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THE ROLE OF AGRICULTURAL ACCOUNTING IN CONTROLLING THE COSTS OF AGRICULTURAL ACTIVITIES (A FIELD STUDY ON A NUMBER OF AGRICULTURAL INSTITUTIONS IN SUDAN)

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ABSTRACT

The study mainly aimed to know the relationship between agricultural accounting and controlling the costs of agricultural activities**.** To achieve this goal, (170) questionnaire forms were distributed to the study sample that selected randomly from the study's community which consisted of the employees of a number of Sudanese agricultural institutions. The results of the study showed that the existence of an integrated agricultural accounting system contributes to controlling the costs of agricultural activities, and keeping a cash book to prove all cash operations helps in controlling the costs of agricultural activities. The study recommended a number of recommendations, he most important of which is increasing public awareness of agricultural accounting and its importance for agricultural projects, through seminars and workshops, and encouraging agricultural institutions in Sudan to adopt the agricultural accounting system in their accounts instead of the regular financial accounting system.

Keywords: Agricultural accounting, agricultural activities, cost control.

1. INTRODUCTION

1.1 Methodological Framework

Agriculture, in both its plant and animal parts, is one of the most important pillars of the economy in many countries. Therefore, agricultural institutions are constantly seeking to reduce the costs of agricultural activities to the extent that allows them to appropriately price their agricultural products so that they can compete and achieve their goals. The presence of specialized agricultural accounting helps agricultural institutions in controlling over the elements of costs of various agricultural activities. And because agricultural institutions in Sudan seek to achieve the same goals as agricultural institutions in other countries, this study came to know the role of agricultural accounting in controlling the costs of agricultural activities.

1.2. The study Problem:

The problem of the study was that some agricultural institutions still use the normal financial accounting system in their accounts, either because there is no accounting system specialized in accounting for agricultural activities, or because there is no interest in using agricultural accounting, which led to weak control over the costs of agricultural activities in those agricultural institutions. As a result, information does not meet the needs of users of financial reports or even decision makers in agricultural institutions. Accordingly, the study problem can be summarized in the following questions:

Q1. Does the availability of agricultural accounting components contribute to controlling the costs of agricultural activities?

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Q2. Do keeping agricultural accounts help in controlling the costs of agricultural activities?

1.3. The importance of study

The study derives its scientific importance from the scarcity of research that dealt with the role of agricultural accounting in controlling the costs of agricultural activities in Sudan (according to the knowledge of researcher), in addition to the specificity of accounting practice in agricultural institutions. As for the practical importance, it is represented in clarifying the practical application of agricultural accounting in Sudanese agricultural institutions, and clarifying how to benefit from the advantages of multiple agricultural accounting in controlling the costs of various agricultural activities.

1.4. Objectives of the study:

The study mainly aimed to know the relationship between agricultural accounting and controlling the costs of agricultural activities. The sub-objectives were as follows:

1.4.1. Examination of the specificity of agricultural accounting practice in Sudanese agricultural institutions.

1.4.2. Identifying the problems and limitations of accounting practice in agricultural activity.

1.4.3. Meeting users' needs for accounting information on agricultural activities.

1.4.4. Upgrading the accounting legacy in the field of agricultural accounting and supporting the scientific library in this field.

1.5. Hypotheses of the study

To achieve the objectives of the study, the following hypotheses were tested:

1.5.1. Availability of agricultural accounting components contributes to controlling the costs of agricultural activities.

1.5.2. Keeping agricultural accounts helps control the costs of agricultural activities.

1.6. Methodology of the study

The researcher relied on the inductive approach in defining the problem of the study and formulating hypotheses, the descriptive analytical approach in analyzing data, testing hypotheses, reaching results and obtaining the necessary recommendations.

1.7. Sources of data collection

The primary source is the questionnaire, while the secondary sources were the references, scientific periodicals, theses and the Internet.

1.8. The limits of the study

The subjective limit represented in studying the role of agricultural accounting in controlling the costs of agricultural activities, while the spatial limits were represented in a number of agricultural institutions in Sudan, while the time limit represented in the year 2024.

2. PREVIOUS STUDIES

Many studies carried out by writers and researchers dealt with the subject of agricultural accounting and its various effects, in addition to the subject of internal control, each according to his point of view. For the purposes of this study, the researcher mentioned some of these studies as (Awad Allah, 2015) study, which aimed to identify the application of agricultural cost accounting and its impact on the financial statements of the Sudanese Sugar Company, inventory and identify the problems of measurement and accounting disclosure of the costs of agricultural assets. The study reached several results, including, measuring the plant assets at the date of the balance sheet at their fair value leads to that these assets reflect their real value at the date of each

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balance sheet, and the descriptive analysis of the published financial statements showed that the disclosure of agricultural assets affected the decisions of the users of the financial statements. The study recommended a number of recommendations, the most important of which is the need to encourage Sudanese agricultural institutions to publish financial information about their agricultural activities in a way that reflects the reality of their financial position and the reality of their business results. While the study of (El-Sayed, 2019) aimed to characterize the nature of changes in the cost of producing tomato crops in Egypt and Dakahlia during the period (2004 - 2017), and study the impact of each cost item on increasing the average production costs per Acre crop to determine the responsibility of each item for these items. The study found several results, the most important of which is that, some factors and items led to an increase in production costs such as workers' wages and other productive resources, such as rent, chemical fertilizers, machinery wages, seeds prices, public expenses and municipal fertilizers. It was also found that the high production costs per Acre has a negative impact on the net profit per Acre of the crop, which can be said that to increase the economic efficiency of the tomato crop has to affect the reduction of average production costs per Acre on the one hand and the various components of the cost on the other hand, especially those associated with human work and rent agricultural land. The study recommended a number of recommendations, the most important of which is that to increase the economic efficiency of the tomato crop, there must be an impact on reducing the average production costs per acre on the one hand and on the various components of the costs on the other hand. Also the study of (Ayoub and Kweldy, 2019) aimed to assess the impact of applying the financial accounting system on the quality of accounting information issued by these institutions, and to identify problems and limitations of accounting practice in agricultural activity. The study reached several results, including, the institution is unable to apply all the conditions related to the accounting evaluation of biological assets, due to the conditions of the accounting environment, the most important of which is the absence of an active market, and the absence of an exact model for the evaluation of biological assets, as the financial accounting system has not been updated since its issuance, and it has not been issued a straightforward model that addresses the agricultural sector. The study recommended a number of recommendations, including the introduction of a special accounting for the agricultural sector with the provision of a chart of accounts for it. Another study of (Elkinai, and Almagawla, 2020) aimed to address the accounting of the agricultural sector from the viewpoint of international accounting standards and the financial accounting system, by focusing on the accounting treatment of the activities of both plant and animal products. This paper concluded that there is a great agreement between the accounting treatment of international accounting standards and the financial accounting system, bearing in mind that the financial accounting system for the agricultural sector separated into the accounting entries for all activities specific to the sector. The study recommended a number of recommendations, the most important of which is spreading awareness among agricultural institution s to expand the application of the financial accounting system. As for the study of (Breish, and Shawes, 2021) it was aimed to assess the extent to which agricultural cooperatives, as agricultural institutions, adhere to the rules and texts of agricultural accounting as a financial sector with regard to accounting recognition, measurement and disclosure, and to identify problems and limitations in the practice of agricultural accounting in agricultural activity. The study reached several results, including, the cooperative is unable to apply all the conditions related to the accounting evaluation of biological assets due to the accounting environment conditions, the

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most important of which is the absence of an active market, and the agricultural cooperatives apply International Accounting Standard No. 41. The study recommended a number of recommendations, the most important of which is benefiting from the experiences and expertise of countries in agricultural accounting. While the study of (Al-Sherbiny, 2024), aimed to promote agricultural production by encouraging farmers to adopt modern technological methods. The study found several results, among which is that, there was no effect of inflation on the value of these operations during the aforementioned periods. It is also evident from the average cost of human labor wages and the average cost of animal labor during the first and third period, as well as the average cost of automated work during the three study periods, that there are no moral differences, which indicates that there is no effect of inflation on these wages during these mentioned periods. The study recommended many recommendations, the most important is that, the necessity of working on the price stability of the cotton crop, thus stabilizing the areas and then stabilizing production and exports.

By reviewing previous studies, it became clear to the researcher that the study of (Awad Allah, 2015) focused on knowing the impact of accounting measurement and disclosure of the costs of agricultural assets in the decisions of users of financial statements, while the study of (Al-Sayed, 2019) focused on knowing the structural changes in the prices of agricultural products needs in In light of the local variables present, the study of (Ayoub and Kweldy, 2019) focused on evaluating accounting practices in Algerian agricultural institutions, while the study (Elkinai and Almagawla, 2020) focused on studying the accounting of the agricultural sector between international accounting standards and the financial accounting system, while the study of (Breish and Shawes, 2021) focused on knowing the appropriateness of agricultural accounting in agricultural cooperatives. Also (Al-Sherbiny, 2024) study focused on an economic study of structural changes in the costs of producing some agricultural crops in Kafr El-Sheikh Governorate. And the researcher's current study differed from those studies by dealing with the role of agricultural accounting in controlling the costs of agricultural activities, and there are differences in the spatial and time limits.

3. THE THEORETICAL FRAMEWORK OF AGRICULTURAL ACCOUNTING

3.1. Concept of agricultural accounting

Agricultural accounting can be defined as the application of accounting principles, foundations, assumptions and procedures in units that carry out an agricultural activity or activities in order to reach the result of its work and financial position in a technical and accurate manner (Helmy, et al., 2012, 15), agricultural accounting is also known as a branch of accounting and the application of its principles to reach the results of agricultural activity in all its branches and works in an accurate technical manner (Zaki, 2011, 1) . And the researcher can define agricultural accounting as a branch of accounting that works to provide all the necessary financial and statistical data and information that helps the agricultural institution to perform its work in the best way.

3.2. Importance of agricultural accounting

The importance of agricultural accounting is represented in the following (Bakr, et al., 2020, 2):

3.2.1. Contribute to determining the cost of agricultural activity.

3.2.2. Providing the necessary data and information for agricultural planning.

3.2.3. Providing the necessary data and information to monitor the performance of the agricultural institution.

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3.2.4. Providing data and information necessary for decision-making in the agricultural institution.
The researcher believes that agricultural accounting derives its importance from the importance of agricultural activities and their specificity and the need to control their costs in order to determine competitive prices for various agricultural products.

3.3. Agricultural accounting objectives

Agricultural accounting aims to achieve the following (Helmy, et al., 2012, 16-17):
3.3.1. Create a permanent record of the agricultural project.
3.3.2. Measuring the business results of the agricultural institution.
3.3.3. Determining the financial position of the agricultural institution.
3.3.4. Determine the unit cost of the activity carried out by the agricultural institution.
3.3.5. Enabling agricultural institutions to determine the most appropriate prices.
3.3.6. Monitoring the agricultural project transactions.
3.3.7. Providing accounting data and information for the agricultural institution.
3.3.8. Preserving the rights of the agricultural project.
It becomes clear to the researcher that agricultural accounting aims to keep accounts for agricultural institutions to help them monitor and control their financial performance in order to enable them to achieve stability, continuity and growth.

3.4. Benefits of agricultural accounting

The benefits of agricultural accounting are as follows (Bakr, et al., 2020, 2):
3.4.1. Enabling a comparison of the agricultural periods and benefiting from them in setting estimated budgets and organizing farm affairs.
3.4.2. Enabling the state to set prices accurately, given that they are based on technical and regular cost accounts.
3.4.3. Enabling farmers to accurately determine the most appropriate prices based on the costs of each product.
3.4.4. Being able to achieve internal control despite the difficulty of applying it on the farm.
3.4.5. Being able to determine the profits or losses of each branch of the overlapping activity on the farm
3.4.6. Being able to determine the real financial position of the farm accurately and quickly.
The researcher believes that providing financial data on agricultural activities contributes to the preparation of estimated budgets for agricultural institutions, which helps in the process of controlling agricultural costs.

3.5. Keeping agricultural accounts

The method of keeping agricultural accounts is based on knowing the type of farm, whether large or small, and then knowing the main purpose of the farm's activity, whether it is for dairy production or agricultural products, etc. The following is the way of keeping agricultural accounts in small, medium and large farms (Zaki, 2011, 5):
3.5.1. Prepare an estimated budget at the beginning of each year that includes his assets and liabilities.
3.5.2. Keeping a cash book to record all cash transactions, so that it is divided into debit columns allocated for receipts and credit columns allocated for payments.
3.5.3. Maintaining a daily book that is used to record all operations that take place on the farm daily, except for cash, such as births and deaths of livestock.

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3.5.4. Maintaining a general ledger to which all entries are posted on a monthly basis.
3.5.5. Conducting a duly inventory at the end of the year for the purpose of preparing trading accounts, profits and losses, and the balance sheet.
3.5.6. Organizing statistical data and statements about the farm in order to compare it with similar farms.
The researcher believes that keeping agricultural accounts does not differ according to the size and activity of the agricultural institution rather the same accounts are kept in small, medium and large agricultural institutions, the only thing that differs is the data included in the accounts, which differ according to the nature of the activity of the agricultural institution.

3.6. Elements of agricultural accounting

In order for the role of accounting to be successful in agricultural institutions, the following elements must be present (Helmy, et al., 2012, 20):
3.6.1. The documentary group: Includes internal documents such as requests for the purchase of seeds, and chemical fertilizers, or external documents such as invoices for the purchase of production requirements.
3.6.2. The book group: It is considered the main pillar of the accounting system in the agricultural institution s, as it is considered a tool for recording, analyzing and continuous display of the financial transactions of the agricultural institution. It includes books, accounting records, and statistical books and records.
3.6.3. Accounts Manual: It is a list of all accounts in the agricultural institution arranged in an organized manner that achieves the purpose of accounting organization.
3.6.4. A set of reports and financial statements: The financial and accounting information provided by agricultural accounting takes the form of reports and financial statements such as oral and written reports, or financial statements such as the income statement, the statement of financial position, the statement of cash flows and the statement of changes in equity.
3.6.5. Material and human capabilities: Human capabilities refer to the persons in charge of carrying out the accounting activity in the agricultural institution. As for material capabilities, they refer to calculators and computers that help in completing the accounting work quickly and with high accuracy.
3.6.6. A system of internal control: To ensure the efficiency of agricultural accounting, a system of internal control over accounting in agricultural institutions must be designed.
It is clear to the researcher from the foregoing that the elements of agricultural accounting do not differ much from the elements of the traditional accounting system, except that they are of a special nature that contributes to creating an effective accounting system in agricultural institutions and provide information for its decision makers.

4. CONTROL OVER THE COSTS OF AGRICULTURAL ACTIVITIES

4.1. Definition of an agricultural institution

The agricultural institution is defined as the production unit within the structure of the agricultural economy that produces various agricultural commodities, whether animal or plant, as a result of decisions taken at the level of this unit related to the use of available resources for the production of various agricultural commodities ((Ayoub and Kweldy, 2019, 8).
The researcher can define the agricultural institution as that institution which practices agricultural activity in both its plant and animal parts by exploiting the available resources in cultivating the

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land, raising livestock, producing dairy products, raising poultry, landscaping and other agricultural activities.

4.2. Nature of agricultural activities

Three main activities practiced by agricultural institutions can be distinguished (Saad, 2017, 4-5):

4.2.1. Plant activity: It is meant to reclaim agricultural land, plow it, cultivate it, and cultivate it for the purpose of obtaining agricultural products, marketing and selling them.

4.2.2. Animal activity: includes everything related to the process of acquiring animals in the farm in order to obtain their products.

4.2.3. Food industry activity: Some agricultural institution s practice a number of industrial activities that depend on farm products such as crops and animal products, such as the canning industry, dairy products, fodder, and others.

It becomes clear to the researcher that the plant activity includes the cultivation of field crops such as wheat, cotton and orchard products such as various fruits, while the animal activity includes breeding cattle, dairy cattle, poultry, fish farming, beekeeping, etc., while the food industry activity depends on crop products and animal products, which means the comprehensiveness of agricultural activity and its economic importance.

4.3. Characteristics of agricultural activity

The characteristics of agricultural activity are represented in the abundance and diversity of agricultural products, the presence of by-products, and the abundance of agricultural products, internal transfers, the different nature of some agricultural fixed assets from known fixed assets, and other characteristics related to agricultural activity, which require special accounting treatment (Hamad, 2013, 346-347).

The researcher believes that it is necessary to design an agricultural cost accounting system that takes into account these characteristics, by keeping multiple analytical accounts that show the cost of each agricultural product, and finding a fair method for distributing the cost elements between the different agricultural varieties on the one hand, and between the main products and the byproducts on the other hand.

4.4. Agricultural activity costs

The agricultural project spends a set of cost elements to carry out its main functions (productive - marketing - administrative and financing) such as seeds, seeds, seedlings, fertilizers, municipal and chemical fertilizers, fodder, medicines, veterinary services, pesticides, agricultural machinery, spare parts, oils, fuel, wages of workers, agricultural foremen and supervisors, water and electricity expenses ... etc., The agricultural institution obtains these elements either by purchasing them from suppliers or by renting them from others (Abu Ajwa, 2007, 168).

It becomes clear to the researcher that the costs of agricultural activity include all the costs incurred by the agricultural institution in order to carry out its agricultural activity from the beginning to the end of the production process and the sale of products. These costs are divided into direct production costs such as the costs of production materials, wages and other direct expenses, and all costs that do not contribute directly to the production of agricultural products, but help to do so.

4.5. Control over the costs of agricultural activity

Control is one of the stages of implementing the planning budget of the agricultural institution, through which responsibility centers are determined, i.e. cost spending centers, revenue acquisition centers or agricultural investment centers (Ahmed, Ibrahim, 2010, 5). Therefore, making a control

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system in agricultural institutions that is efficient, flexible, and adaptable to the conditions to which it is exposed the institution requires taking into account the size of the institution, the nature of its activity, and the relationships that link the various stages of its production, and it requires a set of ingredients, and the tools, form which are the following (Abdel-Aal, 1995, 54):

4.5.1. The existence of an integrated agricultural cost accounting system with elements and components, designed in a sound scientific manner compatible with the nature and conditions of the agricultural institution.

4.5.2. The existence of a system for reports that provide the necessary data for control, follow-up, and the development of plans to achieve the objectives of the institution.

4.5.3. Preparing planning budgets, which is an important means of planning and control in the organization, as it urges management to plan, and provides a criterion for evaluating performance within the organization. (Horngren, 1982, 61)

The researcher believes that the flexible planning budgets are the most suitable for agricultural institutions due to the fluctuation of the activity of these institutions from year to year and it's subjected to many factors, foremost of which are natural factors performances in it.

The process of monitoring and evaluating the performance of the agricultural institutions aims to ensure the proper functioning of the implementation of the plan drawn up for the institution, to identify the most efficient activities, to show weaknesses and deviations, to take the necessary measures in this regard, to make comparisons between the performance of the agricultural institution and other similar institutions, and to take the necessary decisions. To correct the course of action, in order to ensure the achievement of the set goals. (Fakhr and Qateem, 2001, 100)

4.6. Control steps in agricultural institutions

The control steps in agricultural institutions are as follows (Horngren, 1982, 68):

4.6.1. Develop planning performance indicators.

4.6.2. Measuring the actual performance achieved by the institution.

4.6.3. Comparing planning performance indicators with actual data, identifying deviations, and analyzing them.

4.6.4. Taking measures or policies that limit or prevent negative deviations from occurring, and contribute to perpetuating positive deviations.

It is clear to the researcher that the application of the unified accounting system in the agricultural institutions achieves an acceptable degree of control and control over the disbursement of cost elements, their use, and the measurement of their actual cost, and establishes properly for the application of the cost accounting system in the agricultural institutions.

5. THE ROLE OF AGRICULTURAL ACCOUNTING IN CONTROLLING THE COSTS OF AGRICULTURAL ACTIVITY

When designing the agricultural accounting system, it must include control factors over the cost of the elements, so an accurate system is put in place to control commodity supplies in purchasing, receiving, storing, disbursing and inventorying them, as well as controlling the cost of work, whether it is human, animal or mechanical work, and imposing control on indirect agricultural costs. And if the administration decides to follow the method of control through planning budgets, then it must design reports and records so as to give accurate data on comparing actual performance with planned performance in order to identify aspects of waste and savings, and what follows from that by taking corrective measures that prevent factors of wastefulness and insufficiency and

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encourage factors of savings and push production efficiency for all items (Ahmed, Ibrahim, 2010, 5). But if the agricultural institution s tend towards the method of control through planning budgets, then the accounting system must include reports and records so that they give accurate data on comparing the actual performance with the planned performance in order to identify aspects of deviation (positive and negative) and thus identify aspects of waste, savings, loss and waste, and the necessary corrective actions. To prevent wasteful and insufficient factors while encouraging saving factors and raising the productive efficiency of each cost element (Sabeel, 2018, 56-57).
It is clear to the researcher from the foregoing that agricultural accounting, if it has the necessary ingredients and is applied properly, plays an important role in controlling the elements of the costs of various agricultural activities in agricultural institutions, which leads to a reduction of those costs and assists the administration in determining competitive prices that will increase the volume of Sales of agricultural products and achieving the goals of the agricultural institution in the end.

6. FIELD STUDY

6.1. Field study procedures

The statistical program (SPSS) was used to analyze the data and reach the objectives set within the framework of this study, and it was based on the significance level (5%) corresponding to confidence (95%) to interpret the results of the tests that were conducted. Several statistical methods have been used, the most important of which are the reliability test (Cronbach alpha), descriptive and analytical statistical methods, percentages and the t-test in addition to Ms. Excel.

6.1.1. Study's community and sample: The study community consists of the employees of the Some Sudanese agricultural institutions. As for the study sample, it was chosen randomly, where the questionnaire was distributed randomly to a number of the company's employees, and the sample size was determined with the help of expert arbitrators to include various job titles and administrative levels in the Some Sudanese agricultural institutions. (160) Questionnaires were distributed, and only (135) were retrieved at a percentage of 84%, and this percentage is considered very large from a statistical point of view, which leads to the acceptance of the results of the study and its circulation to the study community, and to come up with accurate results as much as possible, the researcher is highly interesting in the diversity of the study sample members, and this diversity in the characteristics of the respondents is related to their opinions about the role of agricultural accounting in controlling the costs of agricultural activities.

6.1.2. Stability and validity of the study tool: To ensure the apparent honesty of the questionnaire and the validity of its statements in terms of wording and clarity, the questionnaire was presented to a number of academic arbitrators and specialists in the field of study, and after the questionnaire was returned from the arbitrators, the amendments that were suggested to it were made. The stability and validity test of the questionnaire phrases was conducted using Cronbach-alpha and the result was (.0868) and (.909) respectively, which means that there is stability and validity of the data as shown in table (1) below:

Table (1): Alpha Cronbach coefficient of the questionnaire

No	Axis	Number of phrases	Stability coefficient	Validity coefficient
1	First hypothesis	5	.0882	0.910
2	Second hypothesis	5	.0853	0.907
	Total statements	5	.0868	0.909

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Source: Information obtained from the output of SPSS program, 2024

It is clear to the researcher from Table No. (1) that the percentage of the stability coefficient and the percentage of the coefficient of validity according to the split-half coefficient using the Spearman equation for each of the hypotheses of the study separately, the complete resolution is greater than (50%) and very close to (100%), this indicates the power and validity of the questionnaire form, and then relying on it in testing the study hypotheses.

6.2. Data analysis and hypothesis testing

The hypotheses were tested by finding the weighted arithmetic means (answer power) and standard deviations for each of the questionnaire statements. All of these hypotheses are descriptive questions, according to the five-point Likert scale, as the variable that expresses the options (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree) ordinal scale, and weighted averages are calculated according to Likert scale through a number of steps, namely: Firstly, assign each value in the Likert scale a specific weight (Strongly Agree 5, Agree 4, Neutral3, Disagree 2, Strongly Disagree 1), secondly find the result by multiplying the number of the sample by the weight, and in the third step find the sum of the totals of multiplication results, then find the arithmetic mean by dividing the sum of the totals of multiplication results in the previous step / the number of the sample, to get the arithmetic mean. For the purpose of analyzing the sample, there is a so-called hypothetical average, which is equal to the sum of the weights divided by their number (the scale items), that is, the hypothetical mean = (5 + 4 + 3 + 2 + 1) /5 = 3. Accordingly, the averages were distributed according to their positive or negative deviation from the hypothetical mean, and the distribution of the averages becomes as follows (1 to 1.79 strongly disagree, from 1.80 to 2,59 disagree, from 2.60 to 3.39 neutral, from 3.40 to 4.19 agree, and from 4.20 to 5 strongly agree).

6.3. The first hypothesis testing

H1. The availability of the elements of agricultural accounting contributes to controlling the costs of agricultural activities.

Table (2): The frequency distribution of the responses of the sample members of the study for the first hypothesis terms

No	Sentences	Frequency and percentage%									
		Strongly agree		Agree		Neutral		disagree		Strongly disagree	
		f	P	f	p	f	P	f	P	F	p
1	The existence of an integrated agricultural accounting system contributes to controlling the costs of agricultural activities	62	45.9%	63	46.7%	8	5.9%	2	1.5%	0	0
2	The proper division and identification of cost centers contributes to controlling the costs of agricultural activities	50	37%	63	46.7%	17	12.6%	5	3.7%	0	0
3	Adopting the scientific basis for differentiating between direct costs and indirect costs contributes to controlling the costs of agricultural activities	65	48.1%	55	40.8%	11	8.1%	3	2.3%	1	0.7%
4	The existence of an internal control	47	34.8%	64	47.4%	14	10.4%	7	5.2%	3	2.2%

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	system contributes to controlling the costs of agricultural activities										
5	The availability of material and human resources contributes to controlling the costs of agricultural activities	49	36.3%	53	39.3%	19	14.1%	13	9.6%	1	0.7%

Source: Preparation of the researcher, based on field study data, 2024.

It is clear to the researchers from Table (2) regarding the recurring distribution of the answers of the study sample members to the statements of the first hypothesis which states that (The availability of the elements of agricultural accounting contributes to controlling the costs of agricultural activities), that the majority of the answers were at the levels of "agree" and "strongly agree".

Table (3): The mean and the mode of the responses of the sample members of the study for the terms of the first hypothesis

No	Sentences	Standard deviation	Mode	Arithmetical Mean	Interpretation
1	The existence of an integrated agricultural accounting system contributes to controlling the costs of agricultural activities	1.043	4	3.09	Agree
2	The proper division and identification of cost centers contributes to controlling the costs of agricultural activities	0.931	4	3.87	Agree
3	Adopting the scientific basis for differentiating between direct costs and indirect costs contributes to controlling the costs of agricultural activities	0.876	5	3.68	Strongly agree
4	The existence of an internal control system contributes to controlling the costs of agricultural activities	1.051	4	3.93	Agree
5	The availability of material and human resources contributes to controlling the costs of agricultural activities	0.895	5	3.82	Strongly agree

Source: Preparation of the researcher, based on field study data, 2024.

In Table (3) we note that the descriptive statistics of the first hypothesis terms, which states (The availability of the elements of agricultural accounting contributes to controlling the costs of agricultural activities), the Arithmetic mean is in the range between (3.09-3.93), the mode is in the range of (4-5) and the standard deviation is in the range between (0.895-1.051). According to the five-digit Likert scale, the individuals' answers are agreed and strongly agree.

Table (4): Test Chi – square for first hypothesis

No	Sentences	Chi-square	Degree of freedom	Statistical significance
1	The existence of an integrated agricultural accounting system contributes to controlling the costs of agricultural activities	98.511	3	0.000
2	The proper division and identification of cost centers contributes to controlling the costs of agricultural activities	65.978	3	0.000
3	Adopting the scientific basis for differentiating between direct costs and indirect costs contributes to	138.370	4	0.000

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	controlling the costs of agricultural activities			
4	The existence of an internal control system contributes to controlling the costs of agricultural activities	107.926	4	0.000
5	The availability of material and human resources contributes to controlling the costs of agricultural activities	77.630	4	0.000

Source: Preparation of the researcher, based on field study data, 2024.

In order to test the validity of the hypothesis, which states "The availability of the elements of agricultural accounting contributes to controlling the costs of agricultural activities", the Chi-square test was used for the axis expressions. The values of the Chi-square calculated as follows (98.511, 65.978, 138.370, 107.926, and 77.630). With degrees of freedom (3-4), and with the statistical significance for all terms (0.00), When comparing the level of statistical significance with the permissible level of significance (0.05) it is clear that the level of statistical significance is less than the level of morale, this means that there are differences of statistical significance of the terms of the hypothesis and the hypothesis achieved.

6.4. Second hypothesis testing

H2. Keeping agricultural accounts helps in controlling the costs of agricultural activities

Table (5): The frequency distribution of the responses of the sample members of the study for the second hypothesis

No	Sentences	Frequency and percentage%									
		Strongly agree		Agree		Neutral		disagree		Strongly disagree	
		f	P	f	p	f	P	f	P	F	p
1	Preparing planning budgets at the beginning of each year helps in controlling the costs of agricultural activities	55	40.8%	56	41.55%	13	9.6%	8	5.9%	3	2.2%
2	Keeping a cash book to prove all cash operations helps in controlling the costs of agricultural activities	83	61.5%	40	29.6%	9	6.7%	3	2.2%	0	0
3	Keeping a general journal used to record all the operations that take place on the farm daily helps in controlling the costs of agricultural activities	50	37%	59	43.8%	22	16.3%	3	2.2%	1	0.7%
4	Conducting inventory adjustments according to the rules at the end of the year helps in controlling the costs of agricultural activities	71	52.55%	41	30.4%	16	11.9%	5	3.7%	2	1.5%
5	The existence of a financial reporting system that provides the necessary data for control helps in controlling the costs of agricultural activities	54	40%	55	40.8%	15	11.1%	8	5.9%	3	2.2%

Source: Preparation of the researcher, based on field study data, 2024.

It is clear to the researchers from Table (5) regarding the recurring distribution of the answers of

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the study sample members to the statements of the first hypothesis which states that (Keeping agricultural accounts helps in controlling the costs of agricultural activities), that the majority of the answers were at the levels of "agree" and "strongly agree"

Table (6): The mean and the mode of the responses of the sample members of the study for the terms of the second hypothesis

No	Sentences	Standard deviation	Mode	Arithmetical Mean	Interpretation
1	Preparing planning budgets at the beginning of each year helps in controlling the costs of agricultural activities	0.891	4	3.16	Agree
2	Keeping a cash book to prove all cash operations helps in controlling the costs of agricultural activities	1.023	5	3.94	Strongly agree
3	Keeping a general journal used to record all the operations that take place on the farm daily helps in controlling the costs of agricultural activities	0.869	4	3.61	Agree
4	Conducting inventory adjustments according to the rules at the end of the year helps in controlling the costs of agricultural activities	1.142	5	3.82	Strongly agree
5	The existence of a financial reporting system that provides the necessary data for control helps in controlling the costs of agricultural activities	0.805	4	3.58	Agree

Source: Preparation of the researcher, based on field study data, 2024.

In Table (6) we note that the descriptive statistics of the first hypothesis terms, which states (Keeping agricultural accounts helps in controlling the costs of agricultural activities), the Arithmetic mean is in the range between (3.16-3.94), the mode is in the range of (4-5) and the standards deviation is in the range between (.805-1.142). According to the five-digit Likert scale, the individuals' answers are agree and strongly agree

Table (7): Test Chi – square for first hypothesis

No	Sentences	Chi-square	Degree of freedom	Statistical significance
1	Preparing planning budgets at the beginning of each year helps in controlling the costs of agricultural activities	102.148	4	0.000
2	Keeping a cash book to prove all cash operations helps in controlling the costs of agricultural activities	119.193	3	0.000
3	Keeping a general journal used to record all the operations that take place on the farm daily helps in controlling the costs of agricultural activities	104.815	5	0.000
4	Conducting inventory adjustments according to the rules at the end of the year helps in controlling the costs of agricultural activities	124.519	4	0.000
5	The existence of a financial reporting system that provides the necessary data for control helps in controlling the costs of agricultural activities	96.074	5	0.000

Source: Preparation of the researcher, based on field study data, 2024.

In order to test the validity of the hypothesis, which states "Keeping agricultural accounts helps in controlling the costs of agricultural activities ", the Chi-square test was used for the axis expressions. The values of the Chi-square calculated as follows (102.148, 119.193, 104.815, 124.519 and 96.074). With degrees of freedom (3-5), and with the statistical significance for all

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terms (0.00), When comparing the level of statistical significance with the permissible level of significance (0.05) we find that the level of statistical significance is less than the level of morale, this means that there are differences of statistical significance of the terms of the hypothesis and the hypothesis achieved.

7. DISCUSSION OF THE STUDY'S RESULTS

This study mainly aimed to know the impact of agricultural accounting on the costs of agricultural activities in Sudanese agricultural institutions. And the study findings shows that, the existence of an integrated agricultural accounting system contributes to controlling the costs of agricultural activities, this results agreed with the results of (El Sayed, 2019) study which showed that, the high production costs per Acre has a negative impact on the net profit per Acre of the crop, and this means that there is a need for cost control over the cost of agricultural institutions activities, which the results of (Ayoub and Kweldy, 2019) study findings showed that, it's difficult for the institution to fulfill all the conditions related to accounting assessment for biological asset due to accounting environmental conditions (absence of accounting elements), and all these findings ensure the accuracy and the achievement of the first hypothesis which stated that "The availability of the elements of agricultural accounting contributes to controlling the costs of agricultural activities". The results of the study also revealed that "Keeping a cash book to prove all cash operations helps in controlling the costs of agricultural activities", this result agree with the results of (Awad Allah, 2015) which revealed that the disclosure for agricultural assets impact the decisions of financial statements' users, this means that there should be an accounting system in agricultural institutors, also the results of (Elkinai, and Almagawla, 2020) study, showed that, the financial accounting system for the agricultural sector separated into the accounting entries for all activities specific to the sector, which means that the existence of agricultural accounting system is very important. All these findings ensure the validity and achievement of the second hypothesis which stated that "Keeping agricultural accounts helps in controlling the costs of agricultural activities". And because this study applied on some public share companies, the researcher recommended to conduct another studied to show the impact of agricultural accounting on the cost of products in private agricultural institutions.

8. CONCLUSION

The study concluded with a number of results revealed that the absences of specialized accounting for measuring agricultural activities cost and will never enables the agricultural institutions to control its agricultural activities' costs, the study findings also showed the accuracy of the study's hypotheses and the recommendations were obtained too. And the most important results and recommendations can be shown as follows:

8.1. Result of the study

After completing the field study and analyzing the data, the researcher reached the following results:

8.1.1.The existence of an integrated agricultural accounting system contributes to controlling the costs of agricultural activities

8.1.2.Adopting the scientific basis for differentiating between direct costs and indirect costs contributes to controlling the costs of agricultural activities

8.1.3.The proper division and identification of cost centers contributes to controlling the costs of

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agricultural activities
8.1.4.Keeping a cash book to prove all cash operations helps in controlling the costs of agricultural activities
8.1.5.Conducting inventory adjustments according to the rules at the end of the year helps in controlling the costs of agricultural activities
8.1.6.Preparing planning budgets at the beginning of each year helps in controlling the costs of agricultural activities

8.2. Recommendations

Based on the results of the study, the researcher recommends the following:
8.2.1. Increasing public awareness of agricultural accounting and its importance for agricultural projects, through seminars and workshops.
8.2.2. Encouraging agricultural institutions in Sudan to adopt the agricultural accounting system in their accounts instead of the regular financial accounting system.
8.2.3 The necessity of adopting agricultural accounting as one of the basic courses in the accounting departments in Sudanese universities to increase students' knowledge of it and to graduate specialists in this branch of accounting.
8.2.4. Issuing the necessary regulations to compel agricultural institutions to keep agricultural accounts, this contributes to controlling the costs of agricultural activities.

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