

Cereal Breeding - Challenges and Opportunities for Global Improvement

Venue: Hunguest Hotel Forrás, Albert Szentgyörgyi Room, Szeged

PROGRAM*Opening Day, 15th May Monday*

12:00 – 14:00 REGISTRATION

14:00 OPENING CEREMONY, PLENARY SESSION

Session Chairs: Beata Tóth, Lajos Bona

Performance of **Mentés Másként Ensemble** - Ancient Hungarian Folk Music

- **Andreas Börner**, *President of EUCARPIA*
EUCARPIA – The European Association for Research on Plant Breeding
- **Beáta Tóth**, *Co-Chair of the Organizing Committee, Research Director of CR Ltd.*
Traditions and innovations at the 99 years old Cereal Research Non-profit Ltd.
- **Tamás Tarpataki**, *Deputy State Secretary, Ministry of Agriculture*
The importance of cereals and cereal research in the Hungarian agriculture
- **János Pauk**, *President of the Association of Hungarian Plant Breeders*
Anniversary and Moments: Introduction of the 50 years old Cereal Research Communications and the Association of Hungarian Plant Breeders

PRESS CONFERENCE and COFFEE BREAK

16:30 – 17:45 COST ASSEMBLY - Reducing acrylamide formation in cereal products

Chair: Navneet Kaur and Marianna Rakszegi

16:30-16:50 **Nigel Halford**, Naveet Kaur: Acrylamide in food: regulatory developments, progress in producing low acrylamide wheat, and the aims of the acryred cost action (ca21149)16:50-17:10 **Navneet Kaur**, Martin Urban, Kim E. Hammond-Kosack, Nigel G. Halford: Uncoupling the signalling network linking biotic stress and free asparagine accumulation in wheat and the aims of the acryred cost action (ca21149)

17:10-17:30 **Marianna Rakszegi**, Viktor Korzun, Nigel Halford: Does it make sense to breed low-asparagine cereals?

17:30-17:45 DISCUSSION, CONCLUSIONS OF THE ASSEMBLY OF REDUCING ACRYLAMIDE FORMATION IN CEREAL PRODUCTS

19:00-22:00 WELCOME RECEPTION

16th May Tuesday

09:00 – 12:40 SESSION 1 – Genetic resources and pre-breeding

Chair: Gyula Vida

09:00-09:40 **KEYNOTE Friedrich Longin**, Jochen C. Rief: How to design an efficient prebreeding program in wheat

9:40-10:10 **Magdalena Lunzer**, Maria Buerstmayr, Iris Fallbacher, Almuth E. Müllner, Heinrich Grausgruber, Hermann Buerstmayr: Identification of a major common bunt resistance QTL in mapping populations descending from PI-166910

10:10-10:30 Eszter Gaál, **István Molnár**, András Farkas, László Ivanizs, Balázs Kalapos, Edina Türkösi, Klaudia Kruppa, Éva Szakács, Mahmoud Said, Abraham Korol, Jaroslav Doležel, Miroslav Valárik: Characterization of *Aegilops biuncialis* introgressions in a wheat prebreeding population using DArTseq genotyping

10:30-10:50 **Galyna Chebotar**, Andreas Börner, Manuela Nagel: Genome-wide association study of viability in barley stored under ambient conditions

10:50-11:10 **Eva Johansson**, Lan Yuzhou, Mahboobeh Yazdani, Rimsha Ashraf, Olawale Olalekan, Ramune Kuktaite, Aakash Chawade, Elaine Ceresino, Mahbubjon Rahmatov: Diverse wheat lines as sources to breed for resistance and tolerance to emerging climate change related abiotic and biotic stresses

11:10 – 11:30 COFFEE BREAK

11:30-11:50 **Csaba Lantos**, Ferenc Békés, Katalin Ács, Bernadett Mihály-Langó, Róbert Mihály, László Cseuz, Mihály Jancsó, Árpád Székely, János Pauk: Development and Application of in vitro anther culture in cereal breeding of CR LTD.

