Methodical approaches to the assessment of the reproduction of the agricultural enterprises material and technical base

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The significance of the evaluation of the logistical base of agricultural enterprises in the accounting system is revealed in the article. Research methods have been described and alternative approaches to inventory valuation by national and international accounting standards have been investigated, and it has been identified that there are some inconsistencies in the formation of inventory values at the date of receipt, disposal and balance sheet date.

The main features of organization of accounting of land plots in agricultural enterprises are established. To determine the value of the land previously used by the enterprise (for example, on certificates of ownership and use), we propose to use in the current accounting the estimated value of the land, which is based on the regulatory monetary valuation, determined by differential rental income. It has been found that an integral part of the biological transformation is the assessment of changes in a biological asset, which includes measuring and controlling changes in quality (fat content, protein, fiber strength, etc.) or quantity (breeding, weight, etc.). In the course of the research it is determined that the process of accounting and valuation of biological assets at fair value should include such steps as: defining biological assets as an object of accounting according to their classification; specification of biological assets by species, cultures, rocks and other defining features; active market research and price information and technical and economic information collection; selection of biological asset valuation methodology; the calculation of the fair value of biological assets in accordance with the methodology adopted.

An examination of the IFRS 13 “Fair Value Measurement for the measurement of biological assets at fair value” has shown that it should be made from the perspective of all market participants and the market environment should be assigned to the entities themselves. This will take into account the differences that exist between them, as they differ not only in terms of quality but also in the types of economic activity.

In order to improve the investment attractiveness of enterprises, it is advisable to evaluate agricultural organizations’ land resources according to International Accounting Standards, which provide for fair value. Valuation of assets and liabilities at this cost will increase the transparency of the financial statements and the reliability of the information on the financial and economic activities of the entity. In addition, in the analysis of financial and economic activity of enterprises of the corporate sector of the agrarian economy, a real assessment of land resources will have a positive impact on the normative indicators of liquidity and financial stability, which is especially important in the conditions of financial crisis and growing need for investment.

**Key words:** material base, resources, inventories, fixed assets, reproduction process, market value, fair price, land valuation, accounting efficiency.

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Problem statement and analysis of recent research. Expanded reproduction in agricultural enterprises and economic efficiency of agricultural production are largely determined by the level of material and technical base, the level of security, quality of fixed assets, their effective use and methods of their evaluation in accounting. Today, most of the known methodological approaches to property valuation used by agricultural enterprises are focused mainly on practical application in a stable market economy. The specifics of the national market, which is constantly in extreme instability (political crisis of 2004, the impact of the global financial crisis of 2008–2010, the political crisis of 2013–2014, Russia’s annexation of Ukraine) does not allow to fully adapt the known approaches to property valuation in the realities of the national economy. The formed tendencies cause decrease in gross production of agricultural products and economic efficiency of use of components of material and technical base.

Therefore, the question arises about the harmonization of the results obtained under different approaches. The current situation forces appraisers to think more and more often about developing a comprehensive valuation method that could take into account various cost factors in the calculation process and would combine the advantages of each of the classical approaches to property valuation.

An important role in solving theoretical problems of valuation belongs to such well-known scientists as Brazilii N.M. [2], Hrachova R. [3], Hrynchyshyn J. [4], Endovytskyi D.A., Mokshyna K.N. [5], Zhuk V.M. [6], Koriahin M.V. [10], Maidaneyych P.N., Emtsova M.S. [11] and others.

However, it should be emphasized that a comprehensive scientific study of current issues of improving the methodology for assessing the reproduction of the material and technical base of agricultural enterprises was not conducted.

The aim of the research. The main purpose of the article is to analyze the existing views on methodological approaches to assessing the reproduction of components of the material and technical base of agricultural enterprises and substantiation of a comprehensive system of objective criteria and indicators for assessing the reproduction process based on harmonization of domestic and IFRS.

Material and methods of research. The research methodology is based on theoretical developments and scientific tools, including normative and economic analysis, allows to systematize, unify and determine the areas of assessment of the material and technical base of the agricultural sector for further economic development. The source of data during the study was the structure of fixed assets of Ukraine, the Tax Code of Ukraine, International Financial Reporting Standards, International Valuation Standards, State Land Cadastre and National Accounting Provisions (Standards).

Research results and discussion. The reproduction process is seen as the purposeful influence of various institutions that represent the subject of management, and a set of production relations in the process of production, exchange and consumption, which are characterized by repetition.

