

Recognition and Evaluation Challenges of Biological Assets within the Framework of the Moroccan Agricultural Accounting Plan

Enjeux de la Reconnaissance et de l'Évaluation des Actifs Biologiques dans le Cadre Du Plan Comptable Agricole Marocain

Sallah DINAR, (PhD student)

*Laboratory of Economics and Management of Organizations.
Faculty of Economics and Management
Ibn Tofail University, Kenitra, Morocco*

Cheklekbire MALAININE, (PhD Professor)

*Laboratory of Economics and Management of Organizations.
Faculty of Economics and Management
Ibn Tofail University, Kenitra, Morocco*

Correspondence address :	Faculty of Economics and Management of Kenitra Ibn Tofail University, Morocco (Kenitra) B.P 242-Kenitra Tel: +212661472877
Disclosure Statement :	Authors are not aware of any findings that might be perceived as affecting the objectivity of this study and they are responsible for any plagiarism in this paper.
Conflict of Interest :	The authors report no conflicts of interest.
Cite this article :	DINAR, S., & MALAININE, C. (2023). Recognition and Evaluation Challenges of Biological Assets within the Framework of the Moroccan Agricultural Accounting Plan. International Journal of Accounting, Finance, Auditing, Management and Economics, 4(6-1), 786-802. https://doi.org/10.5281/zenodo.10442708
License	This is an open access article under the CC BY-NC-ND license

Received: November 26, 2023 Accepted: December 27, 2023

International Journal of Accounting, Finance, Auditing, Management and Economics - IJAFAME

ISSN: 2658-8455

Volume 4, Issue 6-1 (2023)

Recognition and Evaluation Challenges of Biological Assets within the Framework of the Moroccan Agricultural Accounting Plan

Abstract:

The operations related to agriculture encompass plants and animals, constituting biological assets. In terms of accounting and assessment, the realm of biological assets remains relatively unexplored in Morocco. The distinctive and singular nature of these biological assets leads to confusion and uncertainty in their evaluation and accounting when applying current accounting practices. The objective of this article is to elucidate the conceptual framework concerning the recognition and classification of biological assets, while examining the issues related to their evaluation and the impact on the relevance of accounting information. These constraints and problems associated with asset evaluation stem from a study conducted on a sample of 200 accountants, whether internal or external to agricultural operations.

Keywords: biological assets, evaluation, accounting information relevance.

Classification JEL: M41

Paper type: Theoretical Research

Résumé :

Les opérations liées à l'agriculture englobent les plantes et les animaux, constituant ainsi des actifs biologiques. En termes de comptabilité et d'évaluation, le domaine des actifs biologiques demeure peu exploré au Maroc. La nature atypique et singulière de ces actifs biologiques conduit à une confusion et à une incertitude dans l'évaluation et la comptabilisation en appliquant les pratiques comptables en vigueur. L'objectif de cet article est de clarifier et d'explorer le cadre conceptuel relatif à la reconnaissance et à la classification des actifs biologiques, tout en examinant les problématiques liées à leur évaluation et les répercussions sur la pertinence de l'information comptable. Ces contraintes et problèmes inhérents à l'évaluation des actifs découlent d'une étude menée sur un échantillon de 200 comptables, qu'ils soient internes ou externes à l'exploitation agricole.

Mots clés : Actifs biologiques, Évaluation, Information comptable, Pertinence.

JEL Classification : M41

Type du papier : Recherche Théorique

1. Introduction

Morocco has undertaken reforms and actions aimed at modernizing the legal and economic environment for businesses. Accounting legislation has accompanied these reforms and has undergone a significant evolution, notably through the adoption of a project for an agricultural accounting plan aimed at valuing agricultural products. Agriculture is the sector where accurate counting, as well as the proper evaluation of biological assets, play a key role in the process of accounting and annual reporting. The concept of "biological assets" is relatively new in the Moroccan accounting system, which may lead to potential uncertainties regarding their evaluation and recording in the company's accounting system. The research problem lies in the Moroccan accounting standardization, which does not sufficiently and explicitly address the principles of evaluation and accounting for biological assets. The objective of this article is to explore and analyze the problems and constraints of accounting and evaluating biological assets in Morocco. Agriculture is one of the oldest human activities and plays a significant role in the global economy by generating economic resources (Mates, Grosu, 2009). Although the agricultural sector is an essential element of the global economy, the accounting of its activities has received little attention from accounting standards developers, with most commercial applications focusing on production, marketing, or tax reporting (Fischer, Marsh, 2013). Agricultural accounting also attracted less attention from researchers and accounting standards regulators until the adoption of the International Accounting Standard (IAS) 41-Agriculture (Herbohn and Herbohn, 2006). The key production elements of an agricultural enterprise are its biological assets, and the company's profit depends on the efficiency of managing these assets. In Morocco, accounting and evaluation issues of biological assets have not been fully studied by academics or professionals in the field. The legislator has proposed an agricultural accounting plan by suggesting general methods for evaluating biological assets. These methods have not given proper attention to the specificities and uniqueness of these biological assets. The rules introduced have not been approved and are therefore only partially applicable by some agricultural enterprises at the moment. It is worth noting that agricultural issues are not explained in any of the standards, unlike existing standards in France and Belgium. To address this issue, we will explore the specificities of biological assets by proposing definitions and classifications to clearly delineate the scope of these assets. Next, we will dissect the evaluation problems and their impacts on the relevance of accounting information.

2. Literature review

2.1. Conceptual Framework Guiding the Recognition and Classification of Biological Assets

2.1.1. Definitions of Biological Assets

In Morocco, the principles for preparing annual accounts, including the classification and accounting of balance sheet items, are governed by the CGNC. The law specifies that biological assets are productive animals or plants held by the enterprise with the aim of obtaining agricultural products for sale or using them as additional biological assets. According to the agricultural accounting plan, biological assets are included under the following categories: Living and multiplying products undergoing changes during their life cycle: horticulture, citrus fruits, vegetable products, and animals, dairy products, residual products; Specific assets known as biological assets with the following main characteristics: these assets are categorized as "producers" (e.g., dairy cows, laying hens), "consumables" (e.g., standing rice plants, farm hens), or both. Their value may increase as they age (unlike

non-biological assets, which generally lose value with age). This characteristic is especially applicable to biological assets that have not yet reached maturity.

The presence of joint products (or by-products), meaning different products obtained from the same biological asset, none of which can be designated as the main product (e.g., beef carcass and its skin), as well as by-products obtained from main products (e.g., cut meat).