11:50-12:10 **Matías Schierenbeck**, Ahmad M. Alqudah, Edit Lantos, Evangelina G. Avogadro, María Rosa Simón, Andreas Börner: Green Revolution dwarfing Rht genes affect floral traits related to cross pollination efficiency

12:10-12:30 **László Purnhauser**, Tungalag Munkhbat, Tar Melinda: Identification of stem, leaf and yellow rust resistance genes in Hungarian wheat cultivars

Flash presentations

12:30-12:35 **Ajit Nehe**, Aakash Chawade: Genome-wide association analyses identify key QTLs for seedling root system architectural traits in Nordic-adapted barley collection

12:35-12:40 Eszter Gaál, **Mahmoud Said**, Adoración Cabrera, Éva Szakács, András Farkas, László Ivanizs, Edina Türkösi, Takashi R. Endo, Jaroslav Doležel, István Molnár: Widening the gene pool of wheat by crested wheatgrass using the gametocidal system

E-posters

P-1 **Alena Hanzalová**, Vojtěch Holubec: Evaluation of the representatives of the genus *Aegilops* in the Czech Republic

P-2 **László Ivanizs**, András Farkas, Eszter Gaál, Edina Türkösi, Klaudia Kruppa, Éva Szakács, Luigi Cattivelli, Alessandro Tondelli, István Molnár: Detailed exploration of genetic diversity in *Aegilops Biuncialis* using DArTseq genotyping

P-3 **Andrea Horváthné Uhrin**, Gyula Vida, Mónika Károlyiné Cséplő, Péter Mikó: Testing *Triticum x dasypyrum villosum* hybrids using molecular markers

P-4 **Paulina Bolc**, Dorota Dziubińska: Phenotyping as part of the implementation of the AGENT project in the Polish gene bank

P-5 Anna Hawliczek, Fatemeh Shoormij, Hilderlith Awuor Abuya, David Chan Rodriguez, **Hanna Bolibok-Bragoszewska**: Sequence diversity of Candidate genes for Selection in rye (*Secale cereale* L.)

P-6 **Márton György**, Viola Tóth, Ottó Veisz, Péter Mikó, Marianna Rakszegi, Gyula Vida, Balázs Varga: New small grain cereals bred in Martonvásár widening the offered species assortment

P-7 **Alejandra Cabeza**, Beatriz Larruy, Vanesa Martínez-Agudo, Asunción Costar, Ana M. Casas, Ernesto Igartua: A QTL for dry matter partitioning found in seedlings of a local RIL population of barley

P-8 **Ana M. Casas**, Francesc Montardit-Tarda, Bruno Contreras-Moreira, Davide Guerra, Agostino Fricano, Alessandro Tondelli, Andrea Visioni, Ernesto Igartua: GENDIBAR: a collection of Mediterranean barley landraces for cereal adaptation studies

13:00 – 14:00 LUNCH

14:00 – 17:45 SESSION 2 – Grain yield and quality

Chair: Bernadett Mihály-Langó

14:00-14:40 **KEYNOTE Frank Bekes**: Present situation and future trends in quality related cereal chemistry and technology

14:40-15:00 **Mehmet Tekin**, Aytekin Aksoy, Taner Akar: Diversity trends of agronomic and quality traits in various old and modern wheat varieties cultivated under irrigated conditions of Türkiye

15:00-15:20 **Luca Bonfiglioli**, Ieva Urbanavičiūtė, Mario A. Pagnotta: Breeding durum wheat for organic farming

15:20-15:40 **Marianna Rakszegi**, Viola Tóth, Verica Takac, László Láng, Sanja Mikic, Milan Mirosavljevic, Lovro Sinkovič, Barbara Pipan, Sándor Tömösközi, Gyula Vida, Péter Mikó: Compositional and quality characterization of spelt wheat

15:40 – 16:10 COFFEE BREAK

16:10-16:30 **Lisa Call**, Stefano D'Amico, Heinrich Grausgruber: Neglected wheat as a source of low-ATI food products?

