



DOI: [https://doi.org/10.14505/jemt.v11.5\(53\).21](https://doi.org/10.14505/jemt.v11.5(53).21)

Analysis of Biological Assets in Agriculture

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Suggested Citation:

Kanabekova, A., Andybayeva, G., Tulegenova, R., Aimagambetova, A. (2021). Analysis of Biological Assets in Agriculture. *Journal of Environmental Management and Tourism*, (Volume XII, Fall), 5(53): 1371 - 1385. DOI:[10.14505/jemt.v12.5\(53\).21](https://doi.org/10.14505/jemt.v12.5(53).21)

Article's History:

Received 17th of July 2021; Received in revised form 9th of August 2021; Accepted 25th of August 2021; Published 10th of September 2021. Copyright © 2021 by ASERS® Publishing. All rights reserved.

Abstract:

Despite the contribution of scientists to the development of the theory and practice of accounting in agricultural organizations on accounting and valuation of biological assets, it is not fully disclosed, which is associated with insufficient theoretical and methodological development of the problems of financial, tax and management accounting of biological assets and their assessment at fair value. The author determined the predicted values of the development of biological assets in agriculture in 2021 with the help of gross output, provided that the observed trend in the development of the factors included in the model-based correlation-regression analysis is maintained. Conclusions and recommendations for further accounting of biological assets in agriculture of the Republic of Kazakhstan are substantiated.

Keywords: agriculture; animal husbandry; plant growing; agro-industrial complex (AIC) agrarian economy; agribusiness; agricultural products; agricultural production; business process; management.

JEL Classification: Q55; Q56.

Introduction

The main information base for managing agricultural organizations is accounting, the features of which can be summarized as follows. Since the main means of production in agriculture is land, it is necessary to accurately account for land and investments in this type of resource. In this case, land should be taken into account in physical terms, and additional investments and purchased land in monetary terms.

It must provide all the necessary information needs of the internal management of organizations and external users of financial statements for the adoption and implementation of objective economic decisions. This requires taking more active steps to reform accounting in agriculture in accordance with the generally recognized principles and requirements of International Financial Reporting Standards (IFRS). At the same time, it is necessary to be based on the principle of continuity in order to preserve the achievements of the methodology of domestic science and practice of accounting for its harmoniously progressive adaptation in accordance with IFRS.

1. Literature Review

Integration processes led to the emergence of a new accounting category in accounting - "biological assets", in connection with which it became necessary to adjust Kazakhstan's accounting practices in accordance with the requirements of IAS 41 "Agriculture", which is used for accounting for biological assets, agricultural products at harvest time and government subsidies related to biological assets in agriculture.

According to this standard, biological assets are plants and animals created as a result of past facts of economic life (changes, transformations) that are suitable for further (controlled and measured by the organization) biotransformation in order to obtain economic benefits.

Being one of the priority directions of development of the republic's economy, agriculture has a huge potential and large reserves, and the various climatic conditions of Kazakhstan allow growing almost all crops of the temperate heat zone and developing animal husbandry. Almost one quarter of the entire territory of the country is characterized as steppe lands, half as semi-desert and desert territories, the remaining quarter of the territory is foothill. 80% of the country's territory is characterized as agricultural land, which is more than 200 million hectares. However, of this area, only 40% or 96 million hectares are used for agricultural use.

The development of the country's agro-industrial complex in the context of the WTO and integration into the world economic system objectively dictates the need to transfer the accounting system to the requirements of IAS 41 "Agriculture". The need and advantages of accounting for biological assets and the results of their biotransformation at fair value have been considered and substantiated by many scientists, since the contribution of scientists to the development of theory and practice of accounting in agricultural organizations on accounting and valuation of biological assets is a necessary condition for integration processes.

For example, in a study by Marilenevan Biljon, Christa Wingard (2020), the problems of assessing biological assets are analyzed and classified to determine whether they are specific to the country and / or unique to the agricultural sector.

In international accounting practice, many scientists, such as Zachariadis M., Hileman G., Scott S. (2019), are engaged in the issues of accounting, financial reporting and disclosure of information about biological assets. Muniraju M., Ganesh S. R. (2016), Argilés-Bosch J. M., Miarons M., Garcia-Blandon J., Benavente C., Ravenda D. (2018), Arbidane I., Mietule I. (2018), He L.Y., Wright S., Evans E. (2018), Miranda H. D. (2017), Menicucci E. (2020), Mates D. (2018).

These studies boil down to the fact that while the major accounting standards councils around the world continue to use fair value widely, the scientific evidence for the relevance of fair value accounting is focused on financial assets. These studies provide empirical evidence for the agricultural sector on the relevance of fair value accounting, which examines the projected capacity of the fair value of biological assets for future operating cash flows.

Agricultural activity differs from other activities, carried out by divisions for profit. Agricultural activity in comparison with other types of activities of business entities depends on natural and environmental conditions, and therefore the specialization of agriculture is closely related to the geographical location (Bohušová, Svoboda, Nerudová 2020).

Also, in the process of researching approaches to accounting for biological assets necessary for the compilation and disclosure of quality information, scientists such as Yurniwati Y., Djunid A. and Amelia F. (2018), Evy Rahman Utami, Aji Prabaswara (2020), Kim W.S., Park K., Lee S.H. (2018), Duwu M.I., Daat S.C., Andriati H.N. (2018), Kim D.S., Yeo E. & Zhang Y.-A. (2017), Daly A., Skaife H. A. (2017).

According to the research of A.R. Zakirova (2018), IAS 41 indicates that agricultural activity covers a wide range of activities: animal husbandry, forestry, cultivation of perennial and annual crops, horticulture, floriculture and fish farming, which have common properties:

- the ability to change - living animals and plants are capable of biological transformation;
- change management that promotes biological transformation by improving or adjusting the conditions that support the implementation of the process;
- assessment of changes - the change in qualitative or quantitative indicators as a result of biotransformation is evaluated and monitored as part of the operational management process.

In her research Vyruchaeva A.E. (2019) notes that biological assets are plants and animals created as a result of past facts of economic life (changes, transformations), suitable for further (controlled and measured by the organization) biotransformation in order to obtain economic benefits.

In accordance with subparagraph 1) of paragraph 1 of Article 116 of the Tax Code of the Republic of Kazakhstan (2017), biological assets recorded upon receipt in the taxpayer's accounting in accordance with

international financial reporting standards and the requirements of the legislation of the Republic of Kazakhstan on accounting and financial reporting and intended for use in activities aimed for income, refer to fixed assets.

