

# **CALCULATION METHODS USED IN THE DAIRY INDUSTRY**

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**Abstract:** An important stage in the production process of the enterprise in food manufacturing milk after setting object and unit calculation is the identification of processes that can be used to collect production costs in ways and places categories of expenditure and their distribution on the final cost carriers (finished) obtained from respective places of costs as well as unit cost calculation.

By fulfilling the ultimate goal for which they are used, the calculation of unit cost, calculation methods serve as tools of business management.

Taking into account the technological process, costing method used by economic entities in the food industry for the manufacture of dairy products is one of the traditional type, ie phase method.

**JEL classification: M41, M11, Q1.**

**Key words: methods, phase method, standard cost method, calculation unit, production cost, calculation phase.**

## **1. INTRODUCTION**

In this paper are highlighted aspects of the calculation methods used in the dairy industry and the need to improve these methods for good development of the economic enterprises.

Subjecting attention peculiarities of the technological process in the dairy industry we want to see if costing method used by economic entities in the dairy industry is efficient, to detect shortcomings of that method which requires strictly necessary improvement of management accounting methods for allow adequate exploitation of information about the production process.

## **2. CALCULATION METHODS USED IN THE DAIRY INDUSTRY**

“Calculating the cost per unit of product, work or service ... aims the completion of a series of stages or steps which are used in various processes capable to ensure the intended purpose, and the practical method of application of one or other of the processes and their sequence during calculation takes form of a specific technique known as the costing method.”<sup>1</sup>

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<sup>1</sup> Iacob ș.a. 2007. CONTABILITATE DE GESTIUNE conformă cu practica internațională, Editura Universitaria Craiova, pag. 46

Depending on the objectives, methods of calculation are divided into two groups: first is aimed at determining the cost of products, informs the decisive factors for determining measures to ensure respect to pre-calculated level of expenditures included in cost, and the second group seeks production activity by specific indicators additional computed in order to create favorable conditions to respect the predetermined level regarding production costs and to provide information for management.

By achieving the ultimate goal for which they are used, the calculation of unit cost calculation methods have the role of tools of business management.

“Costing method includes all processes used to numerically quantify of the correlation between company production and selling costs and production which has incurred, in their capacity as economic size determined by measuring and control.”<sup>2</sup>

In selecting and defining a method of cost calculation, the basic criteria are those of “specific manufacturing technology, production type and its mode of organization, size of the entity, the entity's organization, organization of production and character of production process.”<sup>3</sup>

Taking into account the technological process costing method used by economic entities in the food industry for the manufacture of dairy products is one of the traditional type, ie phase method.

Usually the phase calculation method is used in the manufacturing entities, permanently, the same homogeneous quality product and in large quantities and for the finished product needs to go through several stages of production.

Calculation object is represented by product and production phases, production costs being recorded monthly for each phase, as at the end of production, by aggregating all costs to obtain the actual unit cost of the final product.

“Costing stage of production is considered as the expression techno-economic production phase, characterized by a specific training or calculation, analysis and cost control.”<sup>4</sup>

To establish and delimit the costing phase which is achieved by detailing the whole technological process, it is necessary to take account of a number of principles<sup>5</sup>, such as:

- a) technological phases who have mostly sequentially character is a starting point for establishment the costing phase
- b) Unit cost of each finished product should be determined by a reduced number of calculation phases for avoiding large centralized work and also unnecessary.
- c) Inside sections, technological lines or complex manufacturing installations can constitute the basis of distinct calculation phases if each of these have as their object the achievement of finished products or semi-finished products that are different between them by destination, state of aggregation, qualitative properties and determines different manufacturing expenses as size.

