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**BIOLOGICAL ASSETS: PROBLEMS, ACCOUNTING AND POSSIBLE WAYS OF IMPROVEMENT**

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In Ukraine, the accounting of biological assets is regulated by P(S)BA 30 “Biological assets”. The practical application of the Provision concerning methods for assessing biological assets is somewhat problematic: lack of active market prices of similar assets on a certain date to determine fair value, providing of documents and recording of biological assets which are transferred from group to group. These and other issues have some differences regarding their theoretical and practical application. The aim of this research is a scientific substantiation of the nature of biological assets, systematization of criteria of classification, packetizing of necessary documentary securing with the aim of significant recording and proper evaluation of biological assets. The article deals with the essence of biological assets, their belonging to a certain group classification, valuation and recording. The research has established that the organization of primary accounting of biological assets of livestock production violates one of the accounting principles, including the principle of full coverage. The changes to existing forms of primary documents and registers of synthetic accounting were proposed to solve this problem considering guidelines for the organization of accounting of biological assets and agricultural products at market (fair) value. The proposed phased approach to the issues of determination, measurement, recording and documenting securing of the availability and movement of biological assets can help enterprises of the agricultural sector to ensure the reliability of accounting and objective assessment of biological assets.

**Keywords:** current biological assets; long-term biological assets; the primary account, synthetic and analytical accounting

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**БІОЛОГІЧНІ АКТИВИ: ПРОБЛЕМИ, ОБЛІК, МОЖЛИВІ ШЛЯХИ УДОСКОНАЛЕННЯ**

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В Україні облік біологічних активів регулюється П(С)БО 30 «Біологічні активи». Практичне застосування даного Положення стосовно методики оцінки

біологічних активів є дещо проблематичним: відсутність цін активного ринку аналогічних активів на певну дату для визначення справедливої вартості, документальне забезпечення та відображення в обліку біологічного активу, який переведено з групи в групу. Ці та ряд інших питань мають деякі розбіжності щодо їх теоретичного та практичного застосування. Метою даної роботи є наукове обґрунтування сутності біологічних активів, систематизація класифікаційних ознак, формування пакету необхідного документального забезпечення з метою достовірного обліку та належної оцінки біологічних активів. В статті розкрито суть біологічних активів, їх належності до певної класифікаційної групи, оцінки та обліку. Дослідженнями встановлено, що при організації первинного обліку біологічних активів тваринництва порушується один з принципів бухгалтерського обліку, зокрема принцип повного висвітлення. Для вирішення проблеми запропоновано внесення змін в діючі форми первинних документів та реєстрів синтетичного обліку з урахуванням методичних рекомендацій з організації обліку біологічних активів і сільськогосподарської продукції за ринковою (справедливою) вартістю. Запропонований в статті поетапний підхід до питань визнання, оцінки, обліку та документального забезпечення наявності і руху біологічних активів, допоможуть підприємствам аграрного сектору забезпечити достовірність обліку та об'єктивну оцінку біологічних активів.

**Ключові слова:** поточні біологічні активи; довгострокові біологічні активи; первинний облік, синтетичний та аналітичний облік.

**Problem statement.** The peculiarity of the agricultural sector is biological assets and their use in agricultural production. Biological assets are recognized as an asset if: the enterprise gets risks and benefits associated with ownership of the biological assets; the enterprise manages a biological asset and control over its use; there is an assurance that the company will receive future economic benefits associated with its use in agricultural activities; the value of a biological asset can be measured reliably. The economic benefits of biological assets are determined based on the situation of their physical qualities.

In Ukraine, the accounting of biological assets is regulated by P(S)BA 30 "Biological assets". The practical application of the Provision concerning methods for assessing biological assets is somewhat problematic. Thus, the basic approach to the assessment of biological assets is the use of fair value that is set at the level of prices of an active market of similar assets on a certain date. Another problem is the issue of the presence of active markets. Therefore, in their absence, the assessment of current biological assets is carried out at cost price and the assessment of long-term biological assets – at original cost value (in this case it is necessary to charge depreciation on these assets). Thus, one problem

creates another problem. Another problematic issue is the documentary securing and accounting recognition of the biological asset transferred from group to group. These and other issues have some differences regarding their theoretical and practical application.