In international accounting practice, the accounting procedure, preparation of financial statements and disclosure of information on biological assets is established by IAS 41 "Agriculture". However, the Kazakh principles of accounting and valuation of animals and plants included in biological assets have significant differences in comparison with international accounting practice, which is expressed, in particular, in the absence, in the domestic accounting of the very concept of "biological assets", their scientifically sound classification, assessment by market-oriented "fair" value, which has become widespread in foreign accounting practice (Baiboltaeva 2017).

When characterizing biological assets, it is necessary to take into account the fact that biological assets are living organisms that develop according to the laws of nature. The duration of their production process depends on both their biological characteristics and external factors.

Biological assets are plants and animals used to organize agricultural activities, i.e. grown for sale, replacement, or, conversely, only one-time used for the collection of agricultural products (in the latter case, they disappear, turning into finished products).

Polenova S.P. (2018) notes that a biological asset is plants and animals used for agricultural activities, i.e. grown for sale, replacement or to increase their number in order to obtain agricultural products in the present and future.

Sitdikova L.F. (2017), describing biological assets, claims that these are farm animals and plants of a short-term and long-term nature, obtained in the organization or received from outside, evaluated and controlled by the organization, used to obtain agricultural products, new types of biological assets as a result of their biological transformations (biotransformation) for further use in the organization or implementation on the side, including for the extraction of economic benefits in the present and future.

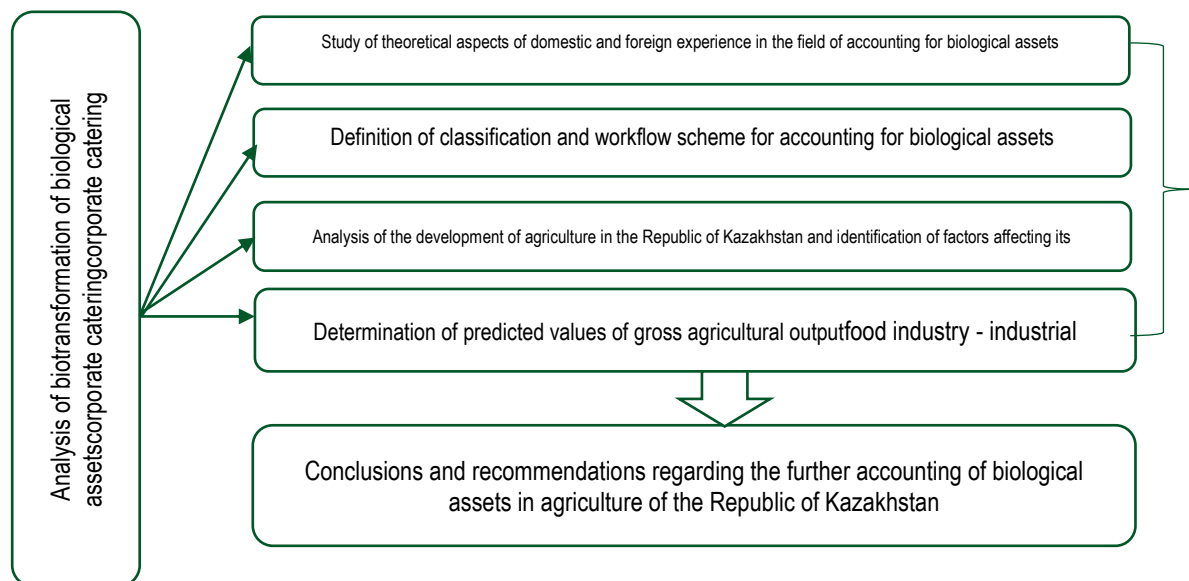
Biological assets are animals and plants used in agricultural activities for the purpose of obtaining products, additional biological assets and other economic benefits arising from past events, controlled by the enterprise and subject to quantitative and qualitative changes.

Thus, biological assets, like all other assets, are used to obtain economic benefits, have their own classification and material form, and are subject to change.

2. Scientific Novelty

A lot of works, both domestic and foreign scientists, are devoted to the study of the economic essence of the concept of "biological asset", but many of them give similar definitions of biological assets or completely duplicate it from IAS 41 "Agriculture". At the same time, these interpretations do not fully reflect their economic essence, therefore, it is necessary to clarify their concept in such a way that it fully contributes to the competent organization of accounting for biological assets at agricultural enterprises.

