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## **PREREQUISITES FOR MODERNIZATION OF MATERIAL AND TECHNICAL RESOURCES IN AGRICULTURE**

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**In this article the preconditions for implementation of modernization processes in agriculture are determined. The process of modernization is regarded as a set of structured factors aimed at improving the efficiency of economic activities of agricultural enterprises. The main directions of improving material and technical base of agricultural enterprises are determined.**

**Key words: modernization, agricultural enterprise, logistical support, modernization process.**

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## **ПЕРЕДУМОВИ МОДЕРНІЗАЦІЇ МАТЕРІАЛЬНО-ТЕХНІЧНОГО ЗАБЕЗПЕЧЕННЯ СІЛЬСЬКОГО ГОСПОДАРСТВА**

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**Визначено передумови реалізації модернізаційних процесів у сільському господарстві. Модернізаційний процес розглядається як сукупність структурованих чинників, спрямованих на підвищення ефективності господарської діяльності аграрного підприємства. Визначено основні напрями удосконалення матеріально-технічної бази сільгосп підприємств.**

**Ключові слова: модернізація, сільськогосподарське підприємство, матеріально-технічне забезпечення, модернізаційний процес.**

### **Statement of the problem**

Efficient agriculture is characterized by a set of benefits arising from the current trends of its development, impact and prospects of implementation. Advantages of agriculture area, unlike other areas of modern national economy lies in the fact that population growth provides a direct increase in total demand for food and consumer goods. The agrarian question has always been important for Ukraine, because agriculture is a manufacturer of food production, which is vital for the public, one of the main ways of life, determined society, the primary mean of transformation of transformation human labor into capital. The background of these paradigms singled out problems of modernization processes in agriculture as the basis of the forcing process of the agricultural sector of Ukraine.

### **Analysis of recent research and publications**

The process of modernization changes in enterprises is researched by scientists for decades. The creation of the priority directions of development and modernization of fixed assets of enterprises are

dedicated the work of scholars such as F. Boucher, D. Orden, J. Norton, E. Bebbinhtona, I. Mudlaka. The issue of improving the efficiency of logistics agriculture sector focuses on the works R. Andrushko, P. Sabluk, O. Rodionov, V. Tkachenko, V. Heyts, P. Makarenko. However, today is not solved the problems of the formation processes of modernization in agriculture.

In today's world, the development of agriculture is facing a major problem agricultural economics growth a requirement to the scale and intensity of modernization processes. The prediction of such processes an important part of scenario forecasting agricultural economics growth in any developed economy. However, increasingly negative impact agricultural economics growths act as direct errors in the process of development and modernization of agriculture. Scientists rightly determined that the origin and causes of conflict in the system agricultural modernization are associated with the effects of unsustainable land use and extensive farming [1]. Poor into account the specific features of agriculture as a complex economic, environmental and socio-biological system, which resulted from the operation of the most important principles of reorganization and directions for further agrarian reforms.

### **The formulation of objectives**

The influence of the above factors leads to the formulation of research objectives:

- outline directions of modernization processes in agriculture;
- identify ways of improving the efficiency of agricultural resource base;
- propose a set of measures to stimulate modernization management policy for agricultural enterprises.

### **Presentation of main materials**

The modern market of inputs for agricultural purposes in leading foreign countries is a complex economic mechanism, which, along with the presence of objective economic regulators present synthetic, which are influenced by human factors and implemented through state regulation of natural market processes, as well as targeted and planned activities of many participants in the market [1].

In the economic aspect, the greatest difficulty is the main trend agricultural economics growth – increasing degree of economic efficiency of the concentration stages throughout the value chain of agricultural products. This effectively means building complex organizational and managerial innovation type food system that provides global competitive advantage in the short -term perspective.

The domestic market of production has certain inertia. For a long time it was closed, and as production and infrastructure can't be rebuilt for a few years, the range of products the market is changing slowly. In addition, most of the economy in 90 years has caused a significant decline in production in many sectors. Therefore, in relation to the domestic market for agricultural machinery experience is highly developed foreign markets serve as a basis for changes that will help bring the domestic market of agricultural equipment level of market leading foreign countries [2].

Therefore, the process of introducing innovations in agriculture has become a priority of state policy of agricultural economics growth. The literature indicates that the development of practice in implementing modernization innovations directly linked opportunities for a number of specific advantages in dealing with various environmental issues. For such benefits primarily include new approaches, innovative ways and possibilities to overcome the existing negative trends in the development and modernization of agriculture and its market [3]. In any market there are producers of goods and their consumers, intermediaries that facilitate commodity circulation and structures that regulate the functioning of the market. They all have their specific activities, depending on the extent of their tasks. These scales can grow or shrink, thus reflecting the current market situation.

