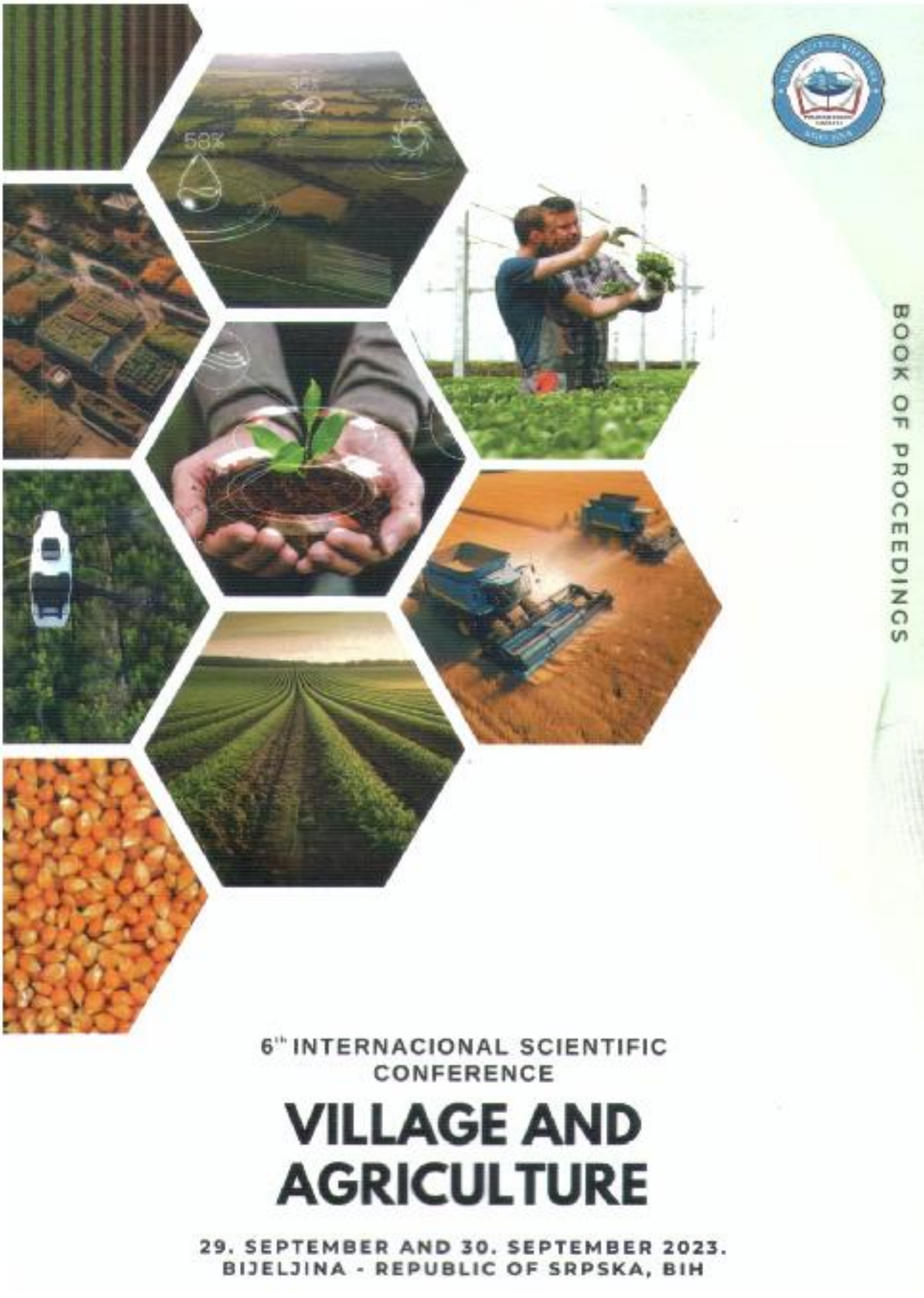
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INFLUENCE OF MAIZE HYBRIDS ON SILAGE QUALITY

