

LITERATURE REVIEW OF THE PRACTICE OF COST ACCOUNTING SYSTEM IN THE AGRICULTURAL FIRMS

Abobaker Mohamaed Fatah*, Rosliza Mat-Zin**

Abstract *This article aims to review the literature related to cost accounting in the agricultural firms to find out the reasons that made the accounting researchers pay less attention to study the cost accounting systems in the agricultural firms compared to manufacturing and servicing firms. The cost accounting literature indicated that there are several reasons that led to lack of literature in costing accounting systems in agricultural firms, for instance, the simplicity of production processes in the agricultural firms and the delay of development in the agricultural activities for long time. However, the changes that occurred in the agricultural business environment such as increased level of competition, increased size of the agricultural firms and production of several products, encouraged decision makers to decrease the production cost to be able to survive. All these factors made the cost information very important for the agricultural firms. Therefore, this study suggested that accounting researchers should focus more on studying the practice of cost accounting systems in the agricultural firms.*

Keyword: *Cost Accounting System, Agriculture, Production Cost, Manufacturing Firms.*

INTRODUCTION

Animal husbandry and growing plants are considered as some of the oldest and important activities known to humans. Till today farming is important for most of the countries to provide food for people and raw materials for manufacturing sector such as rubber and wood. The development of lifestyle forced production firms to increase the level of production to meet the increasing demand for final products and the agricultural firms were not excluded from these changes. Therefore, agricultural firms have adopted other strategies, for instance, instead of relying on small area of ground and family members to produce only for domestic consumption, the agricultural firms used large area and relied on large number of workers to double the production and increase the supply. Nowadays, agricultural firms like other firms in manufacturing and service sectors, are facing significant changes in their business environment including the increase in intensity of competition, product diversity, and scarce resources, all these factors have made managers to seek accurate information for survival.

Practicing costing systems provide useful information for planning, controlling and for short and long term decisions which will assist managers to make the right decisions to use the scarce resources in useful manner (Fleischman and Tyson, 1993; Talha, 2010). Although costing systems are useful for

firms, the literature related to cost accounting systems focused on the significance of costing systems in manufacturing and later in service firms, whereas agricultural firms did not receive much attention from accounting writers.

The majority of accounting literature focused on studies related to examining the factors which influence manufacturing and servicing firms to adopt and implement cost accounting systems (Brierley *et al.*, 2001; Fullerton and Mcwatters, 2004). This might be because costing systems serve manufacturing businesses and production of commodities (Hume-Schwarz, 2007). Some accounting researchers argued that researchers paid more attention to study the factors that influence manufacturing firms to practice costing systems because the manufacturing sector was the main reason for advent costing systems (Edwards, 1937; Fleischman and Tyson, 1993; Ning, 2005). Although accounting researchers have been referring to the importance of costing systems in agricultural firms since the 18th century, currently, the accounting literature lacks qualitative and empirical studies related to practicing costing systems in agricultural firms and the factors that influence agricultural firms to implement costing systems (Argilés and Slof, 2001; Roger Juchua 2000). Therefore, this study is aiming to review the accounting literature to identify the reasons that made accounting researchers not to focus their attention to study cost accounting systems in the agricultural firms.

* PhD (Accounting) candidate, Universiti Utara Malaysia, Othman Yeop Abdullah Graduate School of Business, Malaysia. Email: saf79009@yahoo.com

** Associate Professor, College of Business, Universiti Utara Malaysia (COB), Malaysia. Email: rosliza@uum.edu.my

LITERATURE REVIEW

Studies on cost accounting systems in the agricultural firms are very few. Academic research on agricultural accounting lacks to empirical studies as argued by several accounting researchers including Argilés and Slof (2001) and Juchau (2000) who stated that accounting research on agricultural management lacks qualitative and quantitative empirical studies. Although some writers in the 18th century mentioned about the significance of costing systems in agricultural activities such as Arthur Young (Juchau, 2002), in recent years accounting researchers are suggesting that more attention should be paid to cost accounting systems in the agricultural sector (Athanasios *et al.*, 2010). Athanasios *et al.* (2010) found that the agricultural activities do not receive a lot of attention from accounting researchers. They referred to some reasons to why the agricultural sector was almost neglected from accounting literature, Among the reasons for this is that the management in agricultural firms are simply compared to manufacturing firms, specially if the firm produces only one product, and many of the costing terms are more appropriate for manufacturing firms. Kroll (1987) and Sabate and Encise (1997) stated that because of the size and legal practices many of the European farms have no legal obligation to publish their financial statements. On the other hand, even farmers who prepare accounts, prepare them to comply with tax framework and subsidy requirements.

Cost accounting in the manufacturing sector has gained much attention from researchers and standard setters. This is not the case in agriculture firms. Researchers and standard setters do not pay a lot of attention to this field of knowledge. Tahir *et al.* (2004) also restated what other accounting researchers have said. According to Tahir *et al.* (2004) the agricultural firms have not been given much attention by standard setters and accounting practitioners, and accounting studies in farming are not many as compared to other sectors. The development of agricultural tools and the use of developed technology in farming have led to important modifications in cost structure and cost behaviour, especially in the agricultural firms that produce more than one product, where indirect cost constitutes a large percentage of the total costs; therefore, farmers should know their production costs to stay profitable. In addition, Argilés and Slof (2001) argued that there is a gap between the importance of management accounting and the low level of bookkeeping and accounting practices in agriculture. In their view, the current accounting rules do not adapt very well to the particularities of farming. Therefore, it is difficult and expensive to implement these rules in farming. Argilés and Slof (2001) also agreed with Athanasios *et al.* (2010), that the agricultural management is suffering from a low level of managerial sophistication and lack of economic means.

Furthermore, Jack and Jones (2007) stated that management accountants provided the accounting literature by several studies that concentrated on manufacturing firms. It might be because in the agricultural firms, production processes are not complicated. However, the researchers also stated that nowadays, agriculture is facing significant changes and adjustments. Hopefully, these changes can bring about changes in accounting practices. According to Luening (1989) and Allen (1994), the practice of cost accounting systems in agricultural firms could improve farm management and will lead to better performance.

Decision makers in the agricultural firms could increase their profits if they practice cost accounting systems in their firms. Tahir *et al.* (2004) stated that implementing cost control in farming processes is to increase the margin profit by avoiding unprofitable activities. According to them, farm cost accounting system is useful in controlling plantation expenditures which are increasing as a result of farming being modernized. To achieve this, cost accounting system ought to provide cost information adequately and in a timely manner. In support of this, Toluyemi (1999) argued that the significance of cost information in helping managers to make informed decisions in agricultural firms.

However, there are only a small number of empirical studies that focus on management and accounting in farming in general, for instance, studies done by Toluyemi (1999) and Lee and Kao (2000). Toluyemi (1999) examined the accounting information systems in the agricultural department projects in Nigeria and suggested improvements to accounting information systems so that it can facilitate the sustainability among the agricultural department projects. Toluyemi (1999) stated that if companies want to reach sustainability, they have to focus on cost effectiveness through controlling the cost and the reduction of wastages by way of accounting information support decision making, through planning, analyzing and controlling. Planning refers to selecting the best alternatives from many options available. This is done by analyzing the past events, identifying the current situation and forecasting the future; while controlling means making sure that the implementation is carried out according to plans.

Lee and Kao (2000) applied both the ABC model and the simulation technique to analyze the operational costs in the Pu Shin wholesale fish market in Taiwan. ABC system is a system that allocates costs to activities, and then assigns these costs to units that consume those activities. Many firms in different industries have successfully employed the ABC system to improve the performance and cost control. Lee and Kao (2000) suggested that ABC system should be used in the agricultural firms as well. They relied on case study to obtain the needed data and to achieve the study aims. They found that using ABC will help managers to determine the

product price appropriately and this was better than using traditional costing.

Foong and Teruki (2009) aimed to study the relationship between the cost system functionality and performance in oil palm firms. They wanted to determine whether managers' perceived usefulness of cost information mediates the cost system functionality performance relationship. In their study, the researchers relied on a mail survey questionnaire to collect the data from 179 oil palm firms in Sarawak.

After analyzing the data, the researchers found that there was a positive association between cost system functionality and performance and managers' perceived usefulness of cost information, only as partially mediating the cost system functionality and non-financial performance relationship. This is possible as a result of the nature of control over the estate operations by the head office. However, they claimed that providing cost details does not enhance performance. Cost information should be relevant and timely to be more useful to managers to increase performance. Furthermore, they argued that high functional cost system is associated with high performance. Although they obtained these results from the data analyses, the sample was extracted from one area in Malaysia, and the respondents were not accountants. They were experts in plantations; therefore, the results may differ if the respondents were accountants.

McBride (2003) conducted a study to know to what extent the farmers in the USA covered their products' costs and why the agricultural firms incurred different costs. The researcher argued that the costs in agricultural firms are divided into two types, operating costs which are related to short-term decisions and assets ownership costs. The researcher found that in the years 1998 to 2001, the agricultural product prices were low. Thus, there were 85% wheat producers, 82% corn producers, and 96% soybean producers who could cover operating costs, most of these producers continued to produce the products. When the researcher added asset ownership costs, the percentage was different, i.e., 50% wheat and corn producers and 25% soybean producers, who were unable to cover both operating and ownership costs at the average commodity prices during the period between 1998 and 2001.

McBride (2003) studied the effects of farm operators on production costs using three dimensions: operator's age, education and occupation. McBride (2003) found that majority low cost producers were less than 50 years old, and had attended classes more than high cost producers. This is because in low cost production, younger and educated farmers are more capable of adopting production practices and using modern technologies which might decrease product costs and increase farm productivity. On the other hand, farm employment affected production costs as well. The researcher found that 60% of the farmers in the USA

have another jobs besides farming, 40% of farmers work only in farming, 94% of low cost hog producers stated that their job was only farming, while only 6% were high cost producers.

Furthermore, McBride (2003) found that farm location influenced production cost. Farms which were located in good areas with good climate and soil were more likely to produce low cost products. For instance, most of the corn and soybeans of low cost producers had their farms located in areas with high quality soil. On the other hand, farms which were located in areas with much rain had reduced irrigation costs. In addition, farm size influences the production costs. In relation to input costs, farmers with large farms have the opportunity to obtain discounts from the wholesaler. Moreover, the operating costs are distributed on more products, so if the production increases, the share of one product cost reduces.

Juchau (1986) argued that agricultural firms ought to practice cost accounting systems especially if they are suffering from financial constraint, because management accounting systems have an important role to assist farmers to make better decisions to improve their performance. Current accounting systems are mainly used to prepare external reports especially for tax purposes; therefore, Juchau (1986) suggested that the farm size, farm activities, farm resources, and ownership structure determine the nature and the scope of management accounting systems in the agricultural firms. Large agricultural firms which are capital intensive and produce various types of products need to allocate the resources appropriately to determine every product cost accurately; whereas for small farms which produce only one product, it is easy to determine the product cost and there is no need for sophisticated cost accounting systems. Juchau (1986) found that farmers do not understand well many of the management accounting techniques and methods that can help them to improve their decision making. To assist agricultural firms' managers and to fill the gap in the literature, the researchers advocate accounting researchers to conduct more studies about the practice of cost accounting systems in agricultural firms.

Jack (2008) claimed that although target costing management is not in use in agricultural firms, however target costing is a potential system to be used in agricultural sector. Jack and Jones (2007) mentioned to the same idea in their study. Furthermore, Jack (2008) explained that farmers are using what could be named an intuitive form of target costing. Farmers rely on prices in previous years to predict potential prices to set target costs and then redesign their operations in order to reach that target. However, Jack (2008) found out that some factors make the practice of target costing in agricultural firms difficult; these factors include the need for detailed cost information and monitoring reports. To achieve this, firms need multidisciplinary teams. However,

agricultural firms started to collect data to enable target costing to be applied in farming.

In palm oil firms, Ismail, Simeh and Noor (2003) discussed the production cost structure for independent smallholders and then compared the results with their counterparts (organised smallholders). The study found that the production cost in oil palm firms consists of five sub-centres: upkeep, fertilizer application, harvesting, transportation, labour and other costs. The cost structure in oil palm firms can be classified as following, harvesting and collecting work constituted 31.8% of the production cost in independent smallholders. Then upkeep costs which represents 22%, followed by transportation cost of 21%, then the cost of fertilizer of 20% and other expenses of 5%. Ismail *et al.* (2003) study focused on understanding the cost structure in the oil palm production in independent smallholders; however this study did not mention management costs and overhead costs.

FINDING AND DISCUSSION

The management accounting literature explains that cost accounting systems are implemented widely in manufacturing sectors since its advent up to now (Fleischman and Parker, 1991). It might be because the industrial revolution which happened in the end of the 18th century was the starting point which brought about the development of cost accounting systems (Fleischman and Tyson, 1993; Ning, 2005). Therefore, most of the accounting researchers paid a lot of attention to study this system in the manufacturing firms whereas there are a few studies which focused on the practice of cost accounting in the agricultural firms, including studies by (Argiles and Slof, 2003; Athanasios *et al.*, 2010; Juchau, 2002). All these researchers argued that accounting researchers ought to pay more attention to cost accounting systems in the agricultural firms.

Some researchers including Argilés and Slof (2001) argued that the production processes in the agricultural firms are quite simple compared to those in the manufacturing firms. Moreover the nature of the firm influences the production processes, which are difficult to be controlled by the agricultural producers, and thus the accounting researchers do not focus on agricultural activities in their studies. Furthermore, the agriculture stayed for long time were not organised as manufacturing firm, for example, most of the farms were managed by family members, and most likely produce for domestic consumption, therefore, no need for determining the product cost as manufacturing firms.

Recently, the agricultural firms faced several changes, such as, increased firms' size and becoming multi-products firms that made determine every product's cost separately quite difficult. Using the high tech to facilitate the production processes, this led to change in cost structure increasing

indirect cost and decreasing the direct cost, thus determining the product cost need allocating the indirect cost appropriately (Tahir *et al.*, 2004). The most important change is increasing the level of competition between the agricultural firms which made the cost information very important for decision making processes. From the available literature there are few studies conducted on agricultural activities such as Juchau (1986), Lee and Kao (2000) and McBride (2003), all of these studies provided the managers in the agricultural firms with valuable cost information that can be used in rationalize managerial decision making.

CONCLUSION

There are several factors that make the accounting researchers ignore studying the cost accounting systems in the agricultural firms, for instance, most of the accounting terminologies have been developed for manufacturing firms, thus it is difficult to implement those in agricultural firms. The study suggests that accounting researchers should conduct more studies to understand the practice of cost accounting systems in agricultural firms, and to provide cost information to assist decision makers choose the best decision from the options available. In addition, it should also help in using the scarce resources in the optimal way, especially the water which is considered to be the one of the most important resources in the agricultural processes.

REFERENCES

- Allen, R. (1994) "Farm potential: high tech leads the average farmer's know-how", *Texas Banking*, 88 (11): 26.
- Argiles, J. M., & Slof, E. J. (2003). The use of financial accounting information and firm performance: An empirical quantification for farms. *Accounting and Business Research*, 33(4), 251-273.
- Argilés, J. M., & Slof, E. J. (2001). *New Opportunities for Farm Accounting*. Retrieved 25-06-2010.
- Athanasios, V., Stergios, A., & Laskaridou, E. C. (2010). The importance of information through accounting practice in agricultural sector-european data network. *Journal of Social Sciences*, 6(2), 221-228.
- Brierley, J. A., Christopher, J., & Drury, C. (2001b). Research into product costing practice: a European perspective. *The European Accounting Review*, 10(2), 215-256.
- Edwards, J. R. (1937). The rationale of cost accounting. *The Accountant*, 1(47), 389-390.
- Fleischman, R. K., & Parker, L. D. (1991). British entrepreneurs and pre industrial revolution evidence of cost management. *The Accounting Review*, 66(2), 361-375.

- Fleischman, R. K., & Tyson, T. N. (1993). Cost accounting during the industrial revolution: The present state of historical knowledge cost accounting during the industrial revolution: The present state of historical knowledge. *Economic History Review*, 46(3), 503- 517.
- Foong, S.-Y., & Teruki, N. A. (2009). Cost-system functionality and the performance of the Malaysian palm oil industry. *Asian Review of Accounting*, 17(3), 212-225.
- Fullerton, R. R., & Mcwatters, C. S. (2004). An empirical examination of cost accounting practices used in advanced manufacturing environment. *Advances in Management Accounting*, 12, 85-113.
- Hume-Schwarz, J. A. (2007). COST accounting: A historical perspective. *Proceedings of the Academy of Accounting and Financial Studies*, 12(2), 53-59.
- Ismail, A., Simeh, M., & Noor, M. (2003). The Production Cost of Oil Palm Fresh Fruit Bunches: the Case of Independent Smallholders in Johor. *Oil Palm Industry Economic Journal*, 3(1) (2003).
- Jack, L. (2008). *Towards Collaborative Target Cost Management In Agriculture and Food*. Retrieved from http://www.cimaglobal.com/Documents/Thought_leadership_docs/cid
- Jack, L., & Jones, J. V. H. (2007). Facing up new realities: the case for using relevant cost and target cost approaches in agriculture. *Journal of Applied accounting research*, 8(3), 116-145.
- Juchua, R. (2002). Early cost accounting ideas in agriculture: the contributions of Arthur Young. *Accounting, Business and Financial History*, 369- 386.
- Kroll, J. C. (1987). *The New Accounting: The Lost Opportunity*: Rural econ.
- Lee, T.-R., & Kao, J.-S. (2000). Application of simulation technique to activity based costing of agricultural system: a case study. *Agricultural System - Elsevier*, 71-82.
- Luening, R.A. (1989) "Farm records can improve profitability", in United States Department of Agriculture, (eds.) *Farm Management: How to Achieve your Farm Business Goals*. US. Washington: Government Printing Office, pp. 103-112.
- McBride, W. D. (2003). *Production Costs Critical to Farming Decisions*. Retrieved from <http://www.ers.usda.gov/AmberWaves/September03/Features/ProductionCosts.htm>
- Ning, Y. (2005). The development of costing systems: A historical perspective. *Journal of Modern Accounting and Auditing*, 1(2).
- Roger Juchua , P. H. (2000). *Agricultural Accounting: Perspectives and Issues* (second edition ed.). Wye: Wye: University of London, Wye College.
- Tahir, A. M., Ali, A., Jamil, C. Z. b. M., Salleh, D., Muhammad, F. b., Alwi, K., Abdullah. Z. (2004). *Costing for specialized industries*. Singapore: Thompson.
- Talha, M. (2010). A new look at management accounting. *The Journal of Applied Business Research*, 26(4- 2010), 83-96.
- Toluyemi, T. (1999). The role of accounting information system in the sustainability of agricultural development projects in Nigeria. *Information Technology for Development*, 8(4), 209-220.