Modernization as a result of the modern system of agriculture and the incentive to agricultural economics reflects the main trends to increase productivity indices of basic agricultural products, efficient use of natural resources and measures for their regeneration. In the research noted that upgrading the knowledge and technology in agriculture and food affect the stability of yields in the future. Therefore, investment in research and development are critical to improving the efficiency and sustainability of food production and security services in agricultural systems, and responding to new developments related to changes in solving specific problems vulnerable layers of population and market.

Real and technical resources of farming are mainly represented by products that are used as inputs. These tractors, combines, spare parts, various farm equipment and other supplies to it. Sales resources serve as the final link in the relationship of market structures and their production as an initial stage of movement to the consumer. Production stimulates market saturation of its goods and at the same time depends on the market, its capacity, which is determined by the purchasing consumer. The market may be present only by what is produced, but should produce only what can be implemented.

Of particular importance in the market given the quality of goods that directly affect their price. Quality has always been valued by the market and ensures the competitiveness of the goods [4]. Logistical support is an organized process of supply to the market of all resources required for production. Of the variety of resources that are supplied to the market are important technical means of production.

It is the fact that in the last decade Ukraine's agriculture has made significant productivity growth. However, today's trend is to reduce the rate of growth, especially since it was achieved by increasing the pressure on natural resources and the environment, which increases the risk to the quality of the used soil as a result of reduction of organic matter and strong erosion. In this situation a new model of agricultural economics growth requires competitive and sustainable growth in food, feed, biomass. Achieving this goal requires effective integration of production stages in the agricultural sector, reducing non-productive costs [5]. The growth in output is combined with improved economic returns for those primary producers, whose share of value added in the food chain declined over the past decade. Without increasing the profitability of farming, modernization achieving sustainability is impossible.

The study identifies basic forms of agricultural organizations supplying technical resources. Depending on the type of resources that are supplied at present clearly, there are three forms of markets (Figure 1). The market in this case is seen as a system of economic relations, connected with the exchange of goods and services, which are formed as a result of demand, supply and price. The primary market is the market of new techniques, the participants of which are manufacturers of agricultural machinery and inputs, dealer intermediary agencies that are intermediate between industry and end consumers inputs, i.e. farms.