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Abstract

Maize (Zea mays L.) is the most important silage crop due to its low buffer capacity, high amount of dry matter and optimal concentration of soluble carbohydrates. Silage of maize is a process of anaerobic preservation by lactic acid fermentation, which reduces the possibility of loss of nutrients from harvest to consumption of animal feed. By silage maize, they try to preserve and maintain for a longer time the nutrients of the maize fresh biomass, without significant changes. In this study, the following maize hybrids were examined: H1- AS 160, H2- Pionir 1535 and H3- NS 6000. The quality of the green biomass of the examined maize hybrids was analyzed: content of protein, content of water and percentage of dry matter. The test results show that the percentage of crude proteins in the examined sample was the highest (2.72%) in hybrid H1, a slightly lower percentage (2.66%) in H2, and the lowest percentage of crude proteins was measured in hybrid H3. The percentage of dry matter in the tested sample was the highest (36.56%) in the NS 640 hybrid, slightly lower (35.05%) in the percentage in the AS 160 hybrid, and the lowest (33.80%) crude protein percentage was measured in the Pionir hybrid 1535. The percentage of moisture in the tested sample was the highest (66.20%) in H2, the slightly lower (64.95%) percentage of moisture was in hybrid H1, and the lowest (63.44%) percentage of moisture was measured in hybrid H3. Different hybrids have different levels of various maize plant components' quality.The results show that the hybrid had a significant impact on the examined quality parameters.

***Keywords**: maize hybrids, quality, green biomass, silage.*

Introduction

Maize (*Zea mays* L.) is the predominant cereal crop in the Republic of Serbia grown on 53% of the harvested area under cereals (Grčak et al., 2020). The total 2021 world production of maize reached 1125.03 million metric tons (Shahbandeh, 2021). The basic economic importance of maize stems from its diverse use in human nutrition, domestic animals, industrial processing, and the volume of production. Maize has a very high biological fertility potential and is included in the group of field crops with the highest production of organic mass per unit area. The special economic importance of maize is also reflected in the fact that almost all above-ground biomass of the plant can be used. Today, more than 1,500 different industrial products are produced from the whole maize plant using a variety of technological procedures. In livestock production, the whole grain of maize is used as a concentrated fodder for feeding domestic animals, followed by above-ground biomass, fresh or for making silage. Maize straw can be used as a mat for domestic animals, as bulky animal feed or as a solid biofuel. Other side products, i.e. waste from industrial grain processing, are used as animal feed. It should be noted that many farmers use maize as a basic starch and protein component in the meals of all types and categories of domestic animals (Popović, 2010; Glamočlija et al., 2012; 2015; Božović et al., 2018; 2020; 2022; Ljubičić et al. , 2023a; 2023b).

Maize also has great agrotechnical importance, because it belongs to crops of high agrotechnics (deep soil cultivation, intensive nutrition and protection of plants from weeds). After the harvest, the soil has good physical and chemical properties, enriched with organic biomass of plowed harvest residues and is a good pre-plant for most field plants. Our country, in terms of arable land, is a significant producer of maize thanks to the fact that, according to agro-ecological conditions, we are in the maize belt zone. The average sown areas, yields, as well as the total grain production, in the past 11 years have shown significant variations. The consequences of these changes are less and less stable production in the conditions of the natural water regime and more and more frequent dry periods during the vegetation and non-vegetation periods (Popović, 2010; Živanović, 2012; Tabaković et al., 2013; Stanisavljević et al., 2015; Babić et al., 2010; 2016; 2022; Maksimović et al., 2018; Nikolić et al., 2021; 2022).

According to statistical data, in 2020, silage maize was grown on 2,711 hectares in Serbia. For small farmers, hybrids of other subspecies of maize are also interesting, for example durum maize, sugar maize, and popcorn maize, since their grain is increasingly taking an important place in people's diet. Due to the high demand on the world market, their products are interesting as export food items. By growing sweet maize in direct sowing, even on small areas, a significant profit is realized, because apart from the main grain product, after harvesting, a considerable amount of above-ground biomass of high nutritional and digestible value remains. This maize biomass can be used in feeding domestic animals in several ways. Storing silage is an old agricultural practice that began more than 3,000 years ago. In the United States of America and Western European countries, the preservation of animal feed by silage began at the end of the 19th century, and later the technology of silage spread to other parts of the world. Wider application of the new forage preservation technology occurred after the forties of the last century as a result of the development of mechanization for forage collection. Today, the process of preserving animal feed by silage is widely used all over the world. The advantage of the process of silage plant mass is that it is possible to harvest forage plants at the optimal stage of development and store them in silo until the moment of use. Silage involves the fermentation of soluble carbohydrates, which produces acids that preserve the fodder and store it in an unchanged form until the silo is opened. Nowadays, intensive livestock production is hard to imagine without storing silage. Silage of green biomass of fodder plants enables their earlier removal from production areas and more intensive use of land (Rakašćan et al., 2019a; 2019b). The importance of silage is reflected in the fact that the initial silage material changes little after the acidification of the green mass through natural fermentation processes or with the addition of certain additives. Silage can completely replace green fodder in livestock nutrition. Livestock feeding with silage is the closest substitute for green fodder, and it represents the basis of economic and modern animal husbandry (Đorđević et al., 2011). When feeding cattle with silage, high production of milk and meat can be maintained, as well as under conditions of feeding with green fodder. The aim of this study was to investigate the influence of maize hybrids on the examined quality parameters of green biomass.

