

**FEATURES OF ACCOUNTING VALUATION OF BIOLOGICAL ASSETS
OF AGROBUSINESS ENTITIES**

**ОСОБЕННОСТИ УЧЁТНОЙ ОЦЕНКИ БИОЛОГИЧЕСКИХ АКТИВОВ
СУБЪЕКТОВ АГРОБИЗНЕСА**

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Abstract. The article examines the theoretical, methodological and practical aspects of valuation of biological assets in accordance with Ukrainian accounting regulation (standard) 30 «Biological Assets» and IAS 41 «Agriculture». The classification features of biological assets in the system of functioning of agribusiness entities are presented. The procedure for valuation of biological assets in accordance with national and international accounting regulations is presented, and the main problems, in particular, in terms of determining the fair value of biological assets, are outlined. The specifics of determining the fair value of certain groups of biological assets are highlighted. Proposals are made in order to improve the procedure for assessing and determining the fair value of biological assets. The priority of practical implementation of fair value measurement in the context of meeting the information needs of potential investors in the agricultural sector is substantiated.

Keywords: agribusiness entities, biological assets, biotransformation, valuation of biological assets, fair value

JEL Classification: Q18; M42

Introduction

In the context of transformational changes in the national economy, it is important to strengthen the priority of development of the agricultural sector and ensure its investment attractiveness. For the successful functioning of agribusiness entities in a competitive environment, to meet the needs of potential investors with reliable economic information, the accounting assessment of its assets as elements of financial and resource potential is a priority. Specific elements of the resource potential of agricultural producers are biological assets, on the use and management of which the performance indicators of agribusiness entities depend. It is biological assets and the management of their biological transformations, that generate the bulk of agricultural enterprises' income. Reliability and transparency of accounting and information support for agricultural enterprises The relevance of information support for agricultural enterprises is ensured by the proper organization of the accounting process and financial reporting indicators. The use of a methodologically sound valuation of biological assets will allow to manage income and expenses, influencing on the level of efficiency of agricultural production, and ensuring the investment attractiveness of agricultural enterprises.

Basic Content of the Paper

The functioning of the agricultural sector of the economy is characterized by the presence and use of specific resource potential, the main specific components of which are land resources and biological assets. The dominant feature of agricultural production is the availability and use of biological assets as a specific component of its resource potential.

In a general sense, biological assets are an economic resource and should provide agribusinesses with economic benefits as a result of their use in agricultural production. Economic benefits are provided in the process of biological transformations by obtaining agricultural products, additional biological assets and an increase in the qualitative and quantitative indicators characterizing the state of existing biological assets. In other words, in the process of using biological assets, agricultural enterprises create other specific assets that should be valued and included in their own property.

The peculiarities of agribusiness entities' functioning determine the specifics of accounting information formation and its interpretation in the financial statements. The agricultural sector of Ukraine's economy is represented by large industrial agribusinesses (agroholding companies), medium and small agricultural enterprises, a significant share of which is occupied by farms. Depending on the characteristics of a particular type of agricultural entity, there are differences in the organization of the accounting process in accordance with national or international accounting and financial reporting standards.

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Along with generally accepted national and international accounting standards, which are used by agricultural enterprises to generate accounting information and prepare financial statements, they use such specific industry standards as National accounting regulations 30 "Biological Assets" [1] and International financial accounting standards IFRS 41 "Agriculture" [2], which regulate the methodological principles of generating information in accounting about biological assets and additional biological assets and salt obtained in the process of their biological transformations. When accounting in accordance with national standards, these provisions are specified in the Guidelines for Accounting for Biological Assets [3].

The specifics of the main agricultural sectors determine the diversity of biological assets, which are divided into separate groups based on certain characteristics. The most common classification features are as follows:

- sectoral focus – biological assets are classified by crop and livestock sectors;
- period of participation in economic turnover – biological assets are classified into long-term and current;
- method of valuation of biological assets – at cost or at fair value.

In accordance with the Ukrainian regulation of accounting for biological assets, the objects of accounting are determined by the industry of biological assets:

- in crop production, these are types of agricultural plants (cereals, industrial, vegetable, etc.) or homogeneous groups of biological assets, consisting of subspecies of agricultural plants (e.g., winter and spring cereals) or individual crops (wheat, barley, sunflower, etc.);

- in livestock – these are types of animals (cattle, pigs, sheep, poultry, fur-bearing animals, bee colonies, etc.) or homogeneous groups of biological assets consisting of certain sex and age (technological) groups (animals of the main herd, animals for growing and fattening, etc.).

For the purpose of accounting and financial reporting, in the assets (resource potential) of agricultural enterprises, biological assets are divided into current and non-current assets, which are reflected in

current and non-current assets, as part of the assets (resource potential) of agricultural enterprises. According to state statistical information, in recent years there has been an increase in the value of biological assets, especially as a component of the current assets of agricultural enterprises (Figure 1).