Figure 1. Research questions

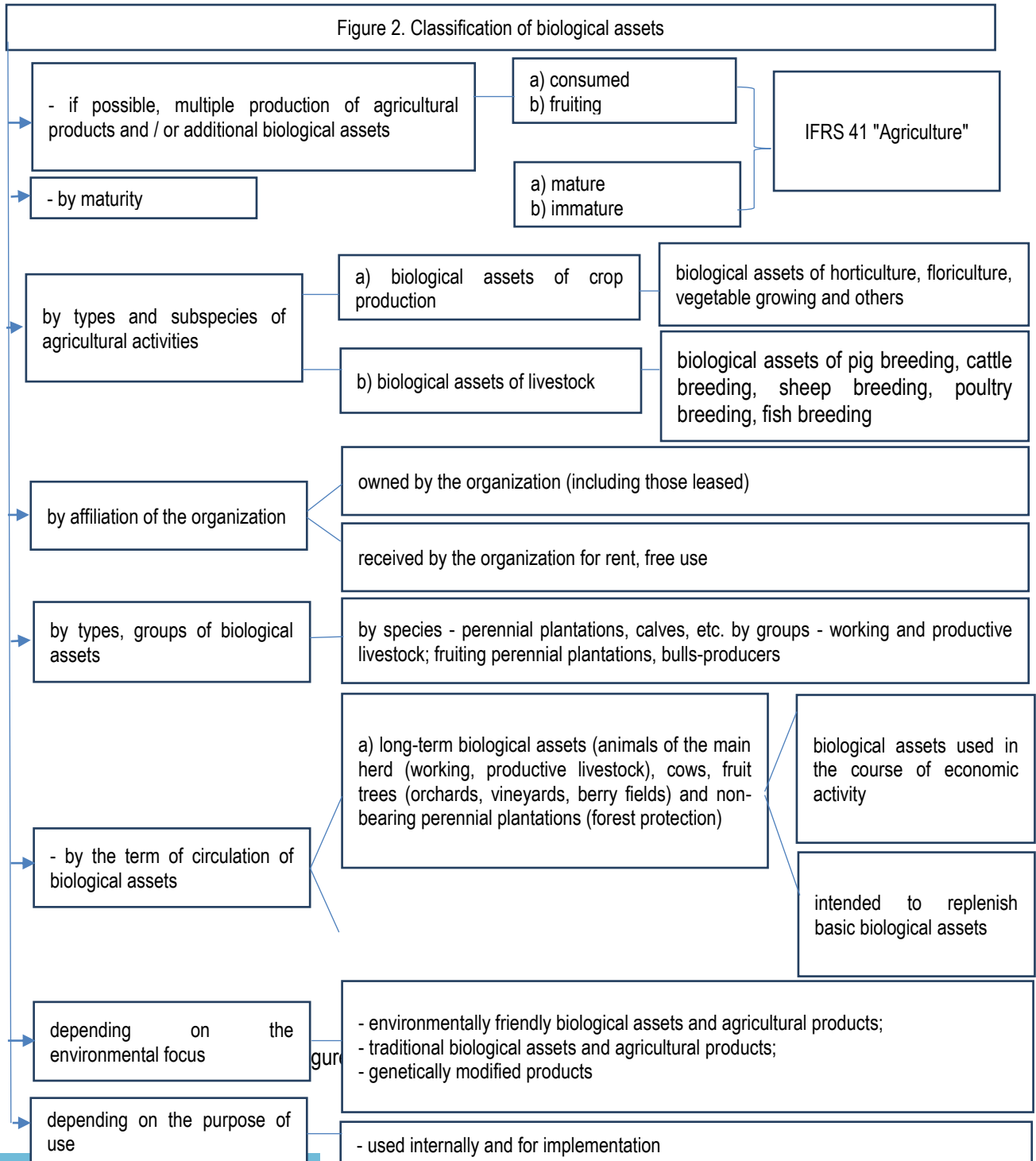


Source: compiled by authors

In the course of the research, authors identified the factors influencing the gross agricultural output using correlation-regression analysis. As a result, the forecast values of gross agricultural output for 2021 were determined, provided that the observed trend in the development of the factors included in the model is maintained. According to calculations, it was revealed that by 2021 there is an increase in the volume of gross agricultural output, respectively, an increase in biological assets, where the main factors of influence are investments in fixed assets and the number of operating enterprises in agriculture (Figure 1).

3. Methodology

According to the study of topical issues of accounting for biological assets of agriculture, Vyruhayeva A.E. notes that for a better understanding, as well as to facilitate the assessment, measurement and control of the movement of such assets, there is a classification feature, namely, the possibility of repeatedly obtaining products or other biological assets.



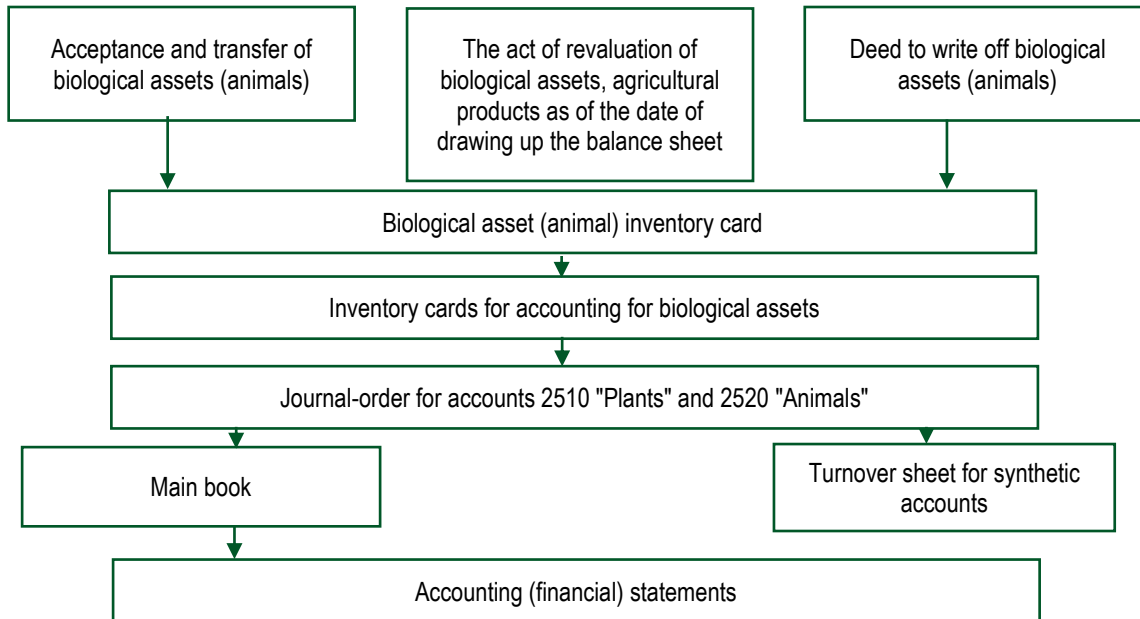
For this purpose, consumed biological assets and fruiting biological assets are separated into separate accounting objects (Figure 2).

The highlighted classification features will allow accounting more efficiently due to the ability to determine the quantity and cost of growing individual biological assets when valued at historical cost, and combining them into groups depending on the type of agricultural activity, type of biological asset will facilitate the determination of fair value in an active market.

The classification of biological assets serves as the basis for their reflection in accounting and reporting and allows you to group information for the needs of managing an organization.

Accounting for IAS 41 Agriculture requires documents that reflect information on biological assets (plants, animals) at fair value, the workflow of which is shown in Figure 3.

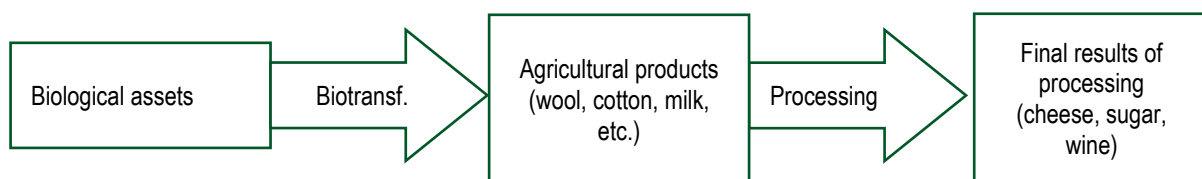
Figure 3. Scheme of document flow for accounting for biological assets



Source: compiled by authors

Some long-term biological assets are in constant motion. To do this, we can visualize the production process in which biological assets are involved (Figure 4).

