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Амонс С.Е.
кандидат сільськогосподарських наук,
доцент кафедри ботаніки, генетики та захисту рослин,
Вінницький національний аграрний університет
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СУЧАСНИЙ СТАН ТА ПРОБЛЕМИ ІННОВАЦІЙНОГО РОЗВИТКУ ГАЛУЗІ КОРМОВИРОБНИЦТВА В СІЛЬСЬКОГОСПОДАРСЬКИХ ПІДПРИЄМСТВАХ УКРАЇНИ

Amons S.E.
Candidate of Agricultural Sciences, Associate Professor,
Associate Professor of the Department of Botany, Genetics and Plant Protection,
Vinnitsia National Agrarian University

THE CURRENT STATE AND PROBLEMS OF INNOVATIVE DEVELOPMENT OF THE FEED PRODUCTION INDUSTRI OF AGRICULTURAL ENTERPRISES OF UKRAINE

Анотація.

У статті розглядаються питання сучасного стану вітчизняної галузі кормовиробництва, підвищення її ефективності, заснованих на формуванні і використанні економічних принципів, визначенні економічних взаємовідносин в нових умовах розвитку вітчизняного аграрного сектора.

Встановлено, що успішно вирішити проблему забезпечення тваринництва високопоживними кормами можливо при організації інтенсивного кормовиробництва як самостійної галузі, а також на основі концептуальних підходів стратегії інноваційного розвитку кормовиробництва України.

Наголошено, що інноваційну складову у вітчизняному кормовиробництві слід розглядати як реалізацію в господарській практиці результатів наукових досліджень та розробок нових сортів кормових культур, кормосумішок; новітніх наукоємних технологій виробництва, заготівлі та зберігання кормів; використання більш ефективних нових добрив, засобів захисту кормових культур; нових форм організації виробництва та управління галуззю кормовиробництва, що дасть можливість підвищити її ефективність.

Abstract.

The article considers the current state of the domestic feed industry, increasing its efficiency, based on the formation and use of economic principles, determining economic relations in the new conditions of development of the domestic agricultural sector.

It is established that it is possible to successfully solve the problem of providing livestock with highly nutritious feeds by organizing intensive fodder production as an independent industry, as well as on the basis of conceptual approaches to the strategy of innovative development of fodder production in Ukraine.

It is emphasized that the innovative component in the domestic feed production should be considered as the implementation in economic practice of the results of research and development of new varieties of feed crops, feed mixtures; the latest science-intensive technologies for production, procurement and storage of feed; use of more effective new fertilizers, means of protection of forage crops; new forms of organization of production and management of the feed industry, which will increase its efficiency.

Ключові слова: *кормова площа, галузь, кормовиробництво, кормова база, тваринництво, продуктивність, розвиток, інновації, ефективність.*

Keywords: *fodder area, branch, fodder production, fodder base, animal husbandry, productivity, development, innovation, efficiency.*

Introduction.

The development of agriculture is the basis of food security in our country. Ukraine has historically been an agricultural country, which has successfully produced both crop products and livestock products. The lack of an effective agricultural policy aimed at significantly modernizing the resource potential of the industry and increasing its efficiency has led to a reduction in the role of the agricultural sector in our country.

Therefore, great importance is attached to the formation of a new and improvement of the existing institutional environment of the agricultural sector. The solution of these issues should give impetus to the development of all areas of agriculture through the so-called "multiplier effect". However, the diversity of views of scholars and politicians on solving these issues complicates the process of developing a comprehensive concept for their solution, which would clearly define the content of all areas of reforming agricultural relations, the role of the state in this process.

The development of an innovative economy is a key challenge for each country, so that the Ukrainian economy can continue to develop and increase its competitiveness, it is necessary to base economic development on modern production technologies and innovative services. The need to find and implement modern solutions affects every sector of the state's economy, and innovation is becoming a key element in finding increased business efficiency [1].

At the present stage, Ukraine remains one of the leaders in the development of the IT industry, in particular IT outsourcing. At the same time, innovations in agriculture also have a positive effect on the growth of labor productivity, the competitiveness of domestic products in the world food market, as well as the profitability of agricultural enterprises. Moreover, they support the sustainable development of the economy with a number of benefits for society as a whole - affect the dynamics of the emergence and introduction of new technologies.

The organization and development of the innovation process has a decisive influence on ensuring competitive production of agricultural products in both domestic and foreign food markets. This is especially true in modern business conditions.

