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Fat Depression Analysis in Conventional Milk during Summer Season

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----------***ABSTRACT:***----------
The aim of this research is to investigate the fat depression analysis in conventional milk during Summer Season. The daily milk fat data was obtained from DIMES Company in Tokat Province during all months of summer season. Milk fat depression *is defined as* milk fat *level below* 3.2 *percent in milk of dairy cows. The data were presented as mean ± S.D. The concentrations of milk fat for all months of summer season were compared with the depression level (3.2%) using one-sample t test. Comparisons were done with help of the SPSS statistical program. In this study, there was fat depression in conventional milk on June, July and August months. Proper* management *and nutrition of the animal materials are critical for obtaining maximum milk fat rates. The low milk fat rates in this study during summer months are compatible with normal milk fat rates (% 3-5) in announced international standards for dairy cattle. Further researches are needed to collect information about biochemical parameters having economic importance such as total fat in conventional milk from different seasons. New studies are needed to investigate the fat depression levels in conventional milk for all season and other county of Turkey.*
KEYWORDS: *Milk, Conventional, Fat, Depression, Summer*

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I. INTRODUCTION

Feed consumption with a high proportion of concentrate can result in decreased pH in the rumen leading to decrease of milk fat level called milk fat depression.[1] reported that decreased pH in the rumen occurs in the beginning of the postpartum period because of high energy consumption. Milk fat depression is defined as milk fat level below 3.2 percent in milk of cows [2]. Although much is known about causal relationships between the animal diet and milk fat depression, but little is known about variations in milk fat depression levels during different seasons. Studies of environmental influences provide data for accounting for these variations before attempting genetic researches. They further provide the clues to favorable feeding and management controls of milk content. The objective of this study is to investigate the fat depression analysis in conventional milk during summer season. This is the first detailed study on milk fat depression levels in raw cow milk for this period.

II. MATERIAL AND METHODS

The daily milk fat data was obtained from DIMES Company in Tokat Province during all months of summer season. The concentrations of milk fat for all months of summer season were compared with the depression level (3.2%) using one-sample t test [3]. The data were presented as mean ± standard error. Comparisons were done with help of the SPSS 18 statistical program [4;5].

III. RESULTS AND DISCUSSION

Fat depression levels of the conventional milk for each month of the summer season are shown in Table 1. Milk fat percentages during summer months were below 3.2 percent in our study. The concentrations of milk fat for all months of summer season were compared with the depression level (3.2%) using one-sample t test in the study. Total milk fat rate decreased as the season progressed as shown the table.

Months	Total fat, %	Significance level
June	3.10± 0.07	**
July	3.06 ± 0.03	**
August	3.01 ± 0.05	**

** $p<0.01$

Table 1. Fat depression levels in conventional milk from Summer Season

The fat depression levels for all months of summer season can be seen from Table 1. These levels are compatible with the announced normal values (between 3-5 %) of milk fat for dairy cows [6] despite lower levels of fat. Seasonal differences in milk fat rates are due to a combination of factors including breed differences, climate, lactation stage, feeding factors [7]. According to findings obtained in this research, it is possible say that milk fat depression test showed severely summer depressions during three months of this season. Increases in the temperature variables depressed milk fat secretion in udder, and had much more effect on milk fat level than they had on other milk constituents. [8] reported that there was a negative correlation between environmental temperature and the amount of milk fat rates. A high light-to-dark ratio leads to a reduction in fat rates of milk, probably as a consequence of a greater secretion of prolactin whose concentration in plasma is higher in the summer season than in the winter period [9]. [10] reported that a ration based on barley, which depressed milk fat percentage. The depression of milk fat concentration on low roughage diets is usually accompanied by a reduction in milk fat yield. As known, roughage intake is lower summer season than winter period. Changes in endocrine function are an important source of differences in yield and composition of milk. Hormonal influences on milk composition are discussed by [11] and according to mentioned author hormonal functions can change from time to time. Several researchers[12] have reported on seasonal changes in milk composition of dairy animals. However, little new has been reported in the past decade on differences in fat levels of bovine milk. Results of this study showed that summer season had a significant impact on milk fat level. As the summer season progressed, milk fat level decreased in the milk produced during hot summer temperatures and poorer quality pastures. Roughage can be regarded as one of the most important sources of variation in the milk fat level, but climatic conditions and seasonal variation and regional differences can also play an important role on fat depression level. There was a severely fat depression in conventional milk for all months of summer season. New researches are needed to investigate the fat depression levels in conventional milk for all season and other county of Turkey.

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