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Abstract* — *The methodologies and deterministic inventory models, as well as resource optimization within small and medium-sized enterprises (SMEs), constitute valuable tools that address crucial aspects such as order planning and inventory classification. These methodologies provide strategic approaches to enhance operational efficiency and decision-making within the scope of supply chain management. The aim of this study was to employ the Silver Meal (SM) and ABC methodologies in a meat SME to achieve a balance between product availability, cost reduction, and demand satisfaction. Using the ABC model, the fifteen meat products were then reordered and classified based on their frequency of exit from the warehouse. Using the SM model, an optimal order plan was generated for specific periods, considering demand, costs, and variables to achieve an organization in terms of quantity and price when placing orders. When comparing the company's current supply model with the one derived from the SM, cost savings were emphasized in both approaches, amounting to S/11,337 annually for the fifteen meat products. In the analysis and research of this article, the Peruvian sol (S/) has been considered as a unit of economic measurement.

Keywords*—*Silver Meal Methodology, ABC, meat company, Small and medium-sized enterprises.

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Abstract* — *The methodologies and deterministic inventory models, as well as resource optimization within small and medium-sized enterprises (SMEs), constitute valuable tools that address crucial aspects such as order planning and inventory classification. These methodologies provide strategic approaches to enhance operational efficiency and decision-making within the scope of supply chain management. The aim of this study was to employ the Silver Meal (SM) and ABC methodologies in a meat SME to achieve a balance between product availability, cost reduction, and demand satisfaction. Using the ABC model, the fifteen meat products were then reordered and classified based on their frequency of exit from the warehouse. Using the SM model, an optimal order plan was generated for specific periods, considering demand, costs, and variables to achieve an organization in terms of quantity and price when placing orders. When comparing the company's current supply model with the one derived from the SM, cost savings were emphasized in both approaches, amounting to S/11,337 annually for the fifteen meat products. In the analysis and research of this article, the Peruvian sol (S/) has been considered as a unit of economic measurement.

Keywords—Silver Meal Methodology, ABC, meat company, Small and medium-sized enterprises.

I. INTRODUCTION

Currently, due to the economic demands in the country, companies in different areas have been forced to be more efficient and competitive in the commercial world. Thus, a need in organizations is to be able to strengthen their logistics system to achieve optimal results. In this scenario, logistics has positioned itself as an important factor in every company, for this, reference will be made to a recognized speaker in the logistics field, the author Michael Porter, in his book "Competitive Advantage", highlights logistics as one of the most influential primary activities in the entire production process of a company [1]

Thus, in the MSE dedicated to the sale of fifteen meat products, including beef, pork and lamb, there is a deficient supply and ordering system in its warehouse, causing economic losses and harming the demand required for each period. Generally, this problem is generated by not having a heuristic model such as the Silver Meal Model (SM). According to the National Institute of Statistics and Informatics, the city of Arequipa ranks second in beef consumption and fourth in production [2].

The consumption of pork meat by the inhabitants of Arequipa averages 19 kg per year; in the country, it is 222 million kg, which means that for every Peruvian citizen, 7.6 kg of pork meat is consumed [3]. Thus, in the city of Arequipa, a large percentage of Arequipa families have the need to stock up on good quality meat products at the lowest possible price.

Meat companies face a major challenge in keeping their products fresh and supplied for the various festivities that occur, keeping their warehouses tidy and locating products strategically to achieve efficiency. To achieve a correct supply and that the product arrives in the right quantity and at the right time in the companies, it is necessary to have a heuristic inventory model, such as the Silver Meal Model (SM). In [4], the author indicates that the principle of this model is the desire to order for various future periods, thus achieving the minimum cost per period for these periods. Likewise, this model is used in production and inventory management to determine the size of production lots and production scheduling. The SM model is more advisable in situations with variable demand behavior, since it is desired to reduce the total order cost, which is one of the objectives achieved with this heuristic model [4].

On the other hand, the ABC Method will allow to classify the inventory of products within the warehouse, according to their level of importance (A, B, C) [5].

According to Djunaidi et al. [6], the authors analyze a company dedicated to the scales industry, and in order to find the order size in relation to their three raw materials, they had to evaluate the requirements for each one and for their acquisition planning, they used the Silver Meal model together with the Wagner Whitin model. To classify the products, they used the ABC Method, with the "handling priority" parameter to carry out the classification. Thus, the Silver Meal model obtained greater savings of 3.4% compared to the Wagner Whitin model [6].

