



## REPORT

from

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

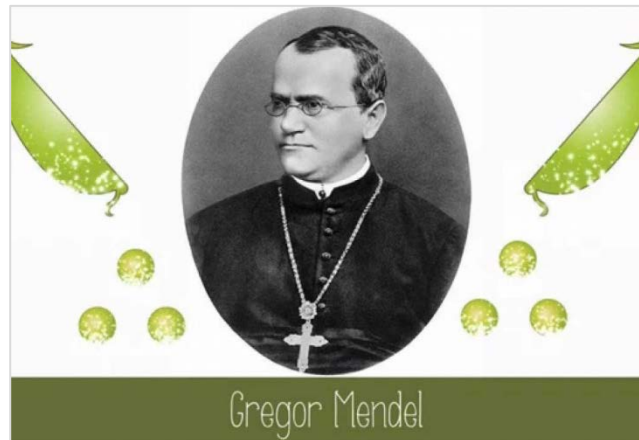
The International Conference held in Brno, Czech Republic, 6<sup>th</sup> – 8<sup>th</sup> September 2022 was a successful meeting with over 80 participants.

*“Scientific and warmly friendly” is the best description of the CESTRO Conference in Brno.*



The 2<sup>nd</sup> Central European ISTRO Conference (CESTRO) was organised as the second joint scientific Conference since the association of the national branches of the Czech Republic, Croatia, and Hungary was established. Simultaneously the event was the 8<sup>th</sup> International Conference of the [Czech ISTRO branch](#).

The Conference took place in Brno in 2022 when the 200<sup>th</sup> anniversary of the birth of Gregor Johann Mendel is commemorated. G. Mendel, the father of modern genetics, whose ideas about inheritance were far ahead of his time, is one of the most famous scientists who lived and worked in Brno.



The conference was attended by 86 participants from 14 countries. A rich scientific programme consisted of 28 lectures and 30 posters presented over two days. Poster presenters were given the opportunity to speak for 5 minutes about their posters. While this was challenging for some young presenters speaking outside their native language they all acquitted themselves well and their performances stimulated subsequent discussions.



The scientific contributions were divided into four sections:

1. Soil health assessment
2. Soil management
3. Sustainable crop production adapted to climate change
4. Precision agriculture

The oral and poster presentations were related to the soil erosion and degradation, soil water infiltration rate, soil aggregate stability, soil organic carbon concentration and stock, microbial activity etc. Specific soil management practices, especially the effect of conservation agriculture on soil quality under climate change were also introduced.

The section devoted to sustainable crop production covered the modern principles of sustainability including the cover crops. It was followed by precision farming based on mapping the spatial heterogeneity of arable fields from crop yield records and remotely sensed data. In future, tools based on digital technologies to monitor and optimise agricultural production processes can improve the crop production towards higher profitability and lower environmental impacts. Many researchers focused on an interdisciplinary approach involving different ways to characterise the dynamic and living soil–water–plant–atmosphere system.





The first day of the conference ended with a tour of the [Mendel University](#) campus. All participants enjoyed a pleasant evening stroll through the botanical garden and arboretum followed by the guided tour of FoodTech pavilion with experimental bakery, meat and dairy processing facility and craft beer brewery.



The networking and informal discussions continued during the Gala dinner in a friendly atmosphere with plenty of food, Moravian Folk music and a selection of Moravian wines. At the beginning of the Gala evening "The best three young scientists" with oral or poster presentation were awarded by the Scientific board. Education and support of the young generation is one of the most important things for a sustainable future.



The third day of the conference was dedicated to the field trip to a village of Hrubčice in Haná region. Haná region is situated on the wide flat plateau in the central part of Moravia. The growing conditions are superior due to deep fertile soil of Chernozem type, and moderate temperature and sum of precipitation.

The theme of the trip was “Conservation soil tillage workshop” and right in the field there was a practical demonstration of P&L tillage machines. [P&L company](#) sells various brands of agricultural equipment and develops machines in a cooperation with research institutes and universities. For example, the ECO-TILLER machine for strip tillage was developed for reduction of water erosion in wide-row crops, particularly in endangered areas. A prototype of a machine for inter-sowing cover crops in maize cultivation, which was also presented, resulted from the cooperation with Mendel University in Brno.





All machines were demonstrated in field and thus all participants had the opportunity to assess the quality of soil processing (intensity of loosening, clod crushing, depth of processing and quality of incorporation of crop residues).



There was also a discussion on intercropping, as two Czech seed companies, [SEED SERVICE](#) and [PRO SEEDS](#), presented their selected mixtures of intercrops. Intercrops have several agro-ecological functions with a positive effect on carbon sequestration and soil fertility and are an important part of conservation agriculture.





The participants themselves could check the soil quality in a pit which was established to demonstrate the depth of soil profile and presence of soil life.



The afternoon program included visit to the [Museum of historical carriages](#) in Čechy pod Kosířem, a village close to town Prostějov. The museum keeps a unique collection of dozens of carriages from different periods, most of them have been meticulously repaired and are operational. All participants admired the beauty of the carriages, horse harnesses and other equipment which show the craftsmanship of the Czech people. Moreover, the impressive commentary of the guide during the tour was an unforgettable experience for everybody. The tour day ended with a pleasant dinner in a restaurant on the outskirts of Brno.



The CESTRO conference had plentiful scientific and social programme. After COVID-19 pandemic, there was a chance to meet each other, and I am proud that Brno was the place of this friendly meeting organized by the Czech branch of ISTRO together with Croatian and Hungarian branches. During the conference these three branches agreed to accept Serbian branch (SRBSTRO) into the CESTRO network. From now there are four countries which will organise the next CESTRO meeting.

One of the outputs of the conference is the [Book of Abstracts](#), which summarizes the abstracts of all active participants. There is a number of interesting research results from different soil and climate conditions that can help adapt different management systems to the ongoing climate change. However, the step of transferring these results to agricultural practice is also important.





Based on the results from the topics presented during the conference we can conclude:

„European farmers must adapt to a changing climate, which often means changes in crop management practices and diversification of income sources. Extreme weather and climate events (including droughts and heat waves) can significantly reduce the yields of some crops. The projected increase in the frequency of such events is expected to increase the risk of crop losses, resulting in higher food prices and reduced food security. Likewise, the risk of more frequent intense rainfall increases erosion risks. Opportunities exist to implement a wide range of farm-level measures to improve soil and water management, bringing adaptation, mitigation and environmental and economic benefits. “



Finally, I would like to thank all participants for their interesting and inspiring presentations and fruitful debates. I was pleased to meet old friends again and also to make new friendship with others who attended the conference for the first time. I look forward to seeing all of them again sometime in future.

My sincere thanks go also to the members of the Organising committee for their efforts in organising this conference!

Brno, 15<sup>th</sup> September 2022

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on behalf of ISTRO CZ