Figure 4. Participation of biological assets in the production process



Source: compiled by authors according to IAS 41 Agriculture

During agricultural activities, animals and plants undergo a biotransformation process in a controlled environment. Governance is a key element that distinguishes agricultural activities from other activities such as marine fisheries or deforestation, none of which are classified as agricultural activities.

The degree of change in a biological asset can be measured by various parameters: maturity, size, fat content, etc. Biotransformation leads to:

- 1) to a change in the asset in the form of an increase or decrease in its quantity or quality. Additional assets may appear as a result of reproduction;
- 2) to receive agricultural products (cereals, legumes, meat, milk).

In the process of agricultural production, they repeatedly give products; make a circuit in such sequential functional forms as production, commodity and money. That is, there is a continuous movement, their transition from one form to another, in the process of which they reproduce. These are fruiting biological assets capable of repeatedly bringing agricultural products and other biological assets. Fruiting biological assets in this sense are self-reproducing and not primary.

Current biological assets produce agricultural products once and cease to exist when the final product is received, as a result of which the production process is interrupted. These are consumable biological assets that end their existence after receiving agricultural products from them.

Due to the fact that a biological asset is recognized as a fixed asset in tax accounting, its disposal is reflected as the disposal of a fixed asset "Deductions on fixed assets" (Form 100.02) in line 100.00.003 IV. When a biological asset is sold in accordance with paragraph 3 of Article 119 of the Tax of the Code (2017), the value balance of group IV is reduced by the cost of sale, excluding value added tax. The book value of the sold biological asset is not taken into account for tax accounting purposes.

IAS 41 states that agricultural activities cover a wide range of activities: animal husbandry, forestry, growing of perennial and annual crops, horticulture, floriculture and fish farming, which have common properties:

- ability to change - biological transformation;
- change management that promotes biological transformation by improving or adjusting the conditions that support the process;
- assessment of changes - changes in qualitative or quantitative indicators as a result of biotransformation are evaluated and monitored as part of the operational management process.

Biotransformation in accordance with IAS 41 leads to the following types of results:

- change in assets due to growth (increase in the number or increase in the quality characteristics of animals or plants), meaning that living animals and plants are capable of biological transformation;
- degeneration (decrease in the quantity or deterioration of the qualitative properties of an animal or plant);
- reproduction (creation of new live animals or plants) and production of agricultural products.

In accordance with the requirements of IAS 41, all bio-assets should be accounted for at fair value less costs of sale. This requirement is based on the fact that the best estimate of the cost of bioactives in the process of biotransformation is their fair value (Kazakova 2018). At the same time, the standard defines the process of biotransformation of biological assets as a set of processes of growth, degeneration, production and reproduction, as a result of which qualitative and quantitative changes occur in a biological asset (paragraph 5 of IAS 41).

However, there is no market for certain types of biological assets, and the nature of the likely use and consumption of these assets differs. As a result, certain difficulties arise in the process of accounting for these biological assets at fair value.

Currently, both among domestic and foreign scientists and practitioners, there is no consensus regarding the classification of biological assets. This leads to the emergence of a number of theoretical and methodological problems that complicate the organization of accounting in the practical activities of agricultural enterprises (Beryoza 2017).

Having considered the classification of biological assets, we came to the conclusion that biological assets can be divided into:

- highly liquid biological assets - have unique characteristics (breed, valuable end product, high level of economic utility) and the cost of which can be determined with a sufficient degree of reliability;
- low-liquid biological assets - have low species (low productivity, high risk of mortality) and economic characteristics. As a rule, such biological assets include assets that are rather difficult to sell on the market, in view of the low demand for them and the finished products obtained from them.

4. Analysis and Results

In order to establish the feasibility of using international financial reporting standards by agricultural organizations, first of all, it is necessary to analyze their economic condition, relations in the international market, as well as the equipment with biological assets (animals and plants).

There are three main forms of business in Kazakhstan today:

- agricultural enterprises (large farms) are legal entities, while farms in their organizational and legal form are individual entrepreneurs and are not legal entities. Out of the number of economic entities in the agricultural sector, 15% - 4 are represented by large enterprises and they cultivate about 50% of all agricultural land. Large farms are mainly concentrated in the northern regions of the country, where rainfed agriculture is practiced. Mainly in these regions, grain and oilseeds are cultivated. Over the past 5-7 years, animal husbandry has been actively developing in the northern regions, in particular, with the support of the state, the breed composition of farm animals is being transformed:

- farms / peasant farms (medium-sized farms). Medium and small farms are mainly concentrated in the southern regions, where grain, fodder and industrial crops, melons and gourds, fruit and berry crops and others

are cultivated on irrigated lands. In the southern regions, the size of the farms can vary from 3 to 500 hectares and more.

- private household plots (small farms) - were excluded as an economic and economic form (not legal entities), but despite this they remain important producers of agricultural products, especially livestock products.

As of April 15, 2021, 17,669 organizations engaged in agricultural activities (excluding forestry and fisheries) were registered in Kazakhstan (Figure 5).

The largest number of agricultural organizations are located in Turkestan. Almost 2 times less organizations are located in Almaty (1,821), which ranks second in terms of the number of such organizations.

In the first three months of 2021, 563 new agricultural organizations (excluding forestry and fisheries) were registered in Kazakhstan.

Number of new agricultural organizations by industry:

- mixed farming - 211 new organizations;
- animal husbandry - 165 enterprises;
- growing seasonal crops - 133 companies;
- auxiliary activities - 39 organizations;
- cultivation of perennial crops - 8 enterprises.

Figure 5. The number of enterprises by industry as of at the beginning of 2021



Source: compiled by authors according to the source Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan

For comparison, it should be noted that for the whole of 2020, 1,626 new companies operating in the agricultural market (excluding forestry and fisheries) were registered in Kazakhstan.

The main indicators characterizing the activities of various economic entities in agriculture are indicated in Table 1.

