LOGISTICS STRATEGIC FOR FRESH MILK PRODUCT COST CONTROL OF SELF LOGISTICS SYSTEM THAT AFFECT THE ATTITUDE OF CONSUMER FOR MARKETING BUSINESS ENTERPRISES IN THE THAILAND INDUSTRY

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Abstract - This research was developed with a strategy of the logistics for fresh milk products cost control and benefits economies: case study in milk production industry in Thailand. To reduce for production cost with quality control that affect the attitudes of consumers for marketing business, which the information revolution changes the way of human life, changes the enterprise market business process, and further promotes the development of economic cost information and economic globalization. Especially in the new techniques present, the rapid development of business enterprise continues to heat up, under the information of market business enterprises, the circulation of commodities, logistics, capital flow and information flow unite highly. The important part of the development of marketing business enterprises cannot be separated from the effective management and controlling of logistics costs, especially the cost with controlling of self-logistics system. The research on logistics cost management is very important for the business enterprise management. In order to survive and develop, the business enterprise according to the environment and their own development, must continuously improve of the logistics cost management method, especially find a breakthrough point in the new economic cost environment, strengthen its logistics cost controlling, with follow the trend of the times, and enhance the self-competitiveness. The article will discuss the logistics cost management status and existing problems in the self-logistics business enterprises, and put forward some suggestions.

Keywords - Product Management, Cost Control, Marketing, Transportation System, Logistics Strategic.

I. INTRODUCTION

The self-logistics system services or third party logistics play a more and more important role in the national economy. People not only pay attention to the logistics value, but also put more emphasis on how to production effectively reduce or cost control of the logistics cost level in the modern logistics activities to maximize benefits economies analysis under the marketing economics cost situation, with the deeper understanding of new logistics, for business enterprises realize the particular importance of research on logistics cost management.

Today, the appropriate reduction of logistics cost control or to maintain the level of maximum economic efficiency is one of the important means of the business enterprises to achieve competitive advantage. It is also an important part to affect the business logistics management. The logistics activities show an increasing trend, and logistics costs are gradually increase, with affecting the competitiveness of enterprises. According to the Thailand institute of statistics database, in the three years the total cost of social logistics in Thailand is nearly per year, accounting for 18 % of GDP, which is about twice value as much as western developed countries or even more, the logistics cost were significantly higher. Logistics costs controlling in developed countries account for an average of 10 % to 15 % of the final costs of finished products. However, in developing countries and which a logistics strategic to fresh milk product cost control are significantly higher as a result of inefficient factors.

The government of Thailand with supports the logistics enterprises transition and upgrading and integration of logistics resources by reducing logistics costs and improving logistics efficiency. In the new situation where reducing space of logistics costs analysis is very large and logistics costs account for a high proportion, for the research and product management of business logistics cost study are extremely important. Based on the influence of new self- logistics data information asymmetry on the logistics cost, the paper will discuss the existing problems of logistics cost calculation, using lack of logistics management systems and financial mixed talents, low logistics management level, and the results of low logistics resources integration efficiency. And in view of the above problems, this research paper will put forward some reasonable and effective suggestions to product improve, the quality control and level of logistics cost management using logistics strategic.

II. RESEARCH OBJECTIVES

1. To study and research of the management control process, and logistics cost control structure of milk ready to drink.

2. To research and analysis of logistics costs of milk sales distribution in three forms: school milk, commercial milk and school milk and commercial milk.
3. To study of the factors affecting from the logistics management of ready-to-drink milk.
4. For the development of the investment decision to use the logistics strategy for marketing business in Thailand.

Fig. 1. Fresh milk product of industry in Thailand

III. SCOPE OF RESEARCH

The purpose of this research was to study the logistics cost of dairy farmers, and entrepreneurs in different levels in 2016. The data will be studied in dairy farming and those involved in the logistics system in Thailand. It is from dairy farm farmers, the raw milk collection center of a private agency. Until he entered the dairy processing plant to produce ready-to-drink dairy milk products is as shown in Fig. 1. (Pasteurization milk or UHT milk) and ready-to-drink milk agent can be shipped to distributors, including shops and consumers in Thailand. By identifying the operators of milk processing into 3 groups:

1. The entrepreneurial group can be process the milk, with selling the school milk.
2. The entrepreneurial group can be process the milk, with commercial milk and school milk.
3. The entrepreneurial group can be process the milk, with commercial milk.

