

# **ANALYSIS OF COST AND EXPENSES IN A MOZZARELLA PRODUCTION IN PATOS DE MINAS, MINAS GERAIS STATE, BRAZIL.**

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## **PROBLEM STATEMENT**

Brazil is one of the major milk producing countries worldwide, and Minas Gerais state is responsible for about 30% of the national production (BORGES *et al*, 2013). The cheese exportation in Brazil in December/2014 was 1,994 thousands of liters in a total about 45,189 thousands of milk liters exported (CEPEA, 2015). In this context, politics and economics analysis must be conducted to show the economic valuation of milk production and its other products.

The dairy industries relate direct and indirectly with many others companies from different sectors, representing an important economic component for a region (KERSBERGEN *et al*, 2013). A dairy company viability is direct related with the costs of its products. The costs affect the whole chain of milk production: producers, consumers and policy makers; also, it is a crucial economic indicator to establish a fair sale price to producers and consumers. There is two ways to a dairy company increase its income: by increasing the milk production or shortening the cost of the process (CHANDRA, 2014).

In this context, this study aimed to determinate the mozzarella cost production of a dairy industry in Patos de Minas city (Minas Gerais state, Brazil).

## **OBJECTIVES**

- Raise all the costs that involves the mozzarella production.
- Use the ABC defray method for cost distribution.
- Raise the percentage of the biggest costs.
- Analyze if the price established by the market is profitable.

## **METHODOLOGIES**

This research characterized as a qualitative research, because it chases approximate theory with facts, through description and interpretation of isolated or unique episodes, privileging the knowledge of the relations between context and action.

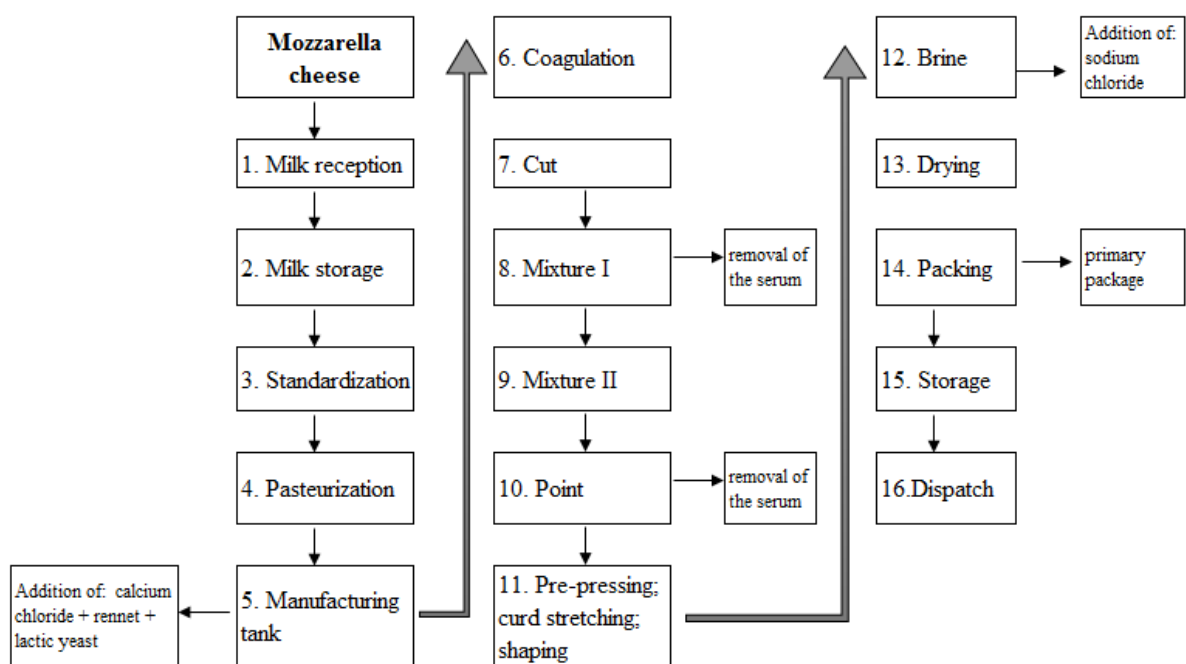
To collect the data, and subsequently for the diagnosis, a field study characterized by the method of direct observation was conducted.