16:30-16:50 **Anna Nowicka**, Zuzana Pobořilová, Kateřina Navratilová, Martin Kovačik, Edina Türkösi, István Molnár, Aleš Pečinka: Parental-dosage-dependent effects on barley seed development

Flash presentations

16:50-16:55 **Lajos Bona**, Szandra Purgel, Róbert Mihály, Bernadett Mihály-Langó: Triticale grain quality traits: are there enough variation for selection?

16:55-17:00 **Salvatore Esposito**, Palombieri Samuela, Vitale Paolo, Taranto Francesca, Sestili Francesco, De Vita Pasquale: A new MYB gene in durum wheat genome as candidate for Pp-B1

17:00-17:05 **Zaiga Jansone**, Māra Bleidere, Andris Lapāns, Vija Strazdiņa, Valentina Fetere, Ligita Šalkovska: Relationship between grain yield and spectral reflectance indices in spring wheat at various growth stages

17:05-17:10 **Katalin Acs**, Csaba Lantos, Annamaria Polgar, Bernadett Mihaly-Lango, Ferenc Bekes, Janos Pauk: Developing spelt genotypes for functional dietetic usage: a possible solution for FODMAP problem

17:10-17:15 **Jolanta Groszyk**, Mateusz Przyborowski, Marta Puchta-Jasińska, Paulina Bolc: Project R-GRAIN - identification of the molecular traits determining the rye yielding and identification of effective molecular markers

17:15-17:20 **Olawale Olalekan**, Mahbubjon Rahmatov, Elaine Ceresino, Eva Johansson: Genetic diversity in old and alien wheat genotypes for nutritionally important traits

17:20-17:25 **Mahboobeh Yazdani**, Mahbubjon Rahmatov, Eva Johansson: Protein quality in 2BS.2BL-2RL wheat-rye translocation lines with resistance to novel stem rust races

E-posters

P-9 **Stanislav Ježek**, Pavel Horčíčka, Ondřej Veškrna, Ema Holavová, Irena Bížová: Baking quality of wheat varieties in the Ecobreed project

17:25-17:45 SUMMARY, CONCLUSIONS OF THE SESSIONS OF THE DAY - Session Chairs and Keynotes

17th May, Wednesday

09:00 – 11:20 SESSION 3 – Biotic stress response

Chair: Peter Mikó

09:00-09:40 **KEYNOTE Akos Mesterhazy**: How to supply 11 billion people with food? Reduction of losses in the cereal production chain, where are the hot spots and what can be done?

9:40-10:00 **Jonas Anderegg**, Radek Zenkl, Achim Walter, Andreas Hund, Bruce A. McDonald: Separating disease and senescence in wheat canopies using deep learning and dynamic modelling

10:00-10:20 **Diminika Piaskowska**, Urszula Piechota, Magdalena Radecka-Janusik, Piotr Słowacki, Paweł Czembor: Efficiency of the molecular markers linked to the STB resistance loci in wheat

10:20-10:40 **Attila Berényi**, Balázs Szabó, Tamás Meszlényi, Csaba Vágvölgyi, Beáta Tóth: Fungal infection and toxin contamination of small grain cereals in Hungary

10:40-11:00 **Renata Orłowska**, Janusz Zimny, Jacek Zebrowski, Piotr Androsiuk, Piotr T. Bednarek: Metabolomic changes as one of the underappreciated sources of tissue culture-induced variation in triticale

Flash presentations

11:00-11:05 **Klára Mészáros**, Jeny Jose, Antónia Szakács, Viola Kunos, Mónika Cséplő, Judit Bányai, Magda Pál, József Bakonyi, Csaba Éva: The role of ORA59 transcription factor in the hormone-mediated defence mechanism during *Pyrenophora teres* f. *teres* infection in barley

11:05-11:10 **Agnieszka Niedziela**, Krystyna Rybka, Dariusz Mańkowski, Rafał Marcinkowski, Przemysław Matysik: Selection of winter wheat forms with increased tolerance to periodic water shortages