IV. EXPECTED BENEFITS OF RESEARCH

1. It is used as a guideline to manage the logistics system, is including farmers to consumers, and can be improved. To optimize the logistics management of ready-to-drink milk to those involved.
2. There will be a policy recommendation that for the logistics management of ready-to-drink milk is effective and consistent with the current situation.

V. THE ADVANTAGES OF LOGISTICSS STRATEGIC FOR IN THAILAND MARKETING ENTERPRISES

A. Logistics Strategic Alliance to Promote the Integration of Logistics Services

Logistics strategy of chain marketing business enterprises is a system strategy related to distribution channels [1]. It is a movement of goods and services from the manufacturer to the consumer effectively. The process of preparing the raw materials and keeping the inventory, thus integrated logistics service system and development, the increasingly fierce competition in market business enterprises, market demand is showing a diversification trend, and enterprises wanting a good survival and development must provide the whole process of logistics service to customers in order to achieve the so-called integrated logistics service.

The logistics enterprises need to achieve such purposes as the integration of resources, product cost control and product management as shown in Fig. 2, therefore they abandon the previous decentralized logistics services and gradually move towards the direction customers of inte- grated logistics systems enterprises. Emphasized in the process of modern enterprise logistics service is customer want to good management, multimodal of transportation cost, and information services, inventory carrying costs for product management and other sectors have become the next future development direction for logistics industry [2].

B. Logistics Strategic Alliances Can Further Improve the Economic Benefits of the Marketing Enterprises

Fig. 2. Process system of the fresh milk production control for self-logistics in industry, Bangkok, in Thailand

The analyzed from the perspective of the economies cost to benefit of enterprise, with the use of logistics strategic alliances can let many market business enterprises achieve intensive logistics operation mode and further for reduce logistics cost analysis. To hire professional industry logistics business enterprises to bear the working of logistics system services, in order to avoid too much input logistics system resources, has important practical significance to the integration of some professional logistics resources.

C. Logistics Strategic Alliance Can Shorten the Marketing Enterprises Management Front

Analyzed from the social point of view, for the logistics agency as the main part, and for using unified planning and implementation, effectively reduces the rate of repeated labor in the process of social logistics, and in lower level, professional operation is undertaken by the corresponding group of the institution. For In Thailand marketing business enterprises must be effective in management and milk product cost control of the strategic alliance, to ensure it, so which can be under good operation according to the requirements of the customers. An inevitable trend of the development of modern logistics industry in the process is the transition of operation layer to management.

D. Marketing Enterprise Logistics Strategic Alliance Can Effectively Reduce the Cost of Logistics

Analysis and control on the costs of product investment. Investment costs specifically cover the infrastructure, using tools such as transportation, warehouse, transportation tools, and human resources in fresh milk production for in industry [2].

VI. RESEARCH METHOD

A. Data Collection

In this data collection can get as follows:

1. Study the method of collection primary data collection was used to interview data from dairy farmers, raw dairy cows from dairy cooperatives and private entrepreneurs, ready- to-drink dairy processing plants, milking agents, and operators research at various levels, therefore interviews with managers of dairy cooperatives or private of business entrepreneurs, and from secondary data is available in the academic papers. The data is available and can be used.

2. Data sources include research data from two sources:

2.1 Primary data: The data from the raw milk management agreement in since year 2015-2016 (from on 1 November 2015 to 31 December 2016)

The process system was conducted between the raw milk collection center (seller) and the milk processing group (buyer) at the Department of Cooperative Promotion on January 1, 2017. The total milk processing business (buyer) was 485 Sample groups. They are divided into 3 Sample groups as follows:

1. The entrepreneurial group can process of the fresh milk products by selling the school milk is 215 Sample.
2. The entrepreneurs group can process of the fresh milk by commercial milk and school milk is 124 Sample.
3. The entrepreneurial group can process of the fresh milk products by commercial milk is 146 Sample.