Considering the problems of developing objective criteria and indicators for assessing the reproduction process of the components of the material and technical base of agricultural enterprises, it should be noted the unresolved issue of fair value, which creates a situation in which the balance sheet valuation of fixed assets and other assets minimizes the ability to protect investors. This is due to the fact that in Ukraine, accounting is used for tax control, not for management and investment.

In the theory of accounting developed two approaches to evaluation (unity and reality), which ensure the objectivity of the assessment of economic activity of the enterprise [10, p. 142]. Thus, the principle of unity of assessment implies the uniformity of methods used in all enterprises and their invariability over a long period of time. To ensure the reality of the assessment, it is necessary to achieve an objective correspondence of the monetary value of the object of accounting for living and materialized labor. The solution of the set task is possible on condition that the fixed assets will be estimated on a uniform principle in all enterprises.

In accordance with paragraph 3 of paragraphs. 39.2.1.8, paragraphs. 39.2.1 and paragraphs. 39.2 art. 39 of the Tax Code of Ukraine, if during the business transaction provides for the assessment process, the value of all such objects will be the basis for tax purposes [15].

Article 3 of the Law of Ukraine of 12 July 2001 № 2658-III “On Valuation of Property, Property Rights and Professional Valuation Activities in Ukraine” states that valuation of property or property rights is a process of determining their value on the valuation date according to the normative procedure. -legal acts specified in Art. 9 of the Law [16, p. 252].

International valuation standards define the following methods of valuing assets for financial reporting: all non-specialized assets should be valued on the basis of market value, and specialized assets are valued using the method of ARC
Thus, IFRS in assessing the fair value of assets prefer a comparative approach, the specifics of which for different types of assets are set out in International Valuation Standards.

It should be noted that INBO 16 and UAS 7 provide, in addition to actual value, for use and fair value. Such an assessment is necessary in order to assess how much the assets of a particular enterprise actually cost. The accounting standards provide the following definitions of fair value:

- in INBO 16 Fair value is defined as the amount for which an asset could be exchanged or a liability settled between knowledgeable, willing parties in an arm’s length transaction (paragraph 6) [11, p. 179];
- in UAS 7, fair value is defined as the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction (paragraph 4) [4, p. 382].

Note that INBO 16 gives an enterprise the right to choose to reflect one of two models of valuation of fixed assets: the cost model or the revaluation model. UAS 7 states that the organization has the ability to re-evaluate the object of fixed assets, i.e., this standard provides only one model [2, p. 237].

In our opinion, the objective characteristic of fair value is the current price in an active market for a similar property that has a similar location and condition or that is the subject of similar leases or other agreements.

As you know, IFRS 16 “Property, plant and equipment” allows the use of two models for accounting for property, plant and equipment: the cost model (historical cost) and the revalued amount. The cost accounting model is traditional and is used to account for fixed assets in all national accounting systems.

If the second accounting model is chosen, property, plant and equipment should be carried at revalued amount, which is the fair value at the date of revaluation. Revaluation should be performed with a frequency sufficient to ensure that the carrying amount of the item does not differ too much from its fair value at any time.

It is obvious that the annual inflation rates in the leading countries of the world are insignificant, so its impact on the value of the object of evaluation is insignificant [18]. However, for fixed assets with a long time of use, the impact of inflationary processes will accumulate under the influence of their time of use. Accounting for such assets at historical cost also affects the organization's balance sheet, which is forced to combine several disparate values.

Note that the indexation of fixed assets based on the price index recommends the use of IFRS 29 "Financial Reporting in Hyperinflation" [17]. The price index can be determined in different ways (Fig. 1).

An innovation in IFRS is that companies are now allowed to use revalued value as fair less accumulated depreciation and impairment losses only if fair value can be measured with a sufficient degree of reliability [9].

Inventories should also be adequately reflected in accounting for tax purposes. In particular, INBO 2 [7] provides for the adjustment of impairment losses (paragraph 33) if at present the reasons that led to the write-off of inventories have lost their effect. The changes made in UAS 9 [8]...
in a similar version, which were previously recognized as unadjusted costs, and were issued as income of the enterprise, which in our opinion, is the most failed.

Studies of alternative methods of inventory valuation in accordance with UAS and INBO (Table 1), allow us to state that there are some discrepancies in the formation of inventories at the date of receipt, disposal and balance sheet date.