It should be noted that the law and its binding regulations do not further define the concept of biological assets and do not specify the principles for classifying animals and plants to be indicated as "Biological Assets" in the fixed assets or inventory section of current assets. The provisions regarding the use of certain items in the balance sheet stipulate that the item "Biological Assets" is used only by a company that recognizes, evaluates, and reflects biological assets in the financial statements.

According to IAS 41-Agriculture, the standards apply to an agricultural product harvested from the company's biological assets at the time of harvest. Therefore, biological assets can be living animals or plants. The entity recognizes a biological asset or agricultural product only when the entity controls the asset due to past events, it is probable that future economic benefits will flow to the entity, and the fair value or cost of the asset can be reliably measured. Agricultural activity is the biological transformation of biological assets or the management of biological assets carried out by the company to transform biological assets into agricultural products for sale or use as additional biological assets (IAS 41-Agriculture).

Biological assets are divided into groups with common characteristics. However, to divide biological assets into groups and their components, there must be homogeneity in the nature of the assets and the purpose of their use. Agricultural products are products obtained from the company's biological assets. In turn, finished products intended for sale are produced by processing agricultural products.

Classification of Biological Assets IAS 41 provides a framework for the measurement, definition of asset values, preparation of financial statements, and disclosure of information regarding the impact of physical changes on the future economic revenues of agricultural assets (Mates et al., 2015). Biological assets can be classified as mature or immature assets. Mature biological assets are those that have reached harvest characteristics and are therefore consumable biological assets. This category also includes biological assets that can be harvested periodically (in the case of carrying biological assets) (Lefter, Roman, 2007). Biological assets can be classified based on several characteristics:

- The time of use or the time of preparation for use;
- Signs of maturation or maturity;
- The possibility of generating economic benefits multiple times, i.e., additional biological assets and agricultural products.

– **Classification by duration of use or preparation for use.**

Bohusova and Svoboda (2017) argue that under IAS 41, there are two main groups of biological assets. On one hand, consumable biological assets, such as wheat and livestock destined for meat, which are harvested as agricultural products, and on the other hand, carrying biological assets such as plants or fruits that regenerate themselves. Biological assets, due to their living nature, go through various stages during their life cycle, justifying their classification based on the key moment of their use or preparation for use. Firstly, growing biological assets represent an initial phase where resources, such as agricultural crops, are in active development. This period requires continuous investments in terms of care, protection, and management of environmental factors. Once mature, some assets are considered ready for use or harvesting. This applies to crops that have reached full productivity or animals ready for slaughter. Precise planning of the harvest time is essential to maximize the quality and quantity of the obtained products. Some biological assets may be held for future use. This

includes items such as seeds for future crops or animals intended for breeding. Proper management of these assets awaiting use is crucial to ensure their quality and viability for later use. Biological assets in active use represent currently productive resources, such as dairy cattle or crops being harvested. Daily management, health monitoring, and other operational aspects are essential to optimize productivity. Some biological assets go through a transformation phase to become finished products. For example, the transformation of milk into cheese requires specific processes that add value to the underlying assets. Finally, at the end of their useful life cycle, some biological assets enter a phase where crucial decisions must be made, such as the slaughter of animals destined for meat. Responsible management of end-of-life assets often involves ethical, environmental, and economic considerations.

In summary, classifying biological assets based on the time of their use or preparation provides a holistic perspective, allowing for more efficient and strategic management of these dynamic resources. Considering each stage of the life cycle contributes to optimizing yields, minimizing losses, and ensuring sustainable use of these biological assets.

– **Classification of Biological Assets Based on Signs of Maturation or Maturity.**

Sedláček (2010) highlighted the common subdivision of animals and plants as assets, similar to other balance sheet items, based on their life cycle, i.e., as long-term and short-term assets. Long-term assets are typically utilized by the enterprise for a period of one year or more, and to be recognized in the balance sheet, these assets must meet certain conditions. These criteria include, for example, the asset's ability to generate future economic benefits, its market value, and the owner's freedom to control and manage the asset in the future. Signs of maturation may include indicators such as size, weight, color, or other specific characteristics signaling that the asset is ready for use or harvest. For example, in livestock, this could involve the time when an animal reaches maturity for reproduction or meat production.

classification of biological assets based on signs of maturation or maturity offers a detailed approach to understanding and managing these living resources. This methodology relies on careful observation of physical and biological changes indicating the level of development or maturity of the assets. Some biological assets, termed immature, exhibit signs of initial growth without having reached significant maturity, such as plants with buds or animals in early life. In contrast, assets in maturation show signs of advanced development but are not yet fully mature, including changing-color fruits or animals reaching adulthood. Mature assets are those that have reached a stage of full maturity, ready for harvest or use, while others may show signs of decline after maturity, requiring careful management to prevent significant deterioration. Finally, assets in senescence enter a phase of old age where their optimal functioning decreases, underscoring the importance of recognizing these signs for strategic planning and judicious use of biological resources. This classification approach provides a valuable foundation for informed decisions in sectors such as agriculture, horticulture, and aquaculture, aiming to maximize yields while ensuring sustainable management of biological assets.

By using this classification, it is possible to obtain information about potential cash flows expected in the following reporting period. Both types of classifications allow for the division of biological assets into homogeneous groups. Depending on the needs of businesses, these classifications can be adjusted and further categorized based on the physical properties of biological assets, simplifying accounting processes.

– **The classification of biological assets based on their ability to provide financial and economic flows multiple times.**

Classification of biological assets based on their ability to provide multiple financial and economic flows: The IAS 41 standard emphasizes that biological assets generally have

appropriate and available market prices or values because biological products are often commonly traded commodities. For example, veal or wine grapes usually have an active market, leading to the generation of market prices.

This characteristic, relating to the ability of biological assets to generate financial and economic flows, is strategically important for businesses and sectors dependent on living resources. It provides a perspective focused on the long-term financial sustainability of these assets, contributing to informed decisions and effective management of biological resources.

Certain biological assets are classified based on their economic potential. Those with "High Economic Potential" are distinguished by their proven ability to generate regular financial flows, such as high-yield crops or productive livestock. Assets with "Variable Economic Potential" may experience fluctuations due to external factors, requiring flexible management. In contrast, those with "Low Economic Potential" have a limited capacity to generate financial flows due to modest yields, limited demand, or high production costs. Some assets, classified as having "Long-Term Economic Potential," may require significant initial investments or have extended growth cycles but offer economic returns spread over an extended period.

However, when biological assets lack appropriate market prices or accessible values, the present value of expected net cash flows from these assets is commonly used. This method estimates fair value based on the expected cash flows of the asset at its location and under current conditions, with cash flows determined as much as possible, taking into account market data (Anon., 2009).