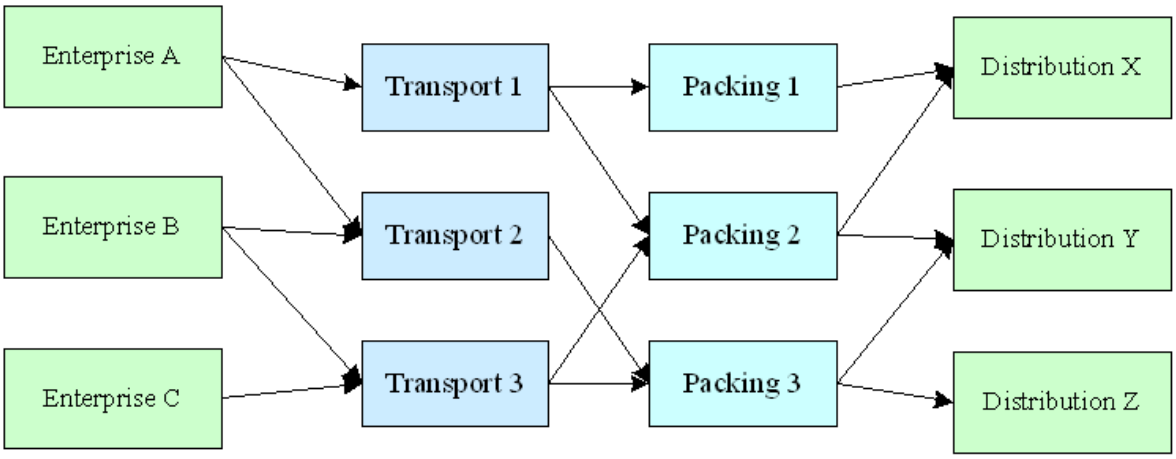

Fig. 3. Chain marketing business enterprise logistics strategic alliance schematic diagram chart

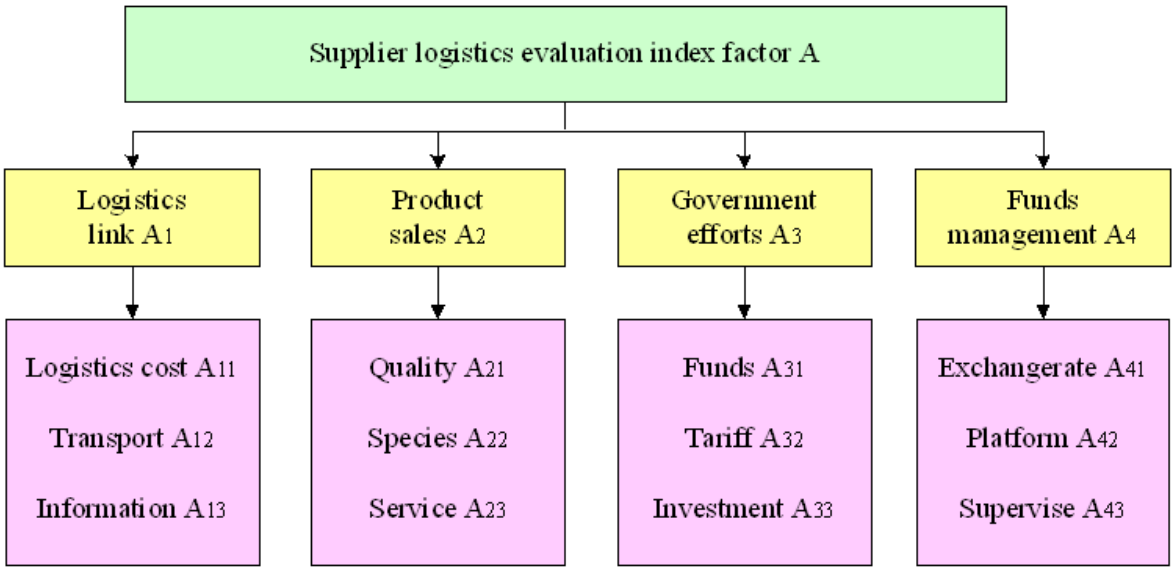

Fig. 4. Diagram for decisions of supplier logistics evaluation influencing index factors A

2.2 Secondary data: The information collected from the study and research gathered from various locations such as universities, Department of Livestock Development. The Dairy Farm Promotion Organization of Thailand, from the Dairy Cooperative Federation of Thailand and public or private entities.

B. Data analysis

Quantitative analysis: with the information obtained. The descriptive statistical analysis is a simple statistical method used to calculate the mean, is percentage value, which describes the results used data in the Table 1. To know the general condition of the dairy industry in Thailand, and for logistics management process, logistics costs analysis, milk ready to drink and factors analysis affecting the logistics of ready-to-drink milk.