Materials and Methods

Experiments with corn hybrids were set up in Ilandza, Alibunar municipality. The field trial was set up at the chernozem type of soil in Banat (Vojvodina) Province, Serbia. This chernozem type of soil is characterized by favorable physical and chemical properties, stable aggregates, good crumbly structure and good water permeability. The total area of the sample was 360 m^2, and the area of the settlement plot was 40 m^2. The following maize hybrids were tested: H1-AS 160, H2- Pionir 1535 and H3- NS 6000. Standard agricultural techniques for growing maize were applied. Maize was sown on April 29, 2022, with a mechanical seeder, at a depth of 7 cm. Among the protection measures, herbicides Basar and Rezon were used in the phase from the third to the fifth leaf.

The quality of the green mass of the tested maize hybrids was analyzed, namely the crude protein content, percentage of dry matter and water content, %. Maize silage on the calculation plots was done at waxy grain maturity on August 30, 2022, and on the same day samples were taken for yield and quality of green mass. The quality of green biomass was done in the laboratory for animal feed analysis of the Faculty of Agriculture in Belgrade-Zemun. Results of the study analyzed by standard analysis of variance (ANOVA) and present graphically.

Meteorological Data

During vegetation season, meteorological data, temperature and precipitation were very variable. Crop production is very sensitive to climate, and climate change significantly affects plant production (Popovic et al., 2011; 2020; 2021; Ikanović et al., 2018; Janković et al., 2019; Sekulić et al., 2023; Burić et al., 2023). Monthly precipitation and air temperatures for 2021 were taken from the Hydro-meteorological Institute of the Republic of Serbia for Ilandža, village in Serbia. It is situated in the Alibunar municipality, in the South Banat District, Vojvodina province (Table 1).

Tabela 1. Average temperature (°C) and total precipitation (mm) in experimental trial during 2022, Serbia (Ilandža)

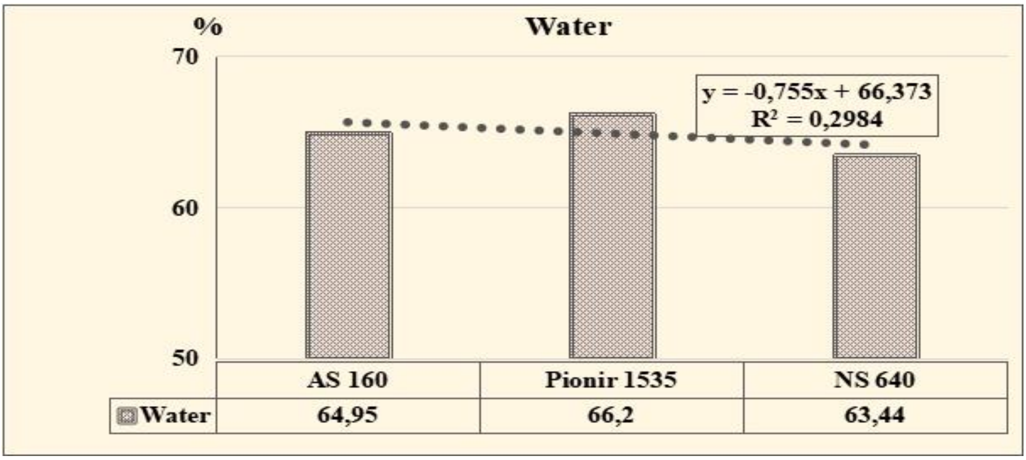
Parameters	April	May	June	July	August	Total/Average
Precipitation (mm)	41.16	73.00	77.00	74.00	46.00	311.20
Temperature (ºC)	5.60	12.97	17.37	17.73	18.07	14.35

Average temperatures in the growing season in 2022 were 14.35 °C while total precipitation was 311.20 mm, Table 1.

