BODY CONDITION SCORE AND ITS RELATIONSHIP WITH MILK FAT PER CENT AND WEEKLY MILK YIELD IN FRIESWAL COWS

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ABSTRACT

A study was carried out for Body Condition Score and its relation with production performance i.e. weekly milk yield and milk fat per cent along with the effect of parities and stages of lactation on Body Condition Score, weekly milk yield and milk fat per cent. Results of the study showed significant effect of parity on Body Condition Score, fat per cent and weekly milk yield. A significant effect of stages of lactation was observed on Body Condition Score and fat per cent. The Body Condition Score was found significantly correlated with weekly milk yield.

INTRODUCTION

The Body Condition Score (BCS) system is a subjective scoring method of evaluating the energy reserve of dairy animals to provide better understanding of biological relationships between body fat, milk production and reproduction. This method helps in adopting the optimum health of livestock. Body condition scoring is also useful in dairy heifer feeding management (Heinrichs and O'Connor, 1991). Cows that are too thin are also more prone to metabolic problems and diseases with decreased milk yield.

MATERIALS AND METHODS

The study was carried out at Military Dairy Farm on Eighty Frieswal cows. The cows were divided in five parities and three stages of lactation. The observations were recorded at weekly intervals. The number of cows included in parity P1, P2, P3, P4, P5 was 21, 23, 18, 11and 7 animals respectively. The lactation of each cow under study was divided into three stages ;S1 (0-90 days), S2 (91-180 days), S3 (181 & above).The number of cows included in S1,S2 and S3 were 13, 27 and 40 respectively.

The technique of Ferguson *et al.* (1994) was used for Body condition scoring system . It was applied to access the body condition of the animal with fairly high accuracy. The points were given to animal ranged from 1 to 5 scale. Milk samples were collected randomly in morning and evening for fat per cent analysis with the help of automated electronic lactoscan machine .

The data were subjected to statistical analysis using least square analysis technique as outlined by Harvey (1976). The degree of association between two different variables was estimated by calculating the Pearson's correlation coefficient (Snedecor and Cochran 1994). After completion of analysis of variance the significant effect were further analyzed to make all pair wise comparisons by using DMRT as modified by Kramer (1957).

RESULTS AND DISCUSSION

The average BCS was found to be 3.35±0.04 (Table -1) .The BCS showed increasing trend from 3.09 ± 0.07 to 3.64± 0.10 from first to fourth lactations which may be due to advancement towards maturity and slight declination in BCS after fourth lactation , which might be attributed due to ageing of the cows under experiment. The Body Condition Scores in present study were in

accordance with the findings of Bhakat, (2004) . The higher Body Condition Score in third stage of lactation may be due to positive effect of possible pregnancy to enhance body reserve for next parity. The findings corroborate the finding of Drame *et al.* (1999).

The fat per cent gradually decreases with advancing lactations. The significant difference in fat per cent in subsequent lactations may be due to higher milk production or excessive udder infection as compared to earlier parities. Similar findings were obtained by various workers (Bailey *et al,* 2005; Suman, 2009 and Chavan and Siddiqui, 2012). The significant effect of the third stage of lactation on fat per cent attributes to the fact that in advance stage of lactation, the milk yield decreases. The BCS, fat per cent and weekly milk yield did not differ significantly in S1 and S2. Results of the present study are in close agreement with those reported by Suman (2009) and Chavan and Siddiqui (2012).

Table. 1. Least Square Means and standard error of Body Condition Score, fat per cent and weekly milk yield under different parity and stage of lactation in Frieswal cow

Effect	**Mean±SE** (BCS)	**Mean±SE** (fat per cent)	**Mean ± SE** (weekly milk yield)
Overall mean (μ)	3.35±0.04	4.11±0.01	84.91±2.17
P1	3.09^{a}±0.07	4.21^{b}±0.04	64.81^{a}±3.62
P2	3.14^{a}±0.07	4.20^{b}±0.02	84.24^{ab}±3.48
P3	3.31^{ab}±0.08	4.11^{ab}±0.02	88.14^{b}±4.13
P4	3.64^{b}±0.10	4.02^{a}±0.03	100.10^{b}±6.18
P5	3.56^{b}±0.12	4.02^{a}±0.03	87.30^{b}±5.03
	Significant at P<0.05	Significant at P<0.01	Significant at P<0.01
S1	3.25^{a}±0.09	4.04^{a} ±0.03	85.13^{a}±4.62
S2	3.31^{ab}±0.07	4.02^{a}±0.02	89.45^{a}±3.39
S3	3.48^{b}±0.05	4.27^{b}±0.02	80.15^{a}±2.69
	Significant at P<0.05	Significant at P<0.01	Non significant

Means linked by similar superscripts do not differ significantly: P =Parity, S=Stage of lactation

The parity shows the significant effect on weekly milk yield in Frieswal cows. It was found in close relationship with the findings of Kumar *et al*. (2009) who observed increasing tendency of milk yield in subsequent parities. Increase in milk yield in second stage of lactation followed by decrease in third stage of lactation is in agreement with Bhakat (2004) and Chavan and Siddiqui (2012).

The Correlation Coefficient of BCS with fat per cent and weekly milk yield were calculated to be 0.009 and 0.210 respectively ,whereas; Coefficient of regression of BCS with fat per cent and weekly milk yield were found to be 0.0088 and 0.2310 respectively. Significant correlation with weekly milk yield is indicative of the fact that as Body Condition Score increase, there is an increase in milk yield. These findings are in close agreement with that of Gulinski *et al.* (2005). A non significant correlation of BCS with fat per cent as obtained in this study is in close harmony with the finding of Bhakat (2004) and Mushtaq *et al.* (2009).

Our study indicates that the Body Condition Score had positive significant correlation with weekly milk yield. Hence it may be concluded that the Frieswal cows to be selected for the best production performance should posses the Body Condition Score in the range of 3.00 to 3.50.

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