



# Factors Influencing the Accounting Practices for Biological Assets: The Case of Selected Agritourism Farms in the Philippines

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Received 26 April 2024 Accepted 24 June 2024 (\*Corresponding Author)

**Abstract** The IAS 41 accounting standard for agriculture aims to standardize the accounting practices among entities engaged in agricultural production. However, there has been limited awareness and adoption of the standard, especially in the agritourism sector. This study examined accounting practices of selected agritourism farms in Region IV-A, Philippines, and aimed to identify the factors that influence their accounting practices. Interviews were conducted with eighteen farms and their financial records were reviewed. A descriptive analysis composed of mean and median rating and odds ratio analysis were performed. Additionally, sentiment analysis was conducted to evaluate the attitudes of the respondents toward the factors that influence their practices. Results indicated that most farms did not adhere to the established accounting standards for recognizing and measuring biological assets, instead relying on current practices. Only five farms recognized biological assets composed of living animals and plants, and only three farms maintained a Biological Asset account and measured it using the fair market value approach. The study highlighted that owner or management preferences, and the ease of calculation contributed very significantly to the farm's accounting practices. Training in finance and accounting and recommendations of external auditors increased the likelihood of farms adopting the standard. Notably, sentiment analysis revealed a positive score for training, while recommendations of the auditors received a moderately positive score. The study recommends enhanced education on accounting for agriculture. A framework on how to record and measure biological assets must be developed to improve the accounting practices of agritourism farms and their compliance with accounting standards.

**Keywords** agritourism, accounting practices, biological assets, odds ratio analysis, sentiment analysis

## INTRODUCTION

Managing an asset throughout its useful life, from its acquisition to its disposal, contributes to sustained operational excellence (Maletic et al., 2020) as it allows business entities to make better financial decisions and enhance asset performance and overall productivity. Efficient management of assets is essential to achieve competitive advantage, especially in agriculture, as it encompasses biological assets that include living animals and plants.

Agritourism, a form of farm diversification offering tourism activity conducted in rural areas (RA 10816 Sec. 3, 2016), has gained prominence as a strategic approach to farms' financial sustainability while showcasing different agricultural activities that can be done within the farm. Diverse agricultural and fishery-based activities attract visitors to experience and learn about farm life while having outdoor recreation and relaxation (Ohe, 2020). Asset management in agritourism farms involves the management of biological assets such as crops, livestock, and other agricultural products. Farm owners strategically plan cultivation cycles, integrate different farming practices, and

implement effective risk management (Tew and Barbieri, 2012) to safeguard these assets that constitute the core of the agritourism experience.

Asset management includes recording or accounting biological assets essential for financial reporting, decision-making, and compliance with governing bodies. However, farmers typically do not engage in accounting practices due to their lack of expertise, the incompatibility of some accounting principles with their specific type of business, and the complexity and cost associated with implementing such practices (Argilés and Slof, 2001). Proper financial accounting is not maintained in agriculture, as farmers only record monetary transactions that involve revenues and expenses (Doğan et al., 2013). In addition, financial literacy, land holding size, and farm income also affect the decision of the farmers to maintain farm accounting records (Prajapati et al., 2015; Tackie et al., 2022).

Farms should keep a comprehensive set of financial records to easily assess the operational and financial efficiency of their agricultural operations (Sharma, 2012). Implementing proper accounting enhances decision-making, improves profitability, and allows farmers to identify their strengths and weaknesses to manage changes and improvements in farm management. Records should be organized based on their respective activities and departments (Sharma, 2012). It is necessary to have distinct accounts for products, livestock, crops, and their associated items. The production cost per unit and the cost of the finished product must be accurately represented. Moreover, both the depreciable assets and biological assets should have proper documentation. Accurate recordkeeping provides a clear picture of the financial status of the farm. If all assets are not accounted for in the financial statements, like the nonrecording of the biological assets, it may lead to misstatements such as overstatements or understatement of farm assets and profits (Miranda and Ohe, 2024).

Accounting for biological assets is guided by the International Accounting Standard (IAS) 41, the accounting standard for agriculture. In the Philippines, the IAS 41 was adopted as the Philippine Accounting Standard 41 (PAS) 41, which has the same objective of prescribing the accounting treatment, financial statement presentation, and disclosures related to agricultural activities, including biological transformation and harvest of biological assets for sale or conversion into agricultural produce or another biological asset. Biological assets are initially measured at fair market value less cost to sell, except for cases where fair value cannot be measured reliably (IAS 41:12). The harvested produce is also measured at fair market value less cost to sell at the point of harvest (IAS 41:13). In addition, subsequent measurements due to biological transformation may result to changes in the fair market value and must be included in profit or loss (IAS 41:26-29).

