



Original article

PROBLEMS OF INTRODUCING INNOVATIONS INTO AGRICULTURAL PRODUCTION

O.Yu. Grechenkova

Abstract

Background. The article solves the problems of introducing the latest technologies in agriculture. Because manual labor is very difficult to switch to electronic technologies and technologies in general. Using a combine harvester instead of a plow, instead of manually milking a cow, a special device, entering data on the results of work into an electronic journal and calculations in an unnatural, but non-cash form - this is the future of agriculture largest agricultural powers. The article shows the problems of modern agricultural enterprises and outlines ways to solve them based on the current state of science, technology, legislation, economic and social state of modern society. The difficulties in the path of the agro-industrial sector are quite natural and solvable with a careful approach and digitalization.

Purpose. Agricultural work has historically been directly related to the use of manual labor. As technology developed, societies and states began to use other technologies and manual labor was gradually replaced by machines and automatic devices. However, the transition from manual to machine labor turned out to be very long and difficult. Mainly. Because of the reluctance to abandon the use of manual labor. When working on the land, the labor of people living on it was used. Therefore, the refusal in favor of machine labor was perceived as recognizing the peasant as unnecessary and superfluous. The process sometimes took place gradually, sometimes in leaps and bounds. It led to riots, revolutions, the overthrow of the system, physical violence and threats. But time moves forward and technical progress can no longer cancel anything.

Materials and methods. To study introduction of innovations in agricultural production, the following methods are used. The method of materialist dialectics is the study of dynamics, development, movement from one state to another. The method of scientific abstraction is abstraction from the unimportant and random in order to highlight the most significant in the phenomenon being studied. Analysis

and synthesis - dividing the phenomenon under study into its component parts and combining the individual parts into a single whole.

Results. In recent years, the domestic agro-industrial complex has received additional development. The Russian Federation fully provides itself with grain and legume crops, at the same time, sells surpluses to other countries. At present, a slight decline in the agricultural sector is recorded. It is explained by political, economic, social reasons of both internal and external nature, lack of sufficient financial support.

Conclusion. It is necessary to adopt agronomic and crop management, which allows to optimize production and environmental needs. Recent advances in technology, precision agriculture and sustainable farming methods offer promising solutions to address the complex challenges of climate change while contributing to the economic prosperity of the agri-food sector.

Keywords: electrogenic map of crops; new technologies in agriculture; robotics; management; electronic journal of field processing

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Научная статья

ПРОБЛЕМЫ ВНЕДРЕНИЯ ИННОВАЦИЙ В СЕЛЬСКОХОЗЯЙСТВЕННОЕ ПРОИЗВОДСТВО

О.Ю. Греченкова

Аннотация

Обоснование. Статья решает проблемы внедрения новейших технологий в сельское хозяйство. Ведь сельское хозяйство – одна из самых неразвитых отраслей экономики, так как при ручном труде очень сложно перейти на электронные технологии и технологии в целом. Использование комбайна вместо плуга, вместо ручной дойки коровы специального устройства, внесение данных о результатах работы в электронный журнал и расчеты в неестественной, но безналичной форме – вот будущее сельского хозяйства крупнейших сельскохозяйственных держав. В статье рассказывается о том, как крупные российские агрохолдинги внедряют в свою деятельность технологии и цифровые продукты. С помощью специального оборудования они управляют посевной и уборочными компаниями, ведут прием космической информации и получают отчеты о результатах работы спецпредприятий, оборудования, проверяют

приживаемость саженцев, участвуют в управлении техникой, культивируют земельные участки. Рассмотрены препятствия и барьеры на пути цифровизации сельскохозяйственного сектора.

Цель. Целью статьи является решение проблемы внедрения новейших технологий в сельское хозяйство. Сельскохозяйственные работы исторически напрямую были связаны с использованием ручного труда. С развитием технологий общества и государства стали использовать новые технологии, и ручной труд постепенно заменялся машинами и автоматическими устройствами. Однако переход от ручного труда к машинному оказался очень долгим и трудным. В основном, из-за нежелания отказываться от ручного труда. При работе на земле использовался труд людей, живущих на ней. Поэтому отказ в пользу машинного труда воспринимался как признания крестьянина ненужным и лишним. Этот процесс иногда происходил постепенно, иногда скачкообразно. Он приводил к бунтам, революциям, свержению системы, физическому насилию и угрозам. Но время движется вперед и технический прогресс уже ничего не сможет отменить.