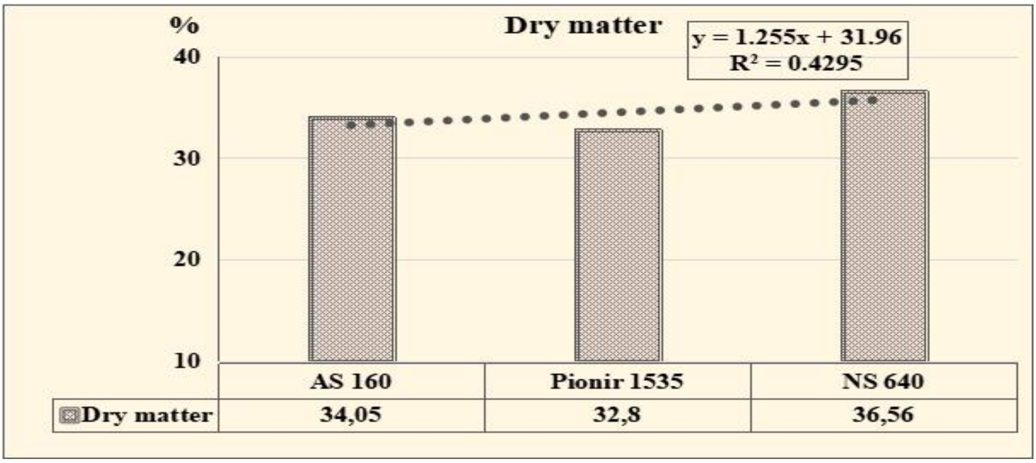
Results and Discussion

The chemical composition of the green biomass of maize hybrids was examined in the paper. The test results show that the percentage of crude proteins in the tested sample was the highest (2.72%) in hybrid H1, a slightly lower percentage (2.66%) in hybrid H2, and the lowest percentage of crude proteins was measured in hybrid H3. The percentage of dry matter in the examined sample was the highest (36.56%) in the NS 6000 hybrid, a slightly lower percentage (35.05%) in the AS 160 hybrid, and the lowest crude protein percentage (33.80%) was measured in the Pionir hybrid 1535. The percentage of moisture in the investigated parameter, the dry matter sample, was the highest (66.20%) in hybrid H2, a slightly lower (64.95%) percentage of moisture was in hybrid H1, and the lowest (63.44%) percentage of moisture was measured in hybrid H3, graphs 1-3.

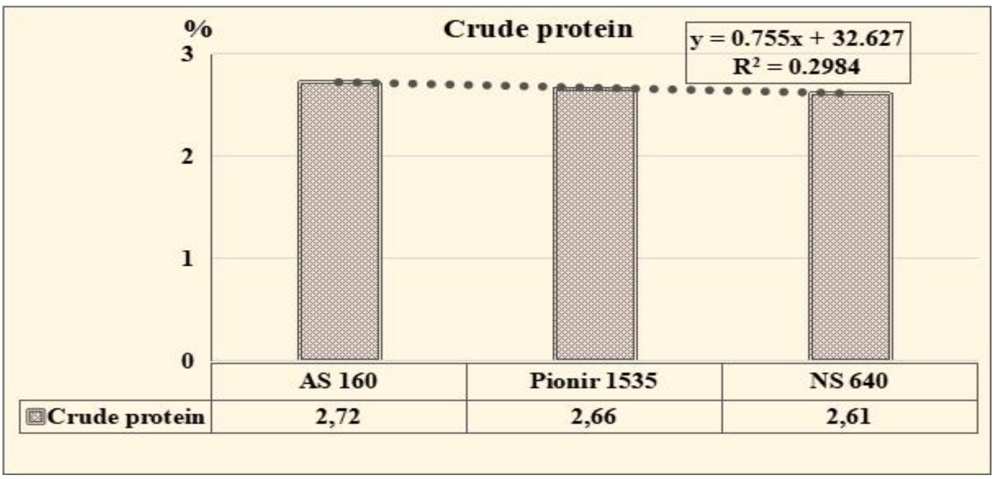
Silage maize is one of the most important forages in the world, and its yield and quality properties are critical parameters for livestock production and assessment of forage values. The qualitative characteristics of maize hybrids are determined by the plant's morphology and structure (Bertoia & Aulicino, 2014). Different hybrids have different levels of various maize plant components' digestibility. The average dry matter yield of silage maize was (19.98%) mgha^{-1}, and the average value of crude protein, ether extract, crude ash, crude fiber, acid detergent fiber, neutral detergent fiber, nitrogen-free extract, and relative feed value was 7.86%, 2.53%, 5.05%, 23.97%, 27.62%, 51.60%, 59.68%, and 131.17%, respectively. In general, its nutritive value decreased as its yield increased. Increasing planting density could increase the yield but inhibit the nutritive values, while increasing fertilization could benefit the nutritive values (Zhao et al., 2022).