The adoption of accounting standards is influenced by various factors such as awareness of the owners, educational competency, organizational structure, accounting infrastructure, mandatory compliance, and the users and their needs for accounting information and its cost-and-benefit relationships (Rahman et al., 2002; Hai, 2015; Miranda et al., 2017) and choosing the applicable accounting practices can also be affected by these factors. Factors such as preferences of owners or management and ease in calculation have been considered because farm owners prefer simplicity and familiarity with accounting practices. They want simplified calculations that minimize the chances of errors and save time and resources. In addition, learnings from training, seminars, and workshops they have attended, as well as practices introduced in the industry or sector they belong, also influence what practices they will apply in their farm operations. Industry practices play a crucial role in establishing standardized norms within the agricultural sector, serving as benchmarks for operational and reporting standards. As the farms weigh the practices to be adopted, cost and benefit considerations take place, like using software, which will entail additional costs for the farms. Furthermore, external auditors' recommendations carry significant weight in shaping accounting procedures. They contribute to the adherence to accounting standards and regulatory requirements while offering insights into enhancing internal controls and risk management practices. External users such as investors, lenders, regulators, and government agencies rely heavily on farms to provide relevant and reliable financial information. This information is critical for their decision-making processes, investment evaluations, credit assessments, and adherence to regulatory mandates, underscoring the importance of sound accounting practices aligned with external user needs.

Regardless of the size, all entities must produce financial reports adhering to standards to allow users to assess the organization's performance and compare the financial results (Van Biljon, and

Scott, 2019). Furthermore, it is crucial to correctly grasp the situation of farm resources for sustainable utilization in both farm production and agritourism. Accounting for biological assets empowers farmers to understand the status of the farm resources and helps rational planning for the sustainability of farm activities with broader perspectives. However, limited studies were conducted on how these resources should be accounted for. This study addresses the gap by evaluating and harmonizing the accounting practices of agritourism farms in the Philippines, aiming to create a comparable financial record that decision-makers can use. A system must be established for recordkeeping that will track not only the cost, resource use, and income, but also align with the purpose of planning and budgeting, which are very critical in attaining sustainability in farm operations.

## **OBJECTIVE**

The primary objective of this study is to evaluate the accounting practices implemented by selected agritourism farms in the Philippines. Additionally, the study aims to identify the factors that play a role in shaping the accounting practices of these farms. The findings of this study will contribute to the creation of a framework for applying accounting standards for agriculture in the agritourism sector.

## **METHODOLOGY**

A mixed-method approach was employed, integrating primary and secondary data to explore the accounting practices of eighteen agritourism farms in Region IV-A, Philippines. Purposive sampling was applied to select the farms, and the data collection involved a semi-structured questionnaire administered between August – October 2022 and 2023. Mean and median ratings were used to determine which factors were used extensively by the farms. Odds ratio analysis was performed to compare the likelihood of recording biological assets between two groups. Group 1 consists of farms that record biological assets, while Group 2 is composed of farms that do not record biological assets. An odd ratio of greater than 1 means a positive association while an odds ratio of less than 1 means a negative association (Kalra, 2016). Qualitative insights from the respondents were analyzed using Sentiment Analysis. Sentiment analysis involves identifying and extracting subjective information from a text by assessing its level of positivity or negativity (Kearney and Liu, 2014). Utilizing NVivo 14, a qualitative data analysis software, individual responses were assigned a sentiment score from -1 to 1. A positive score reflected a positive sentiment, while a negative score indicated a negative sentiment.