Problems of lack of investment and even capital flight should be solved only by improving all elements of public policy that determine the state of the investment climate. Scientifically substantiated state innovation policy can contribute to scientific and technological progress, the transition to an innovative model of development of agricultural enterprises [2].

Formulation of the problem.

Today the particular relevance is the urgent need for theoretical analysis and generalization of the practice of market transformations in the agricultural sector and identify prospects for further transformation, which should be aimed at solving the problems of the industry and the emergence of agricultural production at the world level.

One of the most difficult and urgent socio-economic problems facing Ukraine today is the transition of the economy to an innovative path of development. The innovative capacity of the state is characterized by the ability to create and disseminate innovations in all areas, including agriculture.

Scientists interpret the concept of "innovation" differently depending on the subject and object of their research. According to J. Schumpeter, innovation is the main source of profit: "profit is essentially the result of new combinations", "without development there is no profit, without profit there is no development". In this case, by the innovation scientist meant changes in order to produce and use new types of consumer goods, new production, vehicles, markets and forms of organization in industry [3].

Feed production plays a leading role in agriculture of any country, allows to solve many problems of its development. It provides fodder for livestock, efficient crop rotations and increased yields of grain and other crops for crop production, and increases soil fertility for agriculture. A system of production is the basis of feed production, procurement and storage of feed, which ensures the uninterrupted supply of animals with quality and safe feed, the creation of their insurance reserves.

Forage production unites, connects crop and livestock, agriculture and ecology, and maintains the necessary balance of industries in agriculture. Feed production ensures the efficiency and sustainability of world agriculture [4].

In terms of development, domestic feed production lags far behind the states-member of the world economic community due to extensive, too resource- and nature-intensive and environmentally hazardous management. This fact significantly affects the process of production of quality food raw materials and food products of animal origin and the formation of food security of the state [5].

Regarding feed production in Ukraine, modern innovations are improving the product direction and at the same time aimed at improving the efficiency of production resources, including by improving the quality of the final product. Improving the technological aspects of feed production, as an innovation process, in strategic terms forms a systemic basis for the development of dairy and meat subcomplex.

The current situation in the field of feed production is mainly due to the reduction of resources used in the production process, a significant deterioration in technical efficiency and technological changes. The reduction of human resources is becoming an increasingly acute problem in relation to the implementation of the innovative way of development of the Ukrainian agro-industrial complex. The trend is typical both for the scientific sector, where there is a decrease in the number of researchers, aging staff (which threatens the continuity in the existing scientific schools and the viability of research teams), and for the agro-industrial complex of Ukraine as a whole. These factors significantly affect the volume of feed production, their quality and cost.

Relevance of the research topic.

Agriculture is a strategically important sector of Ukraine's economy. Sustainable development of agricultural production, including feed production, is the

most important task to achieve food security. The urgent task for the domestic agricultural sector of the economy is to reform the feed industry - search, investment and innovation, which will improve feed quality.

In this regard, there is a need for a comprehensive study of the state and directions of development of feed production, as well as the need to substantiate the concept of the mechanism of innovative development of feed production in market conditions.

The purpose of the study is to conduct a scientific analysis of the state of the feed industry and substantiate the main directions of its innovative development, development of practical recommendations for improving the efficiency of feed production in market conditions.

Analysis of recent research and publications.

Scientific works on the theoretical and methodological foundations of innovative development of the feed industry were dedicated by scientists: V.G. Andriychuk, O.M Borodin, V.I Vlasov, M.V. Glady, M.Ya. Demyanenko, M.I. Kisil, M.F. Kropivko, M.Y. Malik, V.Ya. Mesel-Veselyak, V.F. Petrichenko, M.I. Pugachev, P.T. Sabluk, P.A. Stetsyuk, V.V. Yurchyshyn and others.

However, the issues of investment strategy for the development of the feed industry, the study of the experience of the industry in highly developed countries were not sufficiently covered. These issues need further research.

Research methodology.

In studying the issues of coverage of ecological and economic bases of vegetable production, the works of domestic and foreign scientists, primary materials of the author's own research, periodicals were studied.

The following methods were used as research methods: abstract-logical - to determine the importance of investing innovations for the development of feed production; structural-functional method - to determine the classification features of innovations; analysis and synthesis - elaboration of conceptual bases of the mechanism of innovative development of the field of fodder production.

Results of the research.

