

**Odessa State Agrarian University  
of the Ministry of Education and Science of Ukraine**

**EFFICIENCY OF APPLICATION OF ELEMENTS OF  
BIOLOGIZATION IN ORGANIC FARMING  
IN ARID CONDITIONS OF INDEPENDENT UKRAINE**

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**Yevgen Yurkevych,  
Doctor of Agricultural Sciences,  
Professor;  
Nataliia Valentiuk,  
Candidate of Technical Sciences;  
Oleksii Holubenko,  
Post Graduate,  
Ukraine**

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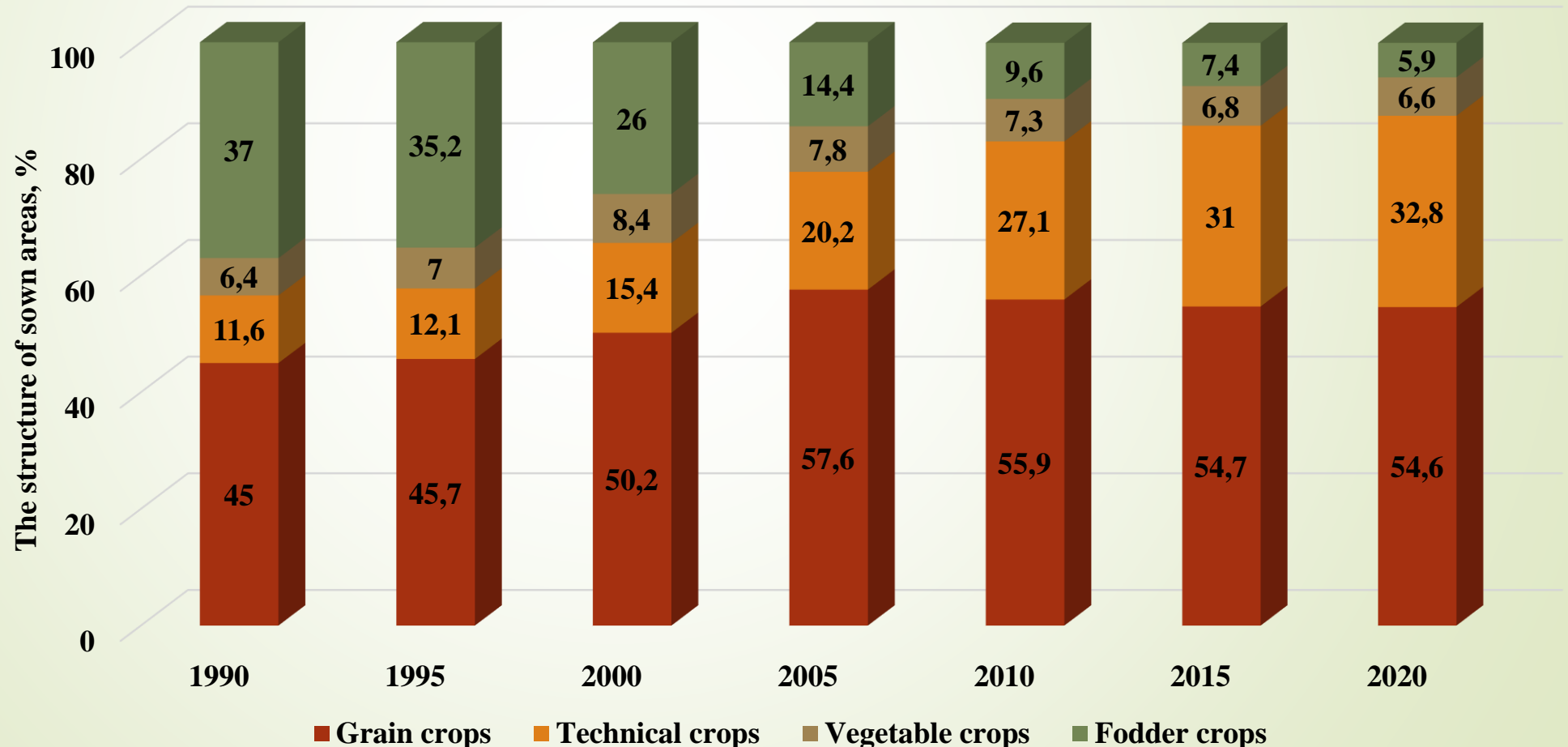
## INTRODUCTION

