



**ISTRO CZ**  
Czech branch of ISTRO



**CROSTRO**  
Croatian branch of ISTRO



**HUISTRO**  
Hungarian branch of ISTRO

under the auspice of



and in cooperation with



## ORGANISE

2<sup>nd</sup> Central European ISTRO Conference (CESTRO)  
and  
8<sup>th</sup> International Conference of the Czech ISTRO branch

**Trends and challenges in soil-crop management**

**September, 6 – 8, 2022, Brno, Czech Republic**

## INVITATION

On behalf of the Organising Committee of the Czech branch of ISTRO (ISTRO CZ), the Croatian Soil Tillage Research Organisation (CROSTRO), and the Hungarian branch of ISTRO (HUISTRO), under the auspice of the International Soil Tillage Research Organisation (ISTRO) and other supporting institutions:

Mendel University in Brno, Faculty of AgriSciences (CZ)

University of J. J. Strossmayer, Faculty of Agrobiotechnical Sciences Osijek (CRO)

Research Institute for Fodder Crops, Ltd. Troubsko (CZ)

Crop Research Institute, Prague (CZ)

Research Institute for Soil and Water Conservation (CZ)

Czech Academy of Agricultural Sciences (CZ)

Czech Society of Soil Science (CZ)

Serbian Soil Tillage Research Organisation (SRB)

we are pleased to invite you to the International Scientific Conference that will take place in **Brno, Czech Republic, September, 6 – 8, 2022.**

For the second time since the association establishment of our national branches, the Czech Republic, Croatia, and Hungary are going to organise the 2<sup>nd</sup> Central European ISTRO Conference (CESTRO) as a joint scientific Conference. From this point of view, we have established a new platform, but on the other hand, we already have quite a long history because it is also the 8<sup>th</sup> International Conference of the Czech ISTRO branch.

The primary objective of the conference is the promotion, development and growth of interest and knowledge about soil-crop management, exchange of ideas about trends and challenges in modern agriculture. This conference, created for both the scientific community as well as experts coming from praxis, will cope with the main goals of ISTRO. The conference represents a unique opportunity for learning and exchanging opinions on different topics, which could be helpful in harmonising soil and plant health in agroecosystems all over the world.

Our conference is organised in Brno in 2022 when will be celebrating the 200<sup>th</sup> birthday of G. J. Mendel. A genius, a personality with ideas ahead of his time, and one of the most important scientists in history – this is Gregor Johann Mendel, who entered the history books by discovering the basic principles of heredity. Mendel, the father of modern genetics, is one of the most well-known figures to have lived and worked in Brno. Mendel was an absolutely exceptional, multidisciplinary renaissance personality with ideas ahead of his time.

*Vladimír Smutný, president of Czech branch of ISTRO*  
*Danijel Jug, president of Croatian branch of ISTRO*  
*Márta Birkás, president of Hungarian branch of ISTRO*

## ABOUT THE CONFERENCE

Soil is an ecosystem that can be managed to provide nutrients for plant growth, absorb and hold precipitation for use during periods of drought, filter and buffer potential pollutants from leaving our fields, serve as a firm foundation for agricultural activities, and provide a habitat for soil microbes to flourish and diversify to keep the ecosystem running smoothly. Healthy soil is the foundation for profitable, productive, and environmentally sound agricultural systems.

European farmers have to adapt to the changing climate which often implies changes in crop management practices and a diversification of income sources. Extreme weather and climate events (including droughts and heat waves) can greatly reduce the yield of some crops. The projected increase in the occurrence of such events is expected to increase the risk of crop losses, with consequent increases on food prices and reduction of food security. There are opportunities for implementing a wide variety of existing measures at the farm level that aim to improve the management of soils and water, which can provide benefits for adaptation, mitigation, as well as the environment and the economy.

## TOPICS/SESSIONS

### 1. Soil health assessment

The quality of soil is essential to efficient crop production and environmental health because it plays many key roles for the ecosystem. This session is based on an interdisciplinary approach involving soil scientists to characterize the dynamic and living soil–water–plant–atmosphere system. Essential soil properties include physical (i.e., texture, structure, available water holding capacity, water infiltration rate, bulk density, soil aggregate stability, effective rooting depth), chemical (i.e., pH, cation exchange capacity or CEC, nature of exchangeable cations, intensity and capacity of plant available nutrients, electrical conductance and the concentration of soluble salts), and biological (i.e., soil organic carbon concentration and stock, microbial biomass carbon, activity and species diversity of micro and macro flora and fauna).

### 2. Soil management

Soil management is an integral part of land management and focuses on differences in soil types and soil characteristics to define specific interventions that are aimed to enhance the soil quality and fertility. Specific soil management practices are needed to protect and conserve the soil's resources. Specific interventions also exist to enhance the carbon content in soils in order to mitigate climate change. Reversing the degradation of soil, water and biological resources and enhancing crop and livestock production through appropriate land use and soil management practices are essential components in achieving food and livelihood security. There are various farming system approaches which differ in productivity and environmental impacts. Conservation agriculture, as a perspective direction for the future, has three main practices: minimising soil disturbance, maintaining permanent soil coverage, and diversifying crops.

### 3. Sustainable crop production adopted to climate change

Sustainable crop production intensification is defined as the integration of biological and ecological processes into cropping, optimization of the use of non-renewable inputs and improvement of farmers' knowledge, faces particular threats from climate change. The implementation of climate-resilient crop production systems intersects with a range of interventions already being implemented in the crop production sub-sector towards the goal of healthy agro-ecological systems.

These include:

- Increasing genetic diversity at farm level to improve resilience. Farmers have long used local varieties that, although less productive, have good potential for adapting to changing climate conditions.
- Integrated pest management (IPM) is a farming system dealing with the effective protection against diseases, pests and weeds, which ensures a stable yield and production of quality agricultural products while emphasising the reduction of the impact of pesticides on human health and the environment. IPM includes preventive tools (crop rotation, soil tillage and seedbed preparation, nutrient management and fertilisation, choice of suitable varieties), monitoring and forecast of harmful organisms and direct methods (biological, mechanical and chemical) based on determination threshold levels that could cause economic damage.

### 4. Precision agriculture

Precision agriculture (PA) or precision farming, is a modern farming management concept using digital techniques to monitor and optimise agricultural production processes. Rather than applying the same amount of fertilisers over an entire agricultural field, PA will measure variations in conditions within a field and adapt its fertilising or harvesting strategy accordingly. PA methods promise to increase the quantity and quality of agricultural output while using less input (water, energy, fertilisers, pesticides, etc.). The aim is to save costs, reduce the environmental impact and produce more food that is better in quality.

## PRACTICAL INFORMATION

The official language of the Conference will be English (without translation).

The conference scientific programme will include oral and poster presentations on four conference topics.

## REGISTRATION

**Registration will be open from 1 April 2022.**

## REGISTRATION FEE (in Euros)

Conference participant			Accompanying person
ISTRO member	NON ISTRO member	Student	
300	350	150	150

**More information:** [www.istro.cz](http://www.istro.cz) or e-mail: [istro.czech@gmail.com](mailto:istro.czech@gmail.com)