatives to Reduce Soil Degradation

07 May 2024, Budapest, Hungary

Conference Schedule

Meeting: Alternatives to Reduce Soil Degradation 2024 // Time: May 7, 2024 08:30 Budapest

8:00-9:00 **Registration** – displace posters, upload presentations

9:00-9:05 Conference opening - DSc. László Pásztor, Director of HUN-REN ATK, Institute for Soil Sciences

9:05-10:55 Section 1: Identifying and reducing soil degradation – actions in TUDI Project (chair: Ágota Horel), **presentations: 12 minutes each**

9:05-9:10 Welcome - José Alfonso Gómez (IAS-CSIC, Spain, TUDI Project leader)

- 1) Ignacio Domenech (IAS-CSIC, Spain) A field guide for evaluation of erosion risk in olive orchards guiding on best choices for soil conservation and restoration
- 2) Roushui Wang (BFU, China) The database construction for Chinese team and the soil and fertilizer management in an agroforestry system of Loess Plateau in China (*on-line*)
- 3) Zsófia Bakacsi (HUN-REN ATK TAKI, Hungary) Open and accessible TUDI Meta-database of long-term monitored farms and experiments associated with the EU project partners
- 4) Alison Bayley (Lincoln University, New Zealand) The Management of Soil Erosion in the Hill Country of New Zealand (*on-line*)
- 5) Csilla Hudek (Lancaster University, UK) Impact of cover crop diversity on soil resilience and recovery
- 6) David Zumr (CTU Prague, Czech) Experimental estimation of erodibility factors on agricultural soils
- 7) Gunther Liebhard (BOKU, Austria) Underground Engineers vs. Dinosaur Loads - Fighting soil compaction and soil degradation
- 8) Ildikó Fruzsina Boros (Ministry of Agriculture, Hungary) Common Agriculture Policy Strategic Plan of Hungary - focusing on the Environmental Support Schemes

10:55-11:15 Coffee break

11:15-13:00 Section 2: Soil amendments, Plant and Soil Health (chair: Márk Rékási)

- 1) István Sojnóczki (Debrecen University, Hungary) Effect of different conventional and non-conventional tillage systems on the soil moisture content
- 2) Thulfiqar Al-Graiti (ELTE University, Hungary) Plowing induced short-term changes in stabilized soil organic matter in an arable Chernozem
- 3) Mostafa Mansour (IAREF Nyíregyháza, Hungary) Nanocarbon is a promising alternative for enhancing organic carbon storage in sandy soils
- 4) Andrea Balláné Kovács (Debrecen University, Hungary) Examining the Impacts of Intensive and Reduced tillages and NPK fertilization on the Microbial Biomass and Community of the Soil
- 5) Borbála Bíró (MATE, Hungary) Meta-analysis of bioeffector soil-inoculations for improving soil-fertility and health
- 6) Péter Futó (Albitech Biotechnological Ltd., Hungary) Investigating the effect of biological soil crust forming microalgal cultures on soil in erosion-prone croplands and vineyards
- 7) Géza Tuba (MATE Research Institute of Karcag, Hungary) Effect of soil conditioning on the yields of maize and grain sorghum in Karcag

13:00-13:50 Lunch (sandwiches will be provided)

13:50-15:25 Section 3: New technologies in soil science – AI and proximal sensing (chair: János Mészáros)

- 1) Anna Szabó (Szeged University, Hungary) Photoacoustic systems for measuring surface-atmosphere flux of gases
- 2) Alaa El Hariri (MATE, Hungary) Determination of Soil Shear Strength by Remote Sensing
- 3) Ahmed Elawad Eltayeb (MATE, Hungary) Investigating the Spectral behavior and Load bearing of soil
- 4) Klára Pokovai (HUN-REN ATK TAKI, Hungary) Proximal sensing for evaluating plant performance in field experiments
- 5) Nándor Csikós (HUN-REN ATK TAKI, Hungary) Temporal and spatial dynamics of productivity in Eurasian black soils: trends between 2001 and 2021

15:25-17:00 Coffee break and poster section.