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<sup>2</sup> Călin O., Cârstea Gh. 2003, Contabilitatea de gestiune și calculația costurilor, Editura Atlas Press, pag. 89

<sup>3</sup> Budugan ș.a. 2007, Contabilitate de gestiune, pag. 255-257

<sup>4</sup> Budugan ș.a. 2007, op.cit., pag. 267

<sup>5</sup> Baci A., Duția T., 1981, Sistemul informațional integral al costurilor, Editura Dacia, Cluj-Napoca, pag.84; Călin Oprea și Cârstea Gh., 2003, Contabilitatea de gestiune și calculația costurilor, Editura Atlas Press, pag. 257-258; Budugan ș.a. 2007, Contabilitate de gestiune, pag. 267-268

d) It require the creation of different calculation phases containing those technological phases, or stages, resulting a semifinished product which is still used at different stages of the manufacturing process

It is necessary to group in different calculation phases those technological phase in which manufacturing takes place, is getting finished or purified some semi-finished or secondary products obtained concurrently with main product at a given stage of the manufacturing process

The application of method on phases, within the entity of the dairy industry, involves taking into account the particularities of the technological process, the characteristics of the production type, as well as the organization of production, and the used version is the one with semi-finished products. This requires the cost calculation for each semi-finished product in part, stored, either for domestic consumption or for sale, “considering both of the cost of raw materials received at warehouse or of the received semi-finished in the previous phase, and other direct and indirect expenses concerning the phase in question”<sup>6</sup>. In this context, is very necessary to be known the semi-finished products from every manufacturing stages.

According to this variant, the cost is determined by article of calculation at every phase in part, the cost of the previous phase being transferred to the next phase, the calculated cost for the manufacturing of the last phase representing the cost of the finished product.

From the mathematical point of view, the procedure of constituting the final product cost in variant with semi-finished products is presented in relation:

1. Cost calculation for the first phase:

$$cuf_1 = \frac{\left( \sum_{j=1}^r ChDpa + \sum_{j=r+1}^s ChIpa \right)_{f_1}}{Q_1}$$

2. Cost calculation for the second phase:

$$cuf_2 = cuf_1 + \frac{\left( \sum_{j=1}^r ChDpa + \sum_{j=r+1}^s ChIpa \right)_{f_2}}{Q_2}$$

3. Cost calculation for the “n” phase:

$$cuf_n = cuf_{n-1} + \frac{\left( \sum_{j=1}^r ChDpa + \sum_{j=r+1}^s ChIpa \right)_{f_n}}{Q_n}$$

where:

cu – cost per unit of product

f – calculation phase

p - product

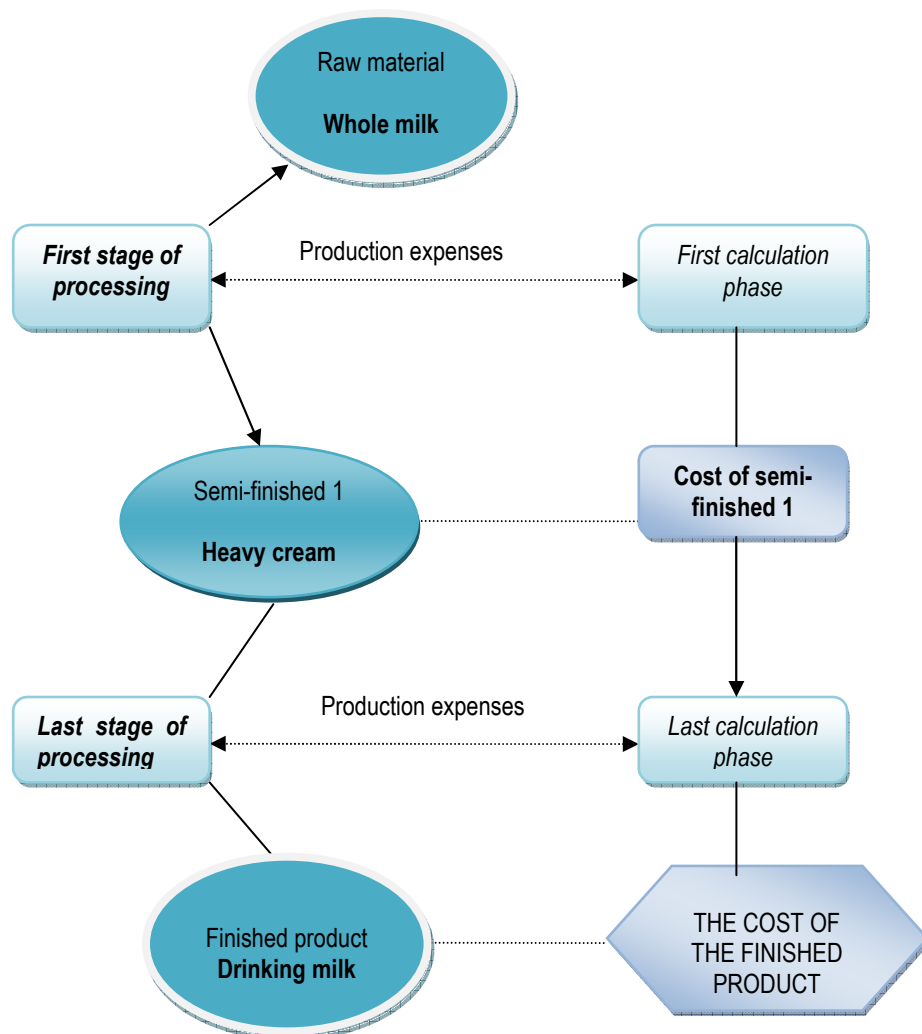
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<sup>6</sup> Călin O., Cârstea Gh. 2003, op.cit., pag. 260