The data in the study were the primary data obtained from the questionnaire interviews. To management in the logistics system of ready-to-drink milk, there are market participants, including farmers, the cooperative is the raw milk collection center. The factory is processing milk ready to drink. (such as Pasteurized milk and UHT milk), and milk agents are all total 485 Sample groups, in 39 provinces throughout of Thailand.

According to the research, the average number of dairy farmers total was 50.87 divided into 19.26 dairy cows, 10.32 mother cows, 12.86 girl cows, 4.59 male cows, 3.84 children cows.

VII. OPERATING RESEARCH RESULTS

A. Product Cost Control Results of Self Logistics System

Many chain marketing business enterprises have their own logistics system facilities, such as transportation and warehousing. But these facilities are strongly professional, resulting in a sunk product cost between the fixed cost in the investment process and the cost which change along with the change of the output level to fresh milk product logistics, the marketing business enterprises, by using the construction of logistics strategic alliance, and with change formerly professional assets to all total assets of business enterprises, and effectively reducing the enterprise cost of investment. The supply chain from marketing business enterprises logistics strategic alliance is as shown in Fig 3 and in Fig. 6.

Assuming market established labor price is M, N is the price of certain capital, number of employees necessary for logistics activities is L, logistics facilities capital inputs is K, and enterprise established logistics costs is C, then logistics cost function can be shown with the following formula: $C = ML + NK$. Now take chain marketing business enterprise 1 and enterprise 2 as examples: this cost can be expressed as follows: $C_1 = ML_1 + NK_1$, $C_2 = ML_2 + NK_2$. If the two value chain enterprises form a logistics strategic alliance for UHT milk and Pasteurized milk products, the logistics costs control can be expressed as follows: $C_3 = ML_3 + NK_3$. For in Thailand marketing business enterprises outsourced the weak business in its of product process, then you can avoid investment cost in facilities in the outsourced part, mainly including investment cost in equipment spending for those engaged staff in logistics system and investment in logistics infrastructure, and thus we have the relationship value of such as $L_3 < L_1 + L_2$, $K_3 < K_1 + K_2$, which factors value derives that $C_3(L_3, K_3) < C_1(L_1, K_1) + C_2(L_2, K_2)$, and after time of the establishment of self-logistics strategic, enterprises can be to reduce of the staff's equipment spending in logistics facilities, smoothly realize the logistics management system total investment cost reduction.

For as in Fig. 4 shows that diagram chart for decisions of supplier logistics evaluation influencing index factors A, assessment factors can be divided into four aspects, first is the logistics links, in the trading process is very important link in the logistics system, the supplier logistics evaluation influencing index factors A of logistics cost business system determines the cross whether electricity suppliers can be earned throughout with the selected mode of products transportation determines arrive track with speed of other countries. Thus, if logistics information data to provide and logistics information to provide protection for the security of cargo. In product sales, customer focus lies in the quality and variety of milk products to protection for the security of cargo [1].