11:10-11:15 **Dániel Nagy**, János Pauk, Judit Óvári, László Cseuz: Reactions of Szeged Wheat Varieties to Drought Stress

11:15-11:20 **Piotr Słowacki**, Urszula Piechota, Magdalena Radecka-Janusik, Dominika Piaskowska, Paweł Czembor: Assessing stripe rust (*Puccinia striiformis* f. sp. *tritici*) population structure using molecular methods

E-posters

P-10 **Valentina Spanic**, Ana Vukovic, Monika Cseplo, Rosemary Vukovic, Katalin Puskas, Thomas Roitsch: Physiological changes as early response in infected winter wheat (*Triticum aestivum* L.) seedlings with leaf rust

P-11 **Mateusz Matuszkiewicz**, Świącicka M, Szewińska J, Wakuliński W, Rakoczy-Trojanowska M: Does ScLr67APR gene confers seedling stage resistance of rye to leaf rust?

P-12 Anett Klaudia Kovács, Eszter Csepregi-Heilmann, Ágnes Áldott-Sipos, Katalin Körösi, Tamás Spitkó, Magda Pál, Csaba Szóke: Changes in polyamine concentration in maize seedlings due to *Fusarium* infection

P-13 Mateusz Przyborowski, Joanna Chojak-Koźniewska, Sebastian Gasparis, Anna Nadolska-Orczyk: The effect of long-term medium drought on the development of wheat (*Triticum aestivum* L.) grains

P-14 Iryna Zambriborshch, Shestopal O.L., Traskovetskaya V.A., Vasiliev O.A., Babayants L.T.: Obtaining dihaploid lines of soft winter wheat with complex resistance to rust and common bunt by anther culture *in vitro*

P-15 Lidiya Mishchenko, Rahmatov M., Mishchenko I., Molodchenkova O., Motsnyi I., Dunich A., Dashchenko A.: Increasing of wheat resiliency to viral and fungal diseases under climate change conditions

P-16 Ivan Motsnyi, Rahmatov M., Sokolov V., Molodchenkova O.O., Lytvynenko M., Mishchenko L., Fait V., Halaiev O., Zambriborshch I., Fanin Ya.S.: An evaluation of disease resistance, drought tolerance, and agronomic traits in winter wheat introgression lines

P-17 Saulyak N. I., Oleksii Vasiliev, Traskovetska V. A., Saulyak N. I., Rudenko V. A., Bushulyan M. A.: Genetic basis of resistance of winter wheat to major foliar diseases

P-18 Yevhenii Kirchuk, Aliksieienko Ye.V.: Efficiency of different genetic systems of resistance to leaf rust in the steppe zone of Ukraine

11:20 – 12:00 CEREALS SECTION ASSEMBLY – Chaired by Andreas Börner

12:00 – 13:15 LUNCH

13:15 – 17:00 SESSION 4 – Environmental adaptation, crop management

Chair: Borislav Kobiljski

13:15-13:55 KEYNOTE Geert Haesaert, Veerle Derycke, Szanne Degraeve, Sofie Landschoot, Riccardo Zustovi, Anneleen De Zutter, Kevin Dewitte: Breeding triticale for more sustainability in our cropping systems

13:55-14:15 Lukas Roth, Achim Walter: Using field-based phenotyping to explore the temperature responses of growth: From overgeneralising to overfitting of domain knowledge in crop models?

14:15-14:35 **Lucas Kronenberg**, Oscar E. Gonzalez-Navarro, Michelle Leverington, Sarah Collier, Luzie U. Wingen, Simon Griffiths: Dissection of phenology and its effects on yield in a Buster-charger mapping population in the field

14:35-14:55 **Mesut Keser**, Umran Küçüközdemir, Beyhan Akın, Fatih Özdemir: The effect of Vernalization genes on cold tolerance in diverse wheat germplasm

14:55-15:15 **Flavian Tschurr**, Norbert Kirchgessner, Andreas Hund, Lukas Kronenberg, Jonas Anderegg, Achim Walter, Lukas Roth: Frost damage index: The antipode of growing degree days

