



**International Science Group**

**ISG-KONF.COM**

**XIII**  
**INTERNATIONAL SCIENTIFIC**  
**AND PRACTICAL CONFERENCE**  
**"MULTIDISCIPLINARY ACADEMIC RESEARCH,**  
**INNOVATION AND RESULTS"**

**Prague, Czech Republic**  
**April 05 - 08, 2022**

**ISBN 979-8-88526-749-6**

**DOI 10.46299/ISG.2022.1.13**

# **MULTIDISCIPLINARY ACADEMIC RESEARCH, INNOVATION AND RESULTS**

Proceedings of the XIII International Scientific and Practical Conference

Prague, Czech Republic  
April 05 – 08, 2022

exploded pipelines and damaged industrial facilities like fuel and chemical storage sites. As far as the war in Ukraine started 24.02.2022 there is no research conducted within this topic. United Nations member states attending the UN Environment Assembly's opening session in February have raised concerns over the environmental impact of the Russia-Ukraine war. As a result of it the triple threat of the climate crisis, loss of biodiversity and pollution will occur. Also, the release of the sixth report of the Intergovernmental Panel on Climate Change (IPCC) shows the grim effects of the climate crisis on humanity and biodiversity.

There is therefore an urgent need for a study which may shed some light on the environmental impacts of the war, the damages to natural resources, and to identify measures which may be deployed towards addressing the ecological damages caused by the war in the future.

However, in order to develop an effective mechanism for implementing the goals of sustainable development and achieving indicators, it is necessary:

- identification of the reasons for non-fulfillment of the tasks of the goals of sustainable development as of 2022;
- revision of the tasks of sustainable development goals in connection with Russia's military aggression;
- definition of clear and detailed indicators of sustainable development goals;
- establishing control over the implementation of tasks and indicators of sustainable development goals.

#### **References:**

1. Sustainable development goals. URL: <https://www.un.org/sustainabledevelopment/sustainable-development-goals>.

2. N. Stoliarchuk, V. Matviets, O. Kalinichenko, etc. Concept of innovative and investment development of rural areas of Ukraine. (Концепція інноваційно-інвестиційного розвитку сільських територій України). Innovative approaches to ensuring the quality of education, scientific research and technological processes. Katowice: Wydawnictwo Wyższej Szkoły Technicznej w Katowicach, 2021. 1239 p., pp. 189-195. ISBN 978-83-957298-6-7.

# **MAIZE PRODUCTIVITY IN ORGANIC AGRICULTURE IN THE CONDITIONS OF THE EXPERIMENTAL FIELDS OF BNAU**

**Yezerkovska Liudmila,**  
Ph.D., Associate Professor  
Bila Tserkva National Agrarian University

**Karaulna Vitalina**  
Ph.D., Associate Professor  
Bila Tserkva National Agrarian University

**Fedoruk Yriy**  
Ph.D., Associate Professor  
Bila Tserkva National Agrarian University

**Prymak Ivan**  
Doctor, Professor  
Bila Tserkva National Agrarian University

**Khahula Valeriy**  
Ph.D., Associate Professor  
Bila Tserkva National Agrarian University

Organic products are in high demand worldwide today, and the number of producers and agricultural lands under their production is growing every year. Characterizing the natural-climatic and resource potential of our state, it should be noted that Ukraine has opportunity to get a leading niche among producers of organic organic products.

Corn is the one of the important places in the production structure of an organic agricultural enterprise. The use of grain for food purposes is multifunctional, so the replacement of ordinary grain with organic in many consumer products will significantly improve their quality and market price [1,2].

Currently in Ukraine the technology of growing corn for organic production is not fully understood, so the purpose of our research was to investigate the impact of biological products on productivity, corn, as well as to determine the economic efficiency of the studied factors in the forest-steppe of Ukraine [3].

Experimental work performed in 2019-2021 on the research field of the Training Production Center (IEC) of Bila Tserkva National Agrarian University (BNAU).

The soil - is typical deep low-humus chernozem, coarse-dusty-light loam on carbonate forest. Calcium carbonates occur at a depth of 55–62 cm. The arable (0–30 cm) layer of soil contains about 17% of silty particles and from 46 to 54% of coarse

dust. Agrochemical characteristics: humus (according to the method of Turin and Kononova) - 3.4%, easily hydrolyzed nitrogen (according to the method of Cornfield) - 110, mobile compounds of phosphorus and potassium (according to the method of Chirikov) - 120 and 110 mg / kg of soil.

Object of study. Grain maize, Ostrech SV, Zdvizh MV; for biological products Mikosan, Mikohelp.

The scheme of the experiment provides study of the action biological products: control - without seed treatment; seed treatment with a chemical disinfectant; pre-sowing treatment of seeds Mikosan (7 l/t) and Mikohelp (3 l/t); vegetative treatment (starting from the phase of 3 leaves - 3 times per vegetation with an interval of 10 - 14 days) in the phase of the 3rd leaf (II e.o.), 5th leaf (III - IV e.o.) and in the phase 7th leaf (V e.o.) Mikosan (3 l / ha) and Mikohelp (2 l/ha). Liposam bioadhesive was used to increase the efficiency of the use of biological products: seed treatment - 0.3 l/t, spraying - 0.5 l/ha.