Based on research by the author Sandoval [7], he indicates that a deterministic inventory model can be accompanied by the help of software, carrying the information of inventory movements when there is a large amount of information volume. This will help small companies to bring their situation to a reality-centered plane so that production times are dynamic.

In [8], the author proposes a probabilistic demand model together with the "ABC" classification method, with the help of the model it was possible to manage the minimum

inventory level, the quantity to be ordered. In contrast to [9], the authors propose to the "Mini-Max" inventory policy with the "ABC" classification method in a bakery, giving a saving of $72.98, reducing the inventory level in some important raw materials with the proposed inventory policy. In its "ABC" classification, for zone "A", a systematic control must be carried out in its warehouse; for zone "B", the consumption and average inventory level must be reviewed monthly, to highlight any changes in its demand. And finally, in zone "C", take into consideration the relationship between the level of consumption and the physical stock that appears in the warehouse, to achieve a gradual reduction of inventories that have slow turnover [9].

On the other hand, in Perez et al. [10], the authors applied a reformulation of the EOQ (Economic Order Quantify) optimizing inventories in various scenarios, "supplier-buyer", "non-collaborative buyer", with a batch of 1821 units together, in the "non-collaborative supplier" scenario, 1848 units. As for the "joint collaborative activity", it has a lower total cost per year compared to the "non-collaborative" scenarios. These scenarios indicated that the greatest benefit is in the collaborative scenario, due to the integration of all parties at the time of placing the order [10].

In Juca et al. [11], the authors analyze a cream company, which did not have a mathematical model for the reordering of products, nor a control of inventories. Likewise, they used the ABC classification in their products. Thus, a probabilistic model was applied, with dynamic demand, to analyze and control orders, safety inventories and total inventory costs. Because, the company had an accounting loss of 27395.86 USD, before applying the probabilistic model in the three products [11].

For freezing meat, according to the authors in [12], they indicate that, for storage, the average temperature of the meat can be changed without affecting its quality or composition. What is recommended for vacuum freezing ranges from -18 to -4°C. Always considering the supplier's freezing, transport, and storage, so as not to alter the final product. [12].

II. METHODOLOGY

First, the supply and cost data from the butcher company were consolidated into a summary table. The table enlists fifteen meat products, comprising nine beef, four pork, and two lamb products. For each product, the table includes monthly demand in kilograms for all twelve months of the year 2022, the product cost, order cost, total annual cost, sales cost, and the frequency of orders for supply.

Subsequently, the "ABC" classification was conducted using the data. In this process, the turnover of the meat products and the quantities sold for each one were considered. Additionally, the total frequency of sales was calculated. Then, the required calculations were conducted to determine the cumulative frequency in percentage until it reaches 100%. Both frequencies must sum up to this percentage to confirm their precise calculation. With the results obtained from the accumulated frequency, the product was classified into "A," "B," or "C," taking into consideration that each letter represents a range of percentages, such as: A (0 – 85%), B (86 – 95%), and C (96 – 100%). After conducting this classification for each product, the Silver Meal Model was then applied.

To do this, the coefficients of variability were calculated, using the average demand of each product and its corresponding population variance. If the resulting coefficient exceeded 0.2, the SM Model was implemented, thus indicating that the product was experiencing unstable demand during the analyzed period. This SM model calculates the average cost per months, considering how much will be ordered in the future.

The following are the considerations for the silver meal model:

Month 1: $\mathrm{TRCUT}(1) = \mathrm{A}$ (1)

Month 2: $\mathrm{TRCUT}(2) = \mathrm{A} + \mathrm{D}(2)\mathrm{vr}$ (2)

Total Relevant Cost *(TRCT)*

$$\frac{TRC(T)}{T} = \frac{TRC(T)}{T} = \frac{A + carrying\ cost}{T} \quad (3)$$

T = months; D = request;
A= It is the cost of the purchase order
r = cost of holding inventory
v = product cost

The TRCT is the average total cost per month, that is, the division of the total cost by the amount of the current month, it is used to verify that the cost of each month is lower than the previous one, if it is higher then, it would be taken as a single product merchandise up to that month and the counting would start again.

Once the period is completed, it has to be performed again and is calculated in future months.

Likewise, the variables required for the SM model were calculated for the fifteen meat products, these variables are needed to apply the SM inventory model.