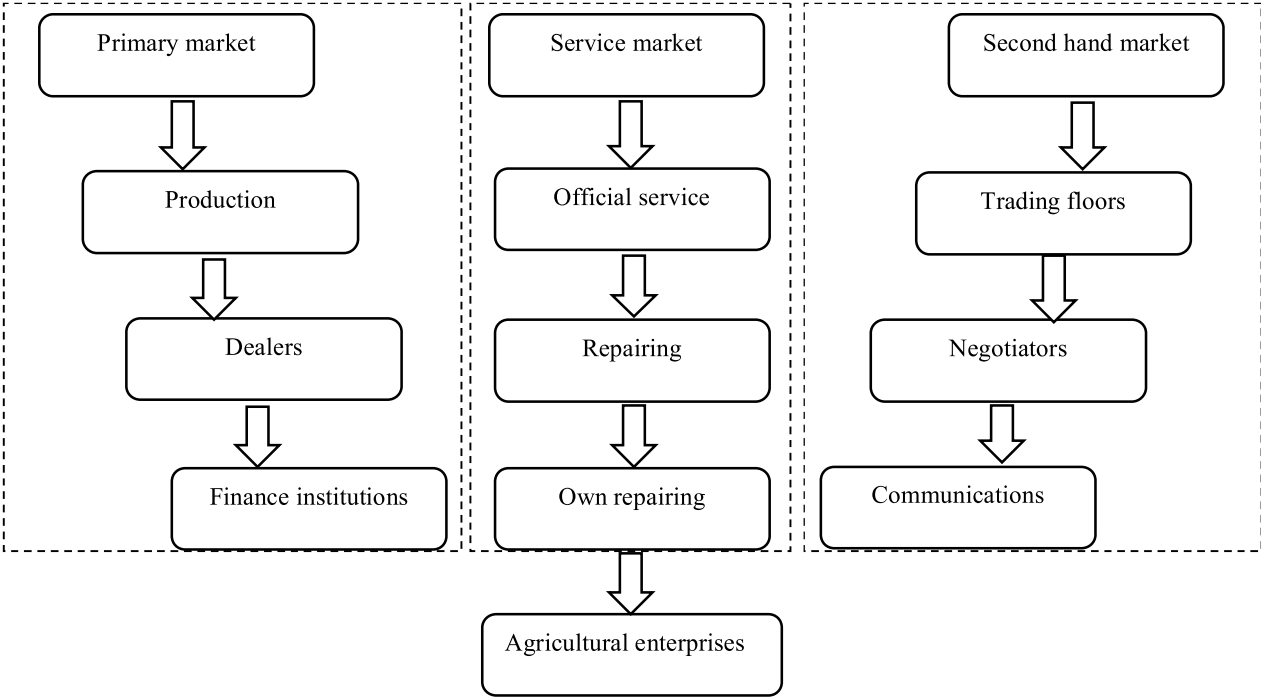


Fig.1. Forms inputs agriculture of market

Modern agricultural economics growth is based on establishing a direct connection between the latest scientific and technological achievements and interests in these parties, including farmers, business, industry. This will help turn research results into real innovation, innovate faster in practice, to provide systematic feedback to practice in the scientific world. The role of farmers in the mechanism in modern agricultural economics growth as their industrial, economic and social potentials do. Changes in user needs for safe, healthy and quality food demonstrate the growing importance of the local market. A continually growing market for food, feed and biomaterials provides economic development and employment opportunities in the social sphere. In addition, its plays an important role dealerships supply of inputs in agriculture.

In today's dealership as a whole in Ukraine, and in some regions developed mainly through existing businesses agricultural economics and collaboration with technical repair companies. The downside dealer forms of service is the emergence of a large number of intermediaries in the chain of movement of goods, resulting in unreasonable overpricing inputs purchased farms [6].

In the economic aspect modernization transformation in agriculture requires commercialization of production processes, which provides commercial companies; associations and farmers access to return funds to implement new and invest-mentioned agricultural projects. This allows setting the financial capacity of the transition to the modernized agricultural production through the application of new technologies, processes and services, and implementation of marketing opportunities inherent in the commercialization of a specific project.

The secondary market is the market of second-hand equipment in modern terms is an important part of agricultural machinery. Its purpose is to in low purchasing power of most households to be able to put more vehicles on the market at prices well below the price level of new technology [7]. The market of second-hand machinery developed in all modern economies. In Ukraine, despite the extreme demand, the market for second-hand vehicles currently enough developed. Rebuilt equipment of agricultural enterprises is not offered everywhere, no advertising trailers, tractors, do not receive sufficient information about the presence of such equipment. Usually, the farms are selling and buying bargains using their economic connections.

The research found that one of the significant economic benefits of second-hand equipment market is that it constrains and regulates the prices of new cars. Development of the market of used cars is a promising channel for supplying villages with more machinery and spare parts. Its expansion directly related to the implementation of the principles of marketing activities of companies engaged in repair and sale of second-hand equipment.

Thus, the main economic component of the secondary market of agricultural machinery will further develop its infrastructure that requires large investments, in contrast to the primary market. Note that the playback logistics agriculture directly related to investment opportunities for agricultural producers, the efficiency of their management, the level of prices for agricultural products and for inputs. These factors, among others, determine the level and dynamics of funds used as investment and effective demand for primary and secondary market of industrial inputs for agriculture. The third component of agricultural markets defined shape service market as an essential part of the process of agricultural production is the repair and maintenance of tractor fleet. The nature and extent of technical service depends on the quality of manufacturing machinery and level of deterioration. The higher the quality equipment that is delivered, the lower these costs to keep it in working condition, the easier it is to organize the service [8].

With increasing periods of use, wear and aging machinery quantity of technical service unnecessarily increases, increasing the cost of mechanized operations and agricultural products. Thus, the technical services in a market economy play an active role of regulator requirements for new technology. Technical services includes: pre-sale, warranty and post-warranty service. Pre-service is specific to agriculture, which is drawing, resupply, regulation, lubrication components of large appliances before using. Warranty is a specific product that is valuable to consumers and paid to them as part of the purchase price, which is to eliminate the faults occurred in vehicles sold during the warranty period of its operation, but also in the post-warranty period (if additional contract).

The modern economy has created opportunities agricultural enterprises to choose the form and methods of service, determine the nature of the relationship partners. In carrying out service work on technical service can engage the consumer technology, brokers, specializing not only in selling new and used equipment, but also specific nomenclature works (repair and engineering company, shop, station, etc.) and plants of manufacturers. In fact, that happens: the shape and scope of participation of different structures depending on the specific conditions regulated agreements and relationships with established practice farms.

In the field of industrial and maintenance, according to P. Sabluk, a promising direction is the development of a network machine and technological stations (MTS) on the trade system. For several years and successfully running MTS and mechanized units, which, along with the maintenance of their own equipment and farm machinery contracts, carry significant amounts of harvesting and sowing work in the farms serviced by helping them avoid major yield losses [9]. This model of business organization called outsourcing and allows farmers save money as external contractors (due to the narrow specialization and economies of scale achieved when performing identical operations simultaneously multiple clients) capable of performing the services at lower cost. It needs to attract specialized companies that have the necessary infrastructure, business technology and skilled professionals, providing guaranteed quality of work, minimize financial risks by laying responsibility for incorrect solutions to contractors; increase the attractiveness of the organization in the eyes of investors and partners. They are as well as the use of external providers characterized not only by financial means but the proper organization of business processes in the enterprise.