Graph 1. Moisture content in tested maize genotypes



Graph 2. Dry matter content in tested maize genotypes



Graph 3. Crude protein content in tested maize genotypes

The yield components, such as the dry matter yield of the maize plant, were strongly influenced by genotype, according to the principal components. Future breeding strategies aimed at developing new, enhanced silage maize hybrids may find considerable value in our findings (Nikolić et al., 2022).

Maize grain yield is a complex trait and important indicator for assessing the value of maize genotypes in selection and breeding programs of maize of standard grain quality. Grain yield of maize and quality is a result of the combined effects of genotype - G, environment - E and GEI interaction. Since that GEI causes different reactions of maize hybrids in different environments, it is preferable to select and identify hybrids with high yield and quality potentials with wide adaptability and stability, more than to develop hybrids specially designed for certain agro-ecological environment. Genotypes with stable yield and quality tend to be more tolerant in stress conditions and more efficient in using available resources (Popović, 2010; Tabakovic et al., 2013; Babić et al.,, 2016; 2022; Popović et al., 2020; Ljubičić et al., 2023a; 2023b).

Our country has numerous maize hybrids for different purposes and high yield potential, so the main goal of producers should be to make greater use of their production capabilities. By applying more modern agrotechnical measures, such as optimal plant nutrition, better protection against weeds and crop irrigation, which will make maize production more profitable, because by increasing the total volume of production, we can provide the necessary amounts of grain and vegetative biomass for all the needs of the domestic food industry and livestock production (Janković et al., 2019). All surpluses should be offered on the world market, not only grains, but also numerous finished products. One of the important tasks is to change our traditional way of using grains as concentrated animal feed.

In order to more comprehensively use it in the nutrition of domestic animals, the area under silage maize should be increased as the main crop, and in irrigation systems as a secondary crop. For fodder production, it can be grown as a pure crop or in mixtures with legumes. Since there are a large number of early-maturing hybrids in our country, the production of silage maize should be expanded to hilly areas. The produced biomass would be used as bulk fodder fresh or silage (Ikanović et al., 2018). Producers' interest in silage maize grows from year to year thanks to hybrids from the stay green group that keep the above-ground biomass physiologically active even in the stages of grain maturation.

Conclusion

Applying more modern agrotechnical measures, such as optimal plant nutrition, better protection against weeds and crop irrigation, will make corn production more profitable, because by increasing the total volume of production, we can provide the necessary amounts of grain and vegetative biomass for all the needs of the domestic food industry and livestock production. Based on the present findings, it can be concluded that maize genotypes exhibit different responses in the environment.

Deficit in precipitation in the generative phase, resulting in lower quality parameters in the season of 2022. In this study, stable maize genotypes with high mean values for each trait were identified. Different hybrids have different levels of various maize plant components' quality.The genotype G3 (NS 6000) with higher dry matter than average mean, expressed the most stable reactions compared to all genotypes, which can determine it as outstanding high-quality in most environments and determine this genotype suitable for cultivation in diverse environments.

Climate is an important factor in maize production, adaptation measures, such as adequate production technology and choice of appropriate maize genotypes based on verified and confirmed data, are the most important in mitigating inappropriate weather conditions.