Moreover, Martins (2002) emphasizes that in inefficient market conditions, it is more advantageous to estimate fair value based on the present value of future cash flows. Evaluations based on estimates offer supervisors greater flexibility to manage and control outcomes. Martins (2002) advises that in cases where the market is not efficient, the market price is not automatically associated with fair value because the information used to establish the price may be influenced by the parties involved, namely the seller and the buyer. In such situations, fair value should not be automatically linked to market value.

This classification allows decision-makers to adapt their strategies based on the specific economic characteristics of each biological asset, promoting wise resource utilization and long-term financial sustainability. It underscores the need for a holistic approach that goes beyond immediate returns to consider economic viability over multiple periods.

In conclusion, the three classifications of biological assets explored based on the timing of their use, signs of maturation or maturity, and their ability to generate financial and economic flows provide comprehensive perspectives for the effective management of these dynamic resources. By combining these three approaches, asset managers, farmers, and other stakeholders can develop robust strategies that consider both temporal, biological, and economic aspects of biological assets. This contributes to a more judicious and sustainable use of these resources, aligning with economic imperatives while respecting natural cycles and the specific biological characteristics of each asset. The authors believe that the first two types of classifications of biological assets are the most advantageous from an accounting perspective, while agricultural businesses seeking to maximize profits should use the third type of classification of biological assets.

2.1.2. Exploration and Evaluation of Biological Assets

2.1.2.1. Recognition of Biological Assets

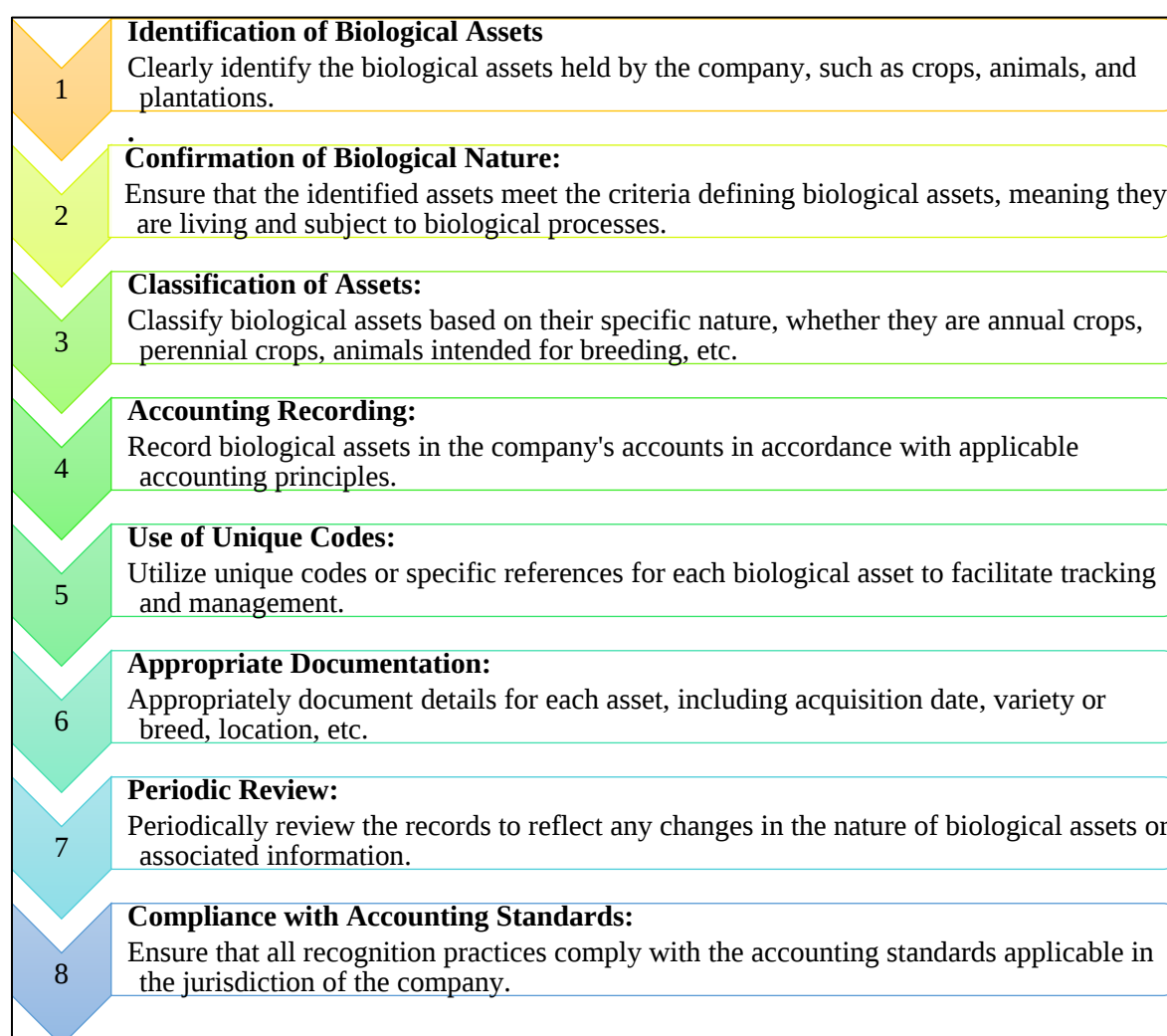
Mesén Figueroa (2007) highlighted that biological asset, during their initial recognition and subsequent balance sheet dates, are valued at fair value, less selling costs. The recognition of biological assets, a key process in agricultural accounting, is emphasized by experts as a crucial step for a faithful representation of agricultural activities in financial statements. They

stress the need for meticulous identification of biological assets, including crops, animals, and plantations, and emphasize the importance of confirming their inherently biological nature. Agricultural enterprises should emphasize the classification of biological assets. This classification is based on the specific nature of each asset, directly influencing the subsequent valuation method and how these assets are integrated into financial statements. There is also an emphasis on the importance of meticulous recording in accounts, using unique codes to facilitate daily monitoring and management.

In his work "Comptabilité Agricole," Lejet Georges addresses the thorough documentation of biological assets as an essential component of the recognition process. He highlights the need to document details such as the acquisition date, variety or breed of animals, and the precise location of plantations. According to him, this detailed documentation contributes to ensuring transparency, facilitating operational management, and preparing reliable financial information.

Thus, these experts converge on the crucial importance of recognizing biological assets in the context of agricultural accounting. Their complementary perspectives illuminate the various facets of this process, emphasizing the significant impact of each step on the quality of financial information produced by agricultural enterprises.