First, the production schedule was made, and then the production costs (direct, indirect, fixed or variable) were allocated for each specific activity of mozzarella production with ABC defray method. To judge the answers it was used direct observation and analysis of documents held by visiting the company premises.

Once the costs was identified, an analysis was performed to map the main offenders (higher costs) for contribute with the management.

## **RESULTS**

Visiting the company, it was able to make the mozzarella production schedule, as represented in the Picture 1.



**Picture 1: Mozzarella production schedule.**

**Source: The authors.**

Analyzing each stage of mozzarella production, by a case study, was identified the costs for each one of them. The Table 1 shows the costs and expenses related with the stages of production.

**Table 1: The stages of mozzarella production, their respective costs and the expenses.**

Stage	Costs
1	Cost of collection vehicles; freight; manpower I.
2 and 3	Cost of cooling equipment; cost of storage tank; electric power I.
4	Cost of laboratory; cost of pasteurizer; boiler cost; creamer cost; electric power II; manpower II.
5, 6, and 7	Electric power III; manpower III; manpower IV; purchase price + shipping + receiving + storage of calcium chloride; purchase price + shipping + receiving + storage of coagulant; purchase price + shipping + receiving + storage of lactic yeast; queijomatic (machine) cost.

8, 9 and 10	Cost of serum withdrawal equipment; manpower IV.
11	Drenoprensa (machine) cost; molds cost; monobloco (machine) cost; cost of serum withdrawal equipment; electric power IV; manpower IV.
12	Cold chamber cost I; electric power V; cost of brine tanks; manpower IV; purchase price + shipping + receiving + storage of sodium chloride.
13	Cold chamber cost II; electric power VI; manpower IV.
14	Cost of the packaging equipment; electric power VII; manpower V; purchase price + shipping + receiving + storage of primary packaging.
15	Cold chamber cost III; electric power VIII; storage.
16	Cost of transport vehicles; freight transport; commission of sales representatives; sales promoters; devolution; manpower VI.
Expenses	Administrative; PPE (personal protective equipment); laboratory supplies; cleaning supplies; operational – maintenance; services; taxes.

The same cost with different Roman (e. g. I, II, III ...) numerals means different sources for the respective cost. Therefore, the same cost and Roman numeral means that it participates in more than one production stage.

The total of all the costs and expenses listed in the table above was R\$13.88 (US\$5.33 quoted at 11/17/2014) per Kilogram. The biggest offenders in costs and expenses were identified based on their percentage over the total: milk cost (70%); administrative expenses (4.76%); cost of transport vehicles (1.95%) and devolutions (1.89%).

The sales price of the month analyzed was R\$12.60 (US\$4.87 quoted at 11/19/2014), showing that the price market was not profitable according with the cost and expenses analyzed (R\$ 13,88). It also shows that this company needs a cost management to reduce the biggest offenders and make a profitable product. These results was similar with CEPEA (2015) research, that affirms that the average sales price for Brazil exportation of dairy products reported was US\$ 5.11 per kilogram in December/2014.

## CONCLUSIONS

According to the results, the stages in mozzarella cheese production in this research are milk reception, milk storage, standardization, pasteurization, manufacturing tank, coagulation, cut, mixture I, mixture II, Point, Pre – pressing, curd stretching, shaping, brine, drying, packing, storage and Dispatch.

The biggest expenses and costs were milk cost (70%); administrative expenses (4.76%); cost of transport vehicles (1.95%) and devolutions (1.89%) with ABC defray cost distribution.

According to this research, the sale price per kilogram (R\$ 12.60 - US\$4.87 quoted at 11/19/2014) was lower than the cost price per kilogram (R\$ 13.88 - US\$5.33 quoted at 11/17/2014).

In conclusion, the result of this investigation shows that this company must find new strategies to decrease their costs and expenses to provide a profitable product with a correct sales price in Brazilian market.

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