**Analysis of recent research and publications.** The issues of recognition, classification, valuation and accounting of biological assets in agricultural enterprises are studied by many scientists, including N.V. Goncharenko [7], V.M. Zhuk [10-12], I.V. Zamula [13], P.M. Kuzmovych [14], V.B. Mossakovsky [15], L.K. Suk [18] and R.M. Tsygan [20]. However, we consider that the issues of recognition, classification, evaluation and documentary disclosure of biological assets are insufficiently studied causing misunderstandings and mistakes in the accounting.

**The aim of this research** is a scientific substantiation of the nature of biological assets, systematization of criteria of classification, packetizing of necessary documentary securing with the aim of significant recording and proper evaluation of biological assets.

**The main results of the research.** A biological asset is a plant or animal that in the process of biological transformations can provide agricultural products and/ or additional biological assets and bring economic benefits in any other way.

According to P(S)BA 30 “Biological assets”, biological assets have a classification [5]:

- Agricultural biological assets (assets that can give agricultural products and/ or additional biological assets that are intended for sale or use in agricultural activities);
- Other biological assets not related to agricultural activity (assets recognized as reserves but not used in agricultural activities and kept for the purpose of sale).

The objects of accounting of biological assets are: types of agricultural crops; homogeneous groups of biological assets consisting of subspecies of agricultural crops; some crops; animal species; homogeneous groups of biological assets consisting of individual technological groups of animals.

Biological assets depending on the field of agricultural activities, in which they are used, are divided on biological assets of crop and livestock production that have secondary classification: long-term, underage and current biological assets.

Long-term biological assets are assets that are able to provide agricultural products and/ or additional biological assets and bring economic benefits in another way for a period exceeding twelve months, except for animals for breeding and fattening (fruit-bearing perennial plants, animals of the main herd of cattle, pigs and sheep). Additional biological assets are assets obtained in the process of biological transformations (animal offspring, new swarms of bees and seedlings).

Underage long-term biological assets are assets which operating cycle exceeds twelve months and in the reporting period are not able to provide agricultural products and/ or additional long-term biological assets of a certain quality (orchards, vineyards, berry fields that have not reached fruit-bearing age).

Current biological assets are assets able to provide agricultural products and/ or additional biological assets and bring economic benefits in another way for a period not exceeding twelve months, as well as animals for breeding and fattening.

Purchased biological assets credited to the balance of the enterprise at initial value is a historical (actual) cost price of assets in the amount of cash or the fair value of other assets paid (transferred) spent for purchasing assets.

The initial value of biological assets is the purchase price under the contract minus the amount of discounts, non-refundable indirect taxes and with addition of amount of import duties, transportation costs and other costs associated with the purpose of biological assets and bringing them to the state in which they are suitable for use for the planned purposes.

The initial value of biological assets does not include financial expenses; costs for maintenance of supply departments and other departments with similar functions; exchange differences arising from the calculations currency with foreign suppliers; cost of purchasing foreign currency for payments for the acquisition of biological assets; excessive losses and shortage; selling expenses; administrative expenses. These costs are included in expenses in the period in which they occur.

Among scholars and practitioners there are ongoing discussions about the recognition of a biological asset, belonging to a certain group of the classification, valuation and accounting. Zamula I.V. believes that there are two approaches to determining the biological assets: a system approach (assets in the form of animals or plants created as a result of past biological processes from which you can get economic benefits in the form of agricultural products,

additional biological assets, provided services, money or other assets) and a non-system approach (animals and plants that are the result of past biological transformation processes, recognized and controlled by the enterprise, can be used in its activities or transferred for economic benefits and their cost can be reliably measured). Therefore, the author proposed the definition of biological assets as “living organisms used in agricultural activities and resources of agricultural enterprises able in the process of qualitative and quantitative changes to provide agricultural products and/ or additional biological assets, kept for use in the production and/ or for future use and offer economic benefits in another way” [13].

The issues on the classification of biological assets are not solved enough. Thus, according to a generally accepted classification of biological assets on availability period there are current and long-term biological assets. There are two different assessments of biological assets – by fair and original cost value. According to P.M. Kuzmovych, it is appropriate to classify long term biological assets for long-term depreciated biological assets and long-term non depreciated biological assets, in addition to the existing classification by sub-accounts. In his opinion, the depreciation is charged on all long-term biological assets, regardless of the methods of assessment [14].