- Ordering cost (OC): Here we consider the payment for personnel involved in the operations to place the order, the equipment used, its depreciation (printers, computers), indirect costs (water, electricity, internet, telephone, printing supplies) and the monthly orders of the meat products. This order cost is expressed monthly.
- Cost of inventory maintenance (CMI): This considers the cost of capital held through the bank, the average total value of meat products (the total cost of all products in the period), warehouse depredation, insurance costs for inventories, the cost given to the person in charge of carrying out the inventory.

Then, these variables (CP, CMI), product cost and coefficient of variability are attached to find the cost of supply, quantity to order and frequency of replenishment.

Finally, the cost of ordering, the inventory cost and the final total cost are calculated. This SM Model was carried out for each meat product, using Microsoft Excel version 2013.

Subsequently, an economic comparison was made, showing in a bar chart and histogram, the total cost obtained with the SM Model and the company's annual cost without applying any deterministic inventory model. In order to demonstrate the savings granted by the SM model, and the difference in costs obtained.

III. RESULTS AND DISCUSSION

A. *Current situation of the meat company*

With the information provided by the meat company, a summary table of its status has been drawn up, corresponding to the period 2022 (Table I). The table below shows the list of the fifteen meat products, their monthly and annual demands, expressed in kg, and their prices, expressed in kg.

According to the results of this table, it is indicated that: Based on annual demand, the product with the highest demand is minced meat (1008 kg) and "pork leg chop" (976 kg). Likewise, the products with the lowest demand are "pork hamburger" (258 kg), "lamb leg chop" (312 kg). These data are for the period 2022.

TABLE I
Demand for meat products in the period 2022

Suppliers	N°	MEAT PRODUCTS	MONTHLY DEMAND (KG)												ANNUAL DEMAND
			JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	
1	1	STRIP ROAST WITH BONE	80	52	68	48	76	84	64	84	52	88	68	92	***856***
	2	TOP SIRLOIN CAP	20	44	54	50	20	40	46	40	22	20	24	52	***432***
	3	MINCE BEEF	88	72	92	60	68	80	128	96	60	104	96	64	***1008***
	4	FINE LOIN	40	36	40	30	38	34	62	34	24	40	36	34	***448***
	5	LOIN CHOP (BUTTERFLY)	80	60	68	52	60	52	44	52	40	60	32	64	***664***
	6	OSSOBUCO	44	60	52	60	80	60	72	28	60	52	60	68	***696***
	7	BEEF CHOP (SHOE)	76	64	68	48	68	48	80	48	48	72	72	48	***740***
	8	BEEF RIBS	48	72	72	40	68	44	72	44	52	68	64	52	***696***
	9	GROUND BEEF	68	68	72	64	80	68	120	68	68	80	68	68	***892***
2	10	BRAZUELO CHICHARRON	56	64	72	72	72	72	120	72	72	72	72	140	***956***
	11	LEG CHOP	56	72	80	80	80	80	100	52	96	92	80	108	***976***
	12	PORK BELLY	30	40	50	46	40	50	50	50	50	60	50	70	***586***
	13	PORK BURGER	20	20	22	20	26	22	18	20	16	24	18	32	***258***
	14	LAMB LEG CHOP	32	24	18	26	32	32	26	20	26	32	24	20	***312***
	15	LOIN OF LAMB	38	26	36	28	30	28	26	20	28	32	36	20	***348***
TOTAL			***776***	***774***	***864***	***724***	***838***	***794***	***1028***	***728***	***714***	***896***	***800***	***932***	

1-9: Beef meat products; 10-13: Pork meat products; 14-15: Lamb meat products

According to monthly demand, Minced meat" and "ground beef" had the highest demand in July. The "brazuelo chicharrón" in the month of December and July. The "leg chop" in the month of July and December. In the case of the pork hamburger, it does not vary from the ranges 22 kg-20 kg per month, this indicates that it is the product with a low demand in almost all months.

The costs of all the products are shown below (table II), including the cost of the product provided by the suppliers, the cost of sale by the company and the frequency of order of each product, which are fortnightly and weekly, also, it can be verified that the total annual cost is S/159,972; the cost of sale to consumers and the frequency of order of each product.

