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The Curves of Parameters Having Economic Importance in Conventional Milk during winter and Spring Season

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----------***ABSTRACT***----------
This study was aimed to investigate the milk parameters having economic importance such as fat and protein in conventional milk during winter (January, February) and spring (March, April, May) season. Milk data was collected from a milk company in Batman province during winter and spring period. The protein level of March month was statistically higher than that of other months. Milk protein levels were similar between the other months.The milk fat was secreted at its highest rate at the start of year (January) and then declined until March month and it remained stable from March to April. A decrease in milk fat rates was seen again after April month andthe resistance to decline of milk fat rates was low during winter and spring months. Suitable roughage intakes to increase the production of milk fat are essential for achieving the economic benefits during winter and spring period.
KEYWORDS:*Milk, conventional, winter, spring, economic*

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I. INTRODUCTION

The composition of raw cow milk is of prime importance for the manufacture of products in the developed countries and there is significant interest in variations in the composition and physico-chemical properties of raw cow milk. Understanding the effective factors on milk components having economic importance such as fat and protein is a major importance for milk industry because the parameters of it influence the dairy products [1]. The chemical components of milk are directly linked with technological parameters decide about its acceptance in dairy industry. These parameters have got suitable economic benefits [2]. Researches focus on maximizing milk components having economic importance in dairy cows. [3] reported that milk fat and protein are most important factors in dairy products, especially cheese manufactured from dairy cows.The environmental factors such as season which affect milk yield in dairy animals have effect on milk constituents [4]. This research was aimed to investigate the milk parameters having economic importance in conventional milk during winter and spring season.

II. MATERIAL AND METHODS

Data was collected from a milk company in Batman province during winter and spring season of 2010 year.Daily milk samples for each month were collected directly from homogenized bulk milk at determined local points and put in to the 100 mL sterile plastic container stored at 4 ^{o}C and immediately transported in freeze to the laboratory and analyzed. Milk fat and protein rates were determined by milk auto-analyzer. Protein and fat data were analyzed by one-way Anova and Duncan test was made to compare differences ($p<0.05$) between means of months with help of the SPSS 18.0 [5],[6].

III. RESULTS AND DISCUSSION

The milk proteinlevels during winter and spring season were shown in Figure 1. As shown the figure, there was anincrease of milk protein rates for March month during lactation period. The protein level of March month was statistically higher than that of other months. Milk protein levels were similar between the other months. This curve was interesting for protein having economic value. We cannot saythe specific reasonwhy the protein was high in March month. According to [7] climatic conditions and seasonal changes have influences on milk parameters.The resulting increase in protein rate of March month may be an economic advantage to cheese manufacturers for this month.