From a practical point of view, the initial cost of inventories does not always correspond to the net realizable value of inventories. In this case, the following options are possible: the initial cost of inventories is greater than the net sales and vice versa. In the first case, the excess is written off against the costs of the reporting period. Revaluation to increase the value of inventories as a separate procedure in UAS 9 is not allowed, it is prohibited by the principle of prudence for the sake of excluding overstatement in the valuation of assets of the enterprise.

The main means of agricultural production, which has a specific property, is land. Unlike other means, it does not wear out, but when used properly, on the contrary, increases its fertility. The organization of land accounting in agricultural enterprises takes into account the following features (Fig. 2).

For accounting purposes, land is recognized as an asset and belongs to the fixed assets of the enterprise, where it is classified into two separate elements: land and capital expenditures for land improvement. These assets are accounted for in accordance with UAS 7 "Property, Plant and Equipment".

Today, the correct valuation of land is becoming a necessary procedure, because without information about its market value, it is impossible to effectively conduct land transactions. Different land plots in terms of their use are different in quality (nutrient content, structure and other indicators), which are taken into account when planning crops and assessing the economic activity of the entity. Therefore, in Ukraine, a normative monetary valuation (NMV) of agricultural land was introduced, the basis for which is the information of the State Land Cadastre (quality, quantity and economic indicators of land plots), land management documentation.

It should be emphasized that the normative monetary assessment is intended to determine the amount of land tax and rent for state and communal land (paragraph 289.1 of the Tax Code of Ukraine) [15]. However, the analysis of regulations shows that the use of regulatory monetary valuation is not the basis for the reflection of agricultural land in the forms of financial statements.

However, in most regions of Ukraine, compared to 2017, the new NMV 1 hectare of arable land is smaller (for example, in the Kiev region, the company will save on a single tax from 1 hectare of arable land UAH 54.86, or almost one-sixth of the 2017 tax.). Therefore, there is a well-founded fear that the SFS, in order to avoid budget losses, will require agricultural enterprises to use NMVs at the level of 2017 (since the indexation coefficient for last year was adopted at 1.0), regardless of whether NMVs conducted land plots.

Table 1.- Comparison of UAS and INBO on formation inventory prices at the time of receipt, disposal and balance sheet date

<table>
<thead>
<tr>
<th>Sign</th>
<th>UAS 9</th>
<th>INBO 2</th>
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<tr>
<td>The price of stocks at the time of receipt</td>
<td>The cost is formed from the following costs: 1) when purchasing from the supplier: the amounts paid under the contract to the supplier less indirect taxes; the amount of import duty; amounts of indirect taxes that are not refundable in connection with the acquisition; transportation and purchasing costs; Other expenses; 2) in the production of own resources: costs that form the cost of production; 3) when introducing share capital: fair value agreed with the founders of the enterprise, taking into account the costs included in the initial cost of inventories purchased from the supplier; 4) in case of free receipt: fair value; 5) after receiving an exchange for similar assets: the book value of transferred inventories.</td>
<td>The cost is formed from the following costs: 1) acquisition costs: purchase price; duties and other taxes; transportation costs; cost of loading and unloading works and other costs; 2) processing costs: costs directly related to the unit of production; 3) other costs, if they arose during delivery to the place of unpacking and restoration.</td>
</tr>
<tr>
<td>The price of inventories at disposal</td>
<td>The cost of inventories that arrived first (FIFO), identification value, weighted average cost, normalized costs, selling price.</td>
<td>Allowed LIFO method - the cost of the last to receive stocks.</td>
</tr>
<tr>
<td>The price of inventories at the balance sheet date</td>
<td>The lowest of the two estimates is the initial cost or net realizable value.</td>
<td>Net realizable value</td>
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Source: summarized by the authors.
and therefore, the market for such land is not yet operational. Accordingly, market prices for arable land are not yet formed. However, due to certain subjective circumstances, some farms in the corporate sector of the agricultural economy are forced to conduct an expert assessment of agricultural land. We believe that there are several root causes for this:

- the need to reduce financial risks. Thus, during 2014–2016, almost 600–700 thousand hectares of land changed their owners, which requires a preliminary objective assessment;
- provided at the legislative level the need to involve an appraiser during the accounting revaluation of non-current assets and current biological

Fig. 2. Features of land valuation as an object of accounting.

Source: authors’ development.

Based on this, we can assume that regulatory and market value may not always be identical concepts. In this regard, it is appropriate, in our opinion, to use two approaches to the valuation of agricultural land. Plots to be purchased by the company (at auction or free of charge) should be accounted for at cost. To determine the value of land previously used by the company (for example, on certificates of ownership and use), we propose in the current accounting to apply the estimated value of land, which is based on the normative monetary valuation determined by differential rental income (Fig. 3).