The content of the definition of sustainable agricultural development is described in the materials of the FAO session in Rome in 1996, according to which the main task of the program of sustainable agriculture and its further development is the growth of sustainable food production and food security.

The main conditions for the successful solution of this problem are:

- support for educational initiatives, the use of economic innovations and the development of acceptable new technologies (which together can provide stable access to food in accordance with human needs for nutrients);
- availability of food for the poor population;
- development of commodity production;
- reduction of unemployment and increase of income level;
- rational management of natural resources and environmental protection [6].

One of the main challenges facing agriculture in all countries of the world is to provide food for a rapidly growing population while preserving the environment. The main contribution to solving the problem of producing large volumes of food at lower costs belongs to the development of innovative technologies.

The rapid pace and rapidly growing scale of urbanization is one of the features of the modern world. According to UN estimates, by 2030 more than 60% of the world's population will live in cities, and by 2050 - about 68% (against 55% in 2018). At the same time, more than half of the world's urban population will be in Asia (54 and 52%, respectively).

Urban residents are characterized by a relatively high level of education and general awareness, greater emphasis on comfort, healthy lifestyles and time savings, therefore, urbanization will have a significant impact on diets, consumer behavior, as well as the structure of food production and distribution, accelerate implementation processes innovative technologies and infrastructure [7].

Ensuring food security is one of the most pressing issues of national security. For each individual, food security is one of the necessary guarantees of a real, not a declared, right to life. For society - this is the most important guarantee of socio-political stability and harmonious development of all its strata. For the functioning of the state, food security is seen as a general economic factor, which plays a greater role the deeper the crisis of power and economy.

In Ukraine, there are all the necessary prerequisites for providing the population with quality agricultural products:

- favorable geological and geographical position of the state;
- favorable climatic conditions for competitive agriculture;
- agro-industrial potential is the basis for ensuring the integration of the national economy into the world.

Today Ukraine is a world leader in the export of sunflower oil and barley. In recent years, the country produces about 60-70 million tons of grain per year and has regained its status as the largest supplier of grain to world markets. in 2020, Ukrainian farmers harvested 83.8 million tons of major crops from an area of 24.1 million hectares, while cereals and legumes threshed 65.4 million tons from an area of 15.3 million hectares [8].

Crop production is the basis of agriculture in Ukraine, especially the production of grain and vegetable oil. On average, in 2018-2020, agricultural crop production accounted for 73% of agricultural products, respectively, livestock - 27%. In addition to crops, Ukraine specializes in the production of sugar, poultry and eggs. The production of these products exceeds domestic demand and is export-oriented.

The efficiency of development of all livestock industries - cattle raisings, pigs, poultries, sheep, and horses breeding primarily depends on a sufficient number of complete and relatively cheap feed. Therefore, every agricultural enterprise of any form of ownership and management, personal peasant household and farm, engaged in animal husbandry or planning to start

this business, must first take care of a strong and efficient fodder base, because it depends on the productivity of livestock and poultry, their development, live mass and reproducibility.

The lack of proper attention to feed production in the agricultural has a negative impact on the development of the entire agro-industrial complex and contributes to the destruction of the basis of its production base - agricultural land. Of course, this situation has a negative impact on the effectiveness of the livestock industry.

The research shows that over the past decade, the transition from administrative methods of economic management to market methods in the production and consumption of livestock products have developed negative trends. Analysis of the dynamics of the livestock industry showed that since 2015, the cattle population in 2019 decreased by 19.7%, which is 3.4 million heads, the number of dairy cows decreased by 20.2%.

The pig population has decreased by 19% (1.3 million) since 2015. In terms of milk production, the industry in 2019 reached a historic low. The reduction in the number of cattle has led to a decrease in the production of gross livestock products: mostly pork, beef and veal [9].

As already noted, the domestic feed production in terms of development lags far behind its level in developed countries. This significantly affects the process of production of quality raw materials and food, the formation of food security of the state and necessitates a purposeful and rapid transition of feed production to a progressive innovation and investment type of development.

Given this, there is a need to develop theoretical, methodological and applied aspects of the application of the innovative component of increasing the efficiency of the industry, which will promote the production of high quality feed while saving costs and conserving resources.

Ukraine is a country with strong agro-industrial potential and huge prospects for agricultural development. It has favorable climatic conditions, quality land resources, relevant educational and scientific agricultural institutions, and therefore has all the opportunities for effective development of agricultural production.