15:15– 15:45 COFFEE BREAK

15:45-16:05 **Tesfaye Walle Mekonnen**, Angeline van Biljon, Maryke Labuschagne: The impact of different planting dates on protein quality and quantity and grain yield of maize

16:05-16:25 **Péter Borbély**, Zahra Tahmasebi, Tamás Pálmai, Mohamed Ahres, Orsolya Kinga Gondor, Gábor Galiba: Far-red and blue light Enrichment differentially influence the metabolism and frost tolerance of barley

Flash presentations

16:25-16:30 **Aziza Zerrouk**, Ana M. Casas, Ernesto Igartua: Effects of PPDH1 and VRNH2 on yield and development of spring barley

16:30-16:35 Beáta Strejčková, Kateřina Kaduchová, Radim Čegan, Romana Nesnadná, Aleš Pečinka, Jan Bartoš, **Jan Šafář**: Structural variability and function of *VERNALIZATION1* in cereals

16:35-16:40 **Māra Bleidere**, Zaiga Jansone, Andris Lapāns, Vija Strazdiņa, Valentīna Fetere, Ligita Šalkovska: Results of UAV-based phenotyping for spring wheat genotypes across contrasting growing conditions

E-posters

P-19 **Ondřej Veškrna**, Stanislav Ježek, Pavel Horčíčka, Jan Humplík: Evaluation of frost resistance using image analysis

P-20 Asmaa A. M. Ahmed, Mona F. A. Dawood, Ameer Elfarash, Elsayed A. Mohamed, Mohamed Y. Hussein, **Andreas Börner**, and Ahmed Sallam: Genetic variation in important physiological responses and their effects to alleviate drought stress in wheat seedlings

P-21 **Mónika Cséplő**, Katalin Puskás, Gyula Vida, Judit Bányai, Klára Mészáros, Andrea Uhrin, Viola Tóth, Heinrich Grausgruber, Luca Bonfiglioli, Mario Augusto Pagnotta, Péter Mikó: Results of multi-year durum wheat variety test carried out in different management systems

P-22 **Yaroslav Fanin**, Molodchenkova O.O., Lytvynenko M.A.: Influence of genotypes on nitrogen accumulation and reutilization in winter bread wheat

P-23 **Martyna Bodzak**, Michał Kempa, Krzysztof Mikołajczak, Piotr Ogrodowicz, Monika Mokrzycka, Paweł Krajewski, Anetta Kuczyńska: Effect of melatonin on hormonal regulation in barley root under drought stress

P-24 **Gallia Butnaru**, Ioan Sarac, Dorin Tarziu: Adaptation of local and foreign einkorn genotypes on chernozem, solonetz and luvisoil from Banat County

16:40-17:00 SUMMARY, CONCLUSIONS OF THE SESSIONS OF THE DAY -
Session Chairs and Keynotes

19:00-20:00 EVENING ORGAN CONCERT

St. Elizabeth Church, Torontál Square, Szeged, Artist: Levente Kuzma

18th May, Thursday

09:00 – 11:40 SESSION 5 – Molecular approaches, bioinformatics and genomic selection
Chair: Janos Pauk

09:00-09:40 KEYNOTE **Luigi Cattivelli**: Advanced genomic tools for leveraging durum wheat diversity

9:40-10:00 **Hermann Gregor Dallinger**, Franziska Löschenberger, Naim Azrak, Christian Ametz, Sebastian Michel, Hermann Bürstmayr: Genome-wide association mapping for pre-harvest sprouting in European winter wheat

10:00-10:20 **Mohammed Ali**, Dávid Polgári, Adél Sepsi, Levente Kontra, Ágnes Dalmadi, Zoltán Havelda, László Sági, András Kis: Rapid and cost-effective karyotyping in wheat x barley hybrids by chromosome-specific multiplex PCR

10:20-10:40 **Olivia Zumsteg**, Flavian Tschurr, Steven Yates, Dario Fossati, Flavio Foiada, Lukas Roth, Andreas Hund: Genomic Prediction of traits related to phenology and temperature-response during stem elongation of wheat