- **In order to provide the world's population with a sufficient amount of quality agricultural products with minimal negative impact on the environment, the introduction of environmentally friendly technologies for growing crops in different soil and climatic conditions has become relevant in agrarian production. During 1991–2021, the application of elements of biologization in organic farming in the arid conditions of independent Ukraine became especially important.**
- **The concept of organic farming has become especially relevant, which involves strengthening the principle of alternatives through the introduction of elements of biologization, which effectively compensate for the negative impact of chemicals on the quality of agricultural products and the environment.**

# DYNAMICS OF THE STRUCTURE OF SOWN AREAS OF AGRICULTURAL CROPS IN INDEPENDENT UKRAINE DURING 1990–2020

(calculated by the author according to the data for the State Statistics Service of Ukraine)

During 1990–2020, the structure of sown areas was unstable and changed significantly over the years, which led to non-compliance with scientifically sound alternation of crops in crop rotations of independent Ukraine.






# **DURING 1991–2021, THE URGENCY OF IMPLEMENTATION OF EFFECTIVE ELEMENTS OF BIOLOGIZATION IN ORGANIC FARMING IN DIFFERENT SOIL-CLIMATIC CONDITIONS OF INDEPENDENT UKRAINE HAS INCREASED**

- ▶ **application of scientifically substantiated placement of crops after effective predecessors and observance of periods of return to the previous place of cultivation in crop rotations;**
- ▶ **cultivation of perennial legumes herbs, sidereal crops for green manure, post-harvest crops in crop rotations;**
  - ▶ **application of organic fertilizers, biohumus, use of environmentally friendly agrotechnical, organizational and microbiological methods of weed control, pests and diseases of crops;**
    - ▶ **application of shallow soil protective tillage with mulching;**
    - ▶ **pre-sowing treatment of seed material with microbiological preparations;**
- ▶ **derivation of varieties and hybrids of agricultural crops resistant to adverse factors, etc.**



# **DURING 1991–2021, THE URGENCY OF USING EFFECTIVE BIODESTRUCTORS OF POST-HARVEST PLANT RESIDUES IN INDEPENDENT UKRAINE AND THE WORLD HAS INCREASED**