The agrarian orientation of Ukraine's economy and significant agro - industrial potential should become decisive for the creation of a favorable innovation and investment climate in the agricultural sector of the economy. Based on these natural and social features, this scenario of the country's development provides for the development of the agro-industrial sector and the involvement in this sector of new technologies needed to improve working conditions, reduce man-made load on nature, create environmentally friendly products, and restore ecological balance in the region's biosphere. This direction of technology can be called "friendly" to humans. In order for Ukraine not to become economically dependent as a raw material appendage to industrialized countries, attracting investment should be carried out taking into account certain priorities, which include the introduction of new organizational forms of cooperation in agro-industrial business [10].

Significant structural changes that have taken place in the agriculture of Ukraine in recent years have not solved the problem of full provision of livestock and poultry with fodder resources, and therefore the issue of fodder supply has become even more acute.

In this regard, the optimization of the fodder base should become a key task of the livestock of Ukraine out of the crisis. The problem is reduced to the production of such an amount of vegetative mass of plants, or crop products, which would provide nutrients for livestock and poultry through the use of appropriate forage area.

The criterion for the efficient use of feed is the maximum release of livestock products at the optimal cost of feed for its production. of livestock products at the optimal cost of feed for its production. Low efficiency of fodder production is due to inadequate state support, low innovative activity of agricultural enterprises. The feed industry needs a scientific, economically sound state program for the development and creation of a single coordinating body for the organization of effective innovation, especially in the feed industry.

One of the important reasons for the decline in the development of the industry is also the insufficient level of supply of feed production, in addition, the reduction of investment activity in this industry deepens the negative trends. The level of wear of almost all major means of production of feed is critical - so, the level of wear of the machine-tractor fleet is about 65-70%, and it plays the most active role in feed production. The possibilities of not only expanded but also simple reproduction of fodder production have significantly decreased [11].

Weakened attention to fodder production has led to changes in the area and structure of crops of major crops, which cannot be considered positive, both in terms of the rational ratio of crops and providing animals with complete feed. During the study period, the area of forage crops and forage area in Ukraine in all categories of farms has a clear tendency to decrease (Table 1).

Table 1

Dynamics of sown areas of fodder crops, thousand hectares

Indexes	Years				Deviation, (%) 2019 to 2016
	2016	2017	2018	2019	
All categories of farms	1932	1858	1769	1725	89.3
Agricultural enterprises	673	652	577	537	79.8
Farms	68	65	59	54	79.4
Households	1258	1206	1192	1187	94.4
Forage crops (all categories of farms)					
Fodder roots	208	206	203	192	92.3
Fodder corn	284	286	258	243	85.6
Herbs are annuals	374	353	338	312	83.4
Herbs are perennial	995	955	920	921	92.6

Source: [12]

The table shows that over the past 4 years, the sown area of forage crops decreased by 10.7%. Thus, in 2019 the area of the fodder wedge decreased by 207 thousand and amounted to 1725 thousand hectares, respectively. During the period from 2016 to 2019, the area of fodder crops in all categories of Ukrainian farms decreased by an average of 50-80 thousand hectares.

The similar situation was observed in the dynamics of forage areas. If we analyze the dynamics of sown areas of fodder crops in terms of categories of farms, it is obvious that its maximum reduction in non-state agricultural enterprises.

The change in this indicator in the dynamics was influenced by two factors: the redistribution of agricultural land between categories of farms, which is a consequence of land reform, and the change in the number of livestock and poultry.

As of January 1, 2019, the number of livestock and poultry in the country was characterized by the following indicators, which are shown in Table 2.

Table 2

Dynamics of livestock and poultry in Ukraine (thousand heads)

Indicator	Years						Deviation, (%) 2019 to 2010
	2010	2015	2016	2017	2018	2019	
Cattle	4589.7	3856.6	3788.0	3637.3	3439.2	3195.3	65.3
incl. cows	2668.6	2208.3	2148.8	2057.0	1962.2	1831.4	68.6
Pigs	8255.2	7355.1	6942.1	6348.8	6280.7	6011.4	72.8
Sheep and goats	1789.6	1368.8	1359.8	1355.5	1312.4	1240.6	69.3
Rabbits	5355.5	5047.2	4942.3	4774.8	4701.6	4524.4	84.5
Poultries	206718.1	206525.1	203781.9	208008.4	215693.5	225022.8	108.8

Source: [12]

The analysis showed that in recent years in Ukraine there has been a reduction in all species of animals, except poultry. Thus, as of January 1, 2019, compared to January 1, 2010, the number of cattle decreased by 34.7%, pigs - by 27.2%, sheep and goats - by 30.0%, poultry increased by 8.8%. As of January 1, 2020, the number of cattle in Ukraine amounted to about 3.14 million, which is 5.7% less than on January 1, 2019. Including agricultural enterprises kept 1.05 million heads of cattle (7.5% less than on January 1, 2019), households - 2.09 million heads (4.7% less).