Материалы и методы. Для изучения внедрения инноваций в сельскохозяйственное производство используются следующие методы. Метод материалистической диалектики – изучение динамики, развития, движения от одного состояния к другому. Метод научной абстракции – отвлечение от несущественного и случайного с целью выделения наиболее важного в изучаемом явлении. Анализ и синтез – разделение изучаемого явления на составные части и объединение отдельных частей в единое целое.

Результаты. В последние годы отечественный агропромышленный комплекс получил дополнительное развитие. Российская Федерация полностью обеспечивает себя зерновыми и бобовыми культурами, в тоже время, реализует излишки в другие страны. В настоящее время фиксируется значительный спад в сельскохозяйственной отрасли. Он объясняется политическими, экономическими, социальными причинами как внутреннего, так и внешнего характера, отсутствием достаточного финансового обеспечения.

Заключение. Необходимо внедрять агрономическое и культурное управление, позволяющее оптимизировать производство и экономические потребности. Последние движения в области технологий, точного земледелия и методов устойчивого земледелия предлагают многообещающие шаги для решения сложных проблем, связанных с изменением климата, способствуя при этом экономическому процветанию агропромышленного сектора.

Ключевые слова: электрогенная карта посевов; новые технологии в сельском хозяйстве; робототехника; управление; электронный журнал обработки полей

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Introduction

The article solves the problems of introducing the latest technologies in agriculture, since manual labor is very difficult to switch to electronic technologies and technologies in general. Using a combine harvester instead of a plow, instead of manually milking a cow, a special device, entering data on the results of work into an electronic journal and calculations in an unnatural, but non-cash form - this is the future of agriculture largest agricultural powers.

Agricultural work has historically been directly related to the use of manual labor. As technology developed, societies and states began to use other technologies and manual labor was gradually replaced by machines and automatic devices. However, the transition from manual to machine labor turned out to be very long and difficult. Mainly. Because of the reluctance to abandon the use of manual labor. When working on the land, the labor of people living on it was used. Therefore, the refusal in favor of machine labor was perceived as recognizing the peasant as unnecessary and superfluous. The process sometimes took place gradually, sometimes in leaps and bounds. It led to riots, revolutions, the overthrow of the system, physical violence and threats [1]. But time moves forward and technical progress can no longer cancel anything. Most labor-intensive work is already done by machines, for example, moving goods, harvesting, sorting products, preparing fields for sowing crops, even walking animals is carried out with the help of the Internet. All the implemented mechanisms entail changes in legislation, the labor market, and the work of distribution centers for storing and processing products. The object of research into the problems of introducing innovations into agricultural production is agrarian relations that develop in the process of implementing activities related to the production, consumption and sale of agricultural products. The legislation on agricultural development dates back to the post-revolutionary period of 1917 and is still developing. Agricultural development requires the development of new territories for the purpose of sowing, grazing animals, organizing hangars for storing products and factories for processing them and creating new products. [2,3]. In order to organize fields, forest plantations can be cut down, which without the proper level of regulation can lead to an ecological catastrophe. The forest is the breath of our planet and man, therefore, the unbridled zeal for cutting down forests, even for the purpose of their rejuvenation, can lead to a

catastrophe. Forest fires are currently becoming widespread. It is very difficult to fight them, since the combination of upper and lower fires. The issues that need to be addressed by 2040 are listed in the table.

Table 1.
Issues to be addressed by 2040

Type of activity	Growth rates
transport products of the agro-industrial complex	40 ships
bringing new lands into circulation	13,2 million hectares
digitalization of the fisheries complex	1 unit
railway containers	400 things

As a result of my work, I created a proposal for the comprehensive digitalization of the agricultural market and the entrepreneurial risks associated with it.

Table 2.
Barriers to digitalization of the agro-industrial complex

Name	Solution
Low IT literacy and awareness of modern technologies	Continuous learning and adaptation
Concealing technological advances in the implementation of AI or robots	Publicity of technological achievements
Lack of internet	Providing stable communications to the main facilities of agricultural enterprises
Low level of prestige of the profession	Overcoming prejudices and misconceptions about working in agriculture and emphasizing the importance of this field of activity for society
Personnel shortage	Investments in training thousands of young professionals
Lack of independent platforms for testing new technologies	Creation of independent testing sites in the Russian Federation
Difficulties in obtaining subsidies	Simplification of the procedure for applying for funds from the applicant
Missing data	Creating the ability to collect and store large amounts of data that can be used for analysis

The specifics of corruption in innovative activity is the increased complexity of its detection and measurement. This is explained by the fact. That innovative activity is associated with a high level of risk and therefore it is almost impossible to accurately determine the cost of its implementation [4; 5].

