

XXVth EUCARPIA Maize and Sorghum Conference

*Current Challenges and New Methods for Maize and Sorghum
Breeding*

Book of Abstracts

May 30 – June 2, 2022.

Belgrade – Serbia



Organizers

EUCARPIA (European Association for Research on Plant Breeding)
Maize Research Institute Zemun Polje

Scientific Committee

Violeta Anđelković (Serbia), Alain Charcosset (France), Carlotta Balconi (Italy), Chris-Carolin Schön (Germany), Domagoj Šimić (Croatia), Pedro Revilla (Spain), Alain Murigneux (France), Silvio Salvi (Italy), Jean-François Rami (France)

Local Organising Committee

Jelena Srdić, Violeta Anđelković, Branka Kresović, Nenad Delić, Snežana Mladenović Drinić, Vesna Kandić, Marija Kostadinović, Milica Nikolić, Danijela Ristić, Iva Savić, Vesna Perić, Milan Brankov, Nikola Grčić, Jovan Pavlov, Milan Stevanović

Editors

Violeta Anđelković, Jelena Srdić, Milica Nikolić

Publisher

Maize Research Institute, Zemun Polje
Slobodana Bajića 1, 11185 Belgrade - Zemun, Serbia

Multiplied by

Maize Research Institute, Zemun Polje
Slobodana Bajića 1, 11185 Belgrade - Zemun, Serbia

Number of e-copies

150 USB flash drive

Online on the website <https://eucarpia maize sorghum 2022.com>

ISBN-978-86-80383-15-6

Financially supported by Ministry of Education, Science and Technological Development of the Republic of Serbia

CIP - Каталогizacija u publikaciji

Народна библиотека Србије, Београд

633.15/.17:631.527.53(048)(0.034.2)

EUCARPIA Maize and Sorghum Conference Current Challenges and New Methods for Maize and Sorghum Breeding (25 ; 2022 ; Beograd)

Book of abstracts [Електронски извор] / XXVth EUCARPIA Maize and Sorghum Conference Current Challenges and New Methods for Maize and Sorghum Breeding, May 30 – June 2, 2022. Belgrade – Serbia ; [organizers EUCARPIA (European Association for Research on Plant Breeding) [and] Maize Research Institute Zemun Polje] ; [editors Violeta Anđelković, Jelena Srdić, Milica Nikolić]. - Zemun Polje : Maize Research Institute, 2022 (Zemun Polje : Maize Research Institute). - 1 USB fleš memorija ; 4 x 2 x 1 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Tiraž 150. - Registri.

ISBN 978-86-80383-15-6

a) Кукуруз -- Оплењивање -- Апстракти б) Сирак -- Оплењивање -- Апстракти

COBISS.SR-ID 66525961

RECIPROCAL EFFECT ON GRAIN YIELD AND YIELD COMPONENTS IN SINGLE-CROSS MAIZE HYBRIDS

Olivera Đorđević Melnik^{1*}, Sofija Božinović¹, Tomislav Živanović², Marko Mladenović¹, Aleksandar Popović¹, Jelena Vančetović¹

¹Maize Research Institute Zemun Polje, Belgrade, Serbia

²University of Belgrade, Faculty of Agriculture, Zemun-Belgrade, Serbia

Reciprocal effect in maize refers to the phenotypic difference between reciprocal F1 hybrids. The aim of this study was to estimate influence of reciprocal crosses on grain yield and eight yield components. Five single-cross hybrids, their reciprocal crosses and six parental inbred lines were selected and all hybrids belong to late maturity group (FAO 500-600) with Lancaster ZPL-7 line as mutual parent. The experiment was set up in two replications using a completely-randomized block design in 2016 and 2017, at a total of seven environments. Reciprocal effect significantly influenced only grain yield and ear length, while factors hybrid and location were significant for all the examined traits. All hybrids individually displayed significant reciprocal effect for grain yield, ear length, number of kernels per row and 100 kernel weight, two hybrids for kernel length and thickness, while three hybrids showed reciprocal effect on kernel width. The effects were both positive and negative depending on the genotype itself. Furthermore, there were no significant differences for ear row number and ear width between normal and reciprocal variants. The highest difference for grain yield was between ZP 606 reciprocal (12.06 t/ha) and ZP 606 normal (11.28 t/ha). Pearson correlations were calculated between examined traits. All correlations between grain yield and other yield components were found significant and positive, except for the number of rows per ear (no correlation) and kernel width (negative correlation). Reciprocal effect has strong influence on the measured yield traits, but it is genotype specific. Therefore, in the future we should examine normal and reciprocal variants of all commercial maize hybrids.

Keywords: *grain yield, reciprocal effect, single cross, Zea mays L.*