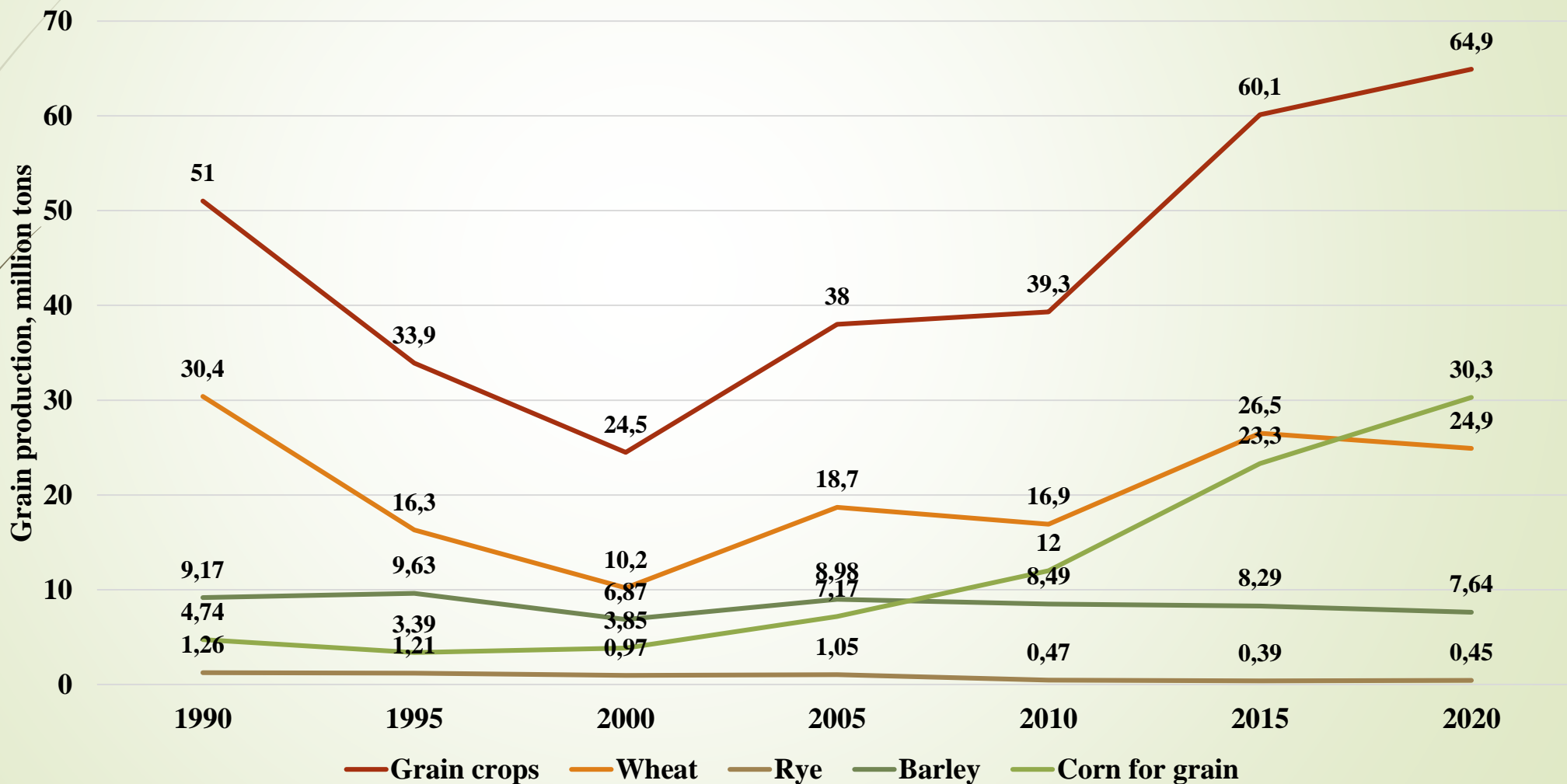
- ▶ **The use of effective biodestructors helps to increase soil fertility and restore soil microbiota, growth crop yields and crop rotation productivity;**
  - ▶ **The composition of modern biodestructors includes: bacteria-antagonists of pathogenic fungi and bacteria for plants; phosphate-mobilizing, potassium-mobilizing and nitrogen-fixing microorganisms; saprophytic fungi; biologically active substances – biofungicides, enzymes, polysaccharides, phytohormones, vitamins, amino acids, macronutrients and trace elements;**
  - ▶ **Modern biodestructors of post-harvest plant residues are adapted to different soil-climatic conditions and technologies of growing crops;**
  - ▶ **Important, especially in arid conditions, is the use of effective biodestructors of post-harvest plant residues in the cultivation of a leading crop – winter wheat.**
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# **EFFICIENCY OF APPLICATION OF BIODESTRUCTORS OF POST-HARVEST PLANT RESIDUES "ECOSTERN" AND "CELLULAD"**

- **Concentrated stubble biodestructor "Ecostern" consists of several groups of microorganisms: some of them decompose cellulose and lignin; the second (fungi, bacteria) - suppress pathogens; third – mobilize nitrogen. Due to its use, the soil is enriched with organic matter and available nutrients for crops. It is used to destroy and inhibit the development of phytopathogens, neutralize phytotoxins, accelerate decomposition and improve biological activity, physical and agrochemical condition of the soil.**
- **The use of a complex microbial-enzyme preparation "Cellulad" accelerates the decomposition of post-harvest plant residues, provides a fungicidal effect and promotes the formation of beneficial biota due to biocidal action against pathogenic microflora. It consists of: bacteria-antagonists of pathogenic fungi and bacteria for plants; cellulolytic enzymes, phytohormones, antibiotics, vitamins. It is compatible with most insecticides, herbicides, biologics, fertilizers, and incompatible with chemical fungicides.**

