Original Article

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CORRELATION OF BODY CONDITION AND OCCURRENCE OF ANOESTRUS IN BUFFALOES

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ABSTRACT

The present study was conducted on 30 buffaloes belonging to department of veterinary gynaecology and obstetrics and village around college of Veterinary Science and Animal Husbandry, Mhow (M.P.), buffalo were selected on the basis of history, which had not exhibited oestrus for 90 days or more postpartum, clinical examination of these buffaloes were made for general health and reproductive soundness, per rectally explored twice 10 days apart to confirm ovarian activity and genital status, the animals is awarded an appropriate body condition score 1 (very thin) to 5 (fat) on practice half score were used for animals whose condition score is intermediate. the experiment was done on 30 buffaloes divided into 6 groups, each group consist of 6 buffaloes. The body condition score on scale 1 (very thin) to 5 (fat) ranged between. Body condition score in anoestrus buffaloes was significantly lower than the normal cycling buffaloes. There is a positive relationship between body condition score and subsequent reproductive performance of the animals.

Keyword: *Bubalus bubalis*, buffaloes, body condition score, fat, genital status, per-rectally, very thin

INTRODUCTION

India is predominantly an agricultural country, and about 70 percent of its human population lives in the rural areas. Livestock constitute an integral part of the agricultural economy and buffalo (*bubalus bubalis*) is the predominantly domestic animals for milk and meat. India has most important position in buffaloes population. Buffaloes contribute more than 50 percent of the total milk and now a days India is the largest milk producer in the world.

Reproduction is an important consideration in the economics of livestock production because productivity of farm animals is directly related to their reproduction efficiency. On an average, the buffalo are about four times as productive as average female indigenous cows in India, inspite large buffalo population animal husbandry and dairy sectors do not provide greater percentage of total agricultural income because of low productivity of buffaloes.

Anoestrus is the problem in livestock encountered under Indian conditions is mainly of nutritional in origin. nutritional factors are the

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most important which can influence the production and reproduction because of intrinsic involvement of the micronutrients in various physiological body conditions, deficiency or sometimes even excess of these nutrients may cause anoestrus. (Kumar *et al.*, 2003)

The body condition may influence the occurrence of anoestrus in buffaloes. The buffalo with medium body condition had significantly better reproductive efficiency and therefore, buffalo should be fed in such a way preferably during dry period so that they are neither very thin nor very fat to get maximum subsequent fertility as very thin and fatty animals may have long post-partum anoestrus periods (Bhalaru *et al*., 1987).

MATERIALS AND METHODS

The investigations were conducted on 30 buffaloes belonging to villages around College of Veterinary Science and Animal Husbandry, Mhow. Experimental animals were comprised of 30 buffaloes consisting of 24 anoestrus and 6 normal cycling buffaloes. The reproductive status of all the animals was monitored regularly study.

Selection of experimental animals

Buffaloes were selected on the basis of history, which had not exhibited oestrus for 90 days or more post-partum were selected for this study. The anoestrus period varied from 3 months prolonged anoestrus to 6 months duration. Clinical examination of these buffaloes was made for general health and reproductive soundness. These buffaloes where percent were per-rectally explored twice ten days apart to confirm ovarian inactivity and genital status. Pregnant buffaloes as well as those showing clinical and palpable. Pathological changes of the reproductive tracts were excluded.

The experimental buffaloes were of varying age from 5 to 12 years (Average 8.5 years). Parity ranged from to the fourth calvers.

A therapeutic study was carried out on 30 buffaloes (24 anoestrus and six normal cycling buffaloes). The buffaloes were grouped as Treatment group and Control group.

Treatment group

This group was consists of 18 Anoestrus buffaloes which were randomly divided into three subgroup consisting of 6 buffaloes in each subgroup.

Subgroup A

Buffaloes in this subgroup were treated with Receptal[2] a GnRH analogue (Buserelin acetate) 0.021 mg (5 ml) intramuscularly as single dose.

Subgroup B

Buffaloes in this group were treated with treated with Fertiv Tabs[2] (Clomiphene citrate, 300 mg) two tablets for first day and one and half tablets for two consecutive days orally.

Subgroup C

Buffaloes in group were primed with bolus Flomin[3] (mineral supplement), 2 boluses twice daily for 5 days and animals were treated with Lugol's iodine[4] paints on externum os uteri once as one ml stock solution.

Control group

This group was consisting of 12 buffaloes (6 anoestrus and 6 normal cycling buffaloes) and was divided into two subgroups.

Subgroup D

This subgroup consisted of 6 anoestrus buffaloes and no treatment was given except for rectal palpation twice at weekly intervals.

Subgroup E

This subgroup consisted of six normal cycling buffaloes and no treatment was given to this subgroup of animals.

Gynaeco-clinical examination of genitalia

To ascertain the status of the female genitalia, the procedure described by Zemjanis (1962) was followed. The gynaeco-clinical examination of each buffalo was repeated after 10 to 12 days to confirm the ovarian inactivity and genital status.

1. Receptal Vet - Intervet Private Limited, Wagholi, pune

2. Flomin bolus - indo Bio care, Badodara3. Fertiv Tables - Vet med Chemicals, NasikLugol's lodine - prepared in the Laboratory; Department of Animal Reproduction, Gynaecology and Obstetrics, MHOW as described by Herman and Madden (1953).

Gynaeco-clinical examination of external genitalia

The condition of vulvar lips was observed and recorded as relaxed/opposed/shrunken/smooth. The condition of vaginal mucus membrane was also observed and recorded as moist/congested/ dry/pale.