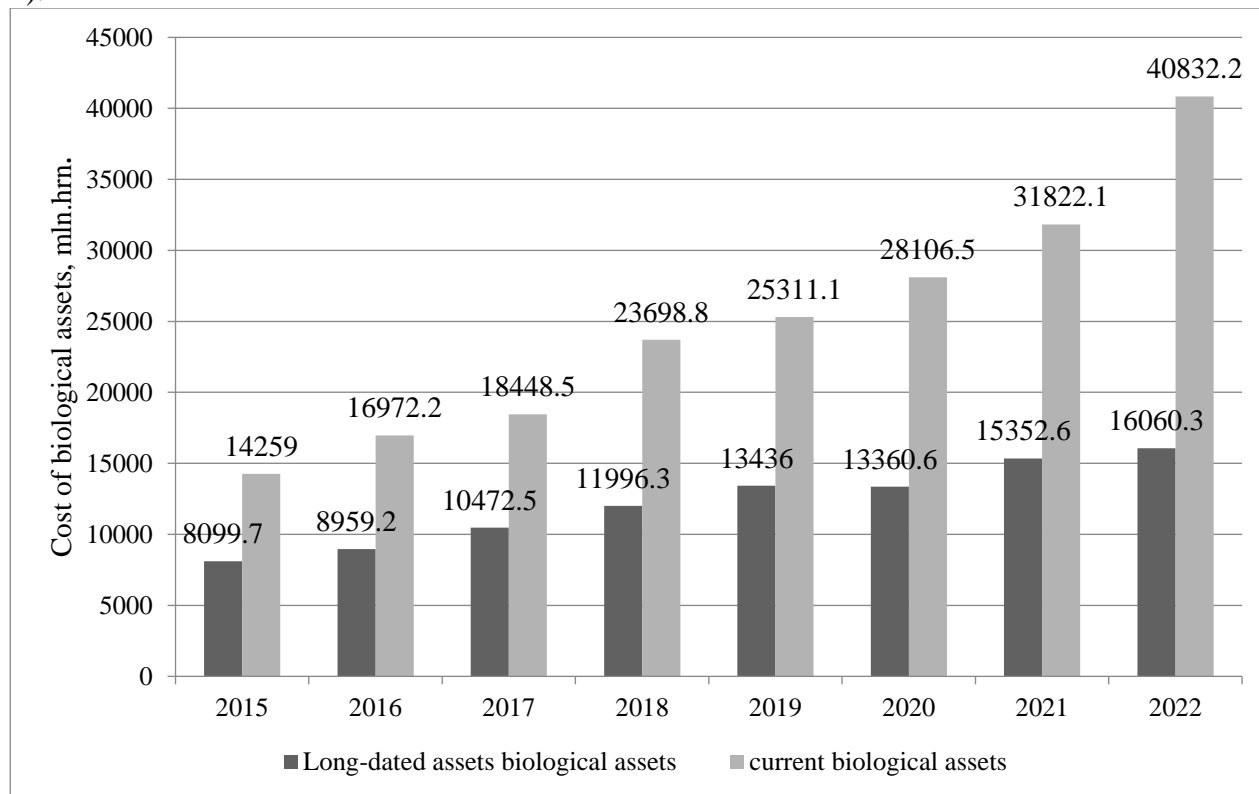


Fig. 1. Dynamics of long-term and current biological assets in the field of agribusiness.

Source: compiled by the author based on [4]

According to the above statistics, there is an increase in the value of biological assets on the balance sheet of agribusinesses. However, this situation is ambiguous, as agricultural production has suffered extremely negative consequences as a result of military aggression in Ukraine.

As of December 31, 2023, the total amount of losses and damages of the agricultural sector of the economy amounted to USD 80 billion. The total value of the destroyed assets is 10.3 billion USD. In total, since February 24, 2022, Ukraine has lost 19.3% of its sown areas. The war has led to the loss of 16.3 thousand hectares of perennial plantations with an estimated cost of restoration of USD 398 million. Damage to perennial plantations: 398 million dollars. Damage to livestock: USD 254 million. In total, the war resulted in the loss of 238,000 heads of cattle, 544,000 heads of pigs, 131,000 heads of sheep and goats, and almost 13 million heads of poultry. The total loss caused by the decrease in livestock is estimated at USD 254 million, excluding losses from the decrease in livestock production caused by the decrease in livestock. Total losses due to reduced production in crop production amount to 35.1 billion dollars, and additional losses due to reduced livestock production amount to 5.6 billion dollars [5].