These classifications characterize mostly the nature of biological assets as an important accounting and analytical category, according to R.M. Tsygan and O.Y. Chubka. Therefore, with the purpose of a comprehensive review of biological assets as a separate economic category and elimination of existing shortcomings, as well as providing methodological aspects of biological assets in financial statements, the additional classification features should be introduced. The authors proposed additional classification features of biological assets: organic, traditional and genetically modified. According to such features, biological assets should be presented as separate accounting items. According to the authors, dependence on the way, in which biological assets were created, influences what costs are included in the cost price of finished products for the realization of biological assets. The proposed features will enable to carry out more detailed accounting of biological assets of the enterprise to increase the effectiveness of their use [20].

In addition, R.M. Tsygan and O.Y. Chubka optimize the structure of the classification of biological assets, adding the following features: in terms of the soil fertility in crop production, quality of products and market of sales of

agricultural products [20]. In our opinion, this classification is rather fragmented and does not have any significant economic information. The initial classification should be based on the methodic recommendations on the accounting of biological assets, taking into account natural characteristics and specific character of activities of the entity [6].

The lack of definitive scientific opinions and views on the recognition and classification of biological assets rises to problems in determining their evaluation. According to P(S)BA 30 “Biological assets”, the purchased (received) biological asset is included on the balance of the enterprise at initial value which is determined in accordance with P(S)BA 7 “Fixed assets” or P(S)BA 9 “Inventories” [2]. Additional biological assets at initial recognition are measured at fair value that is reduced for expected costs for sales or production cost price according to P(S)BA 16 “Costs” [3]. The initial recognition of additional biological assets is shown in the reporting period in which they are separated from biological assets.

Long-term biological assets which fair value is impossible to determine reliably at balance sheet date or if the enterprise is a taxpayer on the advance corporation tax, can be recognized and shown at initial value with the amount of depreciation and impairment losses. Assessment and depreciation of long-term biological assets is carried out according to P(S)BA 7 “Fixed assets” and P(S)BA 28 “Impairment of Assets” [4].

Determining the fair value of biological assets and agricultural products is based on active market prices. If there are several active markets of biological assets and agricultural products their evaluation is based on market data on which the enterprise provides to sell biological assets and/ or agricultural products. To obtain reliable information on costs and cost of production the company must organize accounting of direct and indirect costs so that actual costs are formed monthly or quarterly, not at the end of the year. Given the fact that agricultural production is seasonal and the products come irregularly, so the accounting process is considerably more complicated. Therefore, it would be appropriate to be able to apply planned cost price of agricultural products for the assessment with calculation to the actual cost at the end of the year, as well as to bring active market prices for biological assets and agricultural products to enterprises at each balance sheet date, according to O.P. Skyrpan [17].

V.B. Mossakovsky underlines that the initial cost, duration of operation of the facility and its liquidation value are important to justify depreciation in applying the original cost. According to the author, the cost of current biological

assets (animals), when transferring them to the main herd, can be considered compared true value. At the end of the year, this amount should be clarified after calculating the actual cost of its products and resale value and useful lifetime are difficult to predict. Therefore, the company is given the right to determine these parameters on its own [15].

In case of absence of the information on market prices of biological assets (Paragraphs 5.6 and 5.21 of Methodological recommendations on planning, accounting and calculation of cost of goods (works, services) of agricultural enterprises) [6], the fair value is determined in accordance with paragraphs 11-14 P(S)BA 28 “Impairment of Assets” [4] by the present value of future net cash flows from the asset being evaluated.

P(S)BA 30 “Biological assets” was enacted in 2007 but to show the presence and movement of biological assets the documents of primary, consolidated, analytical and synthetic accounting are not enough. This situation creates difficulties for the practical application of this Standard and does not give a clear idea about the changes that have occurred in the accounting of biological assets.

The research results show that the organization of primary accounting of biological assets of livestock production in agricultural enterprises does not meet the requirements of today. The principle of full coverage is violated as acting and newly created documents do not give accurate and comprehensive information about the presence, movement and value of biological assets of livestock production (before the introduction of P(S)BA “Biological assets”). There is a problem of getting information at the initial stage of its formation. Of course, there are results of the negative impact on output data.