TABLE II
Meat product costs and ordering frequency

Suppliers	N°	MEAT PRODUCTS	ORDER COST	TOTAL ANNUAL COST	COST OF SALE	ORDER FREQUENCIES	
1	1	STRIP ROAST WITH BONE	S/18.00	S/15,408.00	S/26.00	4	times
	2	TOP SIRLOIN CAP	S/35.00	S/15,120.00	S/42.00	2	times
	3	MINCE BEEF	S/13.00	S/13,104.00	S/18.00	4	times
	4	FINE LOIN	S/13.00	S/5,824.00	S/50.00	2	times
	5	LOIN CHOP (BUTTERFLY)	S/15.00	S/9,960.00	S/21.00	4	times
	6	OSSOBUCO	S/17.00	S/11,832.00	S/19.00	4	times
	7	BEEF CHOP (SHOE)	S/17.00	S/12,580.00	S/24.00	4	times
	8	BEEF RIBS	S/11.00	S/7,656.00	S/17.00	4	times
	9	GROUND BEEF	S/12.00	S/10,704.00	S/18.00	4	times
2	10	BRAZUELO CHICHARRON	S/13.00	S/12,428.00	S/20.00	4	times
	11	LEG CHOP	S/14.00	S/13,664.00	S/21.00	4	times
	12	PORK BELLY	S/18.00	S/10,548.00	S/25.00	2	times
	13	PORK BURGER	S/18.00	S/4,644.00	S/25.00	2	times
	14	LAMB LEG CHOP	S/25.00	S/7,800.00	S/33.00	2	times
	15	LOIN OF LAMB	S/25.00	S/8,700.00	S/33.00	2	times
TOTAL				**S/159,972.00**			

According to the results of this Table II, it is indicated that: According to product cost, the product acquired from the supplier to the company, with the highest price is "Top sirloin cap" (S/35.00), "lamb leg chop" (S/25.00) and "Loin of lamb" (S/25.00). And the product with the lowest cost is the "Beef rib " (S/11.00).

Based on cost of sale: The product with the highest sales cost to customers is “Fine loin" (S/50.00), "Top sirloin cap" (S/42.00). And the products with the lowest cost are "Beef rib" (S/17.00) and "Minced meat" (S/18.00). On the other hand, "Expoporcina" stated that the city of Arequipa ranks first among all the regions of Peru in terms of consuming pork in significant quantities. An average of 19 kilograms of pork is consumed per year [13]. Likewise, the National Institute of Statistics and Informatics published a document in which it indicates that lamb consumption in the city of Arequipa is 2.4 kg/person and beef consumption is 11.6 kg/person [14].

Based on the data shown for the meat company in Table I and Table II, the "ABC" Model was applied for the strategic classification of each product according to its demand, using the Microsoft Excel program (Table III).

Then, applying the "ABC" methodology, it was obtained that: For A: 10 products, it indicates that great importance should be given to more frequent and specialized controls, placing them strategically in the warehouse.

For B: 3 products, have a moderate rotation, check them periodically, store them in accessible locations.

For C: 2 products, try to reduce resources by a considerable level, their sporadic control, remotely located with less accessibility.

TABLE III
ABC classification for the fifteen-meat product

	MEAT PRODUCTS	ANNUAL DEMAND (Kg)	ORDER COST	TOTAL ANNUAL COST	% OF CUMULATIVE TOTAL	% ACCUMULATED	GUY
1	STRIP ROAST WITH BONE	856	S/18.00	S/15,408.00	10%	10%	A
2	TOP SIRLOIN CAP	432	S/35.00	S/15,120.00	9%	19%	A
11	LEG CHOP	976	S/14.00	S/13,664.00	9%	28%	A
3	MINCE BEEF	1008	S/13.00	S/13,104.00	8%	36%	A
7	BEEF CHOP (SHOE)	740	S/17.00	S/12,580.00	8%	44%	A
10	BRAZUELO CHICHARRON	956	S/13.00	S/12,428.00	8%	51%	A
6	OSSOBUCO	696	S/17.00	S/11,832.00	7%	59%	A
9	GROUND BEEF	892	S/12.00	S/10,704.00	7%	66%	A
12	PORK BELLY	586	S/18.00	S/10,548.00	7%	72%	A
5	LOIN CHOP (BUTTERFLY)	664	S/15.00	S/9,960.00	6%	78%	A
15	LOIN OF LAMB	348	S/25.00	S/8,700.00	5%	84%	B
14	LAMB LEG CHOP	312	S/25.00	S/7,800.00	5%	89%	B
8	BEEF RIBS	696	S/11.00	S/7,656.00	5%	93%	B
4	FINE LOIN	448	S/13.00	S/5,824.00	4%	97%	C
13	PORK BURGER	258	S/18.00	S/4,644.00	3%	100%	C
				S/159,972.00	100%		

