

14. KONGRES HRVATSKOG TLOZNANSTVENOG DRUŠTVA



Program

“Degradacija tla – izazov za poljoprivrednu proizvodnju”



14th

CONGRESS OF THE CROATIAN SOCIETY OF SOIL SCIENCE

Programme

“Soil degradation – challenge in agricultural production”

12.-16. rujna 2022., Sveti Martin na Muri, Hrvatska
12-16 September 2022, Sveti Martin na Muri, Croatia



MONDAY, 12 September 2022

- Congress Hall lobby
- 12:00-16:00** Registration of participants
Congress Hall
- 16:00-16:45** Workshop
Knowhow: Soil degradation and soil use
- 17:00-18:00** Round table
Soil science in the digitalization of agriculture
- 18:00-18:30** Paulo Pereira
Soil ecosystem services in a changing environment
Invited lecture
- 20:30** Welcome Cocktail 'Potkova' Pub

TUESDAY, 13 September 2022

- Congress Hall Lobby
- 08:00** Registration of participants
Congress Hall
- 09:30-10:15** Opening Ceremony
- 10:15-10:45** Coffee break
- 10:45-11:15** Ferdo Bašić
Soil in agroecosystem is transtemporal bridge and link of all generations of *Homo sapiens* from the sedentary life to the life sciences - Antropocen
Invited lecture
- 11:15-11:45** Ordan Chukaliev
Climate change: soil vulnerability assessments using soil organic matter decline and agriculture adaptation using irrigation
Invited lecture
- 11:45-12:15** Zdenko Lončarić
Impact of organo-mineral fertilization and manures on nutrient balance in crop production
Invited lecture
- 12:15-12:45** Discussion
- 13:00-15:00** Time for lunch
- 16:00-19:30** Poster section



WEDNESDAY, 14 September 2022

	Congress Hall Lobby
08:00	Registration of participants Congress Hall
09:00-10:30	Lectures
10:30-11:00	Coffee break
11:00-12:30	Lectures
12:30-15:00	Time for lunch
15:00-16:30	Lectures
16:30-17:00	Wine break
20:30	Gala dinner 'Quelle' Restaurant

THURSDAY, 15 September 2022

11:00	Departure for a trip to Donji Kraljevec to the 'Dr. Rudolf Steiner Center'
12:00-14:00	Tour of the 'Dr. Rudolf Steiner Center', biodynamic agriculture, Snacks & more
14:00	Departure to Mađerkin breg
15:00-18:30	Lunch and wine tasting
18:30	Departure of the bus to the hotel

FRIDAY, 16 September 2022

11:00	Departure
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MJESTO ODRŽAVANJA

CONGRESS VENUE

Hotel Terme Sveti Martin
Izvorska 3, Toplice Sveti Martin, 40313 Sveti Martin na Muri, Hrvatska

web: <https://www.termesvetimartin.com/hr/>



TUESDAY, 13 September 2022

Poster Session

Moderators: Lidija Galović, Mile Markoski, Nikola Major

Departure to the Poster section site will be at 16:00 h in front of the hotel. Bring comfortable shoes and clothes.

- 1. Helena Bakić Begić, Ivana Hrga, Filip Kranjčec, Marija Romić, Adela Krivohlavek, Mirela Jukić**
Urban soils' quality monitoring in Zagreb
- 2. Darija Bilandžija, Stella Arlović, Marija Galić, Josip Leto, Nikola Bilandžija**
Effect of ash application on some chemical soil properties under the energy crop *Miscanthus x giganteus*
- 3. Jasmina Defterdarović, Vedran Krevh, Luka Han, Lana Filipović, Vilim Filipović**
Determination of water flow on the arable hillslope soil using infiltration measurements and dye tracer
- 4. Boris Đurđević, Irena Jug, Bojana Brozović, Vesna Vukadinović, Danijel Jug**
How soil tillage effects the soil organic matter status in soil?
- 5. Adrijana Filipović, Ana Mandić, Alisa Hadžiabulić, Antonio Stipanović, Helena Brekalo**
Efficiency of organic waste recycling through vermicomposting process
- 6. Marija Galić, Tomislava Hodalić, Mateja Kolman, Željka Zgorelec**
Measurement of carbon dioxide and nitrogen oxide emissions from triticale field in Croatia
- 7. Luka Han, Jasmina Defterdarović, Vedran Krevh, Vilim Filipović, Zoran Kovač, Lana Filipović**
Chemical quality of leachates from wick lysimeters installed at SUPREHILL hillslope observatory – first results
- 8. Stjepan Husnjak, Ivan Šimunić, Vladimir Kušan, Danijela Jungić**
Suitability of agricultural land for irrigation and crop water requirement in Medjmurje county
- 9. Dario Iljkić, Marko Lešić, Mirta Rastija, Miro Stošić, Ivana Varga**
The influence of basic tillage and top dressing on the tested properties of wheat
- 10. Vladimir Ivezić, Vladimir Zebec, Jurica Jović, Helena Žalac**
Application of wood chips in agriculture



