

BOOK OF ABSTRACTS



*XIV International Scientific Agriculture Symposium
"Agrosym 2023"
Jahorina, October 05-08, 2023*



BOOK OF ABSTRACTS

**XIV International Scientific Agriculture Symposium
“AGROSYM 2023”**



Jahorina, October 05 - 08, 2023

Impressum

XIV International Scientific Agriculture Symposium „AGROSYM 2023“

Book of Abstracts Published by

University of East Sarajevo, Faculty of Agriculture, Republic of Srpska, Bosnia
University of Belgrade, Faculty of Agriculture, Serbia
Mediterranean Agronomic Institute of Bari (CIHEAM - IAMB) Italy

International Society of Environment and Rural Development, Japan
Balkan Environmental Association (B.EN.A), Greece
Centre for Development Research, University of Natural Resources and Life Sciences
(BOKU), Austria
Perm State Agro-Technological University, Russia
Voronezh State Agricultural University named after Peter The Great, Russia
Tokyo University of Agriculture
Shinshu University, Japan
Faculty of Agriculture, University of Western Macedonia, Greece
Enterprise Europe Network (EEN)
Faculty of Agriculture, University of Akdeniz - Antalya, Turkey
Selçuk University, Turkey

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Slovak University of Agriculture in Nitra, Slovakia
Ukrainian Institute for Plant Variety Examination, Kyiv, Ukraine
National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine
Valahia University of Targoviste, Romania
National Scientific Center „Institute of Agriculture of NAAS“, Kyiv, Ukraine
Saint Petersburg State Forest Technical University, Russia
University of Valencia, Spain
Faculty of Agriculture, Cairo University, Egypt
Tarbiat Modares University, Iran
Chapingo Autonomous University, Mexico

Department of Agricultural, Food and Environmental Sciences, University of Perugia, Italy
Higher Institute of Agronomy, Chott Mariem-Sousse, Tunisia
Watershed Management Society of Iran
Institute of Animal Science- Kostinbrod, Bulgaria
SEASN- South Eastern Advisory Service Network, Croatia
Faculty of Economics Brcko, University of East Sarajevo, Bosnia and Herzegovina
Biotechnical Faculty, University of Montenegro, Montenegro
Institute of Field and Vegetable Crops, Serbia
Institute of Lowland Forestry and Environment, Serbia
Institute for Science Application in Agriculture, Serbia
Agricultural Institute of Republic of Srpska - Banja Luka, Bosnia and Herzegovina
Maize Research Institute “Zemun Polje”, Serbia
Faculty of Agriculture, University of Novi Sad, Serbia
Institute for Animal Science, Ss. Cyril and Methodius University in Skopje, Macedonia
Academy of Engineering Sciences of Serbia, Serbia
Balkan Scientific Association of Agricultural Economics, Serbia
Institute of Agricultural Economics, Serbia

Editor in Chief

Dusan Kovacevic

Technical editors

Sinisa Berjan
Milan Jugovic
Rosanna Quagliariello

Website:

<http://agrosym.ues.rs.ba>

CIP - Каталогизација у публикацији
Народна и универзитетска библиотека
Републике Српске, Бања Лука

631(048.3)(0.034.4)

INTERNATIONAL Scientific Agricultural Symposium "Agrosym
2023" (14 ; Jahorina)

Book of Abstracts [Електронски извор] / XIV International
Scientific Agriculture Symposium "Agrosym 2023", Jahorina,
October 05 - 08, 2023 ; [editor in chief Dušan Kovačević]. - East
Sarajevo =Istočno Sarajevo : Faculty of Agriculture =Poljoprivredni
fakultet, 2023. - 1 електронски оптички диск (CD-ROM) : текст,
слика ; 12 cm

Системски захтеви: Нису наведени. - Насл. са насл. екрана. -
Регистар.