Currently, two thirds of cattle (66.5%) and a significant proportion of pigs (42.37%) are raised in households that are permanently unable to provide adequate technological, sanitary and organizational conditions for the procurement of quality varieties of raw meat in large quantities. The unsatisfactory fodder base of livestock (mostly low-quality but at the same time expensive fodder) has led to high production costs.

Livestock feeds and rations used in farms do not meet the physiological need for mineral compounds and biologically active substances. This leads to metabolic disorders and reduced efficiency of the productive capacity of farm animals (Table 3).

During the study period there is a decrease in feed costs of all species per 1 quintal increase in cattle, pigs and 1 quintal of milk production. Thus, in 2019, these figures were 13.95; 4.84 and 0.89 quintals of feed units, which is 11.1; 19.1 and 24.6% less than in 2010.

Table 3

Feed costs for the production of a unit of livestock products in agricultural enterprises of Ukraine, (quintals of feed units)

Indexes	Years						Deviation, (%) 2019 to 2010
	2010	2015	2016	2017	2018	2019	
Per quintal of cattle growth							
Feed of all kinds	15.69	14.80	14.74	14.34	12.06	13.95	88.9
including concentrated	4.47	4.93	4.85	4.79	5.79	6.65	148.8
Per quintal of pig growth							
Feed of all kinds	5.98	4.46	4.41	4.31	4.84	4.84	80.9
including concentrated	5.71	4.34	4.31	4.22	4.79	4.80	84.1
Per quintal of milk production							
Feed of all kinds	1.18	1.00	0.97	0.94	0.86	0.89	75.4
including concentrated	0.37	0.41	0.39	0.39	0.48	0.49	132.4

Source: [12]

However, there is a significant increase in the cost of concentrated feed for the production of meat and milk from cattle. This situation is not normal, because for cattle the main are juicy fodder and roughage and they can completely do without animal feed and concentrates. And pigs - on the contrary: they eat less roughage, and most of the nutrients are taken from concentrates.

The economic nature of innovation is that innovation is a factor of economic growth, a way and a stimulus for business development. Innovative activity means all scientific, technological, organizational, financial and commercial actions that actually lead to the implementation of innovations or designed for this purpose.

Innovation also includes research and development that is not directly related to the preparation of a particular innovation. Innovation should be understood as the introduction into use of any new or significantly improved product (good or service) or process, a new method of marketing or a new organizational method of the enterprise, the organization of jobs or external relations.

The innovation will be the introduction of elite plant varieties, as well as highly productive species in production. Innovations can be in the application of scientific developments of new fertilizers and additives in various fields of agriculture.

Global problems of providing the population of the Earth with food are solved, first of all, at the expense of deliveries of production of a vegetable origin. Meanwhile, about 65% of arable land worldwide is occupied by livestock.

In today's conditions of feed production development, innovation is one of the key factors that determine the increase of its efficiency. The term "innovation" in feed production is considered as a process of creating new or improved types of feed crops and mixtures, production technologies, procurement and storage of feed, new forms of organization of production and management of the feed industry. In terms of development, most innovations in feed production relate to changes in agricultural production processes (Table 4).

Table 4

The main types of innovations in feed production by areas of development

Innovation group	The essence of innovation	An example of innovation
Agricultural	Concerning changes of processes of agricultural production.	New crop rotations, technologies for growing and harvesting fodder crops, etc.
Production	Concerns changes in production processes of processing and other related industries.	Installation of new equipment at a feed processing plant or at the production plant vegetable oils.
Scientific	Applies to updates in the work of scientific structures.	Creation of research centers for the study of new technologies in feed production, the use of new methods of selection and more.
Legal	Concerning the issues of legal support of feed production.	Approval at the regulatory level of new requirements for feed quality, etc.

Source: [11]

The effectiveness of innovation is determined by innovation, when fodder crops and technologies for their cultivation, which are qualitatively different from the previous analogue give an increase in the beneficial effect in fodder production, which is based on the achievements of science and technology.