a – manufactured product  
 ChD – direct expenses  
 ChI – indirect expenses  
 j – Article of calculation  
 r, s – number of articles of calculation  
 Q – volume of obtained production

The phase method with semi-finished products has the disadvantage that when exist production in progress and numerous calculation phases, at the end of the management period the volume of data centralization works is increased regarding the calculation of the cost production of the obtained semifinished product.

Graphically, the semifinished product crossing from one stage to another, and the cost transfer from one phase of calculation to another, in the analized economic entity from the food industry for the manufacture of dairy products, is as follows (figure no 1):



**Figure no 1. The corellation between production stages and calculation phases, in the variant with semi-finished product to obtain the finished product – drinking milk**

### **3. PHASE METHOD LIMITS, A METHOD OF ORGANIZING MANAGEMENT ACCOUNTING AND COST CALCULATION USED IN THE DAIRY INDUSTRY**

Thoroughly analyzing the phase method of management accounting and cost calculation used in the dairy industry have been highlighted its limits with regard to the lack of efficiency and prediction. The disadvantage derives from understanding or better said inability to turn to advantage the information in decision-making by management, as well as in conducting operational control of the production process, given by the achievement of the proposed objectives.

Another disadvantage of phase method is the impossibility of operative knowledge of deviations from the normal running conditions of the production envisaged during the budgeting and detailed standardizing of the expenses on production types and places.

Thus, the information provided by this method does not allow timely notification of additional costs and other difficulties encountered in the production process and does not envisaged the cost minimization.

By this method of calculation, in the entity from the dairy industry is not made a clear evidence of productive expenses compared to unproductive ones, costs of production being divided in direct and indirect expenses without analyzing them compared to the variation of production volume.

All these shortcomings require the improvement of cost calculation method that brings in the foreground the efficiency of production process or depends by the efficiency with which information reaches the management, by the competence with which are valorised this information in making decisions and in operative control of the production process development.

Effective management of economic activity requires the application of modern methods that provide operative and forecasting information about the usability of resources and time production that determines the cost production level, not only information related to the past periods.

New methods must allow the adoption of measures and correct decisions for labor improvement, in in order to achieve the objectives of the budget, to prevent and remedy the deviations.

The best method of cost accounting that answer to all these needs is the standard cost method. By adopting this method in dairy industry are offered information with triple role, operational, forecasting and functional, concerning production costs.