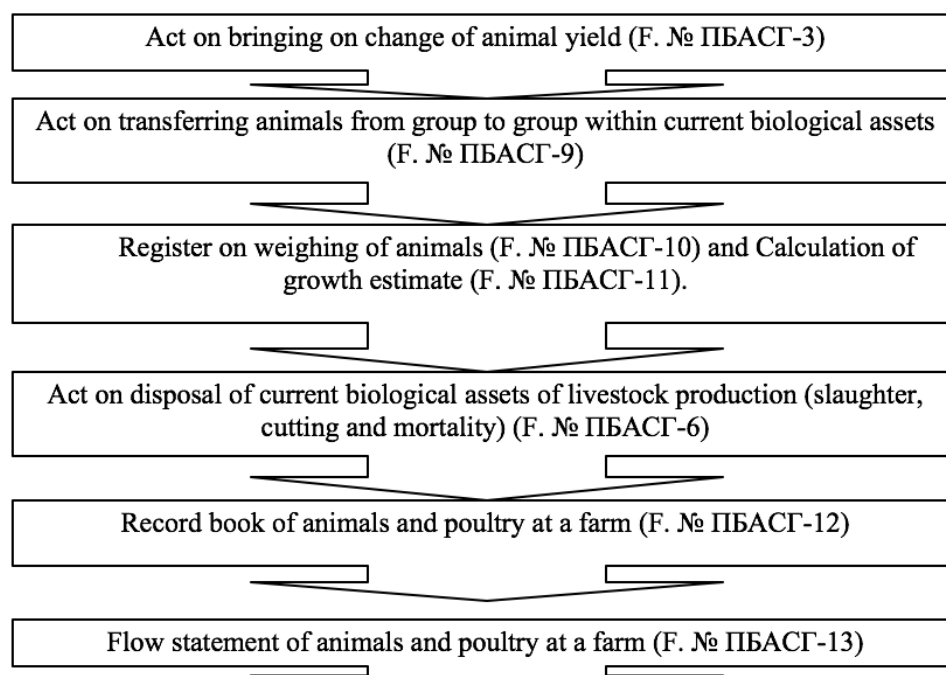
Given the situation in accounting for biological assets, we see one of two approaches to solve this problem. One of these approaches involves amendments to existing forms of primary documents and registers of synthetic accounting based on the methodological recommendations on the organization of accounting of biological assets and agricultural products at market (fair) value. The second way involves the development of entirely new forms of primary accounting of biological assets and agricultural products of livestock production.

Following the requirements of P(S)BA 30 “Biological assets” and meeting the needs of users of accounting information it is appropriate to use the first method that is to improve acting primary documents by adding information on the fair value of the asset and the determination source. However, the vast majority of agricultural enterprises realize a profit of animal offspring of the main herd by a planned cost price with revaluation at the end of the year. The fair value primarily provides organizational and financial problems for the business entity

(additional costs of enterprises for the establishment and functioning of Commissions on the determination of fair value and agricultural production; their responsibilities are monitoring market environment and preparation of acts of determination of fair value of relevant biological assets and livestock products).

Issues on accounting of animals by sex and age groups are understudied. For example, objects of accounting of biological assets in livestock production are the main herd, animals for breeding, animals for fattening and more. According to P(S)BA 30, the main herd are productive animals that regularly give agricultural products and/ or additional biological assets [5]. According to methodical recommendations on accounting of biological assets, the accounting objects of beef cattle breeding are also “calves up to 8 months” [6]. In our opinion, this is not entirely correct, as weaned offspring should be transferred to the sex and age group “animals for breeding and fattening”. In addition, the cost of the main herd of animals is recorded in the account 16 “Long-term biological assets”, so recording of calves aged under 8 months should be done in the account 21 “Current biological assets”.

There are a lot of inconveniences in the formation of primary documentation when filling in primary documents that should contain information on examining economic data on the presence and movement of biological assets. Figure 1 shows an algorithm of formation of primary and consolidated documents in livestock production.



**Figure 1.** Algorithm of formation of primary and consolidated documentation of current biological assets of livestock production

*Done by authors*



It is necessary to show the list of transactions in written form when forming the main herd of animals (long-term biological assets of livestock production). To improve accounting of transactions we offer to optimize slightly Act on transferring animals from group to group. It is important for using information for the register of cattle books of certificate and veterinary cards.

The structure of Act should be slightly changed (Figure 2) and it should be called Act for transferring animals from the group of current biological assets to the group of long-term biological assets.