Gynaeco-clinical examination of internal genitalia

The internal genital organs were examined per-rectally to ascertain their functional status. The observation was recorded as:

Os uterus - Closed / partially open / open

Cervix - Constricted / relaxed / hypertrophied /

Elongated / normal

Uterine horms - Flaccid / turgid / enlarged / small.

Ovaries - Hard / soft / round / oval / presence of

Corpus luteum / or follicles

Body condition score

Body condition of each experimental and animal was scored and recorded as per the method described by Bhalaru *et al.* (1987). The method of scoring is to grip the loin halfway between the hip and the last rib. The Fingers are placed on the loin pointing to the midline. Then the thumb is curled round the ledge formed by the transverse processes of the backbone and the fat covers the ends of the processes felt. The animals are awarded an appropriate body condition score on scale 1 (very thin) to 5 (very fat) on practice half score were used for animals whose condition score is intermediate.

Score 1

Spine prominent and transverse processes feel sharp with on Detectable fat cover.

Score 2

Transverse processes can still be felt with the thumb but they are rounded with a thin covering of fat.

Score 3

Individual processes can only be felt with firm pressure from the Thumb.

Score 4

The transverse processes cannot be felt

even with firm pressure.

Score 5

The transverse processes cannot be felt and an obviously converd with a very thick layer of fat.

So, the buffaloes were scored and grouped as (score up to 2), medium (score 2.5 to 3.5) and fat (score 4 and above) according to their body condition score.

RESULTS AND DISCUSSIONS

Body condition score and anoestrus

The body condition score in normal cycling and anoestrus buffaloes is presented in Table 2.

The body condition score on Scale 1 (very thin) to 5 (fat) ranged between 1.91±0.16 to 2.33±0.34 in subgroups of anoestrus buffaloes (Table 2). The mean body condition score in normal cycling buffaloes and anoestrus, buffaloes was 3.08±0.32 and 2.02±0.23, respectively.

The mean body condition score (Scale 1 to 5) obtained in normal cycling buffaloes is significantly higher ($P<0.05$) than the mean body condition score obtained in anoestrus buffaloes. However, the difference between different anoestrus subgroups was non-significant.

Body condition score and occurrence of anoestrus in buffaloes

The occurrence of anoestrus in buffaloes with thin or poor body condition score was higher (66.66%) as compared to medium (33.33%) body condition score (Table 4).

In the present study, in anoestrus and normal cycling buffaloes the body condition score was 2.02+0.23 and 3.08+0.32, respectively. Normal cycling buffaloes had significantly higher body condition score than anoestrus buffaloes. The normal cycling buffaloes were in medium body condition while a poor body condition was recorded in anoestrus buffaloes.

Jamaludin *et al.* (1983) stated a 7-point body condition scoring system and observed higher body condition score in normal cyclic cows than anoestrus cows.

Macmillan and Bryant (1980) stated that there is a positive relationship between body condition score and subsequent reproductive performance of the animals. In rural condition, lower level of nutrition may be responsible for poor health of the animals affecting (Agrawal *et al*., 1986).

In the present study, low body condition score in buffaloes may be responsible for anoestrus. This may be due to unbalanced ration given to animals responsible for poor thin body condition score and ultimately resulting in anoestrus.

In the present study, the occurrence of anoestrus in buffaloes was higher (66.66%) in thin or poor than medium (33.33%) body condition of buffaloes.

It is well established that extreme changes in body weight and extensive body weight loss reduced fertility in animals (Lamming, 1996).

The buffaloes with medium body condition score, so buffaloes should be managed and fed in such a way preferably during dry period so that they become neither very nor very fat (Bhalaru *et al*., 1987).

CONCLUSION

Overall results of the body condition score in anoestrus buffaloes were significantly

Table 1. Grouping of Animals.

Group	No. of buffaloes	Type of animals	Treatment given
Treatment group			
Subgroup A	6	Anoestrus	GnRH analogue
Subgroup B	6	Anoestrus	Clomiphene citrate
Subgroup C	6	Anoestrus	Mineral supplement and Lugol's iodine pain
Control group			
Subgroup D	6	Anoestrus	No treatment
Subgroup E	6	Normal cycling buffaloes	No treatment

Table 2. Body condition score in experimental buffaloes (Mean±S.E).

Particulars	Body condition score
Subgroup A	2.16±0.22[a]
Subgroup B	2.33±0.34[a]
Subgroup C	1.91±0.16[a]
Subgroup D	2.08±0.33[a]
Overall Anoestrus buffaloes	2.02±0.23[a]
Subgroup E (Normal cycling buffaloes)	3.08±0.32[a]

Means with same superscript do not differ significantly from each other.

Table 3. Analysis of various for body condition score in experimental buffaloes.

Source	Df	Mean sum of square
Treatment	4	102374*
Error	25	0.4116

Means with superscript differ significantly (*P<0.05).

Table 4. body condition score and occurrence of anoestrus.

Particulars	Body condition of anoestrus buffaloes		
	Thin (upto 2)	Medium (2.5-3.5)	Fat (4 and above)
No. of buffaloes and occurrence of anoestrus	16 (66.66%)	8 (33.33%)	-
Average Body Condition Score	1.8	2.43	-

lower than the normal cycling buffaloes. There is a positive relationship between body condition score and subsequent reproductive performance of the animals. In rural conditions, lower level of nutrition may be responsible for the poor health of the animals affecting fertility. This may be due to unbalanced ration given to animals responsible for poor or thin body condition score ultimately resulting in anoestrus. It is well established that extreme changes in body weight and extensive body weight lost reduced fertility in animals. So, buffaloes should be managed and fed in such a way preferably during dry period, so they become neither very thin nor very fat.

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