In the case of the Mexican company "Basal", the ABC classification was used for its frozen products, including fruit, vegetables, and meat. In zone "A" there are 28 products, "B" 44 and "C" 54 [15]; accompanied by its Pareto Diagram with the ranking obtained. Also, the same classification range of Table I was used. Similarly, in the company "Kalito", dedicated to distributing plastics, porcelain, aluminum, steel, glass and household appliances. In its ABC classification, those in category "A" are the family of plastics, aluminum, and chinaware with a contribution of 64%. In "B", steel and glass (23%) and "C", household appliances with a contribution of 13% [16].

B. Variables for the application of the Silver Meal model

After applying the "ABC" method to meat products, the Silver Meal methodology was applied, for which it is necessary to calculate the following variables: Cost of ordering merchandise (table IV), Cost of maintaining inventory (table V) and Product cost (table II). All the costs necessary to order merchandise monthly, both direct and indirect costs, are detailed and the result is S/109,329 per month as a CP variable.

TABLE IV
Cost of ordering merchandise (CP)

CP		
There are 3 people involved in the ordering process. (logistics coordinator, logistics assistant, purchasing assistant	S/ 5,000.00	/my
In the office there are 3 Lenovo brand computers, these have a value of 6700 soles. Its depreciation cost is:	S/ 93.06	/my
It has a printer that cost 560 soles, it is used by the 3 areas. Its depreciation cost is:	S/ 7.77	/my
INDIRECT COSTS		
Telephone	S/ 30.00	/my
light	S/ 25.00	
paper	S/ 20.00	
Printing tools	S/ 12.00	
water	S/ 15.00	
internet	S/ 45.00	
Total indirect costs	S/ 147.00	
total	S/5,247.83	
It is estimated that 48 monthly orders are made for meat products	S/ 48.00	
	S/ 109.33	monthly

All the necessary costs involved in maintaining an inventory from the estimated capital to the annual count are mentioned, for which the result is 1.40% per month in the variable of CMI.

TABLE V
Cost to maintain inventory (CMI)

CMI			
The cost of capital was estimated at 6% per year (which is the annual return offered by banks).		6.00%	annual
The average total value of meat products (total cost of products over the entire period).		S/159,972.00	annual
The depreciation of the warehouse is S / 4,000 per year, which leads to an annual percentage cost with respect to the value of the inventory.	(S/ 4000/ S/ 159,972.00)*100%	2.50%	annual
Insurance costs are S / 2.50 per month for each S / 800 of inventory.	(S/ 2.50*12/ S/800)*100%	3.75%	annual
There are 12 inventories (counts) per year. S / 600 is paid per occasion to the engineer who makes the	(S/600*12/ S/159,972.00)*100%	4.50%	annual
The annual cost of holding inventory as a percentage is equal to:	(6.00%+2.50%+3.75%+4.50%)	16.75%	annual
The monthly cost of maintaining inventory in percentage is equal to:	**1.40%**		monthly

For the product cost variable, the cost detailed in Table II is taken into consideration. After determining the variables, the current supply model is made for each of the products, for this, as an example, the application will be shown in the "Strip roast with bone ". Initially, the period is considered together with its demand and the variables determined, from there, according to the current situation, the resupply of the products is generated monthly, then, it is represented in a supply plan that can be seen in table VI, which covers the planned demand during the period studied.As a result, there is a monthly replenishment and a total annual cost of S/1, 1311.96 for " Strip roast with bone ", and the CMI is avoided.