Further strengthening of Ukraine's economic potential makes new demands to ensure the competitiveness of its regions in both domestic and international markets for goods and services. Therefore, the task of creating a sustainable regional socio-economic system focused on the fullest satisfaction of the needs of the population should be weighed on the basis of building resource potential by implementing an innovative model of regional development [12].

To solve the problems of domestic agricultural innovation development in the direction as close as possible to global trends, it is necessary to carry out radical transformations within the entire national innovation system and its agricultural component. At the level of the agrarian innovation system, it is important to ensure the quantitative and qualitative growth of innovative proposals, increase the willingness of producers to innovate, as well as the formation of an effective "leading" network from science to production [13].

Introduction of investment projects in agriculture of the state also provides: improvement and introduction of new technologies of manufacture, improvement of quality and decrease in prime cost of production, increase of its competitiveness; development of processing of agricultural raw materials taking into account rational placement of production of agricultural products; establishment of mutually beneficial economic relations with partners (suppliers of inventory and consumers of products) both in domestic and foreign markets; development and implementation of investment projects with the involvement of internal and external investors.

The experience of innovative development of the world's leading economies shows the need for the top management to realize the importance of introducing new technologies to ensure further development of the agricultural sector, stimulate the creative process and create conditions for its development, competent choice of innovation priorities and impartial selection of projects, also the development of mechanisms to indirectly support the modernization of the agricultural sector.

It is necessary to form mechanisms of direct financial support to create favorable conditions for innovation in the field of feed production, through the creation of sectoral funds for the introduction of new equipment and technologies. An important factor in the innovative development of the feed industry is also the contribution of research institutions.

Scientists of the Institute of Feed and Agriculture of Podillya National Academy of Agrarian Sciences of Ukraine have developed a Concept for the development of feed production in Ukraine for the period up to 2025. According to this Concept, the implementation of con-

ceptual measures will ensure the production of 52 million tons of feed grain in 2025, including compound feeds 31.6 million tons, 3.4 million tons of hay; 15.2 million tons of haulage and 58.5 million tons of silage. This will allow to achieve productivity of cows at the level of 6500 - 6600 kg of milk per year, daily gains of young cattle 1 - 1.2 kg, pigs – 0.65 - 0.7 kg [15].

The conversion of feed in milk production will be 1-1.1 units, live weight of pigs – 4-4.5 units, cattle – 8-8.5 units, poultry – 2.8-3 units. With such productivity of farm animals and poultry it will be possible to produce 22 million tons of milk, 5.4 million tons of meat and 20 billion pieces eggs. Such volumes of livestock production will ensure its per capita consumption in Ukraine at a level close to physiologically reasonable norms of rational nutrition (meat - 83 kg, milk - 380 kg, eggs - 290 pcs.) and expand the export potential of the industry.

The experience of countries with developed intensive agricultural production shows that the whole society that consumes its products is responsible for scientific and technological progress in this specific area. Agriculture, due to its specific features, limited organizational, economic and technical capabilities, cannot function effectively without the help of the state, which must not only have its own innovation policy, but also directly regulate the innovation process.

In this regard, the main directions of increasing innovation activity in the agro-industrial complex are not only to intensify the activities of the direct executors of the innovation process, but also in the system of certain state measures to intensify the process.

As a result of the research it was found that the innovative component in feed production in the region should be considered as the implementation in economic practice of the results of research and development as new varieties of feed crops, feed mixtures; the latest science-intensive technologies for the production, procurement and storage of feed; use of more effective new fertilizers, means of protection of forage crops; new forms of organization of production and management of the feed industry, which allows to increase its efficiency.

Conclusions.

The current situation in the agro-industrial complex of Ukraine is largely due to the violation of price parity, uncontrolled price increases by monopolists producing means of production for farmers, reduced demand for agricultural products and the lack of an effective strategy for domestic agriculture.

Innovative development of agro-industrial complex of Ukraine, including crop production and animal husbandry has specific branch, functional, technical-technological and organizational features which are connected with dependence of agrarian sector of economy on natural and climatic conditions, shortage of qualified shots, low innovative activity, etc.

To increase the efficiency of the livestock industry, meet the needs of the population in quality food, create food security and independence of our country, it is necessary to effectively develop and implement innovative technologies in feed production. This will be possible through the interaction of agricultural enterprises with innovative research centers, educational institutions and research institutes.

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