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BIOTECHNOLOGIES IN AGRICULTURAL BUSINESS

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Topicality. Over the last decade, innovation has become part of the most conservative industry in Ukraine - agricultural production. Ukrainian farmers are now improving the centuries-old traditions of agriculture with the help of biotechnology, which is a set of methods for obtaining biological products through the use of certain technological, microbiological and genetic engineering methods. The development of biotechnology contributes to progress in solving global problems: eliminating food, energy, mineral resources, improving health and the quality of the environment. Farmers are actively using biotechnology products to improve yields, land cultivation and organic production.

The goal of the work. To trace the application of biotechnologies in the agrarian business of Ukraine. Identify individual segments of biotechnology that are relevant to the agricultural sector.

Presentation of the main material. Today we can observe the active development of agricultural production in Ukraine. To improve it and competitiveness, farmers began to use biotechnology products. Due to the use of new biological products, biofertilizers and biopesticides, deepening the processing of agricultural waste (manure, plant waste, etc.), they increase yields, effectively affect the growth and development of plants, destroying pests without harming the environment.

The active use of biotechnology in the tenth century in many sectors of the economy has determined in world science its "color" typology. In 2004, an extended 10-color classification of biotechnology segments depending on its field of application was proposed.

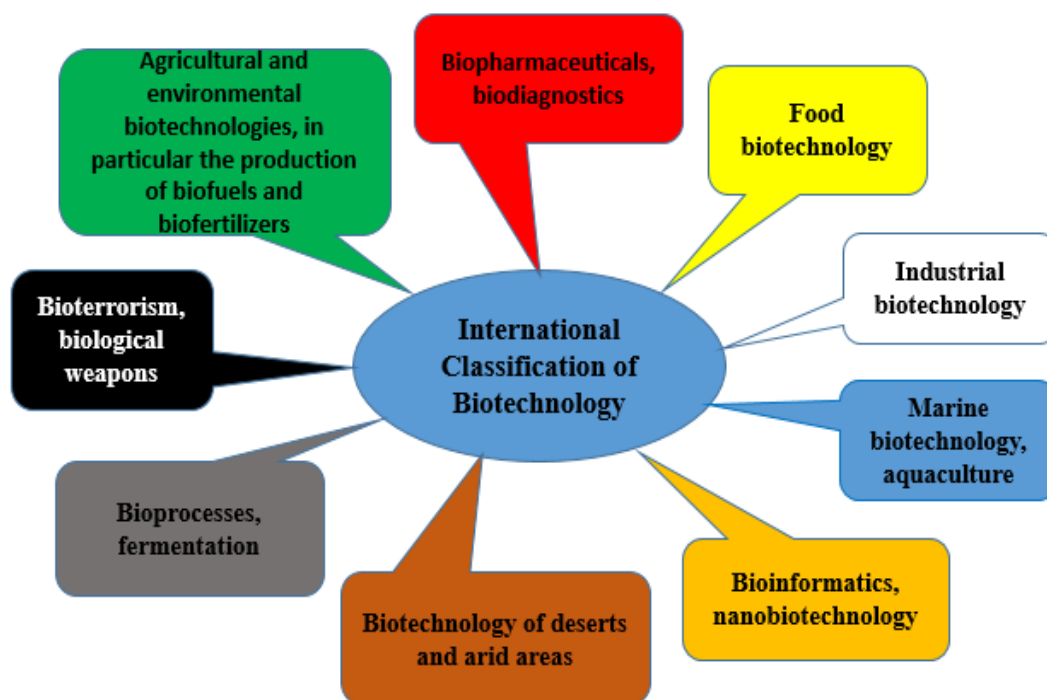


Fig. 1. International Classification of Biotechnology.

Directly to agriculture are: "green" biotechnology, which combines agriculture and environmental biotechnology (biofuels, biofertilizers, bioremediation, geomicrobiology), and indirectly, the bio-industry, the so-called "white" biotechnology based on genetic engineering.

The latter combines biofuel production, biotechnology in the food, chemical and oil refining industries. In Ukraine, this type of biotechnology most needs targeted government support. Currently, there are favorable market conditions for the revival of the hydrolysis industry on the basis of the latest biotechnologies in order to increase the range of products - enzymes, amino acids, various hydrolysates, etc. It is

important to create bio-plants for deep processing of biomass and production of new dietary supplements, feed and food products. The priority areas of "white" biotechnology also include the development of food biotechnology to improve the quality and nutritional value of domestic food, increase the production of food enzymes, sugar substitutes and more.

Green biotechnology, which is divided into biotechnology for crop production (biological plant protection, creation of plant varieties by biotechnological methods, biotechnology of soils and biofertilizers), biotechnology for animal husbandry (technologies of molecular selection of animals and poultry, transgenic and animal), biological components of feeds and premixes), and also includes processing of agricultural waste.

Today in world science there is a rapid development of areas of plant genetic engineering (isolation and cloning of new genes, creation of various genetic constructs, application of nucleic acid constructs) and a new direction is developing - metabolic engineering of plant alkaloid biosynthesis.

Ukraine has enormous potential for the use of new technologies in crop systems, namely, large areas of agricultural land and the current low level of productivity compared to production systems in Western agricultural economies. Therefore, the introduction of genetically modified technology has significant potential for domestic arable crops and can provide rapid technological and productive progress if farmers are given access to the technology. At the same time, the creation of genetically modified (transgenic) plants on an industrial scale in Ukraine is not yet underway, but there are already some prerequisites for the development of this area.

An integrated approach to creating a mechanism to stimulate the development of biotechnology in the agricultural sector will solve the following problems: increase the efficiency of all sectors of agriculture (crop, livestock, processing, etc.), get new high-yielding crops and farm animals resistant to viral, bacterial, fungal diseases and pests; increase their productive and quality characteristics.