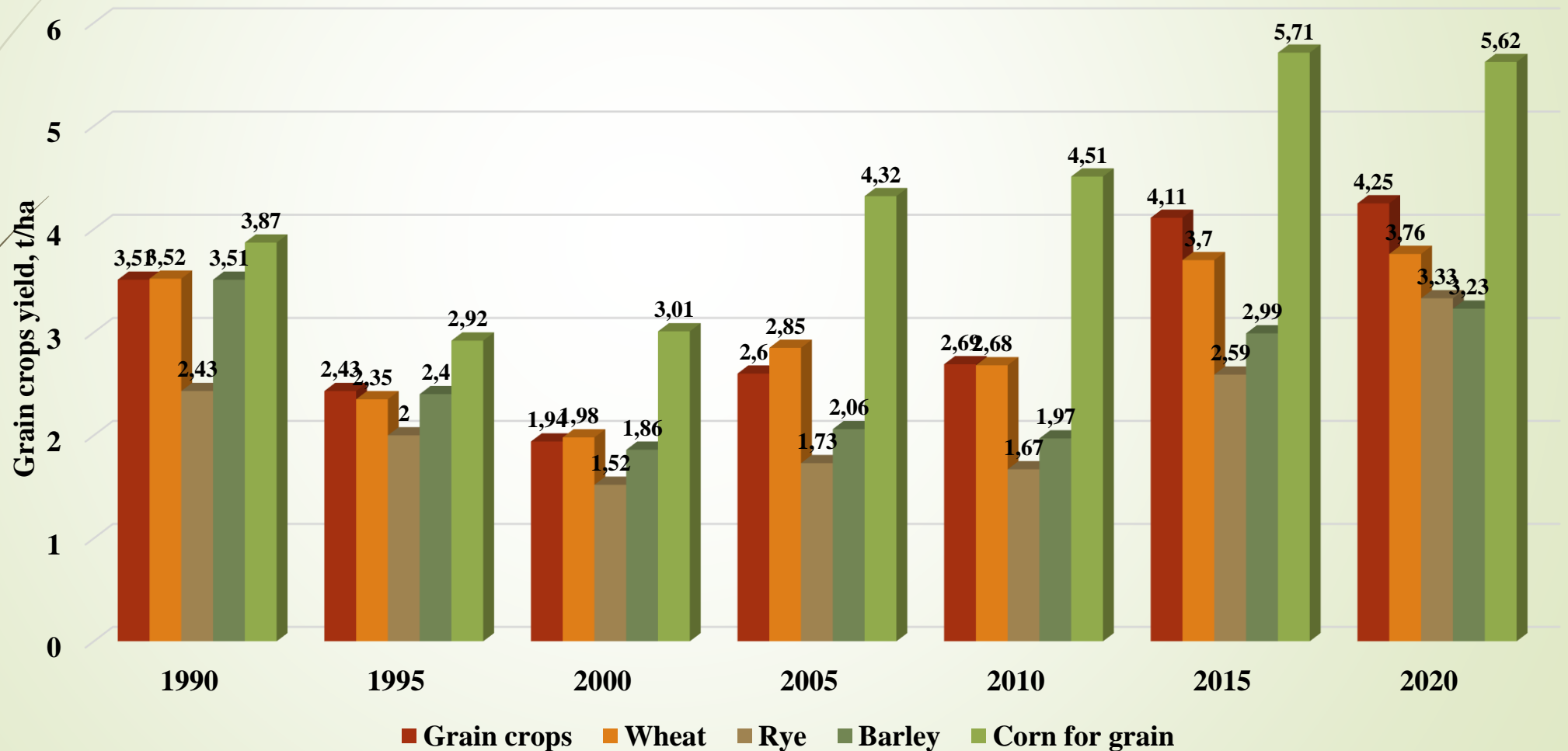
# DYNAMICS OF GRAIN PRODUCTION IN INDEPENDENT UKRAINE DURING 1990–2020, MILLION TONS

(calculated by the author according to the data for the State Statistics Service of Ukraine)



# DYNAMICS OF GRAIN CROPS YIELD IN INDEPENDENT UKRAINE DURING 1990–2020, T/HA

(calculated by the author according to the data for the State Statistics Service of Ukraine)





# CONCLUSIONS

- **Thus, during 1991–2021, the effectiveness of the application of elements of biologization in organic farming in different soil-climatic conditions, both in independent Ukraine and worldwide.**
- **Of great importance is the optimization of the structure of sown areas and the implementation of scientifically sound crop rotations with effective saturation, location and ratio of crops, taking into account soil-climatic conditions and specialization of farms.**
- **It is important to use modern biodestructors of post-harvest plant residues, which contributes to increasing soil fertility, increasing crop yields and crop rotation productivity. They provide accelerated organic decomposition of post-harvest plant residues and enrich the soil with valuable microorganisms, as well as improve its phytosanitary condition.**
- **Modern biodestructors of post-harvest plant residues are an important element of biologization in organic farming, especially in the cultivation of the leading agricultural crop in the arid conditions of independent Ukraine – winter wheat. Thanks to their use, there is an increase in the production of quality agricultural products and environmental protection both in independent Ukraine and in the world.**



**Thank you for listening!**