

## Milk Total Fat and pH Curves of Simmental Cows in Early and Late Lactation Period

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### ABSTRACT

*In this study, 30 Simmental cows were used. The study began at first day of lactation and lasted after 10 month. To observe milk parameters, samples were obtained from each Simmental cow for only first day of first weeks in 1. and 2. month of early lactation and 7, 8, 9 and 10. month of late lactation. There was a fall of milk fat rate for second month and an increase after from 7<sup>th</sup> month. The rates for milk fat and pH of dams at 9<sup>th</sup> and 10<sup>th</sup> months were the highest point. The resistance to decrease of milk contents was higher during last months (between 7-10 months) than during first months. In this research, the means of components in milk from Simmental cows were differ than reported results for dairy cows during lactation period, whereas the curves of milk biochemical parameters were coincide with the curves of dairy cows in literature.*

**Keywords:** Simmental, cows, early and late lactation, biochemical curve

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### I. INTRODUCTION

Recently, milk pH and fat levels have traditionally received most attention [1]. However detailed information on factors influencing parameters of cow milk is limited and no researches have investigated correlations between of milk constituents of Simmental cows in early and late lactation period. Milk component metabolism of dairy cows and their secretion into milk are affected by the breed [2]. Lactation curves for contents of milk are important for dairy production knowledge [3]. The relationships among parameters in cow milk were not clear in all lactation periods. Biochemical curves can be used to study of estimation methods for milk yield and its parameters [4]. In this study, we tried to observe lactation stage on milk components of Simmental cows.

### II. MATERIAL AND METHODS

In this study, 30 Simmental cows were used. The experiment began at first day of lactation and lasted after 10 month. The cows were intake a standard concentrate diet and roughage.

To observe milk composition, samples were obtained from each cow only first day of first weeks in 1. and 2. month of early lactation and 7, 8, 9 and 10. month of late lactation. Milk samples were composites of milk collected at consecutive morning and afternoon. The samples were collected into plastic vials preserved with microtabs, stored 4°C until analyzing for determination of fat and protein. The milk samples were analyzed by automatic analysis using a Farm Milk Analyser (Milkana).

### III. RESULT AND DISCUSSION

The milk fat rates during study were showed in Fig. 1. As shown the figure, there was a decrease of milk fat rates for second month and an increase after from 7<sup>th</sup> month of lactation.

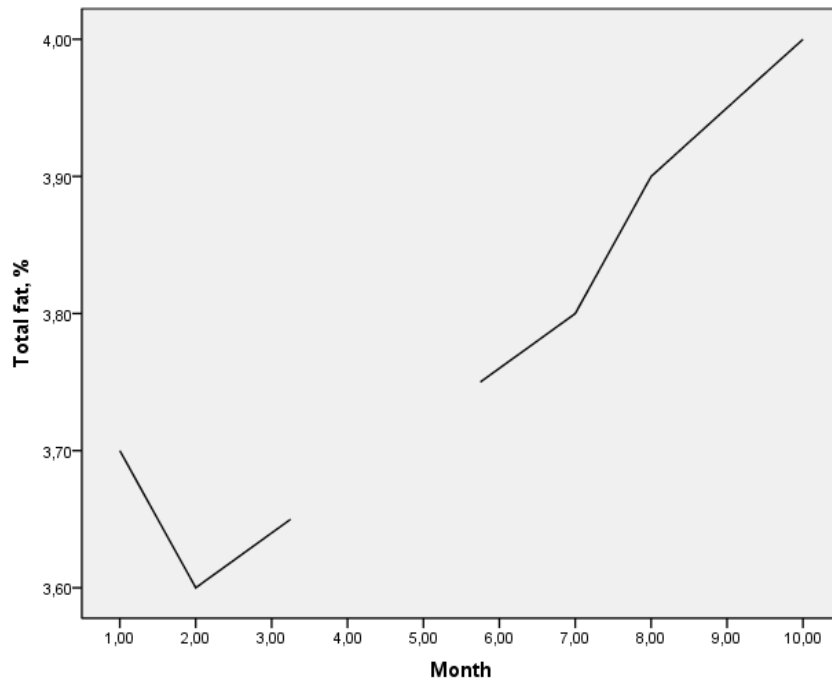


Figure 1. Milk fat curve for early and late lactation

The monthly fat levels (3.7 and 3.6 %) of Simmental cows during 1 and 2 months were low when compared to (3.8 %) by same breeds for an early lactation period [5]. In their studies, Simmental cows fed in pasture, whereas our cows fed with concentrate diets in study. The concentrate diets may be reason of the low milk fat levels in our study.

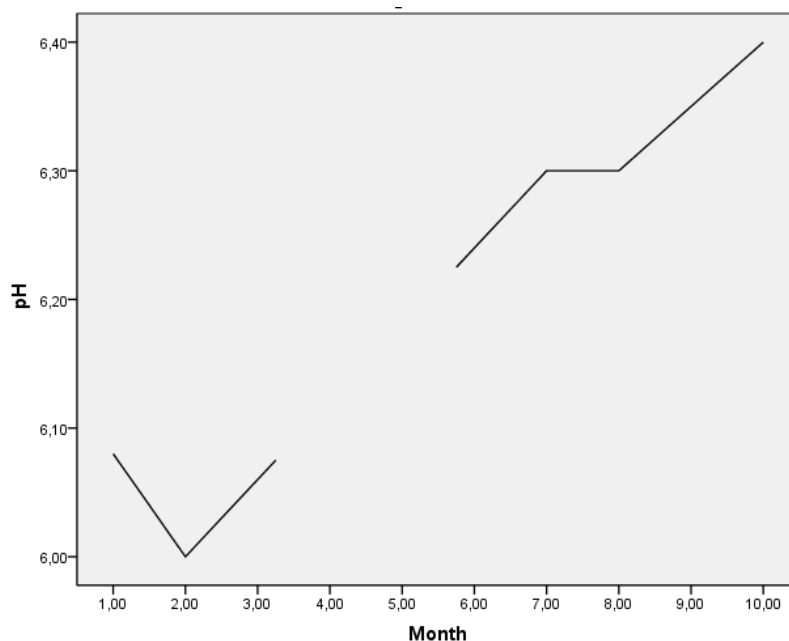


Figure 2. Milk pH curve for early and late lactation

The monthly pH levels were shown for all lactation period in Fig. 2. The monthly milk pH levels in early lactation were higher than reported for non-dairy cows during early lactation [6]. We cannot say the reason why the pH was high in our study according to literature. Such different results in literature may be due to the fact that these studies were planned with different cow breeds which might have efficient or inefficient autocrine control of milk secretion. Bencini [7] reported that milk composition was affected in breeds because they have different autocrine control of milk secretion.

The milk fat was secreted at its highest rate at the start of lactation and then declined in second month when it started to gradually increase again until the end of the study. Figs. 1 and 2 show that the resistance to decline of

milk biochemical parameters was higher during last months (between 7-10 months) than during first months of lactation. As shown in Figure 1 and 2 milk fat and pH levels were not stable during months. In figures, milk fat curve of milk were not more flexible than pH curves. When the figures were examined, both of curves were in a similar appearance.

In our study, milk biochemical parameters obtained from Simmental cows were differ than reported results for dairy cows during lactation period. However, the curves of milk biochemical parameters were coincide with the curves of dairy cows in literature.

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