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**NEW TECHNOLOGIES IN AGRICULTURE :PROBLEMS AND
PROSPECTS OF IMPLEMENTATION**

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У статті розглянуто особливості сучасних інтенсивних технологій ведення сільського господарства. Виявлено основні проблеми та перспективи на шляху адаптації сучасних технологій у рослинництві, новітніх техніко-технологічних рішень в тваринництві та ресурсозберігаючих систем землеробства до існуючих умов вітчизняного сільськогосподарського виробництва. Запропоновано пріоритетні заходи з подолання кризового стану інноваційно-технологічної активності сільськогосподарських

підприємств, орієнтовані на зміцнення аграрної галузі та забезпечення її прогресивного розвитку.

The article deals with the peculiarities of modern intensive agricultural technologies. The main problems and prospects for the adaptation of modern technologies in crop production, new technical and technological solutions in stock-breeding and resource saving systems of agriculture to the existent terms of domestic agricultural production are identified. The priority measures to overcome the crisis of innovation and technological activity of agricultural enterprises, focused on strengthening the agricultural industry and ensure its progressive development are proposed.

The purpose of the article is to consider the main problems and perspectives the use of advanced technologies in agriculture of Ukraine.

Key words: *new technologies, scientific and technological progress, agriculture, crop production, stock-breeding, farming.*

The main challenge of world innovation technological development is the development of agriculture, aimed at increasing volumes agricultural production through the use of technologies whose security has not yet been determined. Noted processes are accompanied by a variety of threats, including negative health effects population of the country, the lack of natural resources due to increased anthropogenic loads as a result of intensification of agri-food activities and uncontrolled use of agricultural production is not sufficiently proven innovative technologies. The current state of the agricultural industry is driven by the global impact of technological modernization, which is not always appropriate and does not meet the real agricultural needs and opportunities manufacturers. Therefore, Ukraine is striving to adhere to the global principles of agro-innovation development, should take into account the features of domestic agricultural production and the need to safeguard national interests, first and foremost, on technological security.

Ukraine's agriculture, despite the instability of innovation activity, is trying integrate advanced scientific and technical developments and adapt them to their own production. This is evidenced by state-of-the-art crop, livestock and energy-saving farming technologies. In crop production, new technological solutions are related to breeding work, genetic engineering, organic agriculture, micro irrigation, space informative technology, nanotechnology. A detailed analysis of the problems and prospects associated with the use of these technologies in the field of crop production are presented in table. 1

Table 1

Prospects	Problems
Selection of crops	
<ul style="list-style-type: none"> - improvement of varietal qualities; - increase of resistance to soil and climatic conditions and pests; - significant increase in yield; - obtaining seeds of elite varieties. 	<ul style="list-style-type: none"> - weak state support; - lack of technological equipment; - the need for funding; - absence of technologies for the creation of original breeding material.
Organic farming	
<ul style="list-style-type: none"> - lack of pesticides and fertilizers; - reduction of malicious exposure of agricultural production on the environment; - refusal of GMOs, antibiotics 	<ul style="list-style-type: none"> - lack of legislative support; - the need for state subsidies; - problems of product certification; - lack of biological plant protection products.
Drop irrigation	
<ul style="list-style-type: none"> - providing the optimum level of humidity for plants in arid conditions; - saving of irrigation water, electricity, fertilizers; - reduction of soil erosion; - the possibility of development of 	<ul style="list-style-type: none"> - spontaneous nature of land reclamation; - low state support and absence of financing of micro-irrigation programs; - lack of a targeted scientific and technical program with micro irrigation;

unsuitable for processing land; - reduction of operating costs; - carrying out agrotechnical works together with watering.	- the considerable cost of irrigation construction; - lack and poor updating of the rainy park engineering; - high probability clog tubes and equipment damage.
Nanotechnology	
- micro fertilizers help to increase yields; - low toxicity of nanomaterials; - accelerate photosynthesis of plants and ozonation of air; - strengthening of the protective properties of plants.	- insufficient knowledge about the mechanism of action of nanotechnologies and properties of nanomaterials; - weak support for nanotechnology development; - probability of toxic action of nanoparticles; - problems of certification of nanoproducts.

Today the leading place is among the factors of increasing production of crop production is about implementing breeding achievements. Traditional breeding, given the considerable time and expense involved the large scale of crosses and the investigated breeding material, displaced by the marker.

Marker breeding differs from traditional breeding work in that it allows for fast evaluate the original seed for the presence of certain genes and monitor them during selection, increasing the reliability and efficiency of selection, shortening the period of creation of new varieties and reducing costs.

Nowadays, the potential of the agricultural industry is able to meet the needs of the state for breeding materials, because about 100 scientific crops are engaged in crop selection in Ukraine establishments that carry out breeding work with more

than 300 species of plants, despite the constant outflow of staff and insufficient funding.