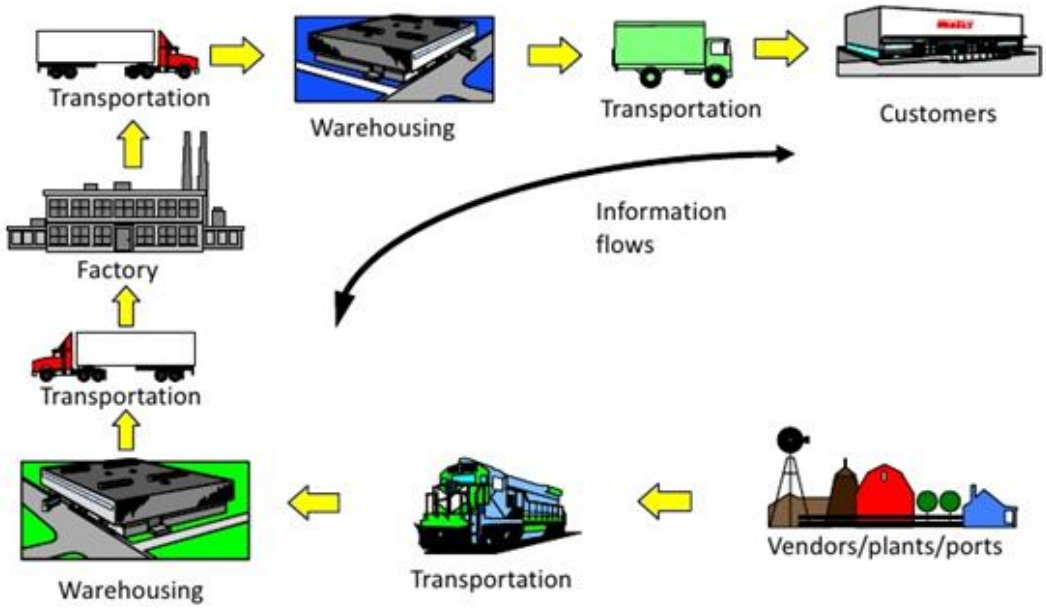

Fig. 5. Supply chain of the logistics systems process for fresh milk products to consumers

B. Product Cost analysis Results of Self Logistics System

For in UHT milk and Pasteurized milk products sales, and which customer focus lies in the quality control and variety of production to provide milk customers with after sales service guarantee. Government investment in cross-border electricity supplier development plays a vital role in funds to pay for online system trading platform. The buyer and seller of UHT milk product and Pasteurized milk product are important index factors. If after the actual investigation of the experimental program took 100 logistics student groups conducted a survey groups, for in each part of the index gave a clear weight results are as follows [2]:

For in Thailand of the supply chain marketing business enterprise for supplier index weight of factors A influences a weight of A = (0.4, 0.3, 0.1, 0.2), and two indicators weight of A_1 = (0.4, 0.4, 0.2), A_2 = (0.5, 0.3, 0.2), A_3 = (0.4, 0.1, 0.5), A_4 = (0.3, 0.4, 0.3), the survey results as well as the right of each index weight as shown of the result in Table 1.

Take synthesis algorithm, the results are as follows:

$B_1 = A_1 * R_1$ = (0.4, 0.4, 0.2, 0.1, 0.1); $B_2 = A_2 * R_2$ = (0.2, 0.25, 0.3, 0.3, 0.1);

$B_3 = A_3 * R_3$ = (0.2, 0.4, 0.4, 0.2, 0.1); $B_4 = A_4 * R_4$ = (0.3, 0.2, 0.3, 0.2, 0.2);

When B = A * R = (0.4, 0.4, 0.3, 0.3, 0.2); Considering Description with UHT milk products and Pasteurized milk products of the industry in Thailand, Supply Chain is in good development and described space as well as forward.

Thus, factors affecting the logistics system management of ready-to-drink milk are product characteristics and fuel price package, the volume of the consumer purchases, distance and distribution points, condition of goods receipt of consumers in the area by the size of the warehouse and the transport traffic law, as shown in Fig. 5. In this research paper, the research result was divided into 3 stages, ie transportation from farmers to the raw milk collection center. For transportation systems from raw milk collection center to ready-to-drink dairy plant and transportation from ready-to-drink dairy processing plants to consumers.

The results from in Table 2 show that the agent of school milk delivery had a total average logistics cost to 12.78 USD per unit with the highest transportation cost was 8.12 USD per unit, or 63.56 % of all total logistics cost. It is the fuel, labor, logistics costs, management costs, packaging costs, warehouse costs and inventory management and the least cost loss was 2.12, 1.76, 0.71 and 0.07 USD per unit, or 16.53 %,

13.82 %, 5.54 % and 0.54 % of total logistics costs, respectively. Therefore, the revenue from milk distribution is 16.92 USD per unit, so the profit is 4.14 USD per unit or 25 % of the revenue received.

As a result, the total cost of logistic cost was estimated at 420.29 USD per kg, compared to sales of ready-to-drink milk. It was found that the average revenue from the sales of ready-to-drink milk (for Pasteurized milk and UHT milk) on average 1,535.92 USD per kilogram of this amount, 20.87 % was the logistics cost of sales of ready-to-drink milk. Most of the transportation cost was accounted for 9.86 % of sales revenue. The cost of warehouse and inventory management was 5.25 % of sales of ready-to-drink milk. In addition, for the cost of packaging, for management cost and investment cost of loss accounted for 2.95 percent, 1.75 percent and 1.06 percent for sales of ready-to-drink milk as shown in Table 3.