Table 1. The main characteristics of various forms of agricultural producers as of 01.01.2020

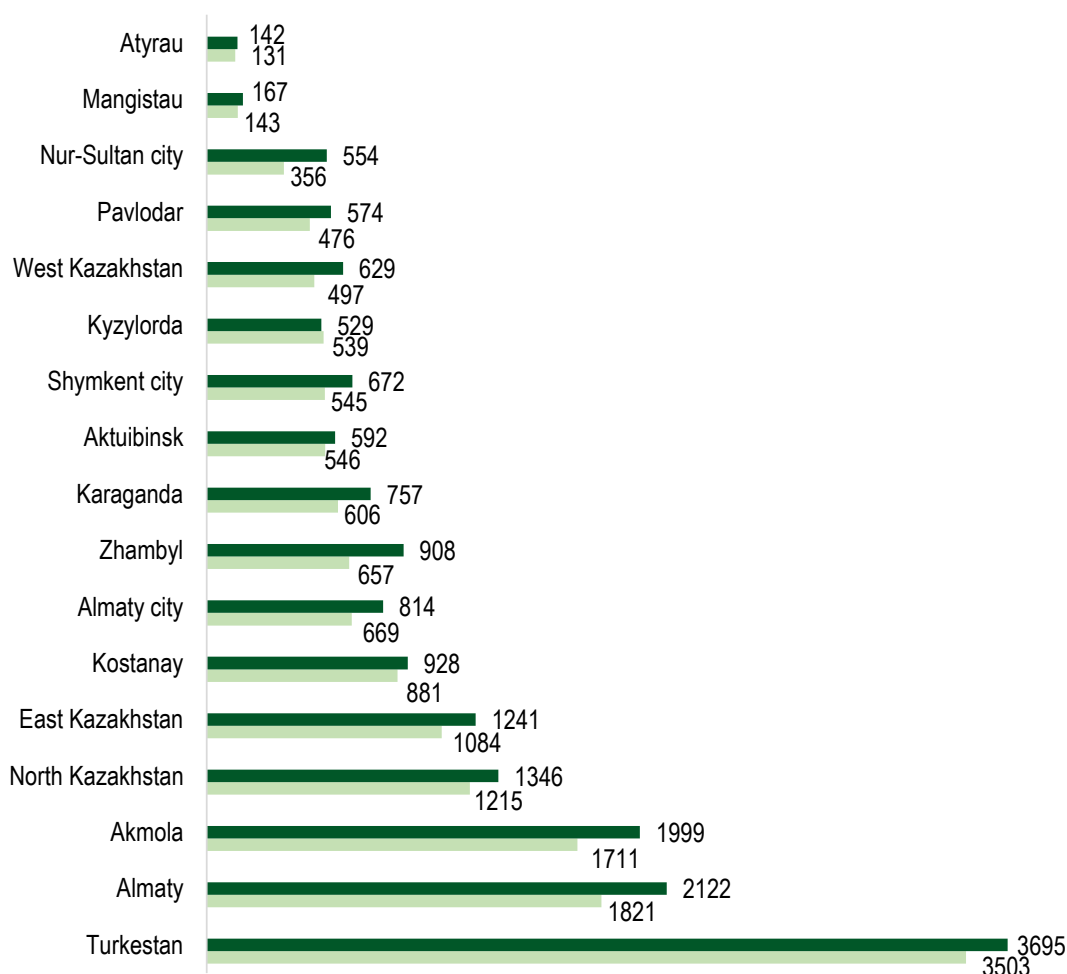
Indicator	Agricultural enterprises	Farms	Personal subsidiary farms
Total number of farms	12655	190120	1620386
Share in gross agricultural production	19,7%	30,1%	50,2%
Share in gross crop production	27,5%	38%	34,5%
Share in gross livestock production	11,4%	14,4%	74,3%

Source: compiled by authors according to the source Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan

Kazakhstan possesses vast areas of agricultural land, including those required to provide livestock with fodder. The main sources for providing livestock and poultry with fodder in the republic are pastures, natural and sown hayfields, arable land for growing fodder crops. The total area of sown areas in Kazakhstan in 2020 amounted to 22,135.8 thousand g, of which about 15% fell on the share of forage crops.

In total, over 15,000 organizations engaged in agricultural activities are registered in Kazakhstan (excluding forestry and fisheries). This is 3.5% of all organizations registered in Kazakhstan (Figure 6).

Figure 6. The number of enterprises by region as of 01.01.2019 and 01.01.2021



Source: compiled by authors according to the source Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan

As of 01.01.2019, the total number of large and medium-sized farms, that is, legal entities, amounted to 17,315 units or 4% of the total number of registered enterprises / legal entities representing other sectors of the economy (Table 2).

Table 2. The share of agricultural enterprises in the national business structure of Kazakhstan (as of 01.01.2020)

Indicator	Total	Including:				
		functioning	not active yet (new)	active	temporarily active	in the process of liquidation
Agricultural enterprises	17315	12420	1322	6908	4190	205
Small < 50 people	16955	12065	1317	6560	4188	204
Average from 51-250 people	301	296	5	290	1	1
Large > 251 people	59	59	-	58	1	-
All enterprises in the RK	433774	279720	43373	162989	73358	5047
Small < 50 people	424796	271208	43287	154664	73257	4997
Average from 51-250 people	6490	6105	65	5964	76	35
Large > 251 people	2488	2407	21	2361	25	15