Figure 1: Biological Asset Recognition Process



Source: Author's elaboration (2023)

The proper recognition of biological assets provides a solid foundation for subsequent accounting, valuation, and faithful presentation of financial information in the company's financial statements. These steps contribute to ensuring transparency and reliability in accounting information related to biological assets.

2.1.2.2. Evaluation of Biological Assets

Paulo (2007, p. 10) emphasizes that accounting aims to reduce information asymmetry, mitigate conflicts of interest, and contribute to a more efficient allocation of the company's resources. The evaluation of biological assets poses a complex challenge within agricultural accounting, requiring a methodical and thoughtful approach. The choice of the evaluation method is of paramount importance, highlighting that this decision must align with the current accounting standards and be tailored to the unique characteristics of biological assets.

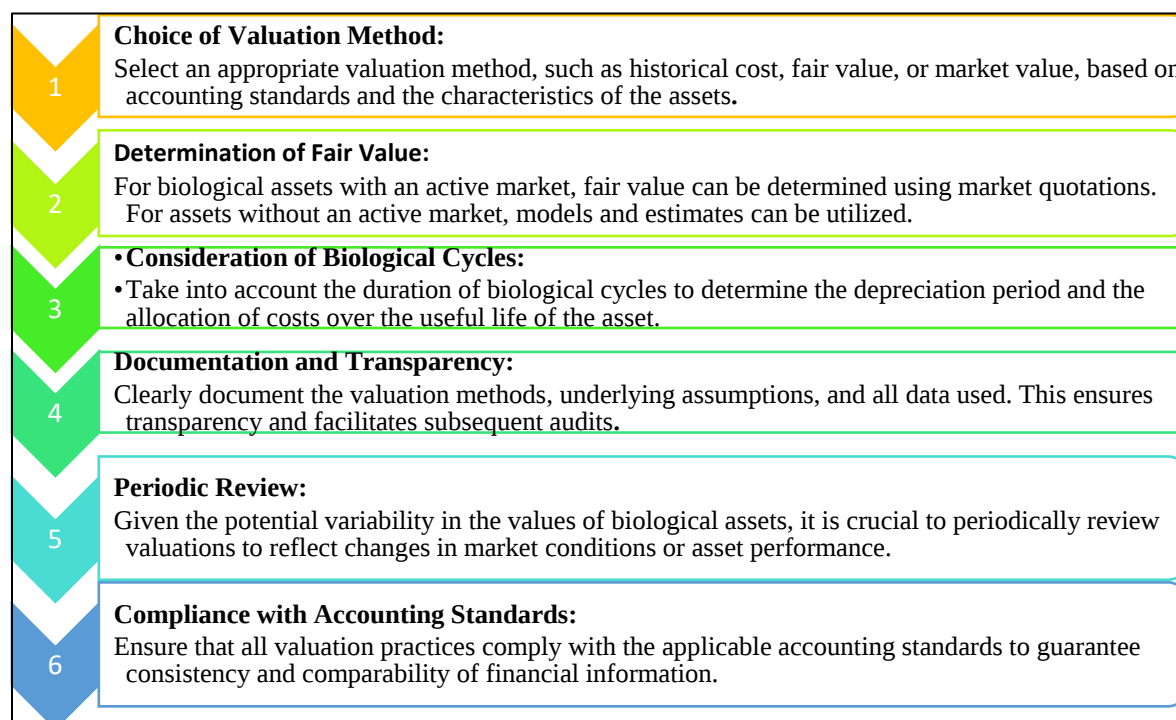
The scientific committee for the development of the PCA underscores the crucial importance of considering biological cycles when assessing assets. By integrating these cycles into the evaluation process, companies can gain a more accurate insight into the useful life of biological assets.

The aspect of documentation and transparency in the biological asset evaluation process is emphasized. It asserts that meticulous documentation of evaluation methods, underlying assumptions, and data used is essential to ensure the credibility of results and meet transparency requirements.

The need for periodic review of evaluations is highlighted by several experts in this committee. This review, in accordance with accounting standards, allows for adjustments to evaluations based on changes in the business environment and risk management, contributing to more reliable financial information.

These principles, integrated into accounting practices, enable agricultural enterprises to better manage their resources and present relevant financial information.

Figure 2: Key Steps in the Evaluation Process:



Source: Author's elaboration (2023)

The proper recognition and valuation of biological assets are crucial for transparent and accurate accounting, enabling stakeholders to understand the value and financial performance of the company in the agricultural sector.

2.2. Issues and constraints related to the evaluation of biological assets

2.2.1. Limits of Evaluation Methods

2.2.1.1. Traditional Methods Accounting

The nature of agriculture makes it challenging to evaluate biological assets, and consequently, agricultural products, based on historical cost, as the physical condition of biological assets generally changes over time, meaning they grow, mature, gain weight, etc. Moreover, their quantity is not solely dependent on buying and selling activities but is also determined by processes such as procreation, growth, and death. Therefore, many assets held by a farm at a given time are usually very different from what they were when acquired, or they may have never been acquired at all. In this sense, they are similar to products in manufacturing companies, and production cost techniques could be applied to allocate the historical cost of inputs used to the outcomes achieved. The problems caused by joint cost situations, however, typically exceed the complexity already encountered in manufacturing environments.

A thorough review of the existing literature on the subject leads us to identify two main groups of perspectives: on the one hand, proponents of historical cost accounting (Paton and Littleton, Ijiri), and on the other hand, a broader group (Chambers, Edwards and Bell, Mason, Wright...) which, although differing on the method to adopt, generally favors fair value accounting.

The agricultural accounting plan project (2016) considers that the evaluation of items recorded in accounting being based on the historical cost principle, the revaluation of accounts constitutes an exception to this principle. These methods serve as the basis for recording transactions and preparing financial statements. They are applied at the level of assets and, by extension, at the level of income and expenses.

The academic debate generally focuses on evaluation criteria and is within the framework of agency theory, assuming information asymmetry between market stakeholders and the existence of perfect or imperfect market conditions. According to Barth and Landsman (1995), in perfect and complete markets, a balance sheet based on fair value accounting reflects all relevant information for value. However, in more realistic market settings, the discretionary use of fair value by management can compromise the relevance of the balance sheet and income statement.