Currently, Ukraine is only preparing legislative instruments for the sale of agricultural land,
assets (Article 7 of the Law of Ukraine "On property valuation, property rights and professional valuation activities in Ukraine") [16];
- the requirement of commercial banks to provide an independent assessment of property and property rights when applying for a loan and collateral agreement;
- fair distribution of capital structure in the process of mergers. Thus, in 2013 there was a merger of 2 large agricultural companies founded by French and American investors: Agrogeneration and Harmelia, as a result of which a new player with a land bank of 120 thousand hectares entered the TOP-15 of the largest agricultural holdings in Ukraine [5, p. 34].

In assessing the market value of agricultural land, in our opinion, the following features must be taken into account: the need to maintain the fertility of the upper layer of agricultural land through the use of scientifically sound discipline and compliance with certain requirements for production methods; location of agricultural lands; hazards associated with natural conditions and natural disasters (droughts, floods, early frosts, snowstorms and other natural disasters); availability of possible investments in agricultural production; population density in areas; availability of infrastructure, in particular paved roads and their quality.

Based on these features, it is advisable to assess the land resources of the agricultural organization at fair value. Valuation of assets and liabilities at this value will increase the transparency of financial statements and the reliability of the information provided in it about the financial and economic activities of the economic entity. In addition, when analyzing the financial and economic activities of farms in the corporate sector of the agricultural economy, the real assessment of land resources will have a positive impact on regulatory indicators of liquidity and financial stability, which is especially important in a financial crisis and growing investment needs.

The processes of agricultural activity in Ukraine are established by UAS 30 "Biological Assets" and INBO 41 "Agricultural Activity" [3, p. 35], for those enterprises that comply with the provisions of international standards.

INBO 41 Agricultural Activity establishes procedures for accounting, presenting financial statements and disclosing information about agricultural activities. According to him, agricultural activity is the management of biotransformation of plants and animals for the purpose of their sale, production of agricultural products or production of additional biological assets [12]. In this regard, the task is to clarify the definition of "biotransformation", which means the processes of growth, regeneration, production and reproduction, which lead to qualitative or quantitative changes in the biological asset. As a result of such reproduction, such additional assets as grain may arise - in crop production; meat, milk and other products - in animal husbandry (Fig. 4).

An important part of biological transformation is the assessment of changes in biological assets. It includes the measurement and control of changes in quality (fat content, protein, fiber strength, etc.) or quantity (offspring, weight, etc.).

The concept of biological assets and their derivatives in accordance with UAS 30 and Instruction № 291 [1; 6, p. 7] fully comply with the concepts set out in IFRS 41, although in this case they are not classified as clearly as in the national Chart of Accounts.

Fig. 4. The essence and result of biotransformation of biological assets.

Source: developed by the authors.
It is necessary to note the difficulties in assessing non-commodity agricultural products used in the production process as inventories. We believe that their fair value, especially feed of own production (hay, straw, green mass, etc.) and by-products, should be determined based on economic utility.

As for the value of the biological assets themselves (plants and animals), they are measured at fair value less expected selling expenses. The fair value of livestock is set based on the market value of animals of the same age and breed, with the same genetic characteristics. In the case of the acquisition of biological assets from third parties, at the time of such acquisition, their initial measurement is recommended in accordance with INBO 41, based on the fact that the acquisition of biological assets from third parties in INBO 41 is not mentioned.

According to the analysis of international financial reporting standards, the problem of valuation in the accounting of biological assets is designed to solve (IFRS) 13 "Fair value measurement" [14]. Having considered the main provisions of this standard regarding the measurement of biological assets at fair value, we believe that it should be carried out from the standpoint of all market participants, and the definition of the market environment should be left to the entities themselves. This will make it possible to take into account the differences that exist between them, as they differ not only in quality but also in the types of economic activity.

Conclusions. Thus, in the current conditions of management of domestic agricultural enterprises to improve the analysis of their material and technical base, successful and long-term operation of relations with foreign counterparties provides for the application of IFRS 41 "Agriculture". Because it highlights the features of agriculture in the unique characteristics of production activities, which describes the management of the transformation of biological assets, and requires the use of a fair assessment. The best conditions for determining fair value are created by the presence of an active market. Its absence significantly complicates the determination of fair value.

Ways to reflect the value of biological assets and agricultural products at fair value require refinement and adjustments to this valuation model, which will ensure the equivalence of exchange between independent parties. To simplify the process of calculating the fair value of biological assets and agricultural products, it is advisable to group them by age, quality and other key characteristics.

For the correct assessment of land resources it is necessary to use the data of agrochemical indicators of soil. Fixation of qualitative parameters of agricultural lands in the assessment at the present stage is the most acceptable in terms of the effectiveness of analytical and control functions and accounting discipline. This method will be a reliable basis for coverage in the accounting of the value of land as part of fixed assets.

REFERENCES


Встановлено основні особливості організації бухгалтерського обліку земельних ділянок у сільськогосподарських підприємствах.

є збір інформації про ціни та техніко-економічній інформації; вибір методики оцінки біологічних активів; розрахунок справедливої вартості біологічних активів відповідно до прийнятії методики.

Розглядають основні положення МСФЗ (IFRS) 13 «Оцінка справедливої вартості» стосовно оцінки біологічних активів за справедливою вартістю, показав, що її необхідно здійснювати з позиції всіх участів ринку, а визначення ринкового середовища покласти на самих суб'єктів господарювання. Це надасть змогу врахувати відмінності, які існують між ними, оскільки вони різняться не тільки за якісними характеристиками, а й в ін. діяльності господарської діяльності.

Для покращення інвестиційної привабливості підприємств доцільно проводити оцінку земельних ресурсів сільськогосподарських організацій за Міжнародними стандартами бухгалтерського обліку, що передбачають застосування справедливої вартості. Оцінка активів і зобов'язань за такою вартістю дасть змогу підвищити прозорість фінансової звітності та достовірність поданих в ній інформації про фінансово-господарську діяльність економічного суб'єкта. Крім того, при аналізі фінансово-господарської діяльності господарств корпоративного сектору аграрної економики реалізація оцінки земельних ресурсів матиме позитивний вплив на нормативні показники ліквідності та фінансової стійкості, що особливо важливо в умовах фінансової кризи і зростаючої потреби в інвестиціях.

Ключові слова: матеріально-технічна база, ресурси, запаси, основні засоби, процес відтворення, ринкова вартість, справедлива ціна, оцінка землі, ефективність обліку.

Методичні підходи до оцінки відтворення матеріально-технічної бази сільськогосподарських підприємств

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В стать розкрито значимість оцінки матеріально-технічної бази сільськогосподарських підприємств, які використовуються підприємствами всіх форм власності при вкладанні в інвестиції.

Відомості про фінансово-господарську діяльність суб'єктів господарювання надають змогу врахувати особливості відмінності, які існують між ними, оскільки вони різняться не тільки за якісними характеристиками, а й в ін. діяльністю.

Основні особливості організації бухгалтерського обліку земельних ділянок у сільськогосподарських підприємствах.
учета в соответствии с их классификацией; конкретизация биологических активов по видам, культурами, породами и другими отличительными особенностями; исследования активного рынка и сбор информации о ценах и технико-экономической информации; выбор методики оценки биологических активов; расчет справедливой стоимости биологических активов в соответствии с принятой методикой.

Рассмотрение основных положений МСФО (IFRS) 13 «Оценка справедливой стоимости» по оценке биологических активов по справедливой стоимости, показал, что ее необходимо осуществлять с позиции всех участников рынка, а определение рыночной среды положить на самих субъектов хозяйствования. Это позволит учесть различия, существующие между ними, поскольку они отличаются не только по качественным характеристикам, но и видами хозяйственной деятельности.

Для улучшения инвестиционной привлекательности предприятий целесообразно проводить оценку земельных ресурсов сельскохозяйственной организации по Международным стандартам бухгалтерского учета, что предусматривает применение справедливой стоимости. Оценка активов и обязательств по такой стоимости позволит повысить прозрачность финансовой отчетности и достоверность представленных в ней сведений о финансово-хозяйственной деятельности экономического субъекта. Кроме того, при анализе финансово-хозяйственной деятельности хозяйств корпоративного сектора аграрной экономики реальная оценка земельных ресурсов окажет положительное влияние на нормативные показатели ликвидности и финансовой устойчивости, что особенно важно в условиях финансового кризиса и растущей потребности в инвестициях.

Ключевые слова: материально-техническая база, ресурсы, запасы, основные средства, процесс воспроизводства, рыночная стоимость, справедливая цена, оценка земли, эффективность учета.