10:40-11:00 **Maciej Majka**, Eva Janáková, Irena Jakobson, Kadri Järve, Petr Cápál, Zuzana Korchanová, Adam Lampar, Jakub Juračka, Miroslav Valárik: The chromatin determinants and Ph1 gene effect at wheat sites with contrasting recombination frequency

11:00-11:20 **Johanna Åstrand**, Sylvain Poque, Kristiina Himanen, Aakash Chawade: Evaluating drought tolerance in spring barley by high throughput phenotyping and genome-wide association analysis

Flash presentations

11:20-11:25 **Admas Alemu**, Lorena Batista, Pawan K. Singh, Alf Ceplitis, Aakash Chawade: Haplotype-based genomic prediction for Fusarium head blight resistance and yield-related traits in wheat

11:25-11:30 **Guoliang Li**, Yusheng Zhao, Albert Wilhelm Schulthess, Jochen C. Reif, Yong Jiang: An efficient algorithm for mapping heterotic quantitative trait loci with whole genome sequencing data

11:30-11:35 **Salvatore Esposito**, Vitale P, Taranto F, Saia S, Pecorella I, D'Agostino N, Rodriguez M, Natoli V, De Vita P: Simultaneous improving of durum wheat yield and grain protein content by using association tests and weighted GBLUP

11:35-11:40 **David Chan-Rodriguez**, Aleksandra Paradowska, Magdalena Świącicka, Brian Wakimwayi Koboyi, Anna Hawliczek¹, Leszek Bolibok, Maksymilian Królik, Hilderlith Abuya, Hanna Bolibok-Braęoszewska: Identification and expression profiling of rye phosphorus-homeostasis-related genes

E-posters

P-25 **Ádám Horváth**, Tibor Kiss, András Cseh, Ádám Horváth, Zita Berki, Krisztina Balla, Ildikó Karsai: Daily expression patterns of major plant developmental genes in hexaploid wheat under inductive conditions of plant growth

P-26 **Péter Kovács**, András Farkas, Eszter Gaál, László Ivanizs, Kitti Szóke-Pázsai, Edina Türkösi, Klaudia Kruppa, Éva Szakács, István Molnár: Gene introgressions into wheat from *Aegilops comosa* and *Aegilops umbellulata*

P-27 **Rumana Azad**, Bartosz Biernacik, Mateusz Olechowski, Alperen Ozturk, Monika Rakoczy-Trojanowska: Expression of R-genes in response to brown rust caused by Prs strains in rye (*Secale cereale* L.) inbred lines through RT-qPCR

P-28 **Tibor Kiss**, Adam D. Horváth, András Cseh, Adam Horváth, Zita Berki, Krisztina Balla, Ildikó Karsai: Interactions of major flowering pathway genes in hexaploid wheat under inductive conditions of flowering

P-29 **Marta Puchta-Jasińska**: Profiling of sRNA expression in germinating barley seeds maintained in long-term storage

P-30 **Magdalena Święcicka**, Gniazdowska D, Rakoczy-Trojanowska M: RT-qPCR verification of gene expression in rye upon leaf rust infection

P-31 **Oleksii Halaiev**, Halaieva M., Rahmatov M.: Identification and distribution of Ne1 and Ne2 hybrid necrosis gene alleles in Ukrainian bread wheat varieties

P-32 **Sabina V. Chebotar**, Toporash M.K., Motsnyi I.I., Blagodarova O.M.: Analysis with molecular markers wheat lines with novel types of translocations 1RS.1BL at the prebreeding stage

P-33 Popovych Yu. A., Blagodarova O. M., **Sabina V. Chebotar**: Correspondence between alleles of *Gli-1* loci and the allelic variants of gliadins of *Triticum aestivum* L.

12:00 – 13:00 LUNCH

13:00 – 17:00 SESSION 6 – Future challenges and innovations

Chair: Andreas Börner

13:00-13:40 KEYNOTE **Viktor Korzun**: Bridging Research and Plant Breeding for a Sustainable Agriculture: current achievements and future challenges in cereals

13:40-14:00 **Sebastian Michel**, Franziska Löschenberger, Christian Ametz, Herbert Bistrich, Hermann Bürstmayr: Can we teach A.I. to select like a plant breeder?