Therefore, the above increase in biological assets according to statistics may reflect the information generated as a result of the revaluation of biological assets as of the reporting date in 2022. It was with the outbreak of hostilities on the territory of Ukraine, that innovations were introduced into the national practice of accounting for biological assets and the priority of applying fair value in the valuation of biological assets upon their receipt and at the balance sheet date was introduced.

In accordance with the revised version of Ukrainian accounting standard 30, biological assets at initial recognition and at the balance sheet date are measured at fair value, less estimated costs to sell, except in cases when fair value cannot be measured.

Accounting for biological assets at fair value involves several steps, that help ensure the accuracy and reliability of financial information: definitions, which types of biological assets are included for accounting at fair value; selection a valuation technique; and including information about biological assets in the financial statements.

When recognizing biological assets at fair value in accounting and financial statements, an enterprise must choose a method of valuation of biological assets. Ukrainian accounting standard 30 «Biological Assets» prioritizes the determination of fair value at active market prices. In the absence of an active market, the following methods may be applied in accordance with Ukrainian accounting standard 30 and Methodological Recommendations No. 1325:

- market prices for similar assets, adjusted for individual characteristics, peculiarities or degree of completion of biological transformations of the asset;
- additional indicators characterizing the prices of biological assets – a biological asset can be valued at the cost of agricultural products, that can be obtained when its life processes are terminated (for example, grain crops can be included in current biological assets of crop production at the cost of future harvest).

In the absence of information on market prices for biological assets, the fair value is supposed to be determined by the present value of future net cash flows from the biological asset. Active market prices can be taken into account when valuing crop assets, namely export-oriented crops. In the livestock sector, the use of active market information is problematic because it is not available for most livestock assets.

We should agree with the opinion of practicing auditors [6], who note, that the following industry indicators can be used in order to determine the fair value of biological assets: 1) profit from the sale of agricultural crops is projected based on the expected yield; 2) profit from the sale of milk and meat of cattle is projected based on the expected milk production of cattle during the productive life, after the reporting date and the expected amount of meat at the date of slaughter, as well as the likely prices for its sale; 3) the average productivity of cows is determined by the indicators of internal economic reporting; 4) the cost of production and sales costs are projected based on actual costs; 5) the calculation of expected sales prices and expected costs is based on the forecast inflation rate in Ukraine.

In determining the fair value of current crop biological assets, due to the lack of observable market prices for certain biological assets, agricultural companies estimate the fair value of their crop biological assets using the discounted cash flow method, which is the calculation of the present value of net cash flows expected to be generated from the assets when sold as a grown crop, discounted at the current market rate.

In doing so, agricultural companies justify (base) their estimates of the fair value of biological assets on certain key assumptions, namely:

- expected yields, which are determined based on historical information taking into account actual weather conditions;
- the production costs to be incurred are projected based on actual historical information of the agricultural company and projected assumptions;
- discount rate calculated as a balanced market rate;
- the fair value of breeding livestock is determined based on the expected volume of milk to be produced during the productive life of the dairy cattle, the expected weight of meat at slaughter, relevant expected prices, the average productive life of the cattle and future production costs. The discount rate is determined based on current market-determined pre-tax rates.

According to leading scientists, the implementation of the methodology for valuation of biological assets at fair value in the economic space of Ukraine faces serious obstacles, the main of which is the lack of «open» active markets and reliable sources of information on prices for biological assets and agricultural products. One of the «bottlenecks» is considered to be the imperfection of the criteria for differentiation of biological assets by the term of their use, imperfection of the application of certain methods of valuation at fair value [7, p 70].

The problematic aspects of the practical application of fair value in the valuation of biological assets and agricultural products include, in particular: 1. for crop production: limited availability or difficulty of access to information on product prices; failure to take into account the quality parameters of crop production in the prices of the active market; closed information, which causes barriers to the application of the contract analysis method; difficulty in finding a comparison base for establishing the fair value of specific and niche crops; 2. for livestock production: impossibility of comparing the prices of the active market of products of farms of different sizes; difficulty in finding analogues of the valuated according to fair value of group of biological assets of livestock number; lack of public information on contracts and technological indicators of development of specific productions, etc [8, p. 131-132].

However, the main direction of increasing the transparency of financial statements is the valuation of items by the fair value method, which is close to the market and more objectively reflects the financial and property status of the enterprise. A prerequisite for the dissemination of this method is the existence of an active market for the relevant assets [9, p. 20].

The priority of applying fair value in the valuation of biological assets is also noted by O.V. Kravchenko, V.V. Diakova. In particular, according their opinion, compliance by domestic agriculture with regulatory requirements and recommendations for the application of the fair value method will allow them to bring their activities closer to a satisfactory level, thereby increasing quantitative and qualitative indicators, that can positively affect on the expansion of sales markets, increasing of the land bank and attracting to additional investment [10, p.15].