Watts (2003) argues that fair value is more susceptible to manipulation, making it a less reliable measure of value and performance compared to historical cost. He contends that any attempt to ban accounting conservatism is doomed to fail, asserting that accounting cannot compete with the market in evaluating the business (Watts, 2006). Ball (2006) criticizes the fact that fair value accounting does not necessarily ensure investor enrichment and its usefulness has not been demonstrated. Rayman (2007) concludes that fair value accounting can produce misleading information if based on incorrect expectations. Ronen (2008) expresses concerns about the reliability and susceptibility to manipulation of fair value. Similarly, Liang and Wen (2007) criticize the beneficial effects of transitioning to fair value, emphasizing that it can lead to more management manipulation and less effective investment decisions than cost-based evaluations. Plantin and Sapra (2008) caution against the danger of the emergence of an additional source of volatility in the presence of market imperfections, highlighting that a rapid transition to a full fair value regime can be detrimental to financial intermediation.

2.2.1.2. The Role of the Market in Valuing an Asset

The main accounting groups and institutions worldwide, such as the International Accounting Standards Board (IASB), the Financial Accounting Standards Board (FASB) in the United States, as well as the Accounting Regulatory Committee and the European Financial Reporting Advisory Group within the European Union (EU), have encouraged the convergence of international accounting toward standards based on market prices. Regardless of the biological asset considered, its initial recognition at transaction value questions the relevance of its valuation. Market value is considered a reliable and fair value, reflecting a consensus between supply and demand. For this reason, it is preferred by international accounting standards. However, the reliability of market value may be questioned depending on the asset considered and, especially, the type of market where transactions take place (Casta and Colasse, 2001).

The market, in the classical sense, has long been viewed as a space of exchange where economically rational individuals, i.e., calculative and aware of the utility and value of each desired good, intervene. The conjunction of perfect rationality, information symmetry, and the mechanical adjustment of supply and demand ultimately leads to a general or partial equilibrium. Challenged by many economists such as Black (1986) or Fama and French themselves (2007), despite being pioneers in market efficiency theories, the vision of the pure abstract market transforms into a concrete sphere of relational exchanges. Previously perfect rationality is presented as partial, with individuals facing flaws: lack of skills, information asymmetry (Akerlof, 1970), uncertainties about the quality delivered by the market (MacKenzie and Millo, 2003). Ignorance of a product makes its "qualitative translation" impossible (Callon, 1998) and complicates its evaluation. Studies on living goods markets reveal that consensual evaluation is mainly based on evaluation codes or criteria issued by actors legitimized by their socio-professional environment (Smith, 1989).

Another widely discussed point, for example by (Plantin & Sapra, 2008), (Danbolt & Rees, 2008), (Choy, 2006), (Penttinen, et al., 2004), concerns the market, which must meet certain conditions; otherwise, market imperfections increase the chances of fluctuations with detrimental consequences for the net income of farms. In this regard, (Elad, 2004), (Hoffman, et al., 2000), and (Amen, 2000) argue that when the market for a biological asset is not active, simplicity is not a merit of fair value.

For theorists of the economics of conventions (Orléan, 1999), interactions between actors create rules, conventions. In this context, the production of a convention is an endogenous mechanism, internal to a community, which appears as a legitimate means of resolving uncertainties that individual calculation cannot handle. The convention can take the form of a scale of qualification of goods (a "quality convention," for example) that encourages buyers to consider characteristics homogeneously, thus leading to the formulation of a consensual evaluation. This is the principle of "commensuration" (Espeland and Stevens, 1998), which translates into a global measure characteristic related to a product. As this measure reflects the value of a good, it makes it comparable to other similar goods that can be evaluated according to the same metric. For the conventionalist current, the notion of fair value refers to a more "socialized" dimension: the value is fair in reference to legitimate rules or conventions within the community (Smith, 1989). The ambiguity of valuation also emanates from social characteristics. We will present the asset and the market studied to understand the singularity of the exchanged asset and the distinctly collective and sociological dimension of the market in question.

3. Constraints and Issues Related to the Evaluation of Biological Assets

Agricultural accounting, although guided by specific accounting principles outlined in the

agricultural accounting plan, faces various obstacles that sometimes hinder strict application of accounting principles (historical cost, prudence, business continuity). The very nature of agricultural activities, characterized by the variability of biological cycles, uncertainty about future yields, and the complexity of operations, makes it challenging to uniformly implement accounting standards.

3.1. Constraints Related to the Specificities of Biological Assets

Our study focuses on assets with specific characteristics that make their evaluation extremely complex. Drawing on the concept of a "singular good" developed by Karpik (2000, 2007), we observed three particularities that could lead to this complex evaluation: its uniqueness, its living nature, and the possible existence of a dual career.

The first specificity of biological assets (e.g., a cow) as a good is its uniqueness. This characteristic complicates the evaluation but is not unique to animals. For example, Moureau (2000) uses this notion to explain the formation of prices for works of art; Chauvin (2010) for the prices of fine wines. What characterizes a unique good is that no "universal" scale of comparison can be established.

The second specificity of a biological asset is that it is a product that derives its value from its living nature and requires good health. A sales or insurance contract is systematically preceded by a medical expertise report attesting to the good health of this asset. The living good is usable or "consumable" only as long as it is in good health. The athlete is subject to the same constraints, as their value is partly linked to their level of fitness.

Biological assets bring two additional peculiarities. One peculiarity lies in the purpose of this living good, either to be immobilized or stored. Another peculiarity lies in its productive and reproductive nature. Several years are needed to raise a thoroughbred horse without risking panic attacks during training.

These particularities generate an additional risk: uncertain management and, consequently, an impossible anticipation of return on investment. Finally, the last specificity of a biological asset is the dual career it can pursue. A cow is purchased in anticipation of a breeding career accounted for as an immobilization. When cows are "too old" to have more calves, they are considered "retired": they are no longer used for reproduction and are fattened (in this case, stored) and then slaughtered.

These three specificities create complexity in determining value, amplified by the absence of a pricing or price regulation system and the diversity of types of partners (some insiders, others not).

3.2. Constraints Related to Market Specificities

The agricultural sector attracts various actors, as defined by Freeman (Stakeholder Approach 1984), stakeholders. "A stakeholder in the organization is (by definition) any group or individual who can affect or be affected by the achievement of organizational objectives." In this vision, stakeholders include suppliers, customers, employees, investors, shareholders, and banks. The faithful presentation of accounting information related to biological assets is essential. This involves following appropriate accounting standards, including all necessary information, and presenting this information in a clear and understandable manner to different stakeholders.