TABLE VI
Current Supply Model

PERIOD	DEMAND
1	80
2	52
3	68
4	48
5	76
6	84
7	64
8	84
9	52
10	88
11	68
12	92

STRIP ROAST WITH BONE		
COEFFICIENT OF	CV	0.21
INVENTORY MAINTENANCE	CMI	1.40%
COST OF ORDERING	CP	109.33
PRODUCT COST		18

ORDER COST	S/1,311.96
INVENTORY COST	S/0.00
TOTAL COST	**S/1,311.96**

MONTHS	1	2	3	4	5	6	7	8	9	10	11	12
INV. INITIAL	0	0	0	0	0	0	0	0	0	0	0	0
REFUELING	80	52	68	48	76	84	64	84	52	88	68	92
REQUIREMENTS	80	52	68	48	76	84	64	84	52	88	68	92
INV.FINAL	0	0	0	0	0	0	0	0	0	0	0	0

C. Application of the Silver Meal model

The same data is then used and the Silver Meal methodology is applied, which involves a heuristic calculation to determine the lowest cost. The demand data and the variables determined are taken into consideration and from there, in the section on Average Total Cost per period, we start with a cost equal to the CMI, this amount is reduced until reaching month 4, since, at month 5 the cost would be higher, therefore, until that month a supply batch is considered and

again the procedure is repeated until reaching the last month of the period, as shown in Table VII. As a result, there are 4 annual resupplies and a total annual cost of S/682.52 for "Strip roast with bone", and a CMI of S/ 245, 20.

TABLE VII
Silver Meal Sourcing Model

PERIOD	DEMAND
1	80
2	52
3	68
4	48
5	76
6	84
7	64
8	84
9	52
10	88
11	68
12	92

STRIP ROAST WITH BONE		
COEFFICIENT OF	CV	0.21
INVENTORY MAINTENANCE	CMI	1.40%
COST OF ORDERING	CP	109.33
PRODUCT COST		18

ORDER COST	S/437.32
INVENTORY COST	S/245.20
TOTAL COST	**S/682.52**

T	DEMAND	MONTH IN STOCK	COST TO MAINTAIN	COST TO ORDER	TOTAL COST	AVERAGE TOTAL COST PER PERIOD	
1	80	0	S/ -	S/ 109.33	S/109.33	S/109.33	
2	52	1	S/ 13.06	S/ 109.33	S/122.39	S/ 61.20	1
3	68	2	S/ 47.23	S/ 109.33	S/156.56	S/ 52.19	
4	48	3	S/ 83.41	S/ 109.33	S/192.74	S/ 48.18	
5	76	4	S/159.78	S/ 109.33	S/269.11	S/ 53.82	
5	76	0	S/ -	S/ 109.33	S/109.33	S/109.33	
6	84	1	S/ 21.10	S/ 109.33	S/130.43	S/ 65.22	2
7	64	2	S/ 53.26	S/ 109.33	S/162.59	S/ 54.20	
8	84	3	S/116.57	S/ 109.33	S/225.90	S/ 56.48	
8	84	0	S/ -	S/ 109.33	S/109.33	S/109.33	
9	52	1	S/ 13.06	S/ 109.33	S/122.39	S/ 61.20	3
10	88	2	S/ 57.28	S/ 109.33	S/166.61	S/ 55.54	
11	68	3	S/108.53	S/ 109.33	S/217.86	S/ 54.47	
12	92	4	S/200.99	S/ 109.33	S/310.31	S/ 62.06	
12	92	0	S/ -	S/ 109.33	S/109.33	S/109.33	4

MONTHS	1	2	3	4	5	6	7	8	9	10	11	12
INV. INITIAL	0	168	116	48	0	148	64	0	208	156	68	0
REFUELING	248				224			292				92
REQUIREMENTS	80	52	68	48	76	84	64	84	52	88	68	92
INV.FINAL	168	116	48	0	148	64	0	208	156	68	0	0

The other hand, the Silver Meal model has also been applied in the company "Diyala", which offers electronic scales, had a batch supply system and when this methodology was applied, it generated savings of up to 59% per year [17].

A comparative table of the two sourcing models is made, both the current one (Table VI) and the Silver Meal methodology (Table VII), within it, it can be seen that the resulting profit during the twelve-month period is S/11,337, that is, 57.61% savings in the sourcing by applying the Silver Meal methodology, as shown in Table VIII.

To graphically demonstrate the economic difference between the two supply methods, a bar chart is used to show the fifteen products studied, detailing the total costs in the application of both the current model and the Silver meal model and showing the difference in the proposed period, which is shown in Fig. 1 and Fig. 2.

On the other hand, comparing economically with other cases in the company "Wisanka" that offers various furniture in Indonesia, a supply modeling has been done using the Silver Meal methodology in their raw materials which resulted in monthly savings of 3.6% of labang, 2.9% semi-polished rattan and 3.4% in leles [18].