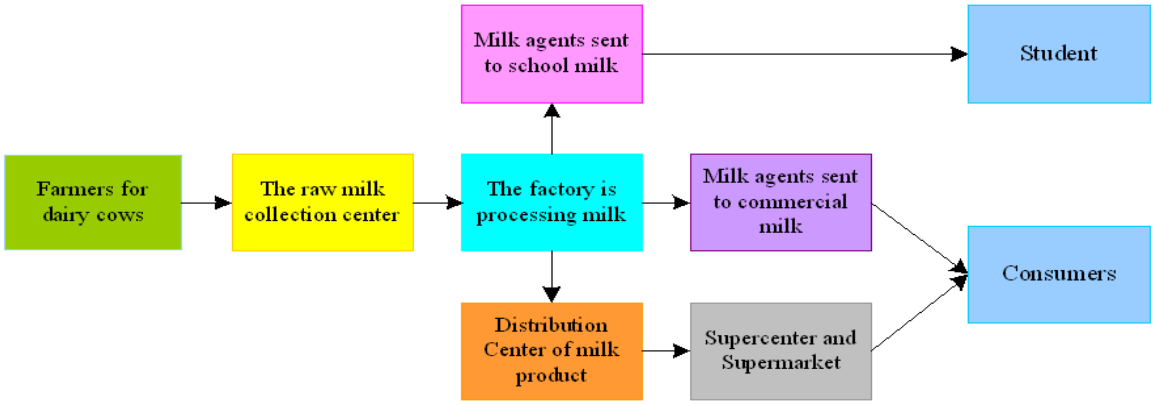

Fig. 6. The supply chain marketing enterprises diagram of the logistics system for fresh milk products

Level indicators	Secondary indicators	Evaluation				
		excellent	good	general	poor	error
Logistics link A_1	A_{11}	0.32	0.56	0.15	0.15	0
	A_{12}	0.47	0.32	0.28	0.15	0
	A_{13}	0.55	0.34	0.07	0.07	0.15
Product sales A_2	A_{21}	0.15	0.22	0.32	0.32	0.15
	A_{22}	0.07	0.26	0.45	0.23	0.15
	A_{23}	0.34	0.21	0.32	0.23	0
Government efforts A_3	A_{31}	0.25	0.56	0.32	0	0
	A_{32}	0.15	0.49	0.34	0.25	0
	A_{33}	0.15	0.23	0.46	0.25	0.15
Funds Management A_4	A_{41}	0.25	0.15	0.34	0.28	0.26
	A_{42}	0.38	0.23	0.34	0.28	0
	A_{43}	0.15	0.15	0.56	0.05	0.15

Table 1. Results for decisions of supplier chain logistics evaluation influencing index weight of factors A for fresh milk products

Data entry	Average (USD per unit)	Percent	Pasteurized milk (USD per bag)	Percent	UHT milk (USD per box)	Percent
1. Revenue from milk delivery	16.92	-	24.68	-	9.87	-
2. Total logistics costs	12.78	100	20.91	100	4.69	100
- Management costs	2.12	16.53	3.87	18.56	0.35	7.54
- Warehouse and inventory costs	0.71	5.54	-	-	1.06	22.56
- Transportation costs	8.12	63.56	13.05	62.34	3.17	67.48
- Cost of Loss	0.07	0.54	0.11	0.49	0.035	0.72
- Packaging costs	1.76	13.82	3.87	18.56	0.07	1.58
Profit per unit	**4.14**	-	**3.77**	-	**5.18**	-

Source: Survey

Note: 1 bag of pasteurized milk contains 200 cc and 1 UHT milk contains 200 cc.

Table 2. The result of the revenue, logistics cost and profit of the milk agent in the school milk group

Data entry	Cost of logistics (USD per kilogram)	Percentage of sales revenue
Management costs	61.35	1.75
Warehouse and inventory costs	110.36	5.25
Transportation costs	145.27	9.86
Cost of Loss	15.16	1.06
Packaging costs	88.15	2.95
Total	420.29	20.87

Source: Survey
Note: Revenue from sale of ready-to-drink milk averaged 1,535.92 USD per kilogram per liter.
Table 3. The results of logistics cost of ready-to-drink milk per total revenue from milk