Taking the example of sheep during the AID AL-ADHA ceremony, this market attracts several actors. In this case, three actors compete. Livestock professionals, brokers who are intermediaries buying livestock for resale, monitoring organizations such as ONSA, and consumers. These stakeholders have divergent interests. Some have much more developed access to information than non-initiated individuals. The livestock market is comparable to

many other markets in terms of economic scale, liquidity, the diversity of actors, and the uniqueness of the product being exchanged.

3.3. Meteorological Constraints

Meteorological conditions, as an important contingency factor in the sense of Mintzberg, exert a significant influence on the evaluation of biological assets in the agricultural sector. The growth of crops, for example, is closely linked to factors such as rain, temperature, and sunlight. Variations in these meteorological conditions can lead to changes in the growth rate, yield, and quality of crops. Consequently, agricultural accountants must be attentive to these factors to adjust evaluations based on the realities in the field.

Extreme meteorological phenomena, such as storms, floods, droughts, or late frosts, represent major risks for crops and livestock. These unforeseen events can cause significant losses, requiring a rapid reassessment of affected biological assets. Accountants must be prepared to integrate these events into their evaluation processes and adjust the values of assets accordingly. Meteorological conditions also have a direct impact on the health of animals. Extreme temperatures or adverse weather conditions can increase the risks of diseases or stress in livestock, thereby influencing the value of biological assets related to breeding. Agricultural accountants must take these considerations into account to assess the health and value of animals accurately.

Seasonal variations, such as changes in temperature and the availability of sunlight, can lead to seasonal fluctuations in the value of biological assets. Therefore, an evaluation approach attentive to different times of the year is essential to fully capture these seasonal variations. Accountants must ensure that their evaluations consider natural growth cycles and the potential impacts of seasons on the value of biological assets.

Finally, adjustments to agricultural practices in response to meteorological conditions must be taken into account in the evaluation of biological assets. For example, a period of drought could lead to increased use of irrigation, which would have implications for the management costs of biological assets. Agricultural accountants must be sensitive to these adjustments and incorporate them into their evaluation analyses.

In conclusion, considering meteorological conditions in the evaluation of biological assets is essential to accurately reflect the reality of the agricultural sector. Agricultural accountants must be flexible, responsive, and attentive to meteorological factors to ensure accurate and relevant evaluations of biological assets.

In summary, these constraints highlight the importance of conducting regular, accurate, and economically viable evaluations of biological assets, considering various factors such as speed, cost-benefit ratio, qualitative characteristics, and fidelity in the presentation of financial information.

4. Problems Related to the Evaluation of Biological Assets

The agricultural accounting plan has not provided a detailed definition, classifications, and purposes of biological assets. Therefore, to enhance the quality of accounting information produced by agricultural enterprises, it is essential to identify current problems and their impacts on the businesses and even other stakeholders.

Table 1: problems related to the evaluation of biological assets

Obstacle to valorisation	Explication	Impact
The choice of evaluation criteria	Determining relevant evaluation criteria would be difficult given the existence of qualitative characteristics that are challenging to quantify (assign a value)	The determination of relevant evaluation criteria would be difficult due to the existence of qualitative characteristics that are challenging to quantify (assign a value)
Biological Cycles and Amortization Period	The management of biological cycles, such as crop growth, poses challenges in determining the useful life and amortization period.	Inappropriate depreciation methods can distort the economic and financial reality of agricultural activities.
The challenge of implementing relevant analytical accounting	The precise determination of production costs for biological assets, including both direct and indirect costs, can be complex.	An inaccurate assessment of costs can impact profitability and the ability to make strategic decisions
Management of Agricultural Risks	Events such as natural disasters or diseases can have a significant impact on the value of biological assets.	The accounting for losses related to these events requires a cautious approach and can negatively influence financial statements.
Distinction between Biological and Non-Biological Assets	The boundary between what is considered a biological asset and a non-biological asset can be unclear	This can lead to classification errors and inappropriate accounting treatments
Inconsistencies between National and International Accounting Standards	Differences between national and international accounting standards can create issues of comparability.	Companies operating on an international scale may encounter challenges in presenting their financial results.
Impact of Climate Change	Climate change can affect agricultural yields, necessitating necessary adjustments in the assessment of biological assets.	Increased volatility can make forecasting and accounting more complex..
Accounting Staff Training	The staff responsible for accounting for biological assets may lack specific training in agricultural accounting.	This can lead to accounting errors and a misinterpretation of standards.
The dual career of assets	Some assets, such as livestock, can have a dual career, transitioning from reproduction to consumption.	This introduces complexity in management and evaluation, as the value of the asset can change over time depending on its career.
Lack of Objective Data	The absence of objective data, especially for aspects like animal health, can make accurate assessment challenging.	This can lead to assessments based on subjective estimates, reducing the reliability of accounting information.

Source: Author's elaboration (2023)

5. Conclusion

The evaluation of biological assets in the field of agricultural accounting is a complex and delicate task, subject to a series of constraints and problems inherent to the unique nature of these assets and the changing conditions of the sector. Specificities such as uniqueness, living nature, dual nature of biological assets, combined with market diversities and the impacts of weather conditions, make the strict application of accounting principles sometimes challenging.

The recognition, classification, and evaluation of biological assets in agricultural accounting present complex and specific challenges. In compliance with the CGNC, Morocco establishes principles for the accounting management of these dynamic assets. Biological assets, whether

animals or plants, are classified based on their stage of development, maturation, and ability to generate financial flows.

Classifications based on the timing of use, signs of maturation, and the ability to generate economic flows provide comprehensive perspectives for effective management of these living resources. This holistic approach enables agricultural businesses to make informed decisions throughout the life cycle of biological assets, promoting sustainable and economically viable use of these resources.

However, the complexity of evaluating biological assets lies in the limitations of traditional methods, particularly due to uncertainty surrounding future development, specific characteristics of immature assets, and sensitivity to environmental changes. Traditional methods based on accounting and financial criteria may not be entirely suitable for the biological nature of these assets.

Faced with these challenges, a multi-criteria approach considering biological specificities, risks associated with development, and environmental variations can contribute to a more robust evaluation of biological assets. It is also essential to meticulously document the recognition and evaluation process, ensuring transparency and reliability of financial information.

Issues related to evaluation, whether related to the choice of criteria, management of biological cycles, distinction between biological and non-biological assets, or inconsistencies between accounting standards, emphasize the need for thorough reflection and constant adaptation of accounting practices.

To overcome these challenges, it is imperative to promote transparency, regularity, and accuracy in evaluations. This requires close collaboration between agricultural accounting professionals, sector stakeholders, and possibly regular adjustments to accounting standards to better reflect the economic reality of agricultural operations.