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Literature

1. Babić, V., Babić, M., Ivanović, M., Kraljević-Balalić, M., Dimitrijević, M. (2010). Understanding and utilization of genotype-by-environment interaction in maize breeding. *Genetika-Belgrade, 42* (1), 79-90.
2. Babić, V.; Pavlov, M.; Boćanski, J. (2016). Status and perspective of plant breeding and seed industry in Serbia. *Selekcija i Semenarstvo. Plant Breed. Seed Prod. 22*, 19–27.
3. Babic, V., Stanisavljevic, D., Zoric, M., Mikic, S., Mitrovic, B., Andjelkovic, V., Kravic, N. (2022). Identification of New Sources for Earliness and Low Grain Moisture at Harvest through Maize Landraces' *Test-Cross* Performance. *Agronomy, 12,* 1939.
4. Bertoia, L.M., Aulicino, M.B. (2014). Maize forage aptitude: Combining ability of inbred lines and stability of hybrids. *The Crop Journal,* 2, 407–418.
5. Božović, D., Zivanović, T., Popović, V., Tatić, M., Gospavić, Z., Miloradović, Z., Stanković, G., Dokić, M. (2018). Assessment stability of maize lines yield by gge-biplot analysis. *Genetika-Belgrade*, 50, 3, 755-770.
6. Božović, D., Popović, V., Rajičić, V., Kostić, M., Filipović, V., Kolarić, Lj., Ugrenović, V., Spalević, V. (2020). Stability of the expression of the maize productivity parameters by AMMI models and GGE-biplot analysis. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 48, 3: 1387-1397.DOI: 10.15835/nbha48312058

7. Božović, D., Popović, D., Popović, V., Živanović, T., Ljubičić, N., Ćosić, M., Spahić, A., Simić, D., Filipović, V. (2022). Economical Productivity of Maize Genotypes under Different Herbicides Application in Two Contrasting Climatic Conditions. *Sustainability,* 14, 5629.
8. Burić M., Popović V., Ljubičić N., Filipović V., Stevanović P., Ugrenović V., Rajičić V. (2023). Productivity of black oats - *Avena strigosa* on chernozem, importance in nutrition and health. *Selekcija i Semenarstvo. Plant Breed. Seed Prod.* 29(1):21-32
9. FAOStat. FAO Stat. (2022). FAO, Rome. http://www.fao.org/faostat
10. Glamočlija, Đ. (2012): Posebno ratarstvo, Žita i Mahunarki, Poljoprivredni fakultet, Beograd. / Especially arable farming, Cereals and Legumes, *Monograph,* Faculty of Agriculture, Belgrade.
11. Glamočlija, Đ., Janković, S., Popović V, Filipović V. Ugrenović, V. (2015): Alternative crops in conventional and organic growing system. *Monograph,* Belgrade.
12. Grčak, M., Grčak, D., Penjišević, A., Simjanović, D., Orbović, B., Đukić, N., Rajičić, V. (2020). The trends in maize and wheat production in the Republic of Serbia. *Acta Agriculturae Serbica,* 25(50), 121–127.
13. Đorđević, N., Grubić, G., Stojanović, B., Božičković, A., Ivetić, A. (2011): Savremene tehnologije siliranja kukuruza i lucerke. *Zbornik naučnih radova Instituta PKB Agroekonomik,* 17, 1-2: 27-35.
14. Ikanović, J., Živanović, Lj., Popović, V., Kolarić, Lj., Dražić, G., Janković, S., Ćurović, M., Pavlović, S. (2018): Mogućnost većeg korištenja kukuruza kao bioenergenta. *Zbornik naučnih radova Instituta PKB Agroekonomik,* Beograd, Republika Srbija. *24, 1-2: 49-58.*
15. Janković, S., Glamoclija, Đ., Ikanović, J., Rakić, S. (2019). Secondary crop products. *Monograph,* Belgrade, ISBN 978-86-81689-41-7, 1-385
16. Ljubičić, N., Popović, V., Kostić, M., Pajić, M., Buđen, M., Gligorević, K., Dražić, M., Bižić, M., Crnojević, V. (2023a): Multivariate Interaction Analysis of *Zea mays* L. Genotypes Growth Productivity in Different Environmental Conditions. *Plants. 12,* 2165. doi.10.3390/plants12112165
17. Ljubičić, N., Ristić, V. Popović, V, Kostić, M., Bojović, R., Barošević, T. Obrenović, N., Crnojević, V. (2023b): Evaluation of maize grain yield and yield stability by AMMI analysis in different environmental conditions. *Plants,* 12, 2023.
18. Maksimović, L., Popović V., Stevanović, P. (2018): Water and irrigation requirements of field crops grown in central Vojvodina, Serbia. *Agriculture and Forestry,* 64, 1: 133-144. *doi.org/*10.17707/AgricultForest.64.1.16
19. Nikolić, V., Babić, V., Kravić, N., Filipović, M. , Žilić, S. , Simić, M. , Radosavljević, M. (2021): The variability and interdependence of basic technological quality parameters of maize hybrids in long term research. *Selekcija i Semenarstvo. Plant Breed. Seed Prod.* Belgrade, 2, 21-33.
20. Nikolić V., Simić M., Žilić S., Kravić N., Babić V., Filipović M., Srdić J. (2022). Quality parameters of maize hybrids intended for silage production. *Acta Agriculturae Serbica*, 27 (54), 157–163.