ISBN 978-99976-987-7-3

COBISS.RS-ID 139166465

TOTAL SUGAR CONTENT IN SOYBEAN GRAIN AND ITS RELATIONSHIP WITH PROTEIN, OIL AND FIBERS

Vesna PERIĆ*, Valentina NIKOLIĆ, Marijana SIMIĆ, Slađana ŽILIĆ, Marijenka TABAKOVIĆ, Danijela RISTIĆ, Marija KOSTADINOVIĆ

Maize Research Institute Zemun Polje, SlobodanaBajica 1, Belgrade, Serbia

*Corresponding author: vperic@mrizp.rs

Abstract

Soybean grain is one of the most important food and feed sources, containing approximately 40% protein, 20% oil, 35% carbohydrates and 5% minerals. The proportion of seed composition determines the uses of soybean. High-oil varieties are recommended for oil and soy-diesel industries, while food production usually requires lower oil, but higher protein and sugar contents. High level of sucrose, glucose, and fructose provides sweet taste and favourable flavour of soyproducts. The aim of the study was to evaluate 10 soybean genotypes (released cultivars and experimental lines) developed at the Maize Research Institute Zemun Polje by analysing their chemical composition and biochemical properties and determining the correlations between the observed parameters. The highest content of total fibre (NDF) was found in cultivar Lidija (22.75%), while the lowest was noted for line L193 (10.10%). Total proteins varied from 37.82% in variety Laura to 42.03% in cultivar Selena, while oil content reached values from 19.9% in L0161 to 22.05% in cultivar Laura. Total sugar content ranged from 6.48% in cultivar Laura to 11.52% in line L0161. Accordingly, the lowest (5.43%) and the highest (10.31%) sucrose content was observed for latter genotypes, confirming highly positive correlation between total sugar content and sucrose level (0.99). A negative correlation between total sugars and total fibre was observed (-0.37), as well as a negative correlation (-0.69) between total sugars and oil in soybean grain. Relationship between grain sugars and protein was extremely low (0.10), suggesting that improvement of sugars may not necessarily affect protein. A line L0161 was identified as a unique germplasm line with favourable seed composition, containing the highest level of sucrose and total sugar, minimum oil and above average protein content (39.87%).

Keywords: *soybean, biochemical properties, correlations.*

STABILITY OF GRAIN YIELD AND OIL CONTENT IN EARLY MATURING SOYBEAN VARIETIES

Vesna PERIĆ*, Marijana SIMIĆ, Valentina NIKOLIĆ, Marijenka TABAKOVIĆ, Danijela RISTIĆ, Marija KOSTADINOVIĆ, Snežana MLADENOVIĆ DRINIĆ

Maize Research Institute Zemun Polje, SlobodanaBajica 1, Belgrade, Serbia

*Corresponding author: vperic@mrizp.rs

Abstract

The aim of this study was to examine the magnitude of genotype \times environment ($G \times E$) interaction for the grain yield and grain oil content in soybean genotypes from the collection of Maize Research Institute Zemun Polje and to identify stable sources for breeding for these traits. Fourteen soybean genotypes from maturity group 00 were tested in the field trials set up over two years, at two locations (Zemun Polje and Pancevo), according to a completely randomized block design. After harvest, the oil content in the grain was measured on a NIRT (near infra-red transmission) analyzer. Interaction $G \times E$ for grain yield and oil content was evaluated by the application of AMMI-1 (additive main effects and multiplicative interaction) model. A great portion of the variation (80.91%) of $G \times E$ interaction for the grain oil content in soybean genotypes was explained by the first interaction axis of the AMMI-1 model. Eight genotypes were distributed close to the stability line. The most important among them were two cultivars with above the average oil content and high stability, as well as the Agassiz variety, with a maximum average value of this parameter, expressing small interaction with environment. AMMI analysis for grain yield revealed that first interaction axis had explained 55.3% of the variation of $G \times E$ interaction for this trait. The largest number of genotypes achieved grain yield similar to the general average, with various interaction effects. The most stable grain yield was noted for Maple Presto variety, while the Olima, Evrika, PI 180507 and Kabott genotypes showed satisfactory stability. Cultivars Korana and Krajina proved to be superior to other genotypes, both in terms of yield and stability, confirming that domestic genotypes had adaptation to local agro-ecological conditions as compared to introduced ones.

Keywords: *soybean, seed yield, oil content, stability, AMMI.*