Furthermore, awareness of the impacts of climate change and the integration of specific training for accounting personnel are crucial to anticipate and mitigate risks associated with unpredictable weather conditions.

In summary, the evaluation of biological assets in the agricultural sector requires a nuanced, flexible, and adaptive approach, with continuous commitment to improving accounting practices. In doing so, a more accurate presentation of financial information can be expected, thereby promoting better decision-making for stakeholders in the agricultural sector.

References:

- (1). Abbott, A. (1990). "A Primer on sequence methods", *Organization Science*, vol. 1, n° 4, p. 375-392.
- (2). Akerlof, G. (1970). "The market for "lemons" : quality uncertainty and the market mechanism", *The Quarterly Journal of Economics*, vol. 84, n° 3, p. 488-500.
- (3). Amir, E., Livne G. (2005). "Accounting, valuation and duration of football player contracts", *Journal of Business Finance and Accounting*, vol. 32, n° 3/4, p. 549-586.
- (4). Anderson, C. W. (1999). Financial Contracting under Extreme Uncertainty: An Analysis of Brazilian Corporate Debentures. *Journal of Financial Economics*, 51(1), 45-84. [https://doi.org/10.1016/S0304-405X\(98\)00043-9](https://doi.org/10.1016/S0304-405X(98)00043-9)
- (5). Argilés, J. M, Garcia-Blandon, J., & Monllau, T. (2011). Fair Value Versus Historical Cost-Based Valuation for Biological Assets: Predictability of Financial

- Information.. *Revista de Contabilidad – Spanish Accounting Review*, 14(2), 87-113.
[https://doi.org/10.1016/S1138-4891\(11\)70029-2](https://doi.org/10.1016/S1138-4891(11)70029-2)
- (6). Argilés, J. M., Miarons, M., Blandon, J. G., Benavente, C., & Ravenda, D. (2018). Usefulness of Fair Value Accounting of Biological Assets for Cash Flows Prediction. *Spanish Journal of*
 - (7). Armstrong, C. S., Barth, M. E., Jagolinzer, A. D., & Riedl, E. J. (2010). Market Reaction to the Adoption of IFRS in Europe. *Accounting Review*, 85(1), 31-61.
 - (8). Baazaoui, H. & Zraï, M. A. (2019). The Effect of Firm Characteristics on the Disclosure of IAS/IFRS Information: The Cases of Tunisia, France and Canada. *International Business and Accounting Research Journal*, 3(2), 124-153.
<http://dx.doi.org/10.15294/ibarj.v3i2.67>
 - (9). Ball, R. (2006). International Financial Reporting Standards (IFRS): Pros and Cons for Investors. *Accounting and Business Research, International Accounting Policy Forum*, 5-27.
<https://doi.org/10.1080/00014788.2006.9730040>
 - (10). Ball, R., Kothari, S. P., & Robin, A. (2000). The Effect of Institutional Factors on the Properties of Accounting Earnings. *Journal of Accounting and Economics*, 29(1), 1-51.
[https://doi.org/10.1016/S0165-4101\(00\)00012-4](https://doi.org/10.1016/S0165-4101(00)00012-4)
 - (11). Barth, M. E., Li, K., & McClure, C. G. (2021). Evolution in value relevance of accounting information. Working paper, Stanford University,
<https://ssrn.com/abstract=2933197>
 - (12). Barth, M., Landsman, W.R., & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research*, 46(3), 467-98.
<https://doi.org/10.1111/j.1475-679X.2008.00287.x>
 - (13). Barth, M. (2018). The Future of Financial Reporting: Insights from Research. *ABACUS*, 54(1), 1-13. <https://doi.org/10.1111/abac.12124>
 - (14). Black, F. (1986). “Noise”, *Journal of Finance*, vol. 41, n° 3, p. 520-543.
 - (15). Blom, G. (1958). *Statistical Estimates and Transformed Beta Variables*, New York, J. Wiley and S.
 - (16). Bohusova, H., Svoboda, P. (2017): Will the amendments to the IAS 16 and IAS 41 influence the value of biological assets? *Agric. Econ. – Czech*, 63: 53–64
 - (17). Booth, B., & Walker, R. G. (2003). Valuation of SGARAs in the Wine Industry: Time for Sober Reflection. *Australian Accounting Review*, 13(3), 52-60.
<https://doi.org/10.1111/j.1835-2561.2001.tb00171.x>
 - (18). Bosch, J. M. A., Aliberch, A. S., & Blandón, J. G. (2012). A Comparative Study of Difficulties in Accounting Preparation and Judgment in Agriculture using Fair Value and Historical Cost for Biological Assets Valuation. *Revista de Contabilidad*, 15(1), 109-42.
[https://doi.org/10.1016/S1138-4891\(12\)70040-7](https://doi.org/10.1016/S1138-4891(12)70040-7)
 - (19). Brooks, C. (2002). *Introductory Econometrics for Finance*. Cambridge University Press,
 - (20). Brown, S., Lo, K., & Lys, T. (1999). Use of R2 in Accounting Research: Measuring Changes in Value Relevance over the Last Four Decades. *Journal of Accounting and Economics*, 28(2), 83-115. [https://doi.org/10.1016/S0165-4101\(99\)00023-3](https://doi.org/10.1016/S0165-4101(99)00023-3)
 - (21). Burgstahler, D. C., Hail, L., & Leuz, C. (2006). The Importance of Reporting Incentives: Earnings Management in European Private and Public Firms. *Accounting Review*, 81(5), 883-1016.
<https://doi.org/10.2308/accr.2006.81.5.983>
 - (22). Callon, M. (1998). *Introduction: The embeddedness of economic markets in economics approach, The Laws of the Markets*, Callon M., Oxford, Blackwell.
 - (23). Cambridge.

- (24). Casta, J. F., Colasse B. (2001). *Juste valeur : enjeux techniques et politiques*, Mazars, Economica.
- (25). Casta, J.-F. et Colasse, B. (Eds.), *Juste valeur : Enjeux techniques et politiques*, Economica, 2001.
- (26). Casta, J.-F.(1997). La comptabilité et ses utilisateurs, In *Encyclopédie de gestion*, Vol. I (Eds, Joffre, P., Simon, Y. (1997). Economica, 1997, p. 528-551.
- (27). Chalmers, K., Clinch, G., & Godfrey, J. M. (2011). Change in Value Relevance of Accounting Information upon IFRS Adoption: Evidence from Australia. *Australian Journal of Management*, 36(2), 151-173. <https://doi.org/10.1177/0312896211404571>
- (28). Chauvin, M. (2010). *Le marché des réputations. Une sociologie du monde des vins de Bordeaux*, Féret.
- (29). Chen, B., Kurt, A. C., & Wang, I. G. (2020). Accounting comparability and the value relevance of earnings and book value. *Journal of Corporate Accounting & Finance*, 31(4), 82-98. <https://doi.org/10.1002/jcaf.22459>
- (30). Chong, A., & Lopez-De-Silanes, F. (2012). *Corporate Governance in Latin America. Research Department Working Paper Series*. Washington: Inter-American Development Bank, 2007. Available at: <https://pdfs.semanticscholar.org/7d05/e407a17e5ebe6d2903769035b5aeb5c0aee1.pdf>,
- (31). Christensen, H. B., Hail, L., & Leuz, C. (2013). Mandatory IFRS Reporting and Changes in Enforcement. *Journal of Accounting and Economics*, 56(3), 147-177. <https://doi.org/10.1016/j.jacceco.2013.10.007>
- (32). Colasse, B. (2009). Cadres comptables conceptuels, In *Encyclopédie de comptabilité, contrôle de gestion et audit* (Ed, Colasse, B.). Economica, 2009, p. 103-114.
- (33). Colasse, B. et Lesage, C.(2010). *Introduction à la comptabilité*, Economica, 2010.
- (34). Cramer, J. J. et Sorter, G. H.(1974). (Eds.), *Objectives of financial statements*, report of the study group on the objectives of financial statements, AICPA, 1974.
- (35). Espeland, W., Stevens M. (1998). “Commensuration as a social process”, *Annual Review of Sociology*, vol. 24, n° 11, p. 313-343.
- (36). Fama, E., French K. (2007). “Disagreement, tastes, and asset prices”, *Journal of Financial Economics*, vol. 83, p. 667-689.
- (37). FASB. (1980). *Concepts statement No. 2: Qualitative characteristics of accounting information*, Financial Accounting Standards Board, Norwalk, CT, 1980.
- (38). Fischer, M.; Marsh, T. (2013). Biological Assets: Financial Recognition and Reporting Using US and International Accounting Guidance. *Journal of Accounting and Finance*; West Palm Beach.vol.13: 57-74.
- (39). Fisher, R.; Mortensen, T.; Webber, D. (2010). Fair value accounting in the agricultural sector: an analysis of financial statement preparers’ perceptions before and after the introduction of IAS 41 agriculture. In: *ACCOUNTING & FINANCE ASSOCIATION OF AUSTRALIA AND NEW ZEALAND (AFAANZ)*, 2010, Christchurch (NZ). Anais... Christchurch: AFAANZ, 2010.
- (40). Georges, L.,Patrick.A (1999). *Comptabilité agricole. Conforme au plan comptable agricole 3ème édition*. Paru en novembre 1999.
- (41). Herbohn, K.; Herbohn, J. (2006). International Accounting Standard (IAS) 41: what are the implications for reporting forest assets? *Smallscale forest economics, Management and Policy* 5(2): 175-189.
- (42). Jaunzeme, J. (2010). Comparison of the accounting concept „fair value” with other economic value concepts. 11th International Conference. Financial and Monetary Stability in Emerging Countries. 291-298.

- (43). Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, v. 29, n. 2, p. 193-228, oct., 1991.
- (44). Kang, S., et Sivaramakrishnan, K.(1995). Issues in testing earnings management and an instrumental variable approach. *Journal of Accounting Research*, Oxford, v. 33, n. 2, p. 353-367, 1995.
- (45). Karpik, L. (2007). *L'économie des singularités*, Paris, Éditions Gallimard.
- (46). Kothari, S. P. (2001). Capital markets research in accounting. *Journal of Accounting and Economics*, v. 31, p. 105-231, 2001.
- (47). KROLL, J. C. (1987). Le nouveau plan comptable: les occasions perdues. *Économie Rurale*, v. 180, p. 20-25, 1987.
- (48). Lefter, Roman, .(2007). *Theoretical and Applied Economics*, 2007, vol. 5(510), issue 5(510), 15-22
- (49). Lejet, G. (1998). *Comptabilité agricole*, 3ème ed, Économie rurale - gestion
- (50). Lewis, A. E.; JONES, W. D.(1980). Current cost accounting and farming businesses Volume31, Issue1January 1980-Pages 45-53
- (51). MacKenzie, D., Millo Y. (2003). “Constructing a market, performing theory : The historical sociology of a financial derivatives exchange”, *American Journal of Sociology*, vol. 109, n° 1, p. 107-145.
- (52). Martins, N. (2002) *Organisational Culture*. In: Robbins, S.P. Oderdaah, A. and Roodt, G., Eds., *Organisational Behaviour: Global and Southern African Perspectives*, Pearson, Cape Town, 379-400.
- (53). Mates, D. and Grosu, V. (2009). Standardization of Financial Plans Within the EU Integration (January 10, 2009). Available at SSRN: <https://ssrn.com/abstract=1325658> or <http://dx.doi.org/10.2139/ssrn.1325658>
- (54). Mintzberg, H. (1999). *Structure and Dynamics of Organizations*, Editions d'organisation, Paris, 1999 (Original Edition: *The Structuring of Organizations – Theory of Management Policy*, Prentice Hall, New York, 1978)
- (55). Moureau, N. (2000). *Analyse Économique de la valeur des biens d'art*, Paris, Economica.
- (56). Orléan, A. (1999). *Le pouvoir de la finance*, Paris, Odile Jacob.
- (57). Power, M. (1992). “The politics of brand accounting in the United Kingdom”, *The European Accounting Review*, vol. 1, n° 1, p. 39-68.
- (58). Roman, A.G. (2007). IAS 41 Agriculture: Fair Value Accounting. *Theoretical and applied Economics* 5(510): 15-22.
- (59). SEDLÁČEK, J., LEDNICKÝ, A. 2010. *Kondičná atletická príprava*. Bratislava: SVSTVŠ, 2010. 167 s. ISBN 80-89075-34-8.
- (60). Smith, C. (1989). Auctions, the social construction of value, *Harvester Wheatsheaf*.
- (61). Tunaru, R., Clark E., Viney H. (2005). “An option pricing framework for valuation of football players”, *Review of Financial Economics*, n° 14, p. 281-295.
- (62). Walliser, E. (2000). « La recherche comptable entre contingences et universalité : l'exemple de la mesure comptable des marques », *Comptabilité-Contrôle-Audit*, p. 107-120.
- (63). Finance and Accounting, 47(2), 157-180.
<https://doi.org/10.1080/02102412.2017.1389549>