Agricultural accounting, Form № ПБАСТ-9							
<b>APPROVED</b>							
Order of Ministry of Agrarian Policy of Ukraine of 21.02.2008 № 73							
APPROVED							
(Head of the enterprise) <u>Gorovyi A.A.</u>							
<b>ACT № 4</b>							
<b>Transferring animals from the group of current biological assets to the group of long-term biological assets</b>							
<i>(from the group of bred heifers to the group of main dairy herd)</i>							
January 28, 2016							
Inventory number	Nickname	Gender, color type and other features	Year of birth	Weight, kg	Carrying amount, UAH	Who is responsible for animals	
						Full name	Signature
345	Avrora	heifer	2014	385	6930	Tereziuk A.S.	
374	Berizka	-//-	-//-	380	6840	-//-	
386	Kvitka	-//-	-//-	376	6768	-//-	
391	Malva	-//-	-//-	389	7002	-//-	
Total	x	x	x	1530	27540	x	x

Code of synthetic accounting	debit	155
	credit	213

Head of the structural unit	_____	<u>Karpenko P.T.</u>	Responsible for animals	_____	<u>Kovalenko O.V.</u>
	<i>signature</i>	<i>Full name</i>		<i>signature</i>	<i>Full name</i>
Head of the farm	_____	<u>Bevzenko T.V.</u>	Livestock expert	_____	<u>Velychko O.G.</u>
	<i>signature</i>	<i>Full name</i>		<i>signature</i>	<i>Full name</i>
Accountant	_____	<u>Tereschenko G.V.</u>			
	<i>signature</i>	<i>Full name</i>			

**Figure 2.** Act on transferring animals from the group of current biological assets to the group of long-term biological assets  
Selection – proposed improvement of authors

This document must have four copies: the first one is for accounting in the disposal group; the second one is for accounting in the increase group; the third one is in the accounting department; the fourth one is for the register of cattle books of certificate and veterinary cards (Figure 3).

The proposed improvements will ensure the formation of primary data. It can be used for documents of consolidated, analytical and synthetic accounting, as well as requests for external users (in the register of cattle books of certificate and veterinary cards). It is appropriate to enter information that

shows the number of the Act on transferring animals from the group of current biological assets to the group of long-term biological assets and the date of its formation.

Thus, assigning identification number, issuing passport and veterinary card, a specialist of the state institution of veterinary medicine will use the information from the Act on transferring animals from the group of current biological assets to the group of long-term biological assets. The fourth copy of the Act is given to the institution. The proposed improvements will provide the synchronization of records on number of animals in two documents which are written in the enterprise and the state institution of veterinary medicine.

<i>PE «Agency of Animal Identification and Registration»</i>							APPROVED	
							<i>Kostenko O.O.</i> (head of the enterprise).	
<b>REGISTER № 1</b>								
<b>Cattle books of certificate and veterinary cards</b>								
January 29, 2016								
Inventory number	Nickname	ID number	Series and number of a book of certificate	Series and number of a veterinary card	Name and number of a document	Recipient of a book of certificate and veterinary card		
						Full name	signature	
345	Avrora	UA3500253707	EE449202	EE521456	Act № 4	Velychko O.G.		
374	Berizka	UA3500253708	EE449203	EE521457	-/-	-/-		
386	Kvitka	UA3500253709	EE449204	EE521458	-/-	-/-		
391	Malva	UA3500253710	EE449205	EE521459	-/-	-/-		
The state institution of veterinary medicine								
Specialist of the state institution of veterinary medicine					_____	<i>Maistrenko A.T.</i>		
					signature	Full name		
Issued by					_____	<i>Tkachenko P.P.</i>		
M.II.					signature	Full name		

**Figure 3.** Register of cattle books of certificate and veterinary cards  
*Selection – proposed improvement of authors*

The study of some issues of the determination, assessment, accounting and documentary securing of availability and movement of biological assets leads to the following **conclusions**:

- Biological asset is a plant or animal that is in the process of biological transformations can produce agricultural products and/ or additional biological assets and bring economic benefits in any other way;
- The classification of biological assets must meet P(S)BA 30 “Biological assets”. If necessary, a business entity can use other classification features that occur in business activities;

- Biological assets should be measured at fair value at the balance sheet date by active market prices, in the absence of the latter they should be measured at the initial cost;

- Showing the presence and movement of biological assets in documents must be systematic and consistent, reflecting the movement of a biological asset after its purchase (creation) until disposal. Moreover, the accounting and economic information is a source of data to create external documents (for example, Register of cattle books of certificate and veterinary cards).

Prospects for further research are depth studies of the economic substance of biological assets, their evaluation and documentary securing.

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