When accounting and reporting biological assets in accordance with the requirements of international standards, agricultural holding companies use one of the methods in accordance with IFRS 13 «Fair Value Measurement» [11], which regulates the use of 3 valuation methods: market, income, and cost. The process for determining the fair value of biological assets may vary depending on the specific type of biological assets and their specific use.

1. Market approach – determination of fair value based on market conditions and similar transactions, analysis of prices established in the market for similar biological assets;

2. Income approach – fair value measurement based on the profit potential of biological assets, taking into account the potential income that can be obtained from the exploitation of biological assets;

3. The cost approach is the measurement of fair value based on the estimated amount, that would be required to replace the current operating capacity of a biological asset. However, the cost approach is very rarely used in practice and, moreover, the international audit company PWC in its methodological recommendations advises not to use this valuation method.

Valuation and revaluation of livestock biological assets is a rather complicated and time-consuming process, which is most often carried out by external specialists or appraisers. The choice of valuation method depends on the purpose of the animal and the economic benefits the company will receive from their further use and sale. In other words, if the maintenance of biological assets in the future is expected to generate only income (revenue from the sale of meat), then the market approach should be used to determine the fair value.

In the process of biological transformations, animals gain weight, move from one age group to another and require separate accounting. When revaluing biological assets of livestock, the Group performs a sex and age analysis of animals. In accounting, livestock biological assets are recorded in the

following groups: the main herd of adult animals, animals for growing and fattening, etc. In other words, the market approach should be applied to current livestock biological assets, that are accounted for by separate sex and age groups, and from the maintenance of which the relevant economic benefits are expected to be received in the future. If economic benefits are expected to be received in the future from additional biological assets (offspring) and agricultural products (milk, eggs, cotton, etc.), then it is worth revaluing the biological assets using the income method.

The formation of relevant information on the availability, results of biological transformation of biological assets, as well as other operations on their use, should be reflected (fixed) in the accounting policy of agricultural enterprises:

1. to determine the objects of biological assets, which will allow to organize analytical accounting of assets and specifically to calculate the financial result. In crop production, biological assets are individual types of agricultural plants or homogeneous groups of biological assets, including subspecies of agricultural plants or individual crops. For example, the accounting objects of current biological assets are: in crop production - individual crops (e.g., barley, corn); in livestock production - individual species and groups of animals (heifers under 1 year old, heifers from 1 to 2 years old, heifers, bulls under 1 year old, bulls from 1 to 2 years old).

2. to specify the method for determining the fair value of biological assets for a separate group of biological assets (biological asset accounting objects). The accounting policy should describe in detail the approaches and methods for calculating the fair value of assets, namely:

– which active market price to choose, in order to establish fair value. There is no active (exchange) market for agricultural products in Ukraine. Therefore, an active market price benchmark is only possible if you export agricultural products;

– alternative valuation method in order to calculate the fair value of assets to be sold on the domestic market, you will have to choose a different valuation method, which should be specified in the accounting policy order;

– how you will collect and analyze sources of information in order to calculate fair value;

– the composition of the commission, that will make the calculations and the form of primary documentation.

Assign responsibilities to a permanent inventory commission or create a separate one. Include in the commission: specialized specialists, heads of production units, accountants for crop/livestock facilities. An act of calculation of the fair value of biological assets and agricultural products of any form will help to document the calculations. The form should be attached as an appendix to the order on accounting policy [12].

The application of the fair value of biological assets as a unique resource of agribusiness entities undoubtedly affects on the increase of their competitiveness, as it allows to fully reflect the economic essence of biological transformations in the process of agricultural activity.

Conclusions

Thus, for the successful functioning of agricultural enterprises in a competitive environment, meeting the needs of potential investors with reliable economic information, fair value measurement is a priority. When choosing a valuation method, it should be borne in mind that fair value, if accurately calculated, provides more relevant information about the property status and performance of agribusiness entities. The cost value of biological assets, income and expenses from their revaluation and sale are priorities for the enterprise, as they directly affect the balance sheet asset total, financial result, and therefore the indicators of the financial condition and efficiency of the agricultural enterprise.

Based on the results of our research, taking into account the direct impact of the reliability of reporting data on the results of current and strategic analysis, we consider it appropriate to promote fair value measurement, considering this method to be the most appropriate in order to ensure the proper quality

of reporting information and increase confidence in it by actual and potential users. Revision of the valuation of current biological assets should be carried out at each reporting date, as quantitative and (or) qualitative changes occur in the process of biological transformations, that affect their value. Reflection of biological assets in accounting and reporting at fair value, provided that it is accurately calculated, will provide the most complete and relevant information on the performance of agricultural enterprises.

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