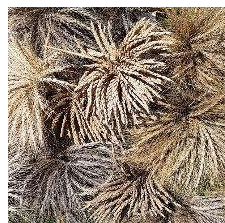


Maize Research Institute
ZEMUN POLJE
Serbia, Belgrade



International Conference

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



8 – 9 June, 2021
Belgrade, Serbia

BOOK OF ABSTRACTS

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Conference Programme

June 8, 2021

9:00 - 9:20 *Dr. Nenad Delić*
Conference opening remarks

Genetic resources and pre-breeding

9:20 - 9:40 *Dr. Alain Charcosset*
Advances in maize genetic resources
characterisation and use

9:40 - 9:55 *Dr. Vlatko Galić*
Diversity patterns and selective sweeps in Southeast
European maize genetic resources

9:55 - 10:10 *Dr. Natalija Kravić*
Pre-breeding activities on MRIZP Gene bank
collection towards its more efficient use in breeding
programmes

10:10 - 10:25 *Dr. Nikola Grčić*
Historical development and diversity
characterization of ZP breeding germplasm

10:25 - 10:40 *Dr. Vesna Perić*
Genetic diversity of soybean accessions in Maize
Research Institute „Zemun Polje“ collection

Discussion

Abiotic and biotic stress

11:30 - 11:50 *Dr. Pedro Revilla*
Breeding Mediterranean maize for drought
tolerance

11:50 - 12:10 *Dr. Dragan Perović*
Comparative genomics of cereals as backbone of
molecular breeding to biotic and abiotic stresses in
wheat and barley

12:10 - 12:25 *Dr. Ana Nikolić*
Understanding low- temperature and waterlogging
stress impact on early stages of maize plant
development

12:25 - 12:45 *Dr. Antonio Logrieco*
Mycotoxin management along food/feed chain:
MycoKey actions

12:45 - 13:00 *Dr. Milica Nikolić*
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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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 *Dr. Valentina Nikolić*
Crop that feeds the world: Maize as an environmentally significant source of food, feed & energy

12:15 - 12:30 *Dr. Marija Kostadinović*
Adapted quality protein maize for broiler feeds

Discussion

Seed science

12:40 - 13:00 *Dr. Florina Palada*
From seed science to rules for testing, the role of ISTA

13:00 - 13:15 *Dr. Tanja Petrović*
High quality seed as the ultimate goal

13:15 - 13:30 *Dr. Viktoriia Semenova*
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 *Prof. Dr. Josef Soukup*
Recent developments in herbicide resistance in crop rotation with cereals

16:20 - 16:35 *Dr. Milena Simić*
IWMS in maize weed control- The role of crop rotation and herbicides

16:35 - 16:50 *Dr. Vesna Dragičević*
Production of maize grain enriched with mineral nutrients in monoculture

16:50- 17:10 *Dr. Duška Stojšin*
Historic Perspective of Maize and Soybean Production in the USA

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02 - 04 Poster

CHANGES IN ALLELIC COMPOSITION AT THE HIGH MOLECULAR WEIGHT GLUTENIN SUBUNITS OF PANNONIAN WINTER WHEAT

Milan Mirosavljević*, Vojislava Momčilović, Verica Takač, Sanja Mikić,
Dragan Živančev

Institute of Field and Vegetable Crops, Maksima Gorkog 30, 21000 Novi Sad, Serbia

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The difference in the composition of the high molecular weight glutenin subunits (HMW-GS) is related to the changes in dough strength and bread wheat quality. Information about changes in the HMW-GS during the different breeding periods are valuable for adjustment of wheat quality breeding activities. Therefore, a historical set of previously and currently widely grown bread wheat cultivars was used in this study to determine HMW-GS subunits composition. Also, the standard system of designating glutenin loci, alleles and glutenin subunits was applied enabling further calculation of the HMW-GS Glu score. Results from this study showed that the composition of HMW-GS varied between wheat cultivars, period of cultivars release and country of origin. Considering *Glu-A1* locus, subunit 1 was registered in only three cultivars, while N and 2* subunits were the most frequent. After 1990, the frequency of N allele increased and was found in more than two-third of cultivars. Within the *Glu-B1* locus, 7+9 subunit was the most frequent in the studied set of winter wheat cultivars, following by 7+8, 7 and 20 subunits. At the *Glu-D1* locus, the 5+10 subunit was the most frequently observed in wheat cultivars, subunit 2+12 was found in 10 cultivars, while Apache was characterized by 3+12 subunit. Considering the improvement in the Glu score, there was no clear pattern of changes with year of cultivar release since cultivars with high and low score have been identified among old, medium and modern cultivars. In conclusion, the most frequently determined subunits in modern wheat cultivars, were N, 7+9 and 5+10 at *Glu-A1*, *Glu-B1* and *Glu-D1* locus, where 7+9 and 5+10 could be related with improved gluten quality and strength.

Key words: *breeding progress, glutenin, wheat.*



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