14:00-14:20 **Heinrich Grausgruber**, Nadine Bauer, Daniel Cristina, Matilda Ciucă, Pavol Hauptvogel, Bojan Jocković, Cristina-Mihaela Marinciu, Marianna Mayer, Péter Mikó, Primoz

Titan, Ondrej Veskrna: Breeding wheat for organic farming – lessons learnt from the ECOBREED project

14:20-14:40 **Szilvia Bencze**, Ferenc Bakos, Péter Mikó, Mihály Földi, Magdaléna Lacko-Bartošová, Nuri Nurlaila Setiawan, Dóra Drexler: Emmer and einkorn reloaded – the pesticide-free crop alternatives

14:40 – 15:00 COFFEE BREAK

15:00-15:20 **Jana Palicova**, Jana Chrpova, Anna Tobolkova, Jaroslava Ovesna, Milena Stranska: Effect of Pulsed electric field on viability of fusarium micromycetes

15:20-15:40 **Borislav Kobiljski**, Gojko Mladenović, Zorica Jestrović, Katarina Kobiljski: Novel wheat breeding approach to counter the climate challenges and biodiversity loss

Flash presentations

15:40-15:45 **Péter Mikó**, Mihály Földi, Mária Megyeri, Vida Gyula, Dóra Drexler: The Hungarian participatory organic wheat breeding program

15:45-15:50 **Maja Boczkowska**: Science beyond jars

15:50-15:55 **Fabio Fania**, Patrizio Spadanuda, Ivano Pecorella, Nicola Pecchioni, Pasquale De Vita: Field-based canopy height estimation using UAV images improves

15:55-16:00 **Mustafa Zakieh**, David S. Gaikpa, Fernanda Leiva Sandoval, Marwan Alamrani, Tina Henriksson, Firuz Odilbekov, Aakash Chawade: Accelerated growth conditions for advancing winter wheat resistance breeding against fusarium head blight

16:00-16:05 **Zsuzsanna Farkas**, Ottó Veisz, Balázs Varga: Can the rising atmospheric CO₂ concentration mitigate the severe drought damages?

E-posters

P-34 **Vishnukiran Thuraga**, Beáta Strejčková, Ajit Nehe, Linda Öhlund, Aakash Chawade: Phenotrolley: Affordable phenotyping system for controlled growth conditions

P-35 Judit Bányai, György Balassa, Richárd Turbéli, József Bakonyi, Mónika Cséplő, Klára Mészáros, Ottó Veisz, Péter Mikó: Application of drone-based-high-throughput-phenotyping system in cereal breeding

P-36 Michał Kempa, Martyna Bodzak, Krzysztof Mikołajczak, Piotr Ogradowicz, Anetta Kuczyńska: High-throughput automatic phenotyping of barley under drought stress

P-37 Krzysztof Michalski, Sławomir Sowa: Cas9-expressing Cell suspensions for grna evaluation: optimization of construct delivery via electroporation

16:10-17:00 SUMMARY, CONCLUSIONS OF THE SESSIONS OF THE DAY - Session Chairs and Keynotes

CLOSING REMARKS OF SCIENTIFIC PARTS - Andreas Börner

19:00 GALA - DINNER & DANCE-HOUSE - Traditional Hungarian Round Dance
Fortress Museum and Stone Collection, Stefánia Street 2. (Downtown)

19th May, Friday

09:30 EXCURSION: FIELD EXPERIMENTS

Buses start from the Hotel Forrás at 9.30 a.m., lead by Lajos Bona and Laszlo Cseuz

Lunch at the Hódagro Farm

20th May, Saturday

09:30 SATELLITE EXCURSION TO GODOLLO

Bus starts from the Hotel Forrás at 9.30 a.m., lead by Janos Pauk

Lunch in Gödöllő