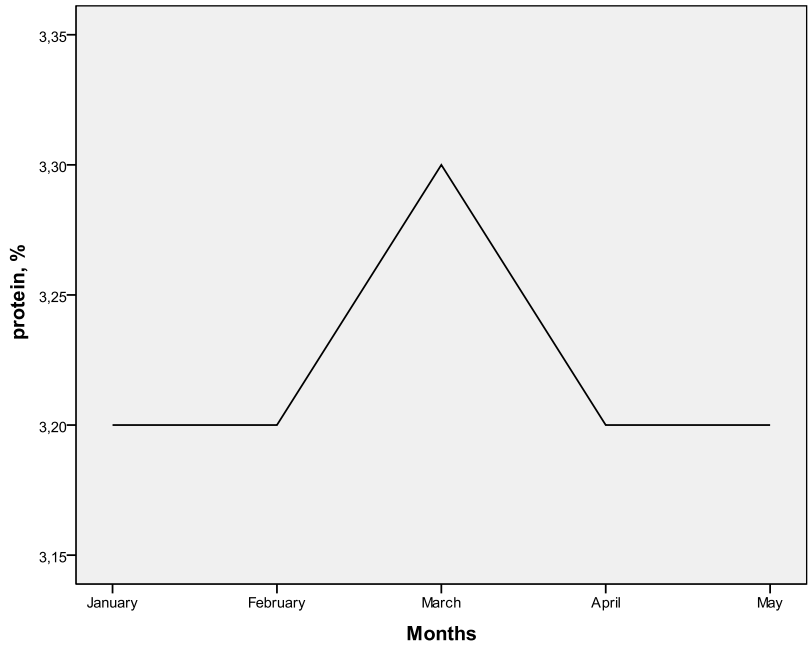

Figure 1. The curve of monthly protein rates during winter and spring period

The monthly fatrates were shown for all lactation period in Figure 2.The milk fat was secreted at its highest rate at the start of year and then declined until March month and it remained stable from March to April. As seen from the Figure 2, a decrease in milk fat rates was seen again after April month andthe resistance to decline of milk fat rates was low during winter and spring months.

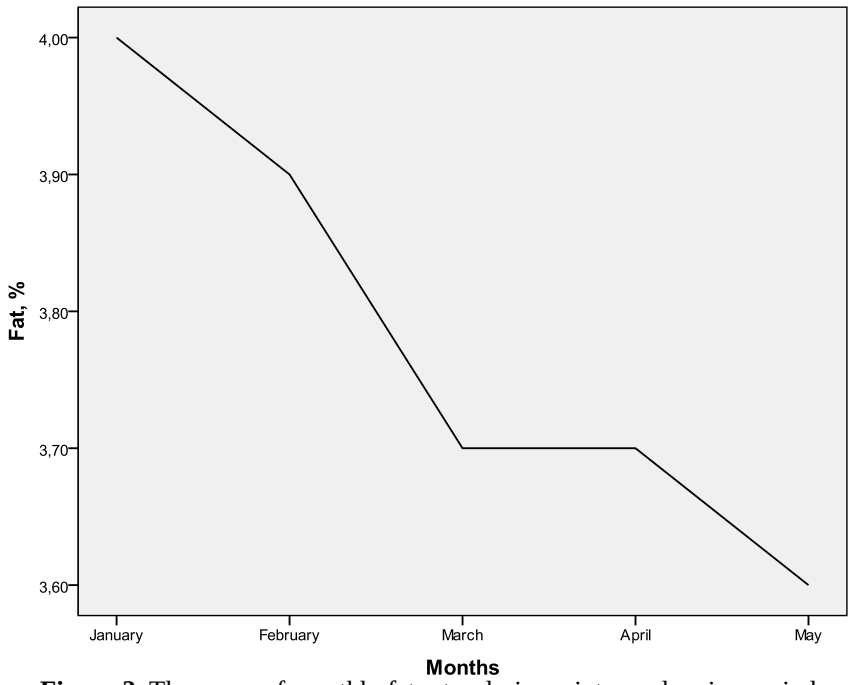

Figure 2. The curve of monthly fat rates during winter and spring period

As shown in Figure 2 milk fat levels were not stable during months. This could be attributed to the different temperatures and feed composition, because cows consume more dry feed in winter, whereas in spring they eat grass and stay outside for longer [8]. When temperature is increased the milk fat begins to decrease. Probably due to the fact that increase feeding frequency of low fiber, high grain diets increase milk fat levels during the winter period and the herbage was not available in this period [1]. According to [9] milk fat percentage has been influenced by the seasonal variations. A decrease in milk fat rate from January to May can directly lead to financial loss, if the milk price depends on milk fat level. In figures, protein curve of milk were

not more flexible than fat curves. When the figures were examined, both of curves were not in a similar appearance.Favorable feeding intakes to increase production of milk fat and protein are essential for achieving the economic benefits during winter and spring period.

Milk fat and protein rates of winter and spring season in this research are compatible with normal values for dairy cows announced by [10].

In our study, milk fat and proteinrates obtained from winter and spring season were not differ than reported conventional milk results from researchof [11]. However, the curves of milk fat and proteinduring winter and spring period were compatible with the curves of milk obtained from dairy cows in literature. The cheese manufacturers must be careful about low fat rates in milk during spring period for achieving maximum profit.

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