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## **Effect of body condition score on milk production and reproductive disorders in buffalo**

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### **Abstract**

The objective of this study was to determine the effect of BCS on milk production and reproductive disorders in Nili-Ravi buffalo under field conditions of Pakistan. The data was collected from 55 small holder farms from districts Kasur (n= 26) and Okara (n=29) respectively. Data regarding milk production and reproductive disorders were collected by trained veterinarian. The result showed that buffaloes having high BCS (4, 5) have significantly ( $P>0.05$ ) higher milk production as compared to low BCS (1, 2). Similarly, data showed that reproductive disorders were significantly higher ( $P>0.05$ ) in low BCS (1, 2) as compared to high BCS (4, 5).

**Keywords:** Nili-Ravi, body condition score, milk production, reproductive disorders

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## Introduction

The water buffalo (*Bubalus bubalis*) contributes substantially to the economy of many developing countries in tropics and subtropics regions & are classified into two distinct types, riverine and swamp buffaloes.

Pakistan's livestock accounts for approximately 55.1 percent of the agriculture value added and 11.5 percent to GDP (Pakistan Economic Survey, 2010-11). The Nili-Ravi buffalo (Black Gold of Pakistan) is classed as a riverine type and has been declared as possessing the highest milk genetic potential in the world (Status of buffalo in Asia in: Buffalo production under different climate regions, 2004).

Body condition scoring (BCS) is a management technique used routinely to appraise the body fat reserves and energy status in cattle (Wildmann et al.1982). The BCS method in buffaloes consists of assigning each buffalo cow a score from 1 (severely emaciated) to 5 (very obese) with 0.5 increments. Body condition scoring system has not been developed for buffalo. Keeping in view these facts, this study has been devised to know its significance.

## Materials and Methods

### ASLP Dairy Project Background

In 2007, a 2 ½ year dairy project "Improving dairy production in Pakistan through improved extension services" was started in districts Okara with some area of Kasur (well developed) and Bhakkar (less well endowed) Small dairy farmers having 3-10 (buffalo and/or cattle) were the main target of the project.

### Data Collection

One hundred and sixty nine Nili-Ravi buffaloes (n=169) were selected and data about body condition score, milk production and reproductive disorders were collected by trained veterinarian in specifically designed proforma.

### Statistical Analysis

The data about milk production was statistically analyzed using Chi-square tTest by formulating Null and Alternative Hypothesis:

H0: Body condition score and Milk production is independent

H1: Body condition score and Milk production is associated, while taking the;

Level of Significance  $\alpha = 0.05$  &

Test Statistic

$\chi^2 = \sum (O_i - e_i)^2 / e_i$  And  $\chi^2 \geq 15.50$

## Results

The statistical results of milk production data showed the rejection of H0 as  $\chi^2 \geq 15.507$ . Here we can clearly see that  $\chi^2 \geq 15.507$  i. e,  $34.8 \geq 15.507$  We reject H0 and accept H1 Two attributes are associated with each other which clearly indicate that BCS has direct effect on the milk production in buffalo. The higher BCS 4&5 have more effect as compared to low BCS 1&2. The reproductive disorders have direct relation with BCS1 to BCS4 while no relation with BCS5 as described in the graph below.

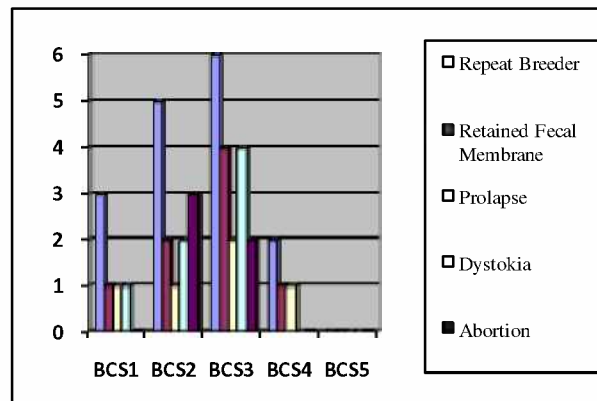


Fig.1 The graph showed that there is direct association between BCS and reproductive disorders up to BCS4 and zero with BCS5.

## Discussion

The present study showed association between BCS and milk production in Nili-Ravi buffaloes as described by Aeberhard et al., 2001a; Coffey et al., 2002; Agenäs et al., 2003. Similarly the present study also showed that reproductive disorders are associated with body condition scores in buffaloes as several studies on dairy cows have quantified the effect of BCS on fertility (Gillund et al., 2001; Roche et al., 2007b) and calving performance (Gearhart et al., 1990) as well as milk yield (Waltner et al., 1993; Ruegg and Milton, 1995; Domecq et al., 1

## Conclusions

Milk yield is significantly associated with body condition scores in buffaloes. Also the reproductive disorders have a direct correlation with body condition scores in buffaloes.

## References

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