- 11. Danijela Jungić, Stjepan Husnjak**
Humus composition of agricultural soils in Istria
- 12. Vedran Krevh, Lana Filipović, Zoran Kovač, Igor Bogunović, Ivan Mustać, Jasmina Defterdarović, Luka Han, Vilim Filipović**
Investigation of surface and subsurface water runoff on a hillslope vineyard using TDR and soil-water collection instruments
- 13. Antonija Kovačević, Anamarija Mađarević, Marijana Krišto**
Distribution of organic matter in the area of Brod-Posavina county
- 14. Zdenko Lončarić, Hrvoje Hefer, Milena Andrišić, Daniel Rašić, Ivana Zegnal, Domagoj Rastija**
Long-term changes of soil organic matter as a consequence of land use in Croatia
- 15. Zdenko Lončarić, Ana Šunić, Vladimir Zebec**
Crowd-sourced soil data in Croatia
- 16. Ivan Magdić, Stjepan Husnjak, Vilim Filipović**
Comparison of soil hydraulic parameters estimation methods and numerical simulation of water dynamics at the hillslope using HYDRUS-1D
- 17. Nikola Major, Igor Palčić, Marko Černe, Smiljana Goreta Ban, Igor Pasković, Josipa Perković, Zoran Užila, Adam Schikora, Jasper Schirstaedt, Dean Ban**
The impact of processed sewage sludge application on the Terra Rossa soil bacterial and fungal communities
- 18. Mile Markoski, Tatjana Mitkova, Vjekoslav Tanaskovik, Velibor Spalević**
Soil distribution in Pčinja River basin, North Macedonia and its importance for agricultural production
- 19. Franjo Nemet, Katarina Perić, Vladimir Zebec, Vladimir Ivezić, Jurica Jović, Darko Miklavčić, Zdenko Lončarić**
Biofortification of soybeans and sunflowers with zinc
- 20. Franjo Nemet, Katarina Perić, Domagoj Rastija, Tomislav Vinković, Miroslav Lisjak, Darko Kerovec, Zdenko Lončarić**
Agronomic biofortification of soybean and corn with selenium
- 21. Gabrijel Ondrašek, Davor Romić, Vjekoslav Tanaskovik, Radovan Savić, Santosha Rathod, Filip Kranjčec, Nada Maurović, Jelena Horvatinec, Zed Rengel**
Humic acid decreases Cd uptake in the absence of NaCl salinity, but combined application of humic acid and NaCl enhances Cd mobility & accumulation
- 22. Marko Petek, Helena Senko, Lucia Pole, Lidija Brkljačić, Nikolina Udiković-Kolić, Ivana Rajnović, Dunja Šamec, Armin Mešić, Goran Palijan, Ines Sviličić Petrić**
Nitrate dynamics in cabbage leaves during short floods due to climate change