TABLE VIII
Economic comparison of sourcing models

	MEAT PRODUCTS	TOTAL COST SILVER MEAL	TOTAL ANNUAL COST	UTILITY
1	STRIP ROAST WITH BONE	S/682.52	S/1,311.96	S/629.44
2	TOP SIRLOIN CAP	S/663.99	S/1,311.96	S/647.97
3	MINCE BEEF	S/604.51	S/1,311.96	S/707.45
4	FINE LOIN	S/448.83	S/1,311.96	S/863.12
5	LOIN CHOP (BUTTERFLY)	S/530.65	S/1,311.96	S/781.31
6	OSSOBUCO	S/567.16	S/1,311.96	S/744.79
7	BEEF CHOP (SHOE)	S/578.55	S/1,311.96	S/733.41
8	BEEF RIBS	S/486.43	S/1,311.96	S/825.52
9	GROUND BEEF	S/561.13	S/1,311.96	S/750.82
10	BRAZUELO CHICHARRON	S/649.25	S/1,311.96	S/662.71
11	LEG CHOP	S/617.97	S/1,311.96	S/693.99
12	PORK BELLY	S/561.13	S/1,311.96	S/750.82
13	PORK BURGER	S/392.51	S/1,311.96	S/919.44
14	LAMB LEG CHOP	S/485.01	S/1,311.96	S/826.95
15	LOIN OF LAMB	S/512.23	S/1,311.96	S/799.73
	SUBTOTAL	**S/8,342**	**S/19,679**	**S/11,337**
	TOTAL	***S/11,337***		

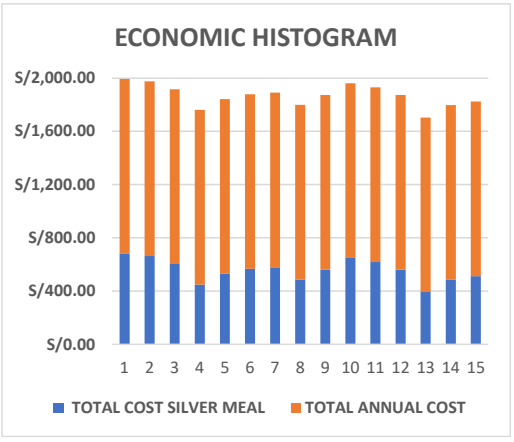

Fig. 1 Economic histogram for meat product

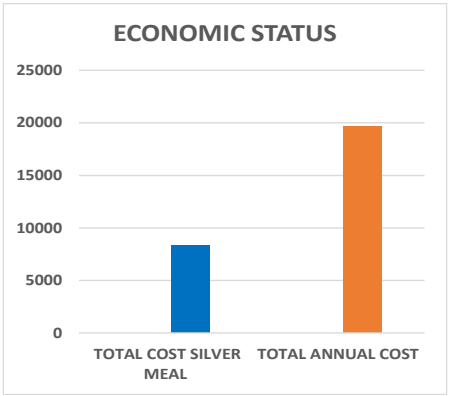

Fig. 2 Annual economic difference in supply

IV. CONCLUSIONS AND RECOMMENDATIONS

Through the ABC Method it was possible to classify and organize meat products according to their frequency of rotation, resulting in: A: 10 products, B: 3 products and C: 2 products; in this way there will be adequate management of available stock. By applying the Silver Meal model to the company, a more economically efficient supply system has been achieved, thus obtaining a total annual logistics cost of S/8,342 during the period studied, meeting the annual demand established in the case and providing a strategic order plan.

Using the variables (CMI, CO, CP) for both models, it has been possible to identify economic difference between the current annual procurement costs (S/19,679) versus the costs using the Silver Meal method (S/8,342), which is S/11,337; and through this methodology it can be seen that having orders in strategic months is more economical than placing monthly orders.To maintain the product inventory in optimal conditions without altering its properties, the products should be kept vacuum-packed, and an industrial refrigeration chamber should be installed to maintain a temperature below -4°C. Products should be ordered according to the ABC method applied, which indicates that the products with the highest demand should be closer to the entrance door, thus having better control over the quantity of products available. It is recommended that MSEs selling meat implement these models, as they are very suitable for handling this type of product due to their demand behavior. Based on our results, we recommend that meat companies implement this supply system or one according to their level of demand, in this way they would considerably reduce their supply costs.

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