21. Popović, V. (2010): Agrotechnical and agroecological influences on the production of wheat, maize and soybean seeds. *Doctoral dissertation*. University of Belgrade, Faculty of Agriculture, Belgrade, Serbia, 1-145.
22. Popović V., Glamočlija Đ., Malešević M., Ikanović J., Dražić G., Spasić M., Stanković S. (2011): Genotype specificity in nitrogen nutrition of malting barley. *Genetika*, Belgrade, 43, 1, 197-204. https://doi.org/10.2298/GENSR1101197P.
23. Popović, V., Ljubičić, N., Kostić, M., Radulović, M., Blagojević, D., Ugrenović, V., Popović, D., Ivošević, B. (2020): Genotype × Environment Interaction for Wheat Yield Traits Suitable for Selection in Different Seed Priming Conditions. *Plants. 9,* 1804. https://doi.org/10.3390/plants9121804
24. Popović M.V., Šarčević-Todosijević Lj., Petrović B., Ignjatov M., Popović B.D., Vukomanović P., Milošević D., Filipović V. (2021): Economic Justification Application of Medicinal Plants in Cosmetic and Pharmacy for the Drugs Discovery. Chapter 3. Ed. Emerald M. *Book.* Title: An Introduction to Medicinal Herbs. NOVA Science publishers, USA, *Book,* https://doi.org/10.52305/TKAL3430, 63-106, 1-365.
25. Rakaščan, N., Dražić, G., Živanović, Lj., Ikanović, J., Jovović, Z., Lončar, M., Bojović, R., Popović, V. (2019a): Effect of genotypes and locations on wheat yield components. *Agriculture & Forestry, 65* (1): 233-242, DOI: 10.17707/AgricultForest.65.1.23
26. Rakašćan, N., Popović, V., Dražić, G., Ikanović, J., Popović, S., Popović, B., Milanović, T. (2019b): Circular economy in function of obtaining the biogas. XXIII International Eco-Conference® 2019 and *XIII Environmental Protection of Urban and Suburban, Settlements,* 25th – 27th September 2019, Novi Sad, Serbia, 320-329.
27. Sekulić T., Stupar V., Stevanović A., Živković Z., Saulić M., Blažić M., Popović V. (2023): Biodiversity of microbial populations as the indicator of biogenicity of soil under ashes and agricultural soil soil. Notulae Botanicae Horti Agrobotanici Cluj-Napoca, 51, 1, 13115, https://doi.org/10.15835/nbha51113115
28. Shahbandeh, M. (2021). Corn production worldwide 2014- 2021. Statista, https://www.statista.com/statistics/1156213/globalcorn-production/
29. Stanisavljević, D., Rajković, D., Mitrović, B., Zorić, M., Čanak, P., Franeta, F., Mirosavljević, M. (2015): Different testers influence genetic correlational response in narrow-based maize population NSA15. *Ratar. Povrt.* 52, 3, 97-101.
30. Tabakovic M., Glamoclija Dj., Jovanovic S., Popovic V., Simić D., Anđelkovic S. (2013): Effects of agroecological conditions and hybrid combinations on maize seed germination. *Biotechnology in Animal Husbandry,* 29, 4, 715-725, DOI: 10.2298/BAH1304715T