Mikosan is a unique biological preparation with fungicidal action, designed for the treatment of crops, as well as for the protection of houseplants from various pathogens. Has a highly effective protective and stimulating effect. Active substance: oligochitin, polysaccharides, glucans.

MycoHelp - Multifunctional, multicomponent microbial preparation. Ingredients: Caprophytic antagonists of the genus *Trichoderma*, living cells of bacteria *Bacillus subtilis*, *Azotobacter*, *Enterobacter*, *Enterococcus*, biologically active products of microorganisms-producers. The total number of viable cells is not less than  $1.0 \times 10^9$  CFU/cm<sup>3</sup>.

All types of ancillary products are included in the List of pesticides and agrochemicals approved for use in Ukraine, as well as in the List of ancillary products for use in organic production, subject to the requirements of the standard of internationally accredited certification bodies for organic production and processing, equivalent to EU regulations 2007 and № 889/2008. We used generally accepted methodical recommendations.

The results of observations and research showed that using studied preparations had a positive effect on the intensity of growth processes, the leaf surface area formation of plants and the aboveground mass growth had a positive effect on crops yields.

The main corn`s grain yield components - are elements of its structure, such as: number of corn ears, their length and diameter, grains number in the corn ear, weight of 1000 seeds, percentage of grain yield, grain weight and others.

A comparative assessment of the main parameters of corn ears according to the variants of experiment based on the results of biometric measurements. Seed treatment with biological products had a direct effect on the number of rows of grains in corn ear. In the version without the use of the studied drugs there were 11 - 12 pcs. Seed treatment before sowing led to increasing in this indicator. With Mikohelp was received 13 - 14 rows of grain, and with Mikosan 15 - 16 rows. Weight of 1000 grains is important indicator that characterizes the productivity of corn plants. In our experiment, was determined that in the control variant this figure was 286.3 g. In the

variant with seed treatment with Mycohelp, the weight of 1000 grains was 293.2 g. and amounted to 312.8 g

Corn yield in the control version was 7.34 - 7.49 t / ha. Using Mycohelp for pre-sowing treatment of seeds, gave a yield increase of 0.57 t / ha. Mikosan caused an increase in yield compared to the control by 0.93 t / ha.

Mycohelp provided an increase in grain at the level of 0.65 t / ha. A significant increase of 1.16 t / ha in the experiment was obtained in the variant with the integrated use of Mikosan.

Protein content is the one of the important indicators of crop quality. as a result of research it should be noted that this figure was at the level of 9.2 - 10.9% on dry matter. The change in this indicator was influenced by the use of various biological products, for the use of Mycohelp for seed treatment this figure was 9.9% per dry lot, for the use of Mikosan this figure was 10.0 - 10.1% per dry lot. It should be noted that with the complex application of the studied drugs received the highest rates of protein accumulation in the hybrid Ostrech SV 10.7 - 10.8% on dry matter, in the hybrid Zdvizh MV 10.8 - 10.9% on dry matter.

It was determined that this indicator was at the level of 9.2 - 10.9% on dry matter, as a result of research. The change in this indicator was influenced by the use of various biological products, for the use of Mikohelp for seed treatment this figure was 9.9% per dry lot, for the use of Mikosan this figure was 10.0 - 10.1% per dry lot. In the case of complex application studied preparations, the highest protein accumulation rates were obtained in the hybrid Ostrech SV 10.7 - 10.8% on dry matter, in the hybrid Zdvizh MV 10.8 - 10.9% on dry matter.

Thus, the maximum indicators of relatively net profit were obtained in variant with corn hybrid Ostrech JV - 26,390 UAH, with seed treatment Mikosan product. And for the hybrid Zdvizh MV 254,427 UAH. High indicators of relatively net profit were also obtained with the complex using Mikosan 25055 - 25985 UAH.

### **References:**

1. Belov, Ya.V. (2018) Napriamy optymizatsii tekhnolohiy vuroshchuvannia nasiinnia kukurudzy za umov zmin klimatu [Directions for optimizing technologies for growing corn seeds under climate change]. Visnyk ahrarnoi nauky Prychornomor'ia [Bulletin of Ukrainian Black Sea Region Agrarian Science], no. 4, pp. 74-81. Available at: [https://doi.org/10.31521/2313-092X/2018-4\(100\)](https://doi.org/10.31521/2313-092X/2018-4(100)).
2. Lykhochvor, V.V., Prots, P.P. (2002) Kukurudza [Maize]. Lviv: Ukrainski tekhnolohii, 46 p.
3. <https://dspace.organic-platform.org/xmlui/bitstream/handle/data/227/79.pdf?sequence=1>