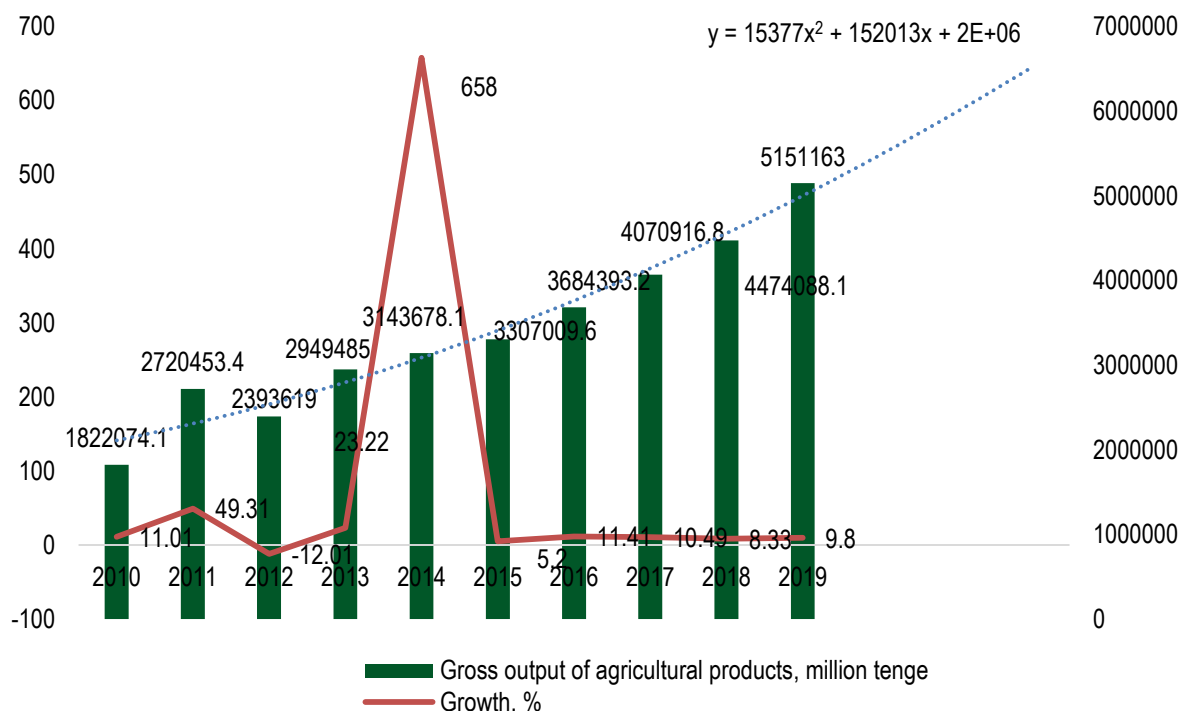
Source: compiled by authors according to the source Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan

As the data from Table 2 show, almost 40% of registered agricultural enterprises do not work at all, they simply exist on paper. Even out of actually operating 9,331 enterprises, about 15% are temporarily decommissioned.

Biological assets in Kazakhstan are gradually developing and in certain sectors of agriculture there are noticeable improvements compared to the indicators of the previous 10 years. The gross agricultural output in the

Republic of Kazakhstan in monetary terms shows an increase over the past 5 years. However, the dynamics of growth is declining (Figure 7).

Figure 7. Gross agricultural output in the Republic of Kazakhstan, in million tenge



Source: compiled by authors

According to the data of the Ministry of National Economy of the Republic of Kazakhstan, investments in fixed assets of agriculture, forestry and fisheries indicate that the gross value added of agriculture at the end of 2019 amounted to 557.3 billion tenge, which is 6.7% more than a year earlier, and 4% more in physical volume (Table 3).

Table 3. Fixed capital investments in agriculture, forestry and fisheries, in billion tenge

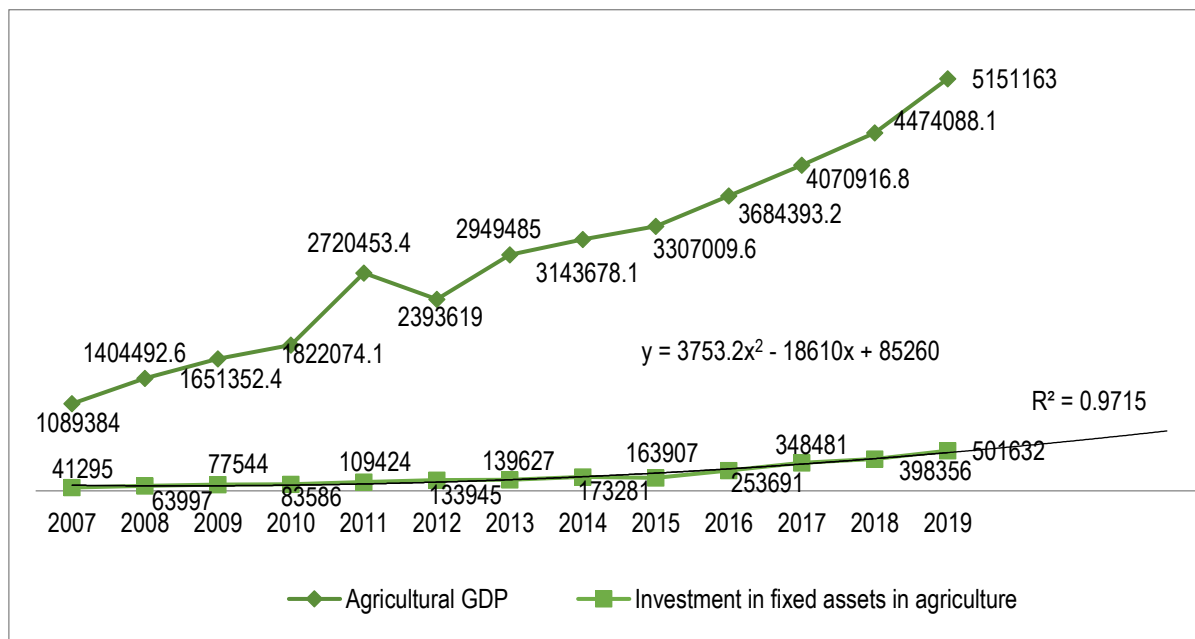
Indicator	01.01.2021	in % to the corresponding period
Agriculture, forestry and fisheries	41549328	139,6
Crop and livestock production, hunting and service provision in these areas	41181018	139,4
Growing seasonal crops	28660422	163,8
Livestock	9461731	91,7
Mixed farming	2965811	216,5

Source: compiled by authors according to the source Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan

To improve the investment climate at the end of 2017, the Ministry of Investment and Development of the Republic of Kazakhstan approved the National Investment Strategy for 2018-2022.

At the end of 2018, the volume of investments in the agro-industrial complex had already reached 175.7 billion tenge, which is 8.2% more than a year earlier (and + 5.3% in comparable prices) (Figure 8).

Figure 8. Indicators of gross agricultural output and investment in fixed assets in dynamics, in million tenge



Source: compiled by authors according to the source of Review of national programs and strategies for supporting the export of agricultural products in Post-Soviet countries

More than half of all investments fell on the three main granaries of the Republic of Kazakhstan:

- North Kazakhstan region of North Kazakhstan region (25.7% at once);
- Kostanay region (13.9%);
- Akmola region (11.2%) [29].

Note that these three regions provided 72% of the total gross harvest of grain and leguminous crops at the end of last year, and immediately more than 80% - directly wheat.