Standard cost method offers flexibility in costs calculation and pursues the calculation of a complet cost based on scientific forecasting calculations and budgetary control.

### **4. STANDARD-COST METHOD IN SUPPORT OF THE IMPROVEMENT OF MANAGEMENT ACCOUNTING AND COST CALCULATION IN THE DAIRY INDUSTRY**

Standard cost method consistently promotes calculation of anticipated production costs and determination, tracking and controlling deviations from them.

Simplification bringing in calculation by this method and it advantages offered to entrepreneurs led to a large spread and rapidly evolving towards higher forms. Standard cost method offers undeniable advantages in studying and analyzing the operational efficiency of the production of companies from dairy industry, becoming an important tool for investigation and prediction.

By applying the standard method - cost aims at increasing the role of production costs to achieve the objectives set by the organization, to provide a character of efficacy,

determined by the degree of recovery in the preparation and decision making to determine corrective action.

The main work posed by standard cost method<sup>7</sup> consist in developing the calculation of standard costs of product; organization of calculation, tracking, control and monitoring of deviations from standard costs; tracking production costs as required by the standard cost method.

Stage of drafting the product standard calculations is required in developing quantitative standards for materials and workmanship, value standards regarding the standard acquisition price and standard wage tariffs as well as standards for overhead costs. Elaboration of product standard calculation occurs before the commencement of manufacturing and requires the establishment of production standard varieties to determine the optimal use of production capacity of enterprises in dairy industry.

Tracking production costs through management accounting in the case of standard cost method may be organized under one of the following: standard partial cost; standard single cost; standard cost double.

Between the three variants of the standard cost method, standard cost single best meets the requirements of the enterprises from the dairy industry.

With this method is made a operational budgetary control of how are used the manpower and material resources by distinct, permanent and complete pursuit of deviations during the activity and not at the end of the reporting period, both in the operational evidence and in accounting, global and on causes, from the moment of appearance respectively their identification and distribution until the financial results.

In conclusion, we believe that the introduction of the standard calculation method – single cost, in the dairy industry enterprises needs to increase the usefulness of the information on internal activity and is a mainstay in improving management accounting and cost calculation of industry dairy manufacturing.

## **5. CONCLUSIONS**

Thorough analysis of the economic processes positively influences the capacity and the contibution of accounting, generally, and of management accounting, in particular, to the correct information and such, to the preparation of decisions for management.

The adoption of standard cost method in the food industry for the manufacture of milk products facilitates analysis on spending, on responsables, because effective leadership requires permanent informations as varied on production costs in different stages of production, which requires detailed analysis of economic processes.

By applying the standard cost method in the economic entity in the dairy industry is assured the anticipated knowledge of the production costs and the necessary measures to be taken to achieve them; is allowed the complex and operative information of management; is favorable influenced the increasing utilization degree of production capacity of economic entity; allows a permanent control of production costs, and also, simplifies the evaluation technology of production in progress at the end of the reporting period.

Analyzing the usefulness of the information provided by the standard cost method and that on the phases, the first mentioned stands in advantage as the most appropriate for the dairy industry.

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<sup>7</sup> Călin O., Cârstea Gh., 2003, op.cit., pag. 200

Importance of management accounting in the economic entities of the dairy industry by implementing standard cost method is highlighted by issues related to eliminating waste, enabling efficient utilization of production capacity.

## **REFERENCES**

1. Baciu A., Duția T. Sistemul informațional integral al costurilor, Editura Dacia, Cluj-Napoca, 1981.
2. Briciu S. Contabilitatea managerială. Aspecte teoretice și practice. Editura Economică. București, 2006.
3. Budugan ș.a. Contabilitate de gestiune, 2007.
4. Călin, O., Cârstea Gh. Contabilitatea de gestiune și calculația costurilor, Editura Atlas Press, 2003.
5. Iacob ș.a. Contabilitate de gestiune conformă cu practica internațională, Editura Universitaria Craiova, 2007.