

## REPRODUCTIVE PERFORMANCES OF SWAMP BUFFALOES OF ASSAM\*

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### ABSTRACT

A survey was carried out to study reproductive performances of swamp buffaloes of the undivided Kamrup, Nagaon and Darrang district of Assam. A total of 1293 randomly selected swamp buffaloes were included for the present study. Average age at first calving, gestation period, dry period, service period and intercalving period were found to be  $52.28 \pm 0.81$  months,  $323.10 \pm 0.68$ ,  $252.84 \pm 1.47$ ,  $177.34 \pm 0.82$  and  $465.79 \pm 1.67$  days respectively. Age at first calving was not found to be affected significantly by type of animal and location while season of calving exerted significant effect ( $P < 0.05$ ). Gestation period was not found to be affected by type of animal, location, lactation order and season of calving. Dry period was found to be affected significantly ( $P < 0.05$ ) by location and highly significantly ( $P < 0.01$ ) by season of calving while type of animal and lactation order did not exert any effect. Service period was found to be affected significantly ( $P < 0.05$ ) by location and season of calving while type of animal and lactation order exerted non significant effect. Intercalving period was found to be affected highly significantly ( $P < 0.01$ ) by lactation order and significantly ( $P < 0.05$ ) by season of calving while type of animal and location exerted non significant effect.

**Key words** : Swamp buffalo, Assam, Reproductive traits

The majority of the buffaloes in Assam is swamp type and mostly reared under *khuti* system of management<sup>1</sup>. In *khuti* system, buffalo herds are reared in inaccessible areas such as in forest or in river banks where abundant natural green grasses are available throughout the year. The sheath of the male buffalo of Assam adheres close

to the body except at the umbilical end. Albinoid buffaloes are also found in Assam.

The farmers milk their buffaloes once in the morning and allow them to graze in the forest or nearby grazing lands throughout the day. The observations on the reproductive traits of swamp buffaloes of Assam are scanty; hence an investigation was undertaken to study the age at first calving, gestation period, dry period, intercalving period and service period of swamp buffaloes of Assam.

A survey was carried out to study the reproductive performances (age at first calving, gestation period, dry period, service period and

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intercalving period) of swamp buffaloes of Assam and data were collected from the available breeding records, personal observations and verbal communications with the individual owners of the undivided Kamrup, Nagaon and Darrang districts of Assam. A total of 1293 randomly selected swamp buffaloes were included for the present study. The data obtained were classified as follows:

- 1) Types-The data were classified into 3 groups according to types of swamp buffaloes available in Assam, *viz.* the 'Asomia', the 'Khaspuria' and the 'Asomia x Khaspuria' and designated as A, K and C.
- 2) Lactation – The data were classified into five lactation orders and designated as L<sub>1</sub>, L<sub>2</sub>, L<sub>3</sub>, L<sub>4</sub>, and L<sub>5</sub>
- 3) Season-The data were classified into four seasons and designated as S<sub>1</sub>, S<sub>2</sub>, S<sub>3</sub> and S<sub>4</sub>

The data were subjected to statistical analysis as per the standard methods <sup>8</sup>.

Least squares means and their standard errors of different factors affecting various reproduction parameters (age at first calving, gestation period, dry period, service period and intercalving period) are presented in Table 1.

Season of calving exerted significant effect ( $P < 0.05$ ) on age at first calving. Few workers also observed seasonal effect on age at first calving<sup>3</sup>. The average age at first calving observed in the present study is found to be in close conformity with earlier report <sup>3</sup> against report with higher value<sup>6</sup>.

Gestation period was not found to be effected by location, category, lactation order and season of calving. Earlier workers<sup>1</sup> observed significant effect of lactation order on gestation period in swamp buffaloes of Assam. Season of calving on gestation period was reported to be significant <sup>9</sup>. The average gestation period of the present study is in close conformity with the findings of earlier worker <sup>9</sup>.

The average intercalving period of the present study is in close conformity with the findings of earlier workers <sup>5</sup> in Surti buffaloes. On the contrary, longer intercalving period in swamp buffaloes of Assam was also reported <sup>6, 9</sup>. Non significant effect of lactation order was also reported by earlier worker <sup>9</sup> in swamp buffaloes. The significant effect of season of calving was also reported in different breeds of buffaloes <sup>5, 7</sup>.

The present value is corroborated well with the earlier findings <sup>9</sup> in swamp buffaloes of Assam. Longer service period than the present value was reported earlier <sup>4</sup> in Murrah buffaloes. Significant effect of location and season of calving was observed on service period while no effect was observed by category of animals and lactation order. The significant effect of season of calving in the present study is corroborated well with the earlier findings <sup>2</sup> in Murrah buffaloes.

The significant effect of location and non significant effect of category of animals as well as lactation order was observed on dry period of swamp buffaloes. Shorter dry period in swamp buffaloes of Assam was reported <sup>6, 9</sup>. Highly significant effect of lactation order on dry period of swamp buffaloes was observed by earlier worker <sup>9</sup>. The season of calving had significant effect of dry period in the present study and this is in good agreement with the earlier findings <sup>2</sup> in Murrah buffaloes.

The reproductive traits, *viz.* age at first calving, lactation length, dry period, service period and intercalving period of swamp buffaloes of Assam could be improved to the satisfactory economic level by proper and adequate scientific management. The swamp buffaloes of Assam play an important and viable role in the socio-economic life of the people of North Eastern region of India; hence an effective breeding policy must be adopted with scientific management of breeding, feeding, disease control and marketing of this noble animal.

## Reproductive performances of swamp buffaloes

**Table 1. LSM  $\pm$  SE of Age at first calving, Gestation period, Dry period, Service period and Intercalving period of swamp buffaloes of Assam as affected by location, type, lactation order and season of calving**

Effect	Age at first calving (months)	Gestation period (days)	Dry period (days)	Service period (days)	Intercalving period (days)
$\mu$	52.28 $\pