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PROCESSING FIRMS IN KIAMBU COUNTY IN KENYA**

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INVENTORY MANAGEMENT PRACTICES AND THE PERFORMANCE OF MILK PROCESSING FIRMS IN KIAMBU COUNTY IN KENYA

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ABSTRACT

Domestic milk production is anticipated to range 6.72 billion in 2022, falling short of expected demand by around 1.28 billion litres. To attain the anticipated domestic demand by 2022, Kenya would need a 79% growth in present normal production levels. In Kiambu County, it has been found to dump or pour out excess milk during rainy season when production is high and experiences shortage during dry season when production is low. The independent variables are Perpetual Stock Taking, Lean Inventory Management, Just In Time and Inventory Management Models. The target population is seventy-eight (78) active milk processing firms in Kiambu county, which involve large, medium and small milk processing firms. The researcher used a sample size of 70 milking firms in Kiambu County. The study used the census sampling technique. The respondents targeted are the inventory managers involved in t inventory management department in milk processing firms. For variables and independent of this study to be captured a standard questionnaire must be developed. The study used the primary data, which was collected through questionnaires that were self-administered by drop and pick a method to the staff in the inventory management department of the milk processing firms. The questionnaires were collected after they have been filled. The milking firms were first contacted to drop the questionnaires and explain to the inventory managers. An approval letter was given to the researcher by the university The quantitative data procured from the reviews were coded and gone into the real heap of human science (SPSS) assessment programming variation 20.0. Data was presented in tables, graphs and pie diagrams to support portrayal and explanation of the examination revelations or study findings. The study concludes that that perpetual stocktaking has a positive and significant effect on the performance of milk processing firms in Kiambu County. In addition, the study concludes that that just in time model has a positive and significant effect on the performance of milk processing firms in Kiambu County. From the results, the study recommends that the management of the milking firms in Kenya should implement mechanisms to enhance perpetual review, spot checks and also categorize inventory. In addition, the management of the milking firms in Kenya should adopt Kanban system, pull Production and cross-docking.

Key Words: perpetual stocktaking, Just in Time Model, inventory management practices

INTRODUCTION

The effects of Inventory Management Practices and the operations of milking processing firms in Kiambu County are established in this study. The aim of practicing management of inventory is to guarantee there is constant flow of raw materials as per the demand (Kamau&Kagiri, 2015).

Kenya has a dynamic dairy industry with an expected estimation of 3.5% to 4.5% of the (GDP) or 40% of the animals area GDP. Kenya has the most elevated per capita milk utilization (110 liters) in sub-Saharan Africa, a likeness 5.2 billion liters for each year (KDB, 2015). Due to extending urbanization, there is a increased demand for milk, a rising working

class in urban areas. The conventional milk market has seen consistent development, with 616 million liters prepared (KDB, 2015). 14% of the agricultural GDP has been contributed and a total of 3.5% GDP growth (GoK, 2018).

An ideal level of inventory can be founded on steady productivity to the opportunity price of conveying higher stock adjusts. This, accordingly, infers that management of inventory is basic if a firm requires to accomplish a harmony among proficiency and responsiveness. The advantage of a stock is to guarantee that products will be accessible as required. (Shajema, 2018). The development of milk handling pulls in homegrown and global private financial specialists looking to take advantage of business lucky breaks in the homegrown and fare markets. According to Rademaker et al. (2016),

In the insufficient inventories and excessive inventories lies the optimum inventory level. This ensures a uninterrupted supply of stock to avoid stock outs and constant sales and efficient customer service, maintaining sufficient stock, controlling investment in inventories by sustaining an optimum level of production while decreasing carrying cost and time is what is involved in inventory management, (Kamau & Kagiri, 2015). According to Horngren, Datar and Forster (2014), Inventory Management needs increased attentiveness. This is because inventories deem for increased 40% of the total costs of manufacturing firms and more than 70% of the total costs of retail chains. According to Kamau & Kagiri (2015), maintaining sufficient level of stock is the objective of inventory management which ensures a sustainable level of obtainable demand in the same way minimizing administrative and stock out costs. Many companies' objective is to hold adequate finished products in order to meet market demand and minimize the holding costs hence meeting their objectives, (Shajema, 2018). Huge role is played by the inventory in service industries as it amounts to 56% of the annual turnover.

According to Mugambi et al. (2015), milk production in small scale farms could significantly profit diet, enhancement of livelihood, and creation of employment for the under-developed population. Development opportunities for the small scale dairies profitability in many associations, direct resources embody up to half of the item cost due to finances assigned on inventory, thereby upsetting the organizations' success. (Kamau&Kagiri, 2015) firms are quick to overseeing inventory as a stage towards limiting operational expenses hence improving organizations' performance. To survive and effectively meet its market demand, the firms must know about its supply chain for better performance and sustainable subsistence. Kamau&Kagiri (2015) argues that inventory management practices play an essential role in the business and manufacturing firms' operation. According to Mugambi et al. (2015), production of milk in smallholder ranches could be expanded by 16.3% through better utilization of accessible assets given the present status of innovation without additional expense. The expense of milk production could be reduced by about 4.4% without reducing outcome but rather increase the outcome. Additionally, Rademaker et al. (2016) announced Kenyan per capita milk utilization at 110 liters, the most elevated in sub-Saharan Africa with yearly utilization development of 5.8%. This is relied upon to make a prepared market for milk and milk items. However, farmers say milk prices have dropped to as low as Sh15 per litre in most areas due to high production locally and increased milk imports.

Horngren, Datar and Forster (2014) express that stock administration is a zone that requires expanded consideration since inventories represent over 40% of the all out expenses of assembling firms and over 70% of the all the expenses of retail chains. According to Kamau & Kagiri (2015), management of inventory aim is to ensure sufficient inventory level, that

maintains a good public interest level while controlling the connected holding, authoritative and stock-out expenses. Numerous organizations' stock arrangement holds adequate completed stock to fulfill market need while reducing holding expenses. It is hence enabling them to meet their goals (Shajema, 2018). Inventory is critical in-service organizations as it contributes 56% of the yearly income. Kenya faces stiff competition in the current markets leading to development of better management methods and measure how resources are utilized and eliminating any wastage in the value chain (Kamau&Kagiri, 2015). Shajema, (2018) states that the information should be adequate, accurate, dependable, timely and steady. At the point when this occurs, the company do less inventories, minimizes expense and distribute items to their customers efficiently. The researcher further states that growth in stock drops the opportunity of losing sales from the stock-outs. Therefore, inventory is a basic part in each association, and it requires extreme administrative thought since it ties up a ton of firms' capital. Kontus (2014) further expresses that fruitful management of inventory minimizes inventory, brings down expense and improves productivity.

Kenya's milk utilization is at 110 liters, the most noteworthy in sub-Saharan Africa with yearly utilization development of 5.8%. The Kenyan milk industry's growth is directly contributed by the increasing involvement of smallholders in the industry. According to Kibiego M B (2015), Kenya's dairy sector brings an essential part of the rural economy in the country growth of 14% of the agricultural GDP. It is also the primary source of livelihood for many farmers who account for over 70% of the country's total marketed milk. The milk sector started to grow from 1970s and 1980s, propelled by growth in exports of fresh vegetables and, to a lesser extent, fresh milk.

Statement of the Problem

Performance of the milk processing firms in Kenya is on the decline since 2014 (FAO, 2018). According to FAO, 2018, milk production by Kenya's firms was 3.43 billion litres while consumption was 5.4 billion litres (KDB, 2019). Consequently, cases of firms not having the adequate strategies for storage and handling of milk products has been considered as one of the causative agent. This implies that efficient inventory management can be considered as an alternative strategy to boost milk production in the sector. Consequently, domestic milk production is projected to range 6.72 billion litres in 2022, falling short of expected demand by 3.29 billion litres. Compared to horticultural industry, in 2018 the domestic value of horticultural production was estimated to be at 248.5 billion in comparison with 207.5 Billion in 2017 which equates to an increase of 19.7 per cent. During the same period, there was increase in cultivated area by 3.6 per cent from 402,796 ha to 417,367 ha henceforth an increase of total production by 7.7 per cent from 6.2 million tons to 6.7 million tons in 2018 in comparison to 5.9 million tons in 2017.

To attain the expected domestic demand, Kenya would require 49% increase in current production levels. This country is one of the fastest-growing economies to attain the expected domestic demands in sub-Saharan Africa and smallholders' dairy producers, who supply 70% of Kenya's domestic milk supply. This supply is constrained by milk quality and insufficient milk supply due to poor handling, high milk delivery costs, and high capital cost. (KCDMS, 2020). In order to manage inventory well there has to be balance the inventory availability with demand of the same. The firms require adequate inventories to satisfy a demand not to lose consumers because of stock-outs. Otherwise, the organization does not need to have a surplus.

In Kiambu County, it has been found to dump or pour out excess milk during rainy season when production is high and experiences shortage during dry season when production is low. This calls for the need for inventory management practices to be established in the milk processing firms.

Research Objectives

1. To assess the effect of perpetual stocktaking on the performance of milk processing firms in Kiambu County?
2. To establish the effect of Just in Time Model on performance of milk processing firms in Kiambu County?

Significance of the Study

Milk processing firms are the most vulnerable to inventory management practices due to the nature of their products and operations complexity. The excellence of the milk processing firms forms a strong basis for competitive advantage. This study will help the policyholders formulate policies that will help the milk processing firms improve inventory management practices and help prevent losses that affect these firms' performance and, ultimately, the economy at large. Dairy different investment strategies such as innovative activities strategies, Operations activities strategies will be established; educating dairy farmers and value addition strategies resulting in performance in the agribusiness farms.

The findings of this research are of great importance to research institutions such as the Kenya Bureau of Standards (KBS), Kenya National Bureau of Statistics (KNBS) and the Kenya Institute of Supplies Management (KISM). The research findings will assist these institutions in maintaining quality and helping the milk processing firms improve the inventory management practices that directly impact these firms' performance. These research findings are of great importance to those practicing in supply chain management. They will help them design mechanisms that will enable better inventory management mechanisms to improve milk processing firms' performance, hence cost reduction, value addition, growing market share, and profit maximization. This research's findings are also expected to provide information that will be useful to academicians in the supply chain field.

The stakeholders, practitioners, and industries will benefit from this research as they will evaluate the strategies that the managers are implementing to improve inventory management practices and the extent to which these managerial strategies affect their firms' performance.

LITERATURE REVIEW

Theoretic Review

Systems theory

System theory is instinctive and generally pertinent in flexibly chain the board. Flexibly chains are made out of interconnected hubs to frame networks by the actual progression of materials. These organizations ought to be sufficiently figured out how to guarantee a smooth progression of materials from providers into the preparing plant lastly circulate completed items to the customers. Milk processing firms depend on consistent progression of sources of information that start and are removed from the climate to support their activities due to open

frameworks. As accessible frameworks, the climate's essential sources of information will differ contingent upon the business and firms position in the supply chain.

This theory's application is that all supply chain members are supposed to understand the network structure they are operating to be aligned in a disruption. This would enhance the smooth progression of materials and data from up to down in the preparing firms. Thus, by diminishing intelligent intricacy, preparing firms in Kenya can lessen the quantity of connections between steps in a cycle, in this way diminishing the probability of danger exercises inside their plant influencing creation downstream.

Transactional Cost Analysis (TCA)

The research on management of inventory demands a firm to confirm all expenses are kept at the very least, thus calling for the theory of (TCA) application theory. Halldorson et al. (2007) state that, (TCA) theory confirms that costs at the supply chain are maintained at insignificant. The transaction cost technique has been widely utilized in diverse ranges, particularly in economic and firms' examinations. In 1970, the numerical financial specialist Williamson merged TCA in the overall balance model established the cost of transaction financial aspects in its novel theory. The economist suggests that the organization can lessen the cost of transaction through vertical reconciliation and increase the trust level (Williamson 1975). Such integration can decrease inventory management costs while increasing internal and external customer services levels. The costs in supply chain management should be maintained minimal by decreasing inventory management costs while increasing internal and external customer service levels.

Conceptual Framework

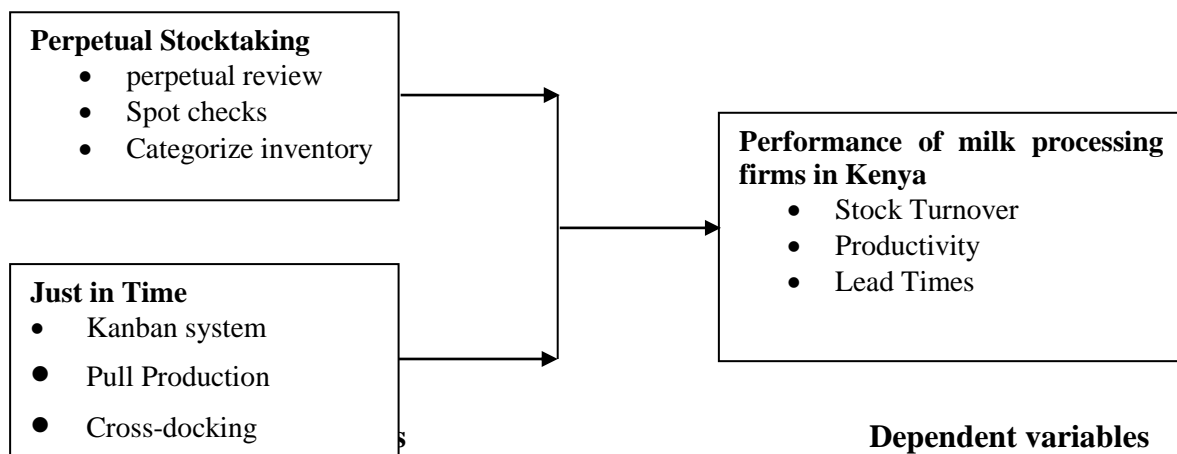


Figure 1: Conceptual Framework

Perpetual Stocktaking

Stock taking is the actual confirmation of amounts and state of things held in a stock or warehouse (Alemu, 2014). The scheme of stock recording and approach for the utilization of documented information must be carefully designated. Records and systems should be suitable for the items and the cost inference question taken into account. (Alemu, 2014). A firm should prudently choose the most satisfactory scheme to avoid a condition where much money would be spent maintaining costly systems for low-value items. Kamau&Kagiri

(2015) argue that management of inventory is significant to any association. That is enhancing performance and accomplishing a significant level of consumer loyalty. Cost of lacking stock levels, there can be critical costs engaged with holding high stock levels. There are additionally critical dangers and related expenses of keeping low stock levels, resulting in a stock-out situation.

According to Nzuzza (2015), the organization's material compensates for the majority of its resources. Most organizations invest so such a lot of cash in materials, and the association needs to set up great material administration to oversee stock appropriately. Helpless administration frameworks can adversely affect the organization's performance (Kamau&Kagiri, 2015). This has led to the need to develop better management methods and measure how different positions or items use assets and, accordingly, wipe out any wastage in the supply chain (Jepchumba. and Ismail (2015). A normal stock shows the accompanying: Minimum stock holding. This is the base degree of stocks that a firm plans to hold under typical conditions.

Ogbo and Onekanma (2014) depicted that availability of an inventory has an greater benefit for the relationship that leads to customer satisfaction in a brief moment, provoking improved performance. Keep in mind that safety stock is required for essential raw materials, unfinished goods and finished goods. Inventories perform a crucial function in the whole production systems. It is substantially incredible and economically impracticable for each item's stock to reach precisely where and when required. Therefore, there is a necessity to save some inventory amount at any point in time (Kamau&Kagiri (2015). A good number of investments can be spared when firms have inventory. Decline in numbers can lower the operation expenses, in particular, stock holding cost put away in the stockroom will likewise diminish (Van W.& Van R., 2014).

Manufacturing firms need to invest in improving their inventory stock-taking practices to enhance performance. Some of the techniques to focus on include: the advancement of new increase register for stocks, spot checks, consistent audit, entering the records caught in the mechanized frameworks, taking stocks contrasts, improvement of stock chronicle rules and strategies, documentation of all products in the store by rolling out them scanner tag numbers barcoding all new stocks, confirmation of issue prior to giving stocks and keeping supplies reports in a safe spot where just approved staff can get to (Shajema, 2018).

Just in Time

Just in Time is a 'pull' system of production, so real requests give a sign to when an item ought to be produced. Just In Time empowers a firm to deliver what is needed, in the right amount and at the right time. It is a way of thinking of nonstop improvement where non-esteem added exercises or squanders are recognized and taken out. (Otchere, Adzimah & Aikens, 2016). Just in Time certifies leanness and eradicates wastage where manufacture responds to demand (Inegbedion, Eze, Asaleye&Lawal, 2019). It aids avoid unnecessary build-up of accounts in a business, hence reducing tied-up capital that subsidizes an organization's performance.

The Just in Time(JIT) stock strategy is a methodology where raw materials, parts and different merchandise are ordered distinctly in amounts needed to satisfy prompt creation needs. This builds proficiency, lessens squander, and eventually limits stock administration expenses and lead time costs (Kamau and Kagiri, 2015). JIT strategy guarantees that the specific amount of material required is conveyed and decreases stock venture and different

costs. The clump sizes become more modest, and stock levels lower when the material is possibly bought when they are needed for the creation cycle.

Just in Time are a critical initiative to meet customers' demands on price and lead times. One methodology that numerous organizations in more created nations have embraced is Just in Time. With JIT, a business needs its providers to make ordinary, predictable conveyances of little heaps of extremely great parts. Besides, JIT makes a business inspiring its suppliers to obtain its constant improvement efforts (Othman, Sundram, Sayuti & Atikah, 2016). The Just In Time technique elements includes continuous improvement, elimination of wastes, as stated by Kanban. The extensive embracing of JIT stock philosophies makes creation activities efficient, client gathering and practical. Numerous organizations that are adequately actualizing JIT standards have an upper hand over other participants. The JIT principle is to have an accurate amount of catalogue in raw supplies or finished goods in meeting the difficulties of the manufacture progression and the customers' demands. (Kinyanjui, 2016).

Empirical Review

Kimaiyo & Ochiri, (2014) described that the firms can enjoy inventory cost decrease, stock administration frameworks, provider requests, lead time. They further suggests that the improved expectation of future advancements in assembling firms in Kenya will improve their presentation and new innovations are promising to spare cost along these lines improving the exhibition of the new KCC. In their examination suggested that that there should be bound together information, data sharing and channels connections and utilization of stock administration frameworks as a serious apparatus in the assembling firms for understanding the corporate serious advantage.

Jepchumba and Ismail (2015) states that reception of ICT frameworks had a beneficial outcome in gracefully chain execution of new KCC, top administration are in bleeding edge to start a culture of value in the association measures, lead time ensures the organizations to effectively control manufacturing and supply changes and supplier demands enhance organizational developments and all these accounts 77.2% changes in supply chain execution of the New KCC. In their examination suggests that elements represents 22.8% should be set up and their belongings evaluated too. Mathae., Paul & Mbura (2018) argues that information sharing, shortage gaming, inventory management approaches and distribution channels had the positive effect to the performance of the New KCC ltd. In their study suggest that the organization should focus on pricing, transport planning and management in an organization.

Beatrace and Stephen (2019) states that dairy preparing firms in Kenya were rehearsing coordination redistributing in order to limit expenses and this had impact on firms execution. The specialist contends that the investigation demonstrated that the overall idea of re-appropriating had not been perceived by draining processors as such there are no unmistakable direction on who makes the sourcing decisions. In their study they recommend that coordination re-appropriating strategy producers ought to create complete system in coordination redistributing selection and this will encourage clear coordination re-appropriating usage procedures and give clear approaches and rules on the equivalent. (Beatrace & Stephen, 2019).

Kamande (2015) argues that fixed resource the board, bookkeeping data frameworks. Money related announcing investigation and capital structure the board can be employed to boost the

firm's financial performance. In their study, recommended the same study be repeated but this time all the dairy should be included in the study.

Pauline & Salome (2014) argued that inventory control systems, lead time and organizational level performance can accomplish the advantages of successful utilization of work, giving frameworks adaptability, expanding profitability, diminishing lead times, decrease in squanders, decrease underway expenses and expanded item quality are accomplished. In their investigation suggest that there is requirement for association to receive the utilization of data innovation that won't just assistance in data sharing yet in addition will help in hurrying requests from providers henceforth shortening the lead time.

Kamau & Kagiri (2015) did research on impact of stock administration rehearses on authoritative intensity, an instance of Safaricom Kenya ltd and suggest execution of a merchant oversaw stock to bring down occurrences of stock outs circumstance, embrace Just In Time principles (JIT), information management processes and there is need to modernize the inventory management systems and utilization of advances, for example, standardized tags scanners. Retail location and electronic innovations to build productivity. Improving stock practices requires a serious level of joint effort and perceivability across of all gatherings.

Mutunga , Magutu & Chirchir (2015) argues that supply chain design help the companies comprehend where the worth is being made and sent and great gracefully chain configuration causes the firm to comprehend spryness needed to serve the client cost adequately. Recommends that gracefully chain ought to be planned by various item qualities and it is essential to quantify execution to decide accomplishment of products and arrangement of targets with hierarchical methodology. Shajema (2018) suggests that adoption of VMI systems, electronic messaging by supplier and enhancing stock tracking systems, lean practices, inventory stock taking practices lead to a significant improvement in firm performance. The researcher recommends firms should invest in improving their investors practices, VMI in order to enhance performance. Samuel & Njeru (2014) information technology, employee organizational culture, packaging policy there is a positive correlation linking information technology and procurement performance in milk manufacturing companies. The researcher recommends of information technology in the milk processing firms and procurement performance in milk processing firms.

RESEARCH METHODOLOGY

The survey design used was descriptive in order to establish the inventory management practices that milk processors adopted in Kiambu County. The target population comprised of seventy-eight (78) active milk processing firms in Kiambu County. The study used census sampling technique. The respondents targeted were the inventory managers who are involved in the inventory management in firms of milk processing. To capture the various variables of the study a standard questionnaire was developed

The quantitative data procured from the reviews were coded and gone into the real heap of human science (SPSS) assessment programming variation 20.0. data was presented in tables, graphs and pie diagrams to support portrayal and explanation a explanation of the examination revelations or study findings. To summarize responses for further analysis and facilitate comparison tables and figures are used. Quantitative reports are generated through tabulations, percentages and measure of central tendency (mean and standard deviation) in

conclusion to quantify the strength of the relationship between the variables; multiple regression analysis was conducted by the researcher.

RESEARCH FINDINGS

Out of 70 questionnaires which were distributed, 66 were duly filled and returned. The drop-off and pick-up-later method yielded a response rate of 94.2%. According Creswell (2014), response rate is the ratio of the interviewed respondents to the sample size intended to be covered by the study. According to Greenfield and Greener (2016) a response rate of 75 per cent is enough for analysis, for making conclusions and making inferences about a population. In addition, Metsamuuronen, (2017) states that, the response rate of 60% and above is acceptable for analysis. Further, Russell (2013) states that, the response rate of 50% has to be considered average, 60% to 70% considered sufficient and the response rate of above 70% can be regarded as excellent. This suggests that, a response rate of 94.2% was sufficient for analysis, drawing conclusions and reporting.

Descriptive Statistics Analysis

Perpetual Stocktaking and the Performance of Milk Processing Firms

The first specific objective of the research was to assess the effect of perpetual stocktaking on the performance of milk processing firms in Kiambu County. The respondents were asked to show their level of agreement on various statements relating to perpetual stocktaking and the performance of milk processing firms in Kiambu County. A 5 point Likert scale was used where 5= Very great extent, 4= Great extent, 3= Moderate extent, 2= Small extent, 1=Not at all. The results were as presented in Table 1.

As shown in the results, the respondents agreed to a great extent that they conduct perpetual review of the inventory to ensure real time update of inventory flow. This has been shown by the mean of 3.955 (std. dv = 0.851). Additionally, in a mean of 3.917 (std. dv = 0.958), respondents agreed to the great extent that their firms periodically review techniques used in undertaking stock check to ensure accuracy. The respondents again agreed to the great extent that to minimize pilferage and stock theft, their firm conducts spot checks. This has been supported by the mean of 3.837 (std. dv = 1.074). In a mean of 3.737 (std. dv = 0.928), the respondents agreed to a great extent that inventory control documents are audited periodically.

Table 4.1: Perpetual Stocktaking and the Performance of Milk Processing Firms

	Mean	Std. Deviation
We conduct perpetual review of the inventory to ensure real time update of inventory flow	3.955	0.851
We organization periodically review techniques used in undertaking stock check to ensure accuracy	3.917	0.958
To minimize pilferage and stock theft, we conduct spot checks	3.837	1.074
Inventory control documents are audited periodically.	3.737	0.928
Aggregate	3.836	0.952

Just in Time Model and the Performance of Milk Processing Firms

The second specific objective of the study was to assess the effect of Just in Time Model on the performance of milk processing firms in Kiambu County. The respondents were asked to show their level of agreement on various statements relating to Just in Time Model and the performance of milk processing firms in Kiambu County. A 5 point Likert scale was used where 5= Very great extent, 4= Great extent, 3= Moderate extent, 2= Small extent, 1=Not at all. The results were as presented in Table 2.

As shown in the results, the respondents agreed to the great extent that they use First in first out technique to avoid spoilage of the inventory. This has been shown by the mean of 3.976 (std. dv = 0.950). Additionally, in a mean of 3.937 (std. dv = 0.858), respondents agreed to a great extent that they have minimized on stock build-up. The respondents also agreed to a great extent that they store the exact amount of inventory that we need or in current use. This has been supported by the mean of 3.837 (std. dv = 0.941). In a mean of 3.751 (std. dv = 0.981), respondents agreed to the great extent that they produce only what is required by the customers, in the correct quantity and at the correct time. Further, the respondents also agreed to a great extent that their production is dependent on activation by the customers. This has been supported by the mean of 3.735 (std. dv = 0.984).

Table 2: Just in Time Model and the Performance of Milk Processing Firms

	Mean	Std. Deviation
We use First in first out technique to avoid spoilage of the inventory	3.976	0.950
We have minimized on stock build-up	3.937	0.858
Our production is dependent on activation by the customers.	3.735	0.984
We store the exact amount of inventory that we need or in current use.	3.837	0.941
We produce only what is required by the customers, in the correct quantity and at the correct time	3.751	0.981
Aggregate	3.847	0.943

Performance of Milk Processing Firms in Kenya

The respondents were asked to show their level of agreement on various statements relating to performance of milk processing firms in Kenya. A 5 point Likert scale was used where 5= Very great extent, 4= Great extent, 3= Moderate extent, 2= Small extent, 1=Not at all. The results were as presented in Table 4.7.

As shown in the results, the respondents agreed to a great extent that there is an upwards trend on productivity over the years. This has been shown by a mean of 3.973 (std. dv = 0.858). In addition, with a mean of 3.955 (std. dv 0.688), the respondents agreed to a great extent that the lead time has greatly reduced. In a mean of 3.893 (std. dv = 0.859), the respondents agreed to a great extent that there is high rate of stock turnover. Further, as shown by a mean of 3.707 (std. dv = 0.752). The respondents agreed to a great extent that the organization has been recording profits over the years.

Table 3: Performance of Milk Processing Firms in Kenya

	Mean	Std. Deviation
There is high rate of stock turnover	3.893	0.859
There is an upwards trend on productivity over the years	3.973	0.858
The lead time has greatly reduced	3.955	0.688
The organization has been recording profits over the years	3.707	0.752
Aggregate	3.891	0.856

Inferential Statistics

Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between independent variables (perpetual stocktaking, Just in Time Model) and the dependent variable (performance of milking firms). Pearson correlation coefficient range between zero and one, where by the strength of association increase with increase in the value of the correlation coefficients.

According to the results, there was a very strong relationship between perpetual stock taking and the performance of milking firms ($r = 0.818$, $p \text{ value} = 0.001$). The relationship was significant since the $p \text{ value} 0.001$ was less than 0.05 (significant level). The findings are in line with the findings of Kimaiyo & Ochiri, (2014) who indicated that there is a very strong relationship between perpetual stock taking and performance of milking firms.