5. Application Functionality

It is of interest to analyze the dependence of gross agricultural output on indicators such as investment in fixed assets in agriculture and the number of operating enterprises. The cumulative influence of these factors can be taken into account on the basis of correlation and regression analysis.

To construct a multiple linear regression equation, the statistical data of these indicators for the period from 2010 to 2020 were used. The result of approximating the data using the least squares method is presented in Table 4.

Table 4. The results of evaluating the equalization of the gross agricultural output

R	0,968
R ²	0,938
Adjusted R ²	0,920
Observed value of Fisher's criterion	4,737
Fisher's criterion critical value	4,737 (α = 0,05, k ₁ = 2, k ₂ = 7)
Variables	
Gross agricultural output (million tenge) - dependent variable	
Constant	3251769,093***
	Regression coefficients
Investment in fixed assets in agriculture (million tenge)	13,338**
Number of operating agricultural enterprises (units)	327,907***
* p<0,1; ** p<0,05; *** p<0,01	

Source: compiled and calculated by authors

The multiple correlation coefficient indicates a close relationship between the resulting trait and two factorial traits at the same time, and the adjusted determination coefficient indicates that 92% of the variation in the dependent variable is explained by the resulting regression.

Since the critical value of the Fisher criterion is greater than the observed one, the resulting regression equation with a probability of 95% is statistically significant and reliable. Also significant are the regression coefficients and the constant at least at the 5% significance level.

Analysis of the obtained parameters of the multiple linear regression equation allows us to draw the following conclusions:

1) with an increase in the volume of investments in fixed assets in agriculture by 1 million tenge, the volume of gross agricultural output will increase by 13.338 million tenge;

2) with an increase in the number of operating agricultural enterprises by 1 unit, the volume of gross agricultural output will increase by 327.907 million tenge.

One of the indicators that can be used to assess the measure of the response of one variable to a change in another is the coefficient of elasticity. In our case, it will show the ability of gross agricultural output to change depending on changes in investment in fixed assets in agriculture and the number of operating enterprises.

As a result of the calculations, the following values of the average for the aggregate elasticity coefficients were obtained:

- elasticity on investment in fixed assets:

$$\bar{E} = 0,832\%$$

- elasticity by the number of operating enterprises:

$$\bar{E} = 0,911\%$$

Having analyzed these coefficients of elasticity, we get that:

1) with an increase in the volume of investments in fixed assets in agriculture by 1% of its average level, the volume of gross agricultural output will increase by 0.832% of its average level, with the number of operating enterprises unchanged;

2) with an increase in the number of operating enterprises by 1% of its average level, the volume of gross agricultural output will increase by 0.911% of its average level with a constant volume of investments in fixed assets.

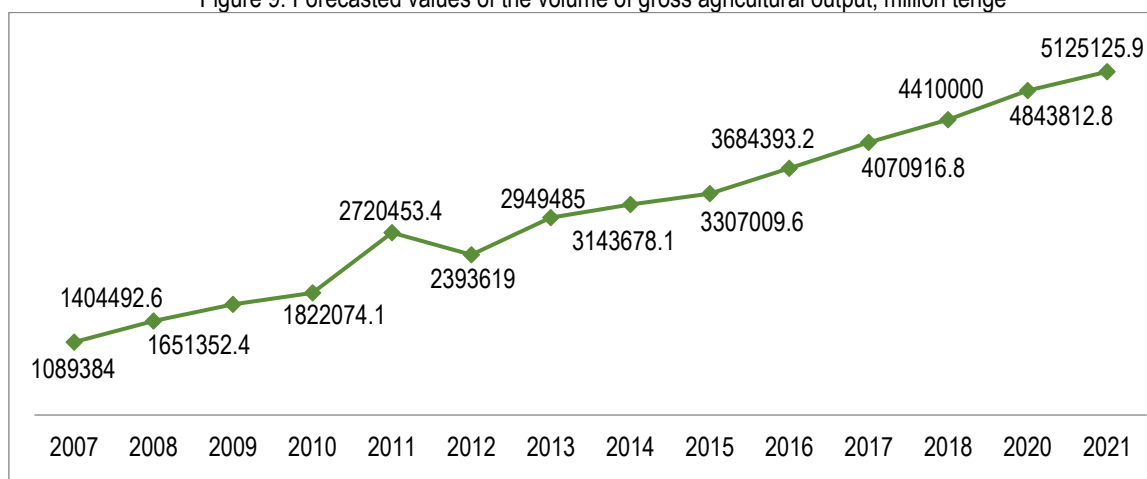
Let us determine the predicted values of gross agricultural output for 2021 provided that the observed trend in the development of the factors included in the model is maintained. As a result, we get the following data (Table 5).

Table 5. Forecasted values of the volume of gross agricultural output

Year	Forecasted value of the volume of gross agricultural output, million tenge
2020	4 843 812,83
2021	5 125 125,90

Source: compiled and calculated by authors

Figure 9. Forecasted values of the volume of gross agricultural output, million tenge



Source: compiled and calculated by authors

Thus, according to calculations, we see that by 2021 there is an increase in the volume of gross agricultural output, respectively, an increase in biological assets, where the main factors of influence are investments in fixed assets and the number of operating enterprises in agriculture.

Conclusion

The specificity of agriculture lies, first of all, in the fact that the production process here is associated with the land and with living organisms: farm animals and plants, which act as objects and means of labor. At the same time, a significant part of the production cycle is a targeted impact on living organisms: growing them to certain conditions, often with interruptions caused by natural climatic conditions. As a result, the production cycle in agriculture is much longer than in other sectors. The production of cattle meat takes several years, the cultivation of fruit plantations - many years, the production of crop products in the climatic conditions of the middle zone lasts for one year. This is naturally reflected in the organization-accounting.

The influence of social factors is manifested in the fact that various forms of ownership are possible in agriculture. It is quite clear that accounting at state and municipal unitary enterprises, cooperative, collective-share, joint-stock, lease formations, individual peasant farms is unequal due to the use of certain rules for reflecting business transactions, its modifications.

In 2017, the Ministry of Agriculture of the Republic of Kazakhstan developed a new State Program for the Development of the Agro-Industrial Complex for 2017-2021, which was developed on the basis of a similar state program for 2016-2020, but changes and additions were made.