However, genetic engineering and genetic technologies are becoming more widespread modified organisms. Methods of genetic engineering, cell biology, DNA technology help transfer genetic material to plants from microorganisms, fungi and animals. Identification, removal of genes and their inclusion in the genome of existing varieties makes it possible to give them new economically valuable signs: resistance to pests, pathogens, herbicides, to adverse soil and climatic conditions, the ability to synthesize biopesticides and hormonal substances to attract beneficial insects, destroy chemical pesticides and other toxic substances found in soil, water, etc.

However, there is some lag in research on genetically modified organisms in Ukraine in the absence of a legal framework governing the development and use of GM plants, and due to the lack of logistical and financial support for genetic engineering research. In contrast to transgenic products, most countries have been showing considerable importance in recent decades interest in the production of environmentally friendly agricultural products grown on principle Organic farming - with minimal tillage, complete abandonment of GMOs, antibiotics and plant protection products.

Organic agriculture involves organic farming cycles, abandoning the use of fertilizers and pesticides, the use of composts, the preservation of edaphone and stimulation of soil biological activity. Some farms are trying to refocus agricultural production, following the principles of organic farming, but this is not enough for the sustainable development of the organic sector of agriculture. To this prevent, in the first place, the problems of social, institutional, legal and financial economic nature. Of course, their solution will take decades, holding back the progressive development of the agrarian sector of Ukraine.

The current trend of agricultural development implies the creation of conditions for stable soil management, including hydrological, thermal, biological regimes. The decisive role in the solution of this issue belongs to the irrigation and

drainage of land, broad the use of which significantly reduces the dependence of agricultural production on conditions natural moisture supply.

Currently, there are the following micro irrigation systems: channel-spacing, circular, drip, drum type and linear. However, drip irrigation is one way of intensifying irrigation agriculture. Irrigation drip in Ukraine gained widespread recognition in 2004 when occupied under this system of irrigation reached 25,0 thousand hectares. Since then, there has been a positive trend increase in irrigation areas and as early as 2011, there were up to 52.5 thousand hectares [4, p. 213]. But, given the weak state support for land reclamation programs, the aging of existing irrigation systems and significant financial costs for the installation of irrigation equipment, the mass introduction of systems micro irrigation is not expected in the near future.

Considering the considerable territory of the agrosphere and the need to obtain prompt information on state of agricultural resources, rational use of natural resource potential, forecasting yields, the emergence of crisis phenomena, the widespread introduction of modern land use systems and information agrotechnology, the implementation of the achievements of the space industry becomes the most appropriate condition for intensification of agricultural production. The attempt to rationalize the farming process necessitated the use of space information technology, in particular Rapid Eye, CORINE Land Cover (Coordination of Information on the Environment), Global Positioning System (GPS). With their help is carried out yield monitoring and estimates of the amount of resources, including fertilizers or herbicides required for use with a specific situation. This can reduce production costs by making more efficient use of logistical resources and reducing the level negative impact on the natural environment.

Considering the importance of this problem, the concept of scientific and technical was developed at UAAS programs "Monitoring Agro Resources and Predicting Their Condition Using Remote Data probing "Agrocosmos", which must meet the requirements, criteria and technological standards information system and

meets the needs of national agricultural production. Its implementation will be the first step to coordinate space science and technology work in agribusiness and create an information system for monitoring agro resources.

The realities of a market economy dictate the need to increase production efficiency in livestock production through the introduction of progressive energy and resource conservation technologies. The development of the industry should be based on the introduction of integrated mechanization and automation, usage of robotics, creation of durable artificial bases, breeding high-yield livestock. Compliance with these conditions will guarantee the profitability of the industry in animal husbandry and will provide a basis for further innovative development of agroindustrial complexes. Though resource-saving technologies will promote scientific and technological progress of domestic animal husbandry, but at this stage this issue remains problematic due to the lack of organizational-economic, financial and logistical support.

Recently, in modern agriculture progressive modern technologies: Minimum tillage and precision farming technologies: Mini-till, No-till, "Strip-till".

Mini-till technology minimizes technical and technological impact on soil during its cultivation that increases the economic efficiency and environmental friendliness of the growing process of crops due to the reduction of weather and climate impact, significant reduction of the level of consumption of fuel, fertilizers, plant protection products, reduction of agricultural use of technology, increase in yield, optimization of crop rotation, improvement of the state of the environment.

No-till is a way of cultivating soil that does not offer mechanical solutions to eliminate seals at a depth of 30-35 cm. However, it is an ideal system of soil tillage to protect the surface from erosion, because post-harvest and organic residues remain on the soil surface.

Strip-till is a system of agriculture that requires a minimum tillage. It combines the benefits of soil warming and drying that are characteristic of traditional technology, with soil-saving advantages of zero; processing occurs only in that one part of the soil where the sowing will take place directly.

Conclusions from the study : Therefore, to ensure sustainable development agriculture, strengthening the economic and technological security of the industry is necessary introduction of the latest progressive technologies. Use of innovation and techno-technological development in the agricultural sector will allow to increase its productivity. At the expense intensive technologies of domestic agricultural production can be achieved increase the production of gross production, improve its quality, reduce the cost of resources in turn, will help to increase the efficiency and profitability of agricultural production.

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