!! The poster **session consists of two parts**: I) a **short introduction** of the posters, **2 minutes each**, by one of the authors; II) a **free discussion** at the poster exhibition.

Posters:

- 1) Gyöngyi Barna (HUN-REN ATK TAKI, Hungary) Comparison on conventional and new techniques to determine aggregate stability (Section 1)
- 2) Gyöngyi Barna (HUN-REN ATK TAKI, Hungary) Effect of land use on the macroaggregate stability, based on the Hungarian Soil Structural Database (HunSSD) (Section 1)
- 3) Márton Dencső (HUN-REN ATK TAKI, Hungary) Effect of different tillage methods on soil carbon and nitrogen cycle (Section 1)
- 4) Jose Antonio Muñoz Sánchez (IAS-CSIC, Spain) Assessing the prairie strip efficiency in sediment reduction from small catchment experiments using a sediment connectivity model improved with the inclusion of a probabilistic approach to trapping efficiency by prairie strips (Section 1; *on-line*)
- 5) András Bidló (Sopron University, Hungary): Examination of the organic carbon stock of the soil of beech stands due to determining factors (Section 1)
- 6) Tsvetina Paparkova (Inst. Soil Sci. Nicola Pushkarov, Bulgaria) Influence of biological products on soil physical parameters in beans cultivation (Section 2)
- 7) Lucia Toková (IH SAS Slovakia) Determination of the biochar effect on pore size distribution derived from the soil water retention curves (Section 2)
- 8) Orsolya Szécsy (HUN-REN ATK TAKI, Hungary) Soil microbial activity correlates with texture in Hungarian soils (Section 2)
- 9) Zoltán Dévényi (CSFKI, Hungary) Effects of land use change on soil organic matter (Section 2)
- 10) Malek Abidli (MATE, Hungary) The importance of water- retaining mulches in urban environments (Section 2; *on-line*)
- 11) Béla Pirkó and Anita Szabó (HUN-REN ATK TAKI, Hungary) Revision of maximum nitrogen application rates adapted to farmers' conditions in farm-scale experiments (Section 2)
- 12) Tibor Aranyos (IAREF Nyíregyháza, Hungary) Effect of sewage sludge compost amendment on soil and yield parameters (Section 2)
- 13) Csilla Almási (IAREF Nyíregyháza, Hungary) Some parameters of P cycle in a sewage sludge compost experiment (Section 2)
- 14) Viktória Orosz (IAREF Nyíregyháza) The potential of aqueous sewage sludge compost extract against maize pathogens (Section 2)
- 15) Nóra Szűcs-Vásárhelyi (HUN-REN ATK TAKI, Hungary) Soil safety investigation opportunities of military areas through the example of a Hungarian barrack's territory (Section 2)
- 16) Sándor Koós (HUN-REN ATK TAKI, Hungary) Mitigating soil nitrate contamination and agricultural ammonia emission: The role of controlled-release nitrogen fertilizers (Section 2)
- 17) Eszter Tóth (HUN-REN ATK TAKI, Hungary) How can different agrotechnical methods influence soil NH₃ emissions after urea fertilization? A laboratory study (Section 2)
- 18) István Henzsel (IAREF Nyíregyháza) Long-term effects of traditional organic matter applications in acidic sandy soil (Section 2)
- 19) Mehjubin Kizhisseri (ELTE, Hungary) Integrating remote sensing and field measurements of spatiotemporal analysis of soil and vegetation parameters in different land use types (Section 3)
- 20) Tibor Zsigmond (HUN-REN ATK TAKI, Hungary) Investigation of changes in plant health using ground truth measurements and remote sensing (Section 3)
- 21) Krasimir Kostenarov (NBU, Bulgaria) Use of TUDi SEST tool to improve soil health (Section 3)

17:00-17:10 **Conference closing**