- 23. Brigita Popović, Vladimir Ivezić, Helena Žalac, Vladimir Zebec, Goran Herman, Ante Bubalo**
Effects of intercropping systems on the status of humus in soil
- 24. Daniel Rašić, Hrvoje Hefer, Milena Andrišić, Domagoj Mikulić, Ivana Zegnal, Inge Lazar, Zdenko Lončarić**
Prediction of soil fertility parameters based on agrochemical analyzes of soil using GIS - techniques with validation of results in the field
- 25. Marko Reljić, Monika Zovko, Marina Bubalo Kovačić, Filip Kranjčec, Davor Romić**
Salt affected soils in Croatian coastal agricultural land under changing climate
- 26. Vedran Rubinić, Stjepan Husnjak, Danijela Jungić, Aleksandra Bensa, Toni Safner**
Use of local vs. universal linear regression models for the prediction of water retention in common soils of eastern Croatia
- 27. Marko Runjić, Branimir Urlić**
Organic matter content in vineyard and olive orchard soils of Dalmatia
- 28. Mihaela Šatvar Vrbančić, Željko Jukić, Marko Petek, Tomislav Karažija, Sanja Slunjski, Ivona Sigurnjak, Erik Meers, Lepomir Čoga**
Dynamics of nitrogen uptake and dry matter accumulation during maize (*Zea mays* L.) growth
- 29. Magdalena Tarnawczyk, Łukasz Uzarowicz, Wojciech Kwasowski**
Micromorphology of Technosols developed on historical mining and metallurgical sites in the Tatra Mts., southern Poland
- 30. Lovro Turkalj, Ivan Šimunić, Mario Sraka**
Influence of texture and soil depth on differential porosity
- 31. Antonio Viduka, Goran Fruk, Martina Skendrović Babojelić, Ana Marija Antolković, Rea Vrtodušić, Tomislav Karažija, Mihaela Šatvar Vrbančić, Zoran Grgić, Marko Petek**
Machine learning as a tool for non-destructive detection of nutrient deficiencies using RGB images
- 32. Elizaveta Watzlova, Pavel Čermák**
The influence of soil tillage and soil reaction (pH value) on soil structure and uptake of nutrient



Congress Hall, WEDNESDAY, 14 September 2022

Soil degradation and soil protection

Moderators: Ines Pohajda & Stanko Ružičić

9:00 – 9:10

Stanko Ružičić, Vedran Rubinić, Zoran Kovač

Sorption of potentially toxic metals in a gleysol profile at the Velika Gorica site (Zagreb, Croatia)

9:10 – 9:20

Željka Zgorelec, Radovan Abramović, Ivica Kisić, Marija Galić, Iva Hrelja, Nikica Šprem

Content and spatial variability of metals in the soil of the Luže shooting range

9:20 – 9:30

Ivan Perković, Josip Jurić, Nikola Pernar, Darko Bakšić, Vibor Roje

Influence of forest plantations on soil nutrients in the area of the Đurđevac sands

9:30 – 9:40

Aleksandra Perčin, Marija Fiolić, Tomislav Karažija, Željka Zgorelec, Ivana Šestak, Milan Mesić

Long-term effects of mineral nitrogen fertilization on the origin of total nitrogen in soil

9:40 – 9:50

Danijel Jug, Irena Jug, Boris Đurđević, Bojana Brozović, Vesna Vukadinović, Bojan Stipešević, Darko Kiš, Boris Antunović, Gabriella Kanižai-Šarić, Marija Ravlić, Larisa Bertić, Davorka Hackenberger Kutuzović, Olga Jovanović Glavaš, Branimir Hackenberger Kutuzović, Branka Šakić Bobić, Zoran Grgić, Ivka Kvaternjak, Andrija Špoljar, Iva Rojnica

Prevention and mitigation of soil degradation by Conservation Soil Tillage

9:50 – 10:00

Ines Pohajda, Andreja Steinberger, Tajana Radić

Soil protection possibilities with eco - schemes of the future Strategic Plan of the Common Agricultural Policy of the Republic of Croatia 2023 – 2027

10:00 – 10:10

Đurica Pardon

Biblical agrarianism. Responsible stewardship and contemporary soil degradation crisis