31. Živanović, Lj. (2012): The influence of soil type and nitrogen rates on the productivity of corn hybrids of different FAO maturity groups, *Doctoral dissertation*, Faculty of Agriculture, Belgrade – Zemun.
32. Zhao, M., Feng, Y., Shi, Y. *et al.* (2022). Yield and quality properties of silage maize and their influencing factors in China. *Sci. China Life Sci.* 65, 1655–1666. https://doi.org/10.1007/s11427-020-2023-3

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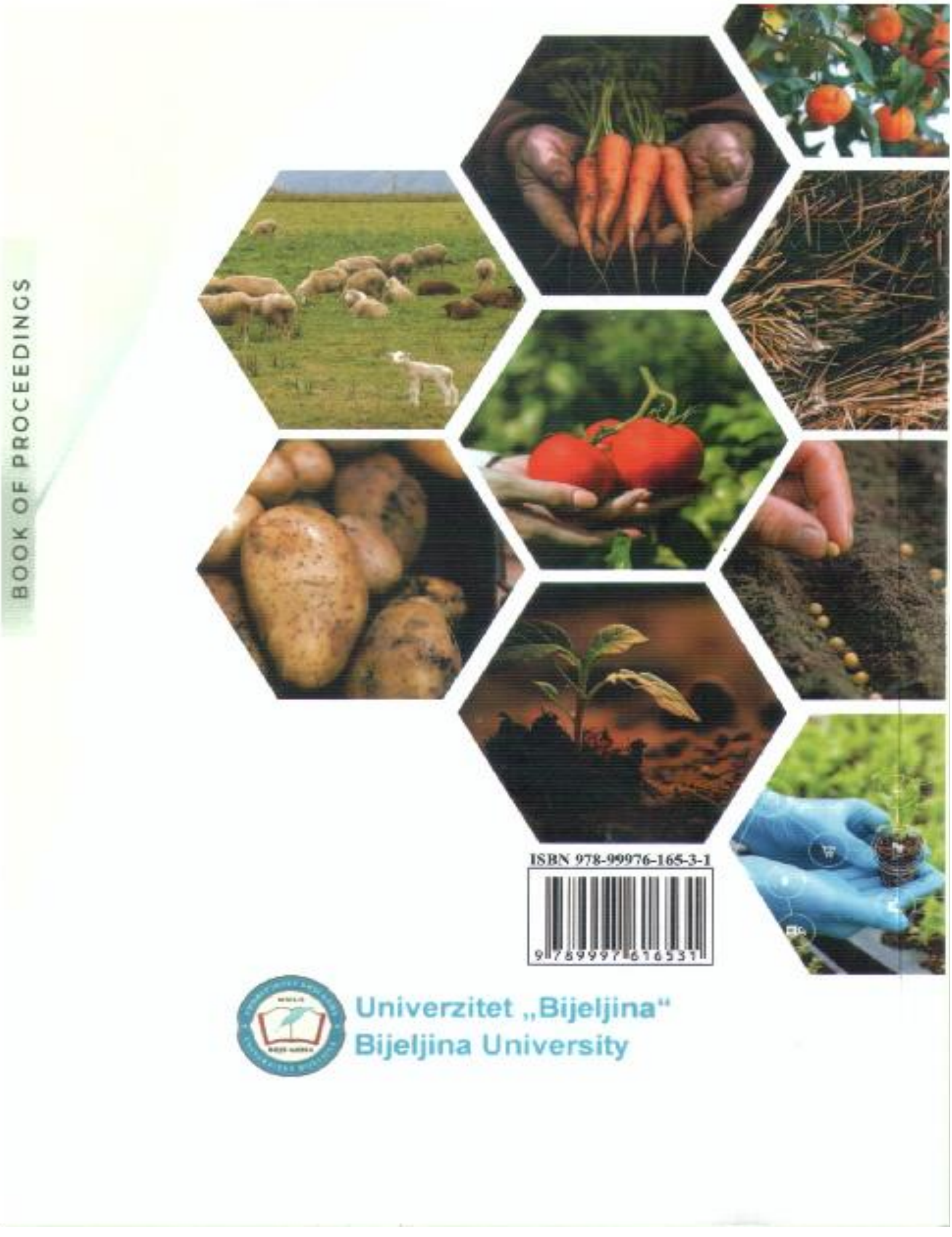
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