The main priorities of the new Program were the saturation of the domestic market and the development of the export potential of domestic products, the maximum involvement of small and medium-sized farms in agricultural cooperation, the efficient use of water resources and the development of trade and logistics infrastructure. Several long-term sectoral programs were adopted in seven priority areas of the agro-industrial complex until 2027, among which the main long-term priority for the development of the agro-industrial complex was determined to be meat animal husbandry.

1. Meat farming. The adopted development model is based on the traditions of nomadic pastoralism and the competitive advantages of Kazakhstan as:

- 180 million hectares of pastures (of which 58 million hectares are used);
- 3.8 million people of the able-bodied rural population (of which 1.3 million people are employed in agriculture);
- proximity to the main growing markets with total imports of more than 2 million tons per year.

2. Dairy farming - increasing the production of dairy products, protecting the domestic market, reducing biosecurity risks through state support:

- decrease in interest on loans;
- lengthening the terms of financing and indirect subsidies.

3. Poultry farming - an increase in the export of poultry meat and eggs to 150 thousand tons and 1500 million pieces. accordingly, through the improvement of the existing mechanisms of state support.

4. Irrigated lands - effective use of pastures, increasing the volume of irrigated pastures for the development of forage production.

5. Crop production - developed crop production has unlimited potential for the development of a fodder base, including on irrigated land (by 2021, the area of irrigated land will be increased to 2 million hectares, by 2030 - up to 3 million hectares). The objectives of the long-term program for the development of crop production are to improve the quality of seeds and the introduction of mineral fertilizers in crop production, as well as the intensive introduction of irrigated lands and the introduction of moisture-saving technologies.

6. E-APK. The digitalization of the agro-industrial complex is aimed at increasing labor productivity and the export of processed agro-industrial products by 2.5 times in 2022 compared to 2017 by using the best available tools for digitizing business processes.

7. Pig breeding - to increase the export potential of the country, using the geographical advantage of the country, allowing to supply pork to two of the largest consumers of pork as China and Russia. The implementation of the above industry programs will allow achieving:

- creation of more than 600 thousand new jobs;
- putting into circulation an additional 50 million hectares of pastures;
- increasing the production of beef and lamb from 600 thousand tons to 1.6 million tons;
- joining the list of 5 leading countries in the export of cattle meat;

▪ additional production volume for import-dependent positions: dairy products, poultry meat, fruits and vegetables, sugar - more than 1 billion dollars. These funds will be used to stimulate the introduction of modern technologies in the industry and renewal of agricultural equipment.

Based on the analysis of statistical data, analytical materials, we put forward the following conclusions:

1 Crop production.

Crop production in Kazakhstan faces various problems related to the issues of effective organization and management of the sector, namely, low labor productivity, weak system of introduction of new technologies, low return on government subsidies, insufficient mechanisms that would encourage farmers to make long-term contributions to the development of their economy, including improving the quality of land and other natural resources involved in agricultural production. Severe weather conditions are not the only major challenges that are causing yields to decline; poor technical and technological conditions, lack of proper practical experience among many agricultural producers hinder the efficiency of crop production.

The following key issues were identified that require further improvement:

- increasing access to information and practical training in experimental / demonstration fields, especially on the technology of cultivation of new crops that were not previously produced by farmers;
- improving the system of control and monitoring of the quality of seed production;
- increasing the efficiency of irrigated agriculture by improving inter-farm water allocation and water use at the farm level;
- provision of prompt access to information on integrated plant protection and timely notification of possible mass pests of agricultural crops;
- expanding the range of services to improve the qualifications of farmers.

2 Livestock.

Since almost 70% of the country's territory is located in a sharply continental climatic zone with significant temperature changes during the day and night, the forced stall keeping of farm animals in the cold season in the south of the country can last up to 5 months, in the north up to 7 months or more, which is undoubtedly leads to increased costs for farmers. The extremely low natural water supply in remote pasture areas in the southern and western regions of the country, coupled with a low level of precipitation (less than 400 mm per year), serve as an additional barrier to the development of animal husbandry, in particular, hinders the proper development of distant-pasture animal husbandry. In addition to natural factors holding back the development of livestock, there are a number of the following problems related to technological, technical, methodological, financial and personnel issues:

- it is necessary to conduct a comprehensive assessment of the adaptability of cattle imported to Kazakhstan from other countries;
- increase in acreage under fodder crops, which will ensure not only the production of valuable fodder, but also improve soil fertility in the long term;
- government support for rangeland management, including the use of remote rangelands by rehabilitating wells in remote rangelands.

Thus, the legislative regulation of accounting in Kazakhstan for enterprises in the agricultural sector of the economy is imperfect and requires revision and clarification. In particular, it is necessary to ensure the regulation of the accounting process of operations with biological assets.

For the purposes of applying IFRS by domestic enterprises of the agro-industrial complex, the regulatory regulation of accounting and reporting information should address issues related to the accounting procedure, presentation of financial statements and disclosure of information both on agricultural activity in general and on individual specific accounting items, in particular on biological assets.

In this regard, it seems relevant and significant to identify mechanisms for adapting and improving the accounting of agricultural organizations to IFRS by improving the system of regulatory, methodological, organizational and methodological measures, the complex application of which will make it possible to form statements transparent for all categories of users in accordance with the requirements of international standards.

As a result of the study, the following analysis results were obtained:

- 1) based on the study of foreign and domestic experience in accounting for biological assets, a definition of biological assets is given;
- 2) the classification and workflow scheme for accounting for biological assets is shown, which serves as the basis for their reflection in accounting and reporting and allows you to group information for the needs of managing an organization;

3) in order to establish the feasibility of using international financial reporting standards by agricultural organizations, first of all, the economic situation, relations in the international market, as well as the equipment with biological assets (animals and plants) in the Republic of Kazakhstan were analyzed;

4) an analysis of the dependence of gross agricultural output on indicators such as investment in fixed assets in agriculture and the number of operating enterprises is given. The cumulative influence of these factors was analyzed on the basis of correlation and regression analysis;

5) the forecast values of the gross agricultural output of the Republic of Kazakhstan for 2021 have been determined provided that the observed trend in the development of factors continues, according to which we see that there is an increase in the volume of gross agricultural output, respectively, an increase in biological assets, where the main factors of influence are investments in fixed assets and the number of operating enterprises in agriculture.

6) substantiated conclusions and recommendations regarding the further accounting of biological assets in agriculture of the Republic of Kazakhstan.

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