10:10 – 10:30

Discussion

10:30 – 11:00

Coffee Break



Congress Hall, WEDNESDAY, 14 September 2022

Carbon footprint and erosion effects on soil

Moderators: Željka Zgorelec & Darko Bakšić

11:00 – 11:10

Darko Bakšić, Emina Bajramspahić, Nikola Vrh, Ivan Perković, Nera Bakšić, Vibor Roje, Nikola Pernar

Carbon storage in forest floor and soil in forest plantations in the area of the Đurđevac sands

11:10 – 11:20

Pavel Čermák, Pavel Růžek, Martin Dědina, Petr Jevič, Tomáš Lošák

Effect of soil conditions on field emissions of cultivated crops (carbon footprint)

11:20 – 11:30

Lidia Oktaba, Jerzy Jonczak, Beata Rustowska, Edyta Pawłowicz, Marek Kondras, Bogusława Kruczkowska, Jarosław Oktaba, Aleksandra Chojnacka, Uszula Jankiewicz, Izabella Olejniczak, Edyta Regulska, Sandra Słowińska

The dynamics of dissolved organic carbon in arable and post-arable soils under birch trees (*Betula pendula* Roth)

11:30 – 11:40

Ivan Dugan, Ivan Magdic, Paulo Pereira, Igor Bogunovic

Different land use and seasonality impact on soil properties and soil erosion in maize field

11:40 – 11:50

Igor Bogunović, Ivan Dugan, Leon Josip Telak, Iva Hrelja, Aleksandra Perčin, Ivana Šestak, Paulo Pereira

Soil erosion and degradation in Croatia – SEDCRO

11:50 – 12:00

Lidija Galović, Nina Hećej, Stjepan Husnjak, Koen Beerten, Rosa Maria Poch, Ajka Šorša, Mihajlo Pandurov, Rodoljub Gajić, Petar Stejić, Stanko Ružičić

Soil erosions as indicator of abrupt climate changes during Quaternary

12:00 – 12:10

Iva Hrelja, Ivana Šestak, Paulo Pereira, Igor Bogunović

Changes in soil texture after wildfire: effect of severity, vegetation type and time-since-fire in Mediterranean environment

12:10 – 12:30

Discussion

12:30 – 15:00

Lunch



Congress Hall, WEDNESDAY, 14 September 2022

Fertilization and plant production

Moderators: Adrijana Filipović & Vladimir Ivezić

15:00 – 15:10

Lepomir Čoga, Sanja Slunjski, Željko Jukić, Marko Petek, Mihaela Šatvar Vrbančić, Ante Biško

Efficiency of digestate fertilization on the yield and mineral composition of **corn**

15:10 – 15:20

Ivica Kisić, Željka Zgorelec, Aleksandra Perčin, Ivan Dugan, Andrea Lovrinčić, Dalibor Jurina

Effects of green manure on physical and chemical characteristics of soil and maize yield

15:20 – 15:30

Tomáš Lošák, Pavel Čermák, Ladislav Ducsay, Ladislav Varga, Jakub Sitkey, Alena Andrejiová, Alžbeta Hegedüsová, Samuel Adamec

Enrichment of the soil with nutrients after application of digestate and straw in the cultivation of kohlrabi

15:30 – 15:40

Jerzy Jonczak, Lidia Oktaba, Aleksandra Chojnacka, Edyta Pawłowicz, Marek Kondras, Bogusława Kruczkowska, Jarosław Oktaba, Izabela Olejniczak, Sandra Słowińska, Edyta Regulska, Urszula Jankiewicz

Litterfall production and chemistry in a silver birch (*Betula pendula* Roth) stands on post-arable soils

15:40 – 15:50

Ante Biško, Lepomir Čoga, Sanja Slunjski, Vesna Jurkić, Mirjana Herak Ćustić, Marko Petek, Tomislav Karažija, Boris Lazarević, Mihaela Šatvar Vrbančić, Valerija Leto, Kristijan Konopka, Monika Šajatović, Antonio Viduka, Ivan Pavlović, Petar Pavlović, Milan Poljak

Analysis of implementing legislation that regulates activities related to plant nutrition

15:50 – 16:10

Discussion

16:15 – 16:45

Wine Break



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dr. Rudolfa Steinera



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