



Maize Research Institute
ZEMUN POLJE
Serbia, Belgrade



International Conference

The Frontiers of Science and Technology in Crop Breeding and Production Conference

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8 – 9 June, 2021
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BOOK OF ABSTRACTS

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Breeding and Production

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Conference Programme

June 8, 2021

9:00 - 9:20	<i>Dr. Nenad Delić</i> Conference opening remarks
Genetic resources and pre-breeding	
9:20 - 9:40	<i>Dr. Alain Charcosset</i> Advances in maize genetic resources characterisation and use
9:40 - 9:55	<i>Dr. Vlatko Galić</i> Diversity patterns and selective sweeps in Southeast European maize genetic resources
9:55 - 10:10	<i>Dr. Natalija Kravić</i> Pre-breeding activities on MRIZP Gene bank collection towards its more efficient use in breeding programmes
10:10 - 10:25	<i>Dr. Nikola Grčić</i> Historical development and diversity characterization of ZP breeding germplasm
10:25 - 10:40	<i>Dr. Vesna Perić</i> Genetic diversity of soybean accessions in Maize Research Institute „Zemun Polje“ collection
Discussion	
Abiotic and biotic stress	
11:30 - 11:50	<i>Dr. Pedro Revilla</i> Breeding Mediterranean maize for drought tolerance
11:50 - 12:10	<i>Dr. Dragan Perović</i> Comparative genomics of cereals as backbone of molecular breeding to biotic and abiotic stresses in wheat and barley
12:10 - 12:25	<i>Dr. Ana Nikolić</i> Understanding low- temperature and waterlogging stress impact on early stages of maize plant development
12:25 - 12:45	<i>Dr. Antonio Logrieco</i> Mycotoxin management along food/feed chain: <i>MycoKey actions</i>
12:45 - 13:00	<i>Dr. Milica Nikolić</i> Effects of climate changes on mycopopulations in

13:00 - 13:15	cereal grain in Serbia <i>Dr. Željko Popović</i> Not just a pest: <i>Ostrinia nubilalis</i> – A Model system for studying ecophysiology of insect diapause
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Discussion

Genetics and breeding

16:00 - 16:20	<i>Dr. Paul Scott</i> Using gametophytic incompatibility systems to improve genetic purity of specialty crops
16:20 - 16:40	<i>Dr. Thanda Dhliwayo</i> Use of temperate germplasm in a tropical maize breeding program: Rationale and some results
16:40 – 17:00	<i>Prof. Dr. Thomas Lübberstedt</i> Past, present and future of maize doubled haploid technology
17:00 – 17:20	<i>Prof. Dr. Seth Murray</i> Unoccupied aerial systems temporal phenotyping and phenomic selection for maize breeding and genetics
17:20 - 17:40	<i>Dr. Radomir Stojšin</i> Breeding for Short Stature Maize

Discussion

June 9, 2021

Genetics and breeding

9:00 - 9:20	<i>Dr. Lee Hickey</i> Speed breeding crops to feed 10 billion
9:20 - 9:35	<i>Dr. Primož Titan</i> Conditional chemical male sterility system and common wheat (<i>Triticum aestivum</i> L.)
9:35 - 9:50	<i>Dr. Vesna Kandić</i> Evaluation of bread wheat genotypes (<i>Triticum aestivum</i> L.) for root architecture and shoot traits
9:50 - 10:10	<i>Dr. Goran Drinić</i> Utilizing technological advances to improve and accelerate genetic gain
10:10 - 10:25	<i>Dr. Sofija Božinović</i> Optimization of the double haploid technology for temperate maize breeding programs: A case study from Maize Research Institute Zemun Polje
10:25 - 10:45	<i>Prof. Dr. Johann Vollmann</i>

Hyperspectral reflectance as a new phenotyping tool for soybean breeding

Discussion

Food, feed and nutrition

- | | |
|---------------|--|
| 12:00 - 12:15 | <i>Dr. Valentina Nikolić</i>
Crop that feeds the world: Maize as an environmentally significant source of food, feed & energy |
| 12:15 - 12:30 | <i>Dr. Marija Kostadinović</i>
Adapted quality protein maize for broiler feeds |

Discussion

Seed science

- | | |
|---------------|---|
| 12:40 - 13:00 | <i>Dr. Florina Palada</i>
From seed science to rules for testing, the role of ISTA |
| 13:00 - 13:15 | <i>Dr. Tanja Petrović</i>
High quality seed as the ultimate goal |
| 13:15 - 13:30 | <i>Dr. Viktoriia Semenova</i>
Breeding and seed production of hybrid corn for soil and climatic conditions of Eastern Europe and Central Asia in company Mais, Dnipro, Ukraine |

Discussion

Crop production

- | | |
|---------------|--|
| 16:00 - 16:20 | <i>Prof. Dr. Josef Soukup</i>
Recent developments in herbicide resistance in crop rotation with cereals |
| 16:20 - 16:35 | <i>Dr. Milena Simić</i>
IWMS in maize weed control- The role of crop rotation and herbicides |
| 16:35 - 16:50 | <i>Dr. Vesna Dragičević</i>
Production of maize grain enriched with mineral nutrients in monoculture |
| 16:50- 17:10 | <i>Dr. Duška Stojšin</i>
Historic Perspective of Maize and Soybean Production in the USA |

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01 - 10 Poster

**CORRELATIONS OF HEADING TIME, CHLOROPHYLL
CONTENT AND GRAIN YIELD IN A WHEAT COLLECTION**

Verica Takač*, Sanja Mikić, Milan Mirosavljević, Dragana Trkulja, Ljiljana Brbaklić, Ankica Kondić Špika

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Heading time significantly contributes to wheat adaptability and yield allowing drought escape during the critical developmental stages. Besides, chlorophyll content has been used to assess the level of drought stress and to predict yield. Our aim was to determine correlations among heading time, chlorophyll content and grain yield of 100 wheat genotypes from Europe, Asia and America. A field trial was performed at the Institute of Field and Vegetable Crops, Serbia using a completely randomised block design with three replications during two seasons. The relative chlorophyll index (CCI) was measured with a portable chlorophyll metre. Days to heading were calculated from January 1 to the date when the first spikelet was visible on 50% of the ears. Grain yield was determined at maturity from 5 m² plots and calculated at 10% moisture. Significant positive correlation was determined between CCI and yield, while there was no significant correlation between yield and heading time. The analysis of variance showed that the earliest heading was among the Asian genotypes (130.2 days), while the varieties from the western-central Europe had latest heading (135.3 days). The highest CCI was determined for the western-central (34.0) and southern-eastern European genotypes (33.4), while the smallest CCI was observed in American varieties (31.2). The western-central and southern-eastern European groups had the highest yields, whereas the Asian and American groups had significantly smaller yields. The medium heading genotypes had on average the highest CCI and yield, showing adaptation to Serbian agro-ecological conditions.

Key words: *chlorophyll content, ear emergence, grain yield, wheat.*

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