

Original Research Article

Incidence of Sub-Oestrus in Dairy Buffaloes of Jabalpur, India

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ABSTRACT

The incidence of sub-oestrus was studied in 250 postpartum anoestrus buffaloes from August-2015 to April-2016. Based on the history of anoestrus and findings of the gynaeco-clinical examination, the anoestrus animals were further categorized into true anoestrus, sub-oestrus and anoestrus due to other physio-pathological conditions. The results revealed highest incidence of sub-oestrus (56%) followed by true anoestrus (35.20%) and anoestrus due to other physio-pathological conditions (8.80%) in postpartum dairy buffaloes. Incidence of sub-oestrus in dairy buffaloes based on ex-foliate vaginal cytology revealed comparatively low sub-oestrus *i.e.* 89% as compared to diagnosed by rectal palpation.

Keywords

Sub-Oestrus, Dairy
Buffaloes, clinical
examination

Introduction

The term sub-oestrus is used for the unobserved and silent oestrus responsible for prolonged calving interval and culling at breeding age in buffaloes. It is erroneously considered as anoestrus in field conditions. Incidence of sub-oestrus in dairy buffaloes has been reported 21.05 to 35.13 percent under organized farms and 37.64 percent in unorganized rearing systems (Sachan, 2013 and Singh, 2013). Silent oestrus is a single factor mostly responsible for poor reproductive efficiency in buffaloes (Prakash, 2002). The intensity of oestrus signs in buffaloes is generally weak and also mounting activity is not pronounced as in cattle. Summer anoestrus is an important condition contributing to infertility in buffaloes. Heat stress causes increased cortisol secretion which blocks oestradiol

induced sexual behavior. The intensity of oestrus expression is generally affected by housing, floor surface, milk yield, lameness and number of herd mates in oestrus simultaneously (Ucar *et al.*, 2004).

Materials and Method

The Incidence of sub-oestrus was studied in 250 postpartum buffaloes of organized dairy farms in Jabalpur during the period of 9 month *i.e.* August-2015 to April-2016. Buffaloes, not exhibited oestrus upto 3 months and above after calving (history of anoestrus) were used for the study. The detailed information of anoestrus buffaloes provided by dairy owners and gynaeco-clinical examination twice at 10 days interval was recorded during the study. The

incidence of clinically true anoestrus (no palpable ovarian structures), sub-oestrus (silent or unobserved oestrus characterized by presence of either corpus luteum or follicle in one of the ovary) and anoestrus due to other physio-pathological conditions (Persistent corpus luteum, ovarian cyst, early or doubtful pregnancy due to unnoticed breeding etc.) were studied months wise and data were analyzed at an interval of every three months. Apart from per rectal examination, the 100 sub-oestrus buffaloes were further confirmed by ex-foliate vaginal cytology twice at an interval of 10-days and incidence was recorded.

Ex-foliate vaginal cytology was studied on day (-9) and day (0) before treatment in sub-oestrus buffaloes diagnosed by rectal palpation using Papanicolaous Stain Kit (RAPID-PAP, Biolab Diagnostics, Pvt. Ltd).

Results and Discussion

The study revealed highest percentage of incidence of sub-oestrus (56%) followed by true anoestrus (35.20%) and anoestrus due to other physio-pathological conditions (8.80 %) in postpartum dairy buffaloes (Table 01).

The incidence of sub-oestrus in dairy buffaloes was also studied months wise and data were analyzed at an interval of every three months *i.e.* August –October, November-January and February to April (Table 01). The analysis of results revealed highest percentage of sub-oestrus during the months of February to April (64.44%) followed by November to January (56.41%) and August to October (43.90%). True anoestrus was recorded higher (53.89 %) during November-January followed by August-October (42.68%) and February-April (27.77%). However, the incidence of

sub-oestrus due to other physio-pathological conditions was found highest during August-October (13.41%) as compared to the other months of study *i.e.* 7.69 and 7.77%, respectively for November-January and February- April.

Incidence of sub-oestrus in dairy buffaloes based on ex-foliate vaginal cytology was also studied in 100 screened sub-oestrus buffaloes by rectal palpation and results revealed low incidence of sub-oestrus *i.e.* 89% as compared to rectal palpation (Table 02).

The higher incidence of sub-oestrus (56%) followed by the true anoestrus (35.20%) and anoestrus due to other patho-physiological conditions (8.80%) in post-partum dairy buffaloes was recorded in the present study. However, Gupta *et al.*, (2015) reported higher incidence of true anoestrus (43.14%) followed by sub-oestrus (33.20%) and other patho-physiological condition (23.64%). The variation in the incidence of present study from the study of Gupta *et al.*, (2015) may be due to comparatively more number of anoestrus animals (1036) included in their study which was throughout the year instead of only 9 months in the present study (excluding May to July).The excluded summer months (May to July) in the present study remains very adverse especially for buffaloes reproduction causing summer infertility.

The month wise results revealed higher percentage of sub-oestrus during February to April (42%) followed by November to January (56%) and August to October (43.9%). The higher incidence of sub-oestrus was recorded in the present study where all the animals were examined per rectally. However, in previous studies data were collected from the field studies may not be so accurate as in the present study.

Table.1 Incidence of sub-oestrus in dairy buffaloes based on gynaecoclinical examination

Period of study (August 2015 to April 2016)	Incidence of sub-oestrus						
	Anoestrus Buffaloes	True anoestrus		Sub-oestrus		Other Physio- pathological conditions	
		N	N	%	N	%	N
Aug.– Oct.	82	35	42.68	36	43.90	11	13.41
Nov.-Jan.	78	28	53.89	44	56.41	6	7.69
Feb.-April	90	25	27.77	58	64.44	7	7.77
Total	250	88	35.20	140	56.00	22	8.80

Table.2 Incidence of sub-oestrus in dairy buffaloes based on ex-foliate vaginal cytology

Incidence of sub-oestrus			
Based on rectal palpation		Based on vaginal cytology	
N		N	%
100		89	89

However, Singh (2013) reported higher incidence of true anoestrus as compared to sub-oestrus in dairy buffaloes of Jabalpur in the period of 6 months (October to March). The higher incidence of sub-oestrus in present study as compared to results of Singh (2013) may be variation in the duration of the study.

The difference in the incidence of sub oestrus in dairy buffaloes may be due to wide variation in the managerial practices, environmental condition and or geographical area of study. The milk yield and seasonality was also reported to affect the reproductive performance of buffalo cows (Barkawi *et al.*, 1996).

In the present study ex-foliate vaginal cytology was found to be one of the parameter for determining cyclicity in sub-oestrus buffaloes accurately. This technique further reduced the incidence of sub-oestrus as compared to the sub-oestrus diagnosed by the only rectal palpation techniques. It is due to observation of cells present in the vaginal smear which are specific for follicular or

luteal phase of the oestrous cycle (Rao *et al.*, 1979; Kurude *et al.*, 1993 and Chaikhun *et al.*, 2008).

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