The Government of the Russian Federation is actively working on the introduction of innovations in agricultural production.

In 2024, the Russian Ministry of Agriculture began work on the creation of a federal map of agricultural lands in the regions. The Russian Ministry of Agriculture has organized a special center and developed a roadmap for digitalization of dust work [6; 7]. Tractors and combines are equipped with cruise control sensors, autopilots and remote monitoring systems. Autopiloting is carried out on the basis of satellite navigation, neutron networks and artificial vision [8; 9].

This is a set of sectors of the country's economy including agriculture and industries closely related to agricultural production carrying out transportation, storage, processing of agricultural products, supplying them to consumers, providing agriculture with machinery, chemicals and fertilizers, serving agricultural production [10].

It which could be welfare convergence (simultaneous investment utilization must during the same reproductive entrepreneurial time processes with the colonies emphasis on degrees unique features by the should terms of the dozens competition) or divergence (standardized usage classes during different essence business object processes by the terms of relationships labor storing division [11; 12].

The subjects in the turnover enter into the performance of obligations that are not directly subjects, in the legislative sense, but fully ensure the satisfaction of their individual costs, including concluding business and entrepreneurial contracts that do not entail changes and innovations in civil legislation. The fair urgently price in sphere this case is temperature defined at the forms agro-exchange house farm which is products created along negative with an number agro-town [13].

Short-sighted producers agree to the terms of retailers, reducing the cost of meat products by saving on quality. Ultimately, this strategy will lead to the product "dying", sales will fall, and at the same time the desire of consumers to buy this category of products at all will disappear [14].

The legislator refused to use the terms "forest management law", "forest management", which were used in the Forest Code of the Russian Federation in 1997. The meaning of the concept of "forest use" and its relationship with the concept of "forest management", which is traditionally used in the science of forest law, is defined. From a scientific point of view, the term "forest use" coincides in its meaning with the term "forest management" [15; 16].

Table 3.
Difficulties and improvements

Difficulties	Improvements
Insufficient funding	Open special account financing of agricultural producers
Lack of motivation for farmers (agrarians) to increase production capacity	Risky farming zones need additional incentives
High percentage of borrowed funds with overdue accounts payable	create a fund to help farmers, write off interest on loans

Thus, support for agriculture largely depends on the will and capabilities of the state, the degree of implementation of programs to help farmers. In turn, assistance to farmers is of a declarative nature. If you do not declare it, you may not receive assistance. Mandatory insurance of agricultural risks in certain cases will be considered justified and will bring a positive result.

Table 4.
Results and possible actions

Results	Possible actions
Creating a storage center	Equipment for agricultural production preparation and storage centers
Cashless service	Full transition to banking and non-cash payment
Subsidies	Use of government incentives, special development programs
Creation of a data bank	Using a single database of agricultural producers and purchasers
Reducing bureaucratic pressure on business	Reduction of administrative and tax liability for violations in the sphere of agricultural products turnover

Here they are:

Equipment of centers for preparation and storage of agricultural products;
Creation of a fund to help farms;
Implementation of space technologies;
Employment of students in the agro-industrial complex [17].

Discussion

The role of public-private cooperation in agriculture remains a debatable issue. Should a special fund be created to help beginning or struggling farmers or not? How long will budget funds last or will private investors' help change the situation? It is possible that maintaining and expanding agricultural educational institutions at the technical school (college) level will contribute to the development of agriculture and the work of these mid-level specialists on the land.

Because according to statistics, the number of farms has significantly decreased in the Russian Federation, especially in the Rostov Region and Krasnodar Territory. Of course, the rapid development of large corporations also contributes to this downward development. Farming is an individual approach to growing and producing products, careful attitude to resources, including labor [18; 19].

Conclusion

A new Strategy for the progressive development of agriculture until 2040 should be approved. It should include public-private regulation, volumes of export of surplus agricultural products, introduction of robotics in farm management, preservation and opening of new secondary educational institutions in order to form a target professional base of mid-level specialists. From a legal point of view, I believe that compulsory insurance of agricultural risks in certain cases will be considered justified and will bring positive results. Risk insurance should not be standard, but should have an individual approach.

It is necessary to adopt agronomic and crop management, which allows to optimize production and environmental needs. Recent advances in technology, precision agriculture and sustainable farming methods offer promising solutions to address the complex challenges of climate change while contributing to the economic prosperity of the agri-food sector [20].

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