

Studies on Body Condition Score and its Relationship with Service Period in Frieswal Cows

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ABSTRACT

The study was carried out at Military Dairy Farm on twenty one milch Frieswal cows. The cows were freshly calved. The study was done on Body Condition Score and its relation with service period in animals. The Study established the significant relation between BCS and days open. Study showed that the cow with moderate BCS had shorter days open in compare to lean (≤ 2.75) and obese (≥ 4.00) cows.

Keywords: Frieswal cow, Body Condition Score, Stages of lactation, Service period

Indian economy is primarily agriculture based with more than 70 percent of the population living in villages depend on agriculture (crop husbandry), animal husbandry and associated activities for their livelihood. . Body Condition Score and other related parameter especially when large fluctuation in the nutrition, disease and environment reflect in the production performance as well as reproduction performance. Body condition score play an important role in assessing the reproductive performance of animal as on optimum BCS service period fall in within the physiological range. More or less BCS leads in the deviation in open days of respective animal.

MATERIALS AND METHODS

Twenty one Frieswal cows were included in the experiment at military dairy farm Mhow, Indore. The observations of body condition score were recorded at weekly intervals. The cows were freshly calved and studied for body condition score and open days.

Parameter studied

1. Body Condition Score

The technique of Body condition scoring (Ferguson *et al.* 1994) was applied to access the body condition of the animals with fairly high accuracy.

Observations were recorded on following body point:

- Vertebral column (chine, loin and rump) flesh covering at the spinous processes of these regions,
- Spinous processes – their prominence and sharpness,
- Tail head region – prominence of depression between backbone and pins, and between pins and hook bones.

Bearing in mind the above points Ferguson *et al.* (1994) formulated a score chart which was adopted during this study. The observation

of BCS under study was recorded on weekly intervals till the end of experiment for the period started.

According to Ferguson *et al.* (1994) the main descriptors of BCS were primarily associated with the outward show of the ischial and ilial tuberosity and coccygeal and sacral ligaments.

Areas described were the thurl region, ischial and ilial tuberosities, ilio-sacral and ischio-coccygeal ligaments, transverse processes of the lumbar vertebrae, and spinous processes of the lumbar vertebrae. An absolute Body Condition Score was designated for each cow based on the modal body condition score for all observers. Their study indicated that body condition could be separated into 0.25 units between 2.5 and 4.0, inclusively. Below 2.5 and above 4.0, body condition could only be separated by 0.5 units. Between scores of 2.5 to 4.0 the ilial and ischeal tuberosities and coccygeal and sacral ligaments provide the primary information below 2.5 and above 4.0, the transverse process of lumbar vertebrae needs to be used. The appearance of the thurl region is a major feature distinguishing cows below 3.25 and above 3.0 in BCS. Shape of rump in 'V' and 'U' shape indicated the BCS 3.0 and >3.0, respectively and above 4.0 BCS thurl region become flattened. Distinct changes in specific body regions were associated with change in absolute body condition score. A body

condition score can be given to a cow based on principal descriptors of specific body regions between 2.5 and 4.0 by 0.25 units.

2. Service Period

Service period is the period fallen between calving and subsequent successful conception. To establish the relation of BCS with service period, a total of twenty one cows included, animals which were calved or exhibited their oestrus and in turn conceived during experimental period were included for analysis.

RESULTS

BCS and Service Period

The Means and standard error of service period of the Frieswal cows belonging to different Body Condition Score are presented in Table 2.

The overall Mean of service period related to different Body Condition Score was 87.59 ± 3.56 days. The service period in different Body Condition Score observed 91.30 ± 5.68 , 88.43 ± 6.99 , 70.23 ± 8.45 , 67.59 ± 5.42 , 71.83 ± 7.15 , 95.62 ± 4.93 and 128.15 ± 11.73 days for 2.75, 3.00, 3.25, 3.50, 3.75, 4.00 and 4.50 BCS, respectively. The lowest service period was found in Frieswal cows during 3.5 BCS

Table 1: Body Condition Scoring Chart

BCS	Tuberosity –appearance/ fat pad		Thurl shape	Ligament-appearance		Appearance
	Ilial	Ischeal		Coccygeal	Sacral	Spinous process
2.0	Angular-none	Angular-none	V	S	S	Angular>8 cm visible
2.50	Angular-none	Angular-fat pad	V	S	S	Angular 6-8 cm visible
2.75	Angular-fat pad	Rounded – fat pad	V	S	S	Angular 6-8 cm visible
3.00	Rounded – fat pad	Rounded – fat pad	V	S	S	Angular 6-8 cm visible
3.25	Rounded – fat pad	Rounded – fat pad	U	S	S	Angular 4-6 cm visible
3.50	Rounded – fat pad	Rounded – fat pad	U	B	S	Rounded 4-6 cm visible
3.75	Rounded – fat pad	Rounded – fat pad	U	NV	B	Rounded 0-2 cm visible
4.00	Rounded – fat pad	Rounded – fat pad	U	NV	NV	Rounded 0-2 cm visible
>4.00	Rounded – fat pad	Rounded – fat pad	Flat	NV	NV	Rounded 0 cm visible

S: Sharp, B : Blunt, NV: Not visible.

followed by 3.25, 3.75, 3.00, 2.75, 4.00 and 4.5, respectively (Fig. 1).

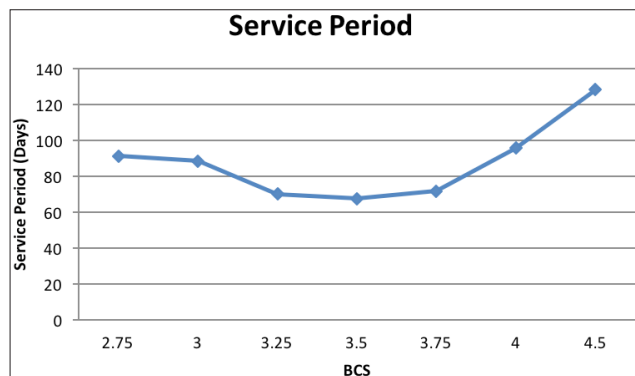


Fig. 1 : Means and standard error of service period (days) under different Body Condition Score

The study revealed a marked effect of BCS on service period which ranged from 67.59 to 128.15 days. The result reveals that with the increase in body condition score (from 2.75 to 3.50), a gradual decrease was observed in the length of service period. However as the cows attains higher BCS, there was increase in length of service period.

Table 2: Means and standard error of service period (days) under different Body Condition Score

BCS	Average Service Period with SE
$\mu = 3.54$	87.59 ± 3.56
2.75	91.30 ± 5.68
3.00	88.43 ± 6.99
3.25	70.23 ± 8.45
3.50	67.59 ± 5.42
3.75	71.8 ± 7.15
4.00	95.62 ± 4.93
4.50	128.15 ± 11.73

Above the 3.5 BCS increase in service period might be due to fat deposition which decreases the reproductive efficiency and below the 3.5 BCS the increase in service period might be due to lack of nutrition or other reproductive insufficiency. The service period in present study were in accordance with the findings of

Markusfeld *et al.* (1997) and Hussein (2008) while contrary to the finding observed by Jilek and Pytloun, (2008). The present study showed that fatty or thin cows have less reproductive efficiency in terms of service period.

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