Today farms that are in difficult financial circumstances forced much of repair and maintenance of technical equipment to carry out their own. Undoubtedly, when the economy experiencing significant financial difficulty, recovery strategy using multiple machines repairs becomes a priority instead of full recovery strategy by acquiring and culling old technology. This conclusion supported by narrowing the areas of new technology and the increasing share of costs of agricultural organizations for the purchase of spare parts for repair of equipment. Thus appeared and implemented economic necessity durable and reusable repair older machines [10].

Undoubtedly, the successful functioning of the market is the interaction between the two levels of its regulation: government regulation and market self-regulation. State regulation concerning the market of agricultural equipment includes income redistribution through the state budget to provide financial support to agriculture in the form of guaranteed prices, subsidies, grants, soft loans. Market self-regulation factors interact with the basic forms of market marketing technology, logistics of moving towards consumer's infrastructure market competition.

The main directions of the regulation of inputs have to pursue the objective to achieve proper interaction of all four aspects of expanded reproduction, distribution, exchange and consumption, to contribute to the restoration of full scale law of value, supply and demand, competition, the equivalent exchange between agriculture and agribusiness sector industries first.

### **Conclusions**

The main directions of state regulation of production facilities for the agriculture are:

- 1) to reduce the inter-sectoral disparity in prices by supporting incomes of rural producers in accordance with the dynamics of the prices of inputs;
- 2) the direct limit of prices for the major types of equipment, fuel, lubricants, fertilizers and other means of production;
- 3) to develop regulations that increase the liability of manufacturers and their dealer for service quality, completeness agricultural production, ensuring equipment spare parts for the full range and lifetime;
- 4) to change current procedures and conditions for supply of equipment on lease, which is necessary to stimulate the involvement of bank capital by providing tax benefits to banks of invested funds in order to create a market of commercial leasing equipment along with the state.

To achieve sustainable growth in agricultural productivity, resources would be carried out in accordance with the modernization of production. This is particularly important in relation to land, since there appear successful transition to a more sustainable model of production. Land is the basic resource for agricultural production, as rational land use directly related to the quality and quantity of water resources, biodiversity and provision of ecosystem services.

### **Prospects for future research**

It is needed government support to promote modernization of changes in agriculture, continued innovation, research and development of agricultural production and in particular – to improve energy efficiency, increase productivity and its ability to adapt to climate change. It can be noted the vital need to invest in research and modernization in agriculture. For this purpose it is necessary to reduce the distance between agricultural practice and theory through the intelligent network.

1. Гець В. Ліберально-демократичні засади : курс на модернізацію України / В. Гець // *Економіка України*. – 2010. – № 3. – С. 4–20. 2. *Sources of Growth in French Agriculture* Frédéric Bouchet, David Orden and George W. Norton *American Journal of Agricultural Economics* Vol. 71, No. 2 (May, 1989), pp. 280–293. 3. Андрушко Р. П. Соціальний розвиток села як пріоритетний напрямок аграрної реформи / Р. П. Андрушко // *Вісник ЛДАУ: Економіка АПК*. – Львів : ЛДАУ. – 2007. – №5. – С. 191–195. 4. *Modernization from below: An Alternative Indigenous Development?* Anthony Bebbington *Economic Geography* Vol. 69, No. 3, *Environment and Development, Part 1* (Jul., 1993). P. 274–292. 5. *Economic Growth: Lessons from Two Centuries of American Agriculture* Yair Mundlak *Journal of Economic Literature* Vol. 43, No. 4 (Dec., 2005). – P. 989–1024. 6. Месель-Веселяк В. Я. Підвищення конкурентоспроможності аграрного сектору економіки України / В. Я. Месель-Веселяк // *Економіка АПК*. – 2007. – № 12. – С. 8–14. 7. Саблук П. Т. Основні напрями розвитку високоефективного агропромислового виробництва в Україні / П. Т. Саблук // *Економіка АПК*. – 2002. – № 7. – С.3–13. 8. Ткаченко В. Г. *Аграрная реформа в Украине: результаты, проблемы, перспективы завершения: монография* / В. Г. Ткаченко, В. И. Богачёв. – Луганск: Книжковий світ, 2006. – 228 с. 9. Саблук П. Т. Концептуальні аспекти модернізації аграрного виробництва та розвитку сільських територій в Україні / П. Т. Саблук // *Економіка АПК*. – 2010. – №8. – С. 3–8. 10. Макаренко П. М. *Економічне відтворення аграрного виробництва в умовах ринку : монографія* / П. М. Макаренко, Т. В. Попова. – Мелітополь : Люкс, 2011. – 348 с.