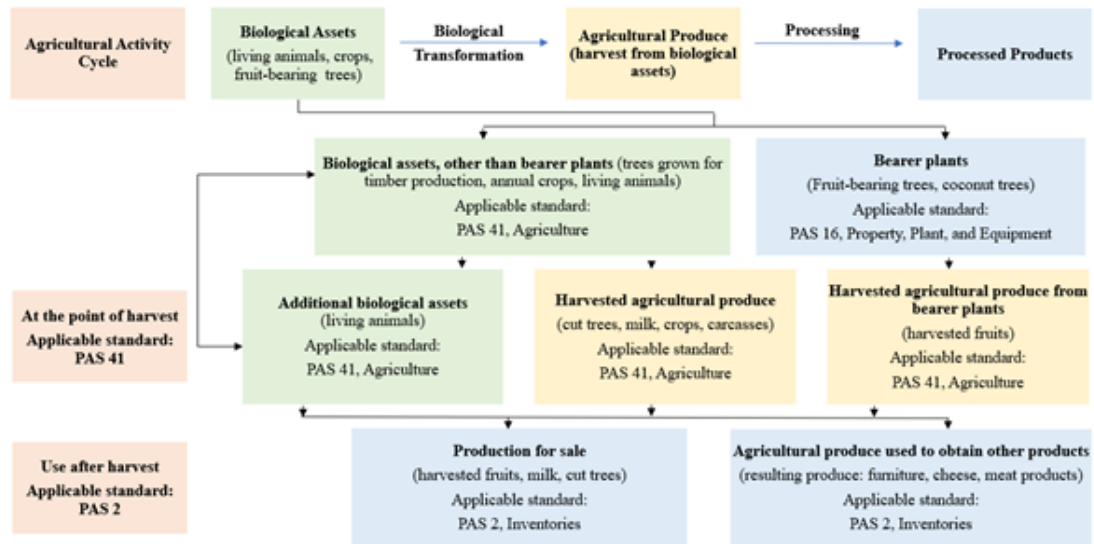
## **RESULTS AND DISCUSSION**

### **Accounting Practices**

Initially, conventional farms concentrated on agricultural production but later diversified to tourism by incorporating tourism services such as farm tours, real farm work experience, animal feeding activities, pick and pay, farm stay, outdoor activities, and events reception. The accounting practices of these farms involve a simple recording of the revenues and expenses with assets and liabilities also being documented. However, the accounting for biological assets used for agricultural production and tourism activities is notably absent.

Biological assets comprising living animals and plants are categorized as consumable and bearer biological assets. In the surveyed agritourism farms, consumable assets, including annual crops (vegetables, herbs) potted plants, and cut flowers, have a shorter life and can be sold once harvested. The bearer biological assets comprise fruit-bearing trees, mahogany trees, dairy cows, and goats. The recognition, measurement, and disclosure of these assets depending on their classification, are guided by PAS 41 - Agriculture, PAS 2- Inventories, and PAS 16 – Property, Plant, and Equipment. The

biological assets undergo biological transformation through growth, degeneration, and procreation (IAS 41:7) potentially yielding a change in quantity and quality change such as giving birth to another biological asset or an agricultural produce to be harvested. Figure 1 illustrates the agricultural activity cycle of the biological assets, classification, and relevant accounting standards to be used. Based on the survey conducted, all farms recognize biological assets in the form of agricultural produce, but only five farms recognize and record living animals and plants. Among these, only three record it under the account name Biological Assets.



Source: Adapted from Gughea and Iordache, 2017

**Fig. 1 Agricultural activity cycle of biological assets, its classification, and applicable accounting standards**

Table 1 shows how each farm conducts its accounting practices. The majority of the farms produce crops and livestock, 11 farms (61.11%) produce both crops and livestock, two farms (11.11%) raise livestock only such as dairy cattle and goats, two farms (11.11%) produce crops only while one farm (5.56%) is engaged in both livestock and floriculture, one (5.56%) engaged in floriculture only, and lastly one farm (5.56%) engaged in crop, livestock, and floriculture production. Ten (55.56%) farms are registered as corporations, while eight (44.44%) farms are registered as sole proprietors. Only one farm uses a software-based accounting system, while the rest manually record all farm transactions. Accounting transactions on the farm include revenue from the tourist entrance fee, sales from agricultural produce and processed products, and farm operating expenses. These transactions are recorded manually in their record or logbooks and later transferred to Microsoft Excel. In the case of Farm K, they use the software Quickbooks. All transactions are recorded daily, which are subsequently sent and transferred to Quickbooks every month. Farm K is a participant in a *Paiwi* program, which entails the leasing of livestock. Given the presence of multiple sub-farms in this program, the auditor recommended that the use of software be adopted to ensure uniformity in the structure of their financial reports. All farms registered as corporations prepare and submit a complete set of financial statements for compliance with the Securities and Exchange Commission. On the other hand, two farms registered as Sole Proprietorship also prepare a complete set of financial statements, and they use it to avail loans and grants. In comparison, six farms only prepare Income Statements to be submitted for tax compliance.