Further, the results revealed that there was a very strong relationship between Just In Time Model and the performance of milking firms ($r = 0.815$, $p \text{ value} = 0.000$). The relationship was significant since the $p \text{ value} 0.000$ was less than 0.05 (significant level). The findings are in line with the findings of Jepchumba and Ismail (2015) who indicated that there is a very strong relationship between Just in Time Model and performance of milking firms.

Table 4: Correlation Coefficients

		Firm Performance	Perpetual Stock taking	Just in Time Model,
Firm Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	66		
Perpetual Stock taking	Pearson Correlation	.818**	1	
	Sig. (2-tailed)	.001		
	N	66	66	
Just in Time Model	Pearson Correlation	.815**	.297	1
	Sig. (2-tailed)	.000	.060	
	N	66	66	66

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (perpetual stocktaking, Just in Time Model, lean inventory management and inventory management models) and the dependent variable (performance of milking firms)

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.837. This implied that 83.7% of the variation in the dependent variable (performance of milking firms) could be explained by independent variables.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.915 ^a	.837	.838	.19872

Table 6: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	132.029	4	33.007	677.76	.000 ^b
	Residual	2.968	61	.0487		
	Total	134.997	65			

a. Dependent Variable: Performance of milking firms

b. Predictors: (Constant), perpetual stocktaking, Just in Time Model, lean inventory management and inventory management models

Table 7: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.316	0.079		4.000	0.003
Perpetual Stocktaking	0.331	0.111	0.332	2.982	0.002
Just In Time Model	0.387	0.106	0.388	3.651	0.000

a Dependent Variable: Performance of milking firms

Optimal Model

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 677.76 while the F critical was 2.522. The p value was 0.000. Since the F-calculated was greater than the F-critical and the p value 0.000 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of perpetual stocktaking, Just in Time Model, lean inventory management and inventory management models on the performance of milking firms.

The regression model was as follows:

$$Y = 0.316 + 0.331X_1 + 0.387X_2 + \epsilon$$

According to the results perpetual stocktaking has a significant effect on Performance of milking firms ($\beta_1=0.331$, p value= 0.002). The relationship was considered significant since the p value 0.002 was less than the significant level of 0.05. The findings are in line with the findings of Kimaiyo & Ochiri, (2014) who indicated that there is a very strong relationship between perpetual stock taking and performance of milking firms.

The results also revealed that Just in Time Model has a significant effect on Performance of milking firms ($\beta_1=0.387$, p value= 0.000). The relationship was considered significant since

the p value 0.000 was less than the significant level of 0.05. The findings are in line with the findings of Jephumba and Ismail (2015) who indicated that there is a very strong relationship between Just in Time Model and performance of milking firms.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study concludes that that perpetual stocktaking has a positive and significant effect on the performance of milk processing firms in Kiambu County. The study realized that the firms conduct perpetual review of the inventory to ensure real time update of inventory flow. In addition, respondents agreed to the great extent that their firms periodically review techniques used in undertaking stock check to ensure accuracy.

In addition, the study concludes that that just in time model has positive and significant effect on the performance of milk processing firms in Kiambu County. The study found that first in first out technique is used to avoid spoilage of the inventory. In addition, respondents agreed to the great extent that they have minimized on stock build-up.

Recommendations

The study found that perpetual stocktaking has positive and significant effect on the performance of milk processing firms in Kiambu County. This research therefore recommends that the management of the milking firms in Kenya should implement mechanisms to enhance perpetual review, spot checks and also categorize inventory

In addition, the study found that Just In Time model has positive and significant effect on the performance of milk processing firms in Kiambu County. This research again recommends that the management of the milking firms in Kenya has to implement Kanban system, pull Production and cross-docking.

Suggestions for Further Studies

The main aim of the research was to establish the effects of inventory management practices and the performance of milking firms in County Kiambu, Kenya. Having been limited to milking firms in County Kiambu, the study findings cannot be generalized to other milking firms in Kenya. The study therefore suggests further studies on inventory management practices and the performance of milking firms in other counties in Kenya.

Further, the research found that the independent variables (perpetual stocktaking, Just in Time Model, lean inventory management and inventory management models) could only explain 84.7% of the performance of milking firms. This study therefore suggests research on other factors affecting the performance of milking firms in Kenya.

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