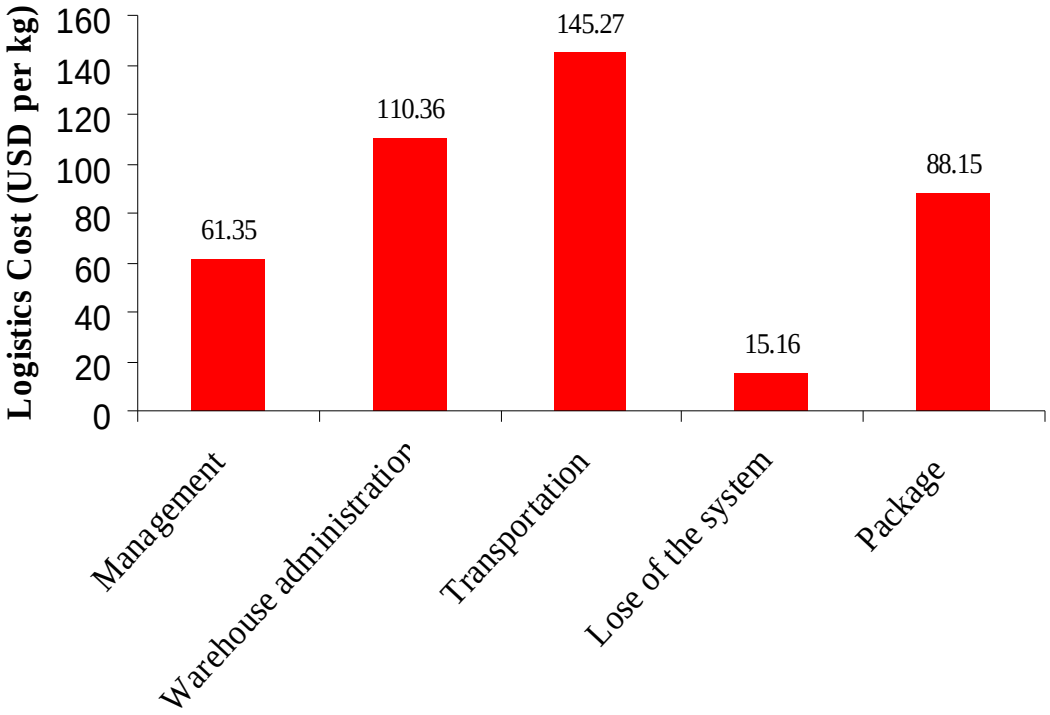

Fig. 7. The results of logistics costs of ready-to-drink milk per total sales revenue from milk

CONCLUSION

The results of the study found that. The logistics system management process of ready-to-drink milk is related to 4 groups: include dairy farmers, raw milk cow co-operative center, the factory of processing milk and milk agent. The results of the research as show Fig. 7 that the logistics cost of ready-to-drink milk. The cost per kilogram is 420.29 USD. The highest transportation cost was 145.27 USD per kg or 34.56 %. The warehouse cost and inventory to 110.36 USD per kg or 26.27 %. The packaging cost was 88.15 USD per kg or 20.97 %. The management cost was 61.35 USD per kg or 14.59 % and the cost loss was 15.16 USD per kg or 3.61 %, respectively, as show results in Figs 8 and 9.

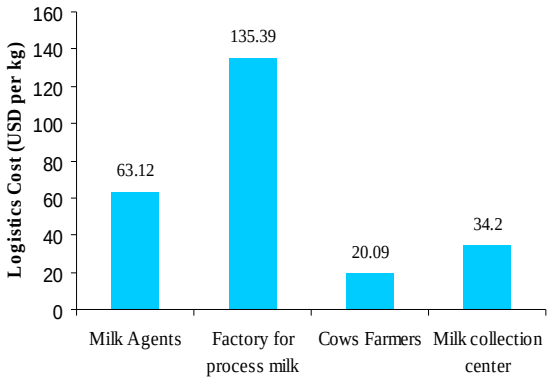

Fig. 8. The results of logistic costs of ready-to-drink milk by classification based on relative relationships

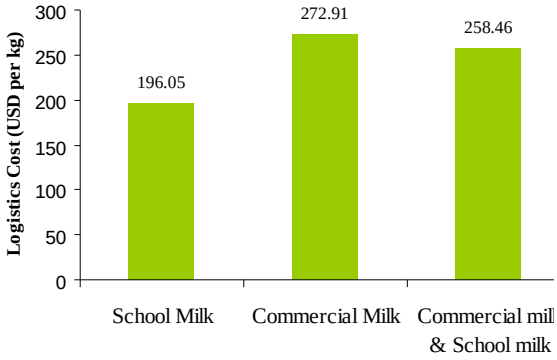

Fig. 9. The results of logistics costs of ready-to-drink milk from various types of milk sales

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