Only four farms demonstrated awareness of the accounting standard. Among them, Farms F, I, and J applied PAS 41, as recommended by their auditors, while Farm E, though have heard of the standard, chose not to implement it as of this moment since he does not fully understand it. Out of the 18 surveyed farms, only Farms A, F, I, J, and K recognized and documented biological assets in accordance with PAS 41 and PAS 2. For Farm A, engaged in goat farming, live goats are recorded in inventory at the lower cost or net realizable value, while crops are valued based on the market

price. Farms F, I, J, and K value the assets using the market value and disclose them under the account name “Biological Assets” except for Farm F, which records them as “Other Assets.” The remaining 13 farms do not record living animals and plants and only record the agricultural produce when it is harvested or sold using the most recent market price. Additional biological assets like calves and kids are recorded in the inventory reports.

**Table 1 Characteristics of surveyed agritourism farms and their accounting practices (n=18)**

Farms	Agricultural Production	Legal Structure	Accounting system	Accounting Records Maintained	Awareness of PAS 41	Recognize Biological Assets	Valuation Method
A	C & L	Corp	Manual	CFS	No	Yes	LoCNRV, MP
B	C & L	Corp	Manual	CFS	No	No	MP
C	C & L	Corp	Manual	CFS	No	No	MP
D	C & L	Corp	Manual	CFS	No	No	MP
E	C & L	Corp	Manual	CFS	Yes	No	MP
F	L	Corp	Manual	CFS	Yes	Yes	MP
G	C & L	Corp	Manual	CFS	No	No	MP
H	C & L	Corp	Manual	CFS	No	No	MP
I	F & L	Sole	Manual	CFS	Yes	Yes	MP
J	C & L	Sole	Manual	CFS	No	Yes	MP
K	L	Corp	Software	CFS	Yes	Yes	MP
L	C & L	Corp	Manual	CFS	No	No	ACE
M	C & L	Sole	Manual	IS	No	No	IV
N	F	Sole	Manual	IS	No	No	MP
O	C	Sole	Manual	IS	No	No	MP
P	C & L	Sole	Manual	IS	No	No	MP
Q	C, L, & F	Sole	Manual	IS	No	No	MP
R	C	Sole	Manual	IS	No	No	MP

Source: Field Survey, 2022 and 2023

Notes: Agricultural Production: C = Crops, L = Livestock, F = Floriculture

Legal Structure: Corp. = Corporation, Sole = Sole Proprietorship

Accounting Reports: CFS = Complete Financial Statements; IS = Income Statement;

Valuation Method: MP = Most Recent Market Price; LoCNRV = Lower of Cost or Net Realizable Value; ACE = Accumulated costs and expenses; IV = Independent valuation

## Factors Influencing Accounting Practices

The financial accounting of agritourism farms is affected by different factors such as the training, preferences of the owners or management, cost-benefit, ease in calculation, industry practices, recommendation of the auditor, and the needs of the external users for decision making. Using the mean and median rating analysis presented in Table 2, the owners' preference (4.83) and ease of calculation (4.61) are considered to be the factor that very extensively affects the farm's accounting practices. The owners and management have the authority and responsibility for the financial decisions and policies on farm management. Since most farms are unaware of the accounting standard and only know about basic accounting, proper accounting of the biological assets is omitted. Moreover, they prefer simplicity in the recording because it is more efficient and cost-saving. The only biological asset-related transaction recorded in their books is when they harvest it and sell it to the consumers. Industry practices (4.44), cost-benefit (4.28), training in finance and accounting (3.83), and recommendations from external auditors (3.61) extensively influenced the accounting practices of the farms. Industry practices provide a benchmark or a common standard for accounting policies. However, based on the survey, the agritourism industry has no established accounting practices. Moreover, applying the standard may be costly since they might hire a new staff in charge of the valuation. For the training, all farms attended training provided by different government agencies, such as the Department of Tourism (DOT) that provide training on financial management,

focusing on tour packaging, costing, and farm development funding. In addition, the Department of Trade and Industry (DTI) and Department of Agriculture (DA) also give training on Entrepreneurial Accounting and Financial Management that covers basic accounting and financial management. This training does not include accounting for biological assets. On the other hand, farms registered as corporations value the recommendations given by their auditors and use them to enhance the accuracy of the farm's financial reporting and align it with the regulatory requirements. Their auditors are key in advising them on recording and measuring biological assets. The needs of primary external users were given a rating of 3.11 or fairly extensive since the financial records they produce are for compliance purposes only.

**Table 2 Factors influencing the accounting practices of the surveyed agritourism farms (n=18)**

Factors	Mean rating	Median rating	Odds ratio
Preference of the owners or management	4.83	5.0	undefined
Ease in calculation	4.61	5.0	undefined
Industry practices	4.44	5.0	undefined
Cost and benefit	4.28	4.5	undefined
Training in finance and accounting	3.83	4.5	1.2857
Recommendations of external auditors	3.61	4.0	1.2857
Needs of primary external users	3.11	4.0	0.7778

Scale (adopted from Joyno, 2003)

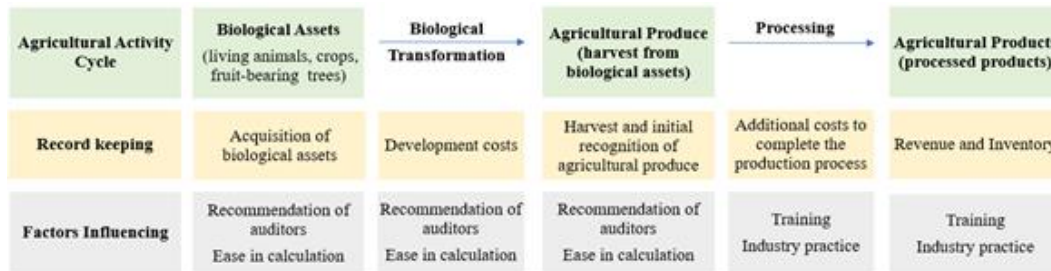
4.51 – 5.00 – Very Extensive, 3.51 – 4.50 – Extensive, 2.51 – 3.50 – Fairly Extensive, 1.50 and below – Very Poor in Extent, 1.51 – 2.50 – Poor in Extent

Source: Field Survey, 2023

Among the five farms that recognize biological assets, only Farm K, engaged in dairy cattle farming, has a comprehensive recording process that covers the acquisition of biological assets, the birth of new calves, the harvest of agricultural produce, and the disposal of assets as recommended by their auditor. As shown in Fig. 2, the farm bookkeeper, in cooperation with their auditor, diligently records and monitors all expenses related to each process. The fair market value approach has been used to value the assets and the monthly changes in the fair market value are regularly documented. These changes are disclosed in their financial statements as FV Gain or Loss on Initial Recognition of Biological Assets and FV Gain or Loss on Remeasurement of Biological Assets. Moreover, the farm owners strictly enforced the recommendations of the auditor in relation to the farm recording which includes records from the breeding process, calving, milking, and medication and treatments. The farm auditor emphasized the importance of recordkeeping, he stated that “*Proper documentation of biological assets is the key to effectively account the biological assets in accordance with PAS 41. The updated record of all biological assets as to its changes will be helpful in accounting.*” On the other hand, the farm practices in relation to processing activities were influenced by industry practices and the training they attended.

Using the odds ratio analysis, the farms were grouped into two – Group 1 are the farms recording biological assets (Farms A, F, I, J, K). At the same time, Group 2 are the farms not recording (Farms B, C, D, E, G, H, L, M, N, O, P, Q, R) biological assets. A ratio of 1 and above indicates a greater likelihood that the farm will modify or be affected by its accounting practices if the factor is present. Conversely, a ratio of below 1 suggests a lower likelihood of changing their accounting practice. Based on the odds ratio analysis, there is a higher odd that agritourism farms will practice the recording of biological assets if there is training in finance and accounting (1.2857) provided to owners and key accounting personnel, as well as those in charge of the valuation of the biological assets. Recommendations of the external auditors (1.2857) contributed to the possibility that agritourism farms will practice recording biological assets. Among the five farms that record biological assets per accounting standard, one farm stated that they changed their accounting practice upon consulting with their external auditor. In contracts, the needs of primary external users (0.7778) have a lower odd that farms will practice recording biological assets if needed by primary external users. Since most farms are family corporations, the financial statements they produce are submitted to government agencies for compliance. Some farms use their financial statements to get grants or

funds from government agencies requiring financial reports. On the other hand, preferences of the owners or management, ease in calculation, industry practices, and cost and benefit resulted in an undefined odds ratio because one of the groups has no occurrences of recording biological assets.



**Fig. 2 Accounting practices of Farm K**

The sentiment analysis performed also supported the odds ratio analysis results. Based on the qualitative remarks from the respondents, training in finance and accounting was given a positive rating, while the auditors' recommendations received a moderately positive rating. Conducting training related to accounting, especially on how to value the biological assets method, is seen to have a positive sentiment since it will be helpful to them and will reflect the actual status of their farm assets. Most of the training they attended only included discussions on recording sales and expenses, but the valuation for biological assets was not even highlighted. Training in finance and accounting is just a part of their entrepreneurship or business-related training. One respondent shared, “*Actually, the accounting practices I am doing on the farm are based on what I learned from the training conducted by DTI; I have attended training about the cash proforma. Basically, it is just cash in and cash out, balance, description of transactions, and I think it is beneficial.*” Farm R also stated, “*Training is important and needed; however, some trainers on accounting cannot explain in layman’s terms what accounting is all about that can be easily understood by the farmers. It is very technical. The farmers cannot appreciate why they need to do it, but I understand it because I know it.*” All of the farms agreed on the importance of recording the biological assets and compliance with the standard; according to them, they might consider using it if there is training or available manual on how to do it.

For the recommendations of the external auditor, the majority of the farms are registered as corporations and hire an external auditor to check their financial records. External auditors give recommendations to improve the farm operation. Even the farms registered as sole proprietors see the importance of auditors' suggestions, Farm I shared, “*The auditor suggested fixing the bookkeeping and petty cash system. Right now, I want to have traceability of the cash flow because I do not remember anymore how much I have given for the operation, so we need to establish a separate bank account for the farm even though I am having an issue with the banking system in our area.*” The auditor’s recommendations may have a positive sentiment. However, some farms still prefer to use their method, particularly in recording and measuring their biological assets. Also, some recommendations were not well explained to the lower management like in the case of Farm B, “*We prepare all the reports needed by the board, and it will be reviewed by the auditors; however, if the auditor gives recommendations, the board failed to discuss it to us, so we do not directly experience it.*” While most farms have diverse farm management practices, they acknowledge the importance of the recommendations of their auditors. Communicating and integrating their recommendations into their current practices may pose a challenge, but they still find it helpful, especially if it enhances their management practices.

On the other hand, factors such as the preference of owners or management, ease in calculation, industry practices, cost and benefit, and needs of the external users were given a score that fell in the neutral range. Despite the absence of a positive or negative sentiment in those factors, the respondents still believe that recognizing and measuring biological assets is significant in farm operations. They expressed openness to adopting new practices provided that they will get support from the concerned implementors.

## **CONCLUSION**

The study focused on the accounting practices of agritourism farms, explicitly addressing the recognition and measurement of biological assets according to accounting standards for agriculture. While these standards prescribe fair market-based measurements and require disclosure of biological transformations, the observed practices varied among farms, with only a minority adhering to the standards. At the same time, the majority of surveyed farms relies on practices that are simpler and more efficient. Findings suggested that training in finance and accounting and recommendations from external auditors significantly increase the likelihood of agritourism farms recording biological assets.

Harmonizing the accounting practices for agritourism is necessary for producing comparable financial records that decision-makers could use. A recordkeeping system must be put in place to monitor not only the costs and income but also the inventory of assets along with their respective value. Therefore, tailored training programs, collaborative efforts with external auditors, and industry-specific accounting standards are needed to promote standardized and informed accounting practices within the sector. A comprehensive assessment of a farm's current accounting practices must be done to identify the gaps and areas for improvement. This will be the foundation for creating tailored training modules that may cover topics such as farm recordkeeping, valuation, cost allocation, revenue recognition, and inventory management. Government agencies and members of the academe have the capacity to take the lead in carrying out these initiatives. In addition, they may collaborate with accounting and auditing firms that have expertise in agricultural accounting. In order to establish an industry-specific accounting standard for the agriculture sector, regular meetings, training, and workshops must also be conducted. Furthermore, a system for monitoring these activities must be implemented by gathering feedback from stakeholders and making updates and adjustments to enhance the standard's effectiveness. Through regular evaluations and assessments, we can ensure the continuous improvement of the application of accounting standards across the agriculture sector.

## **ACKNOWLEDGEMENTS**

This study was supported by the Tokyo University of Agriculture Research Institute from June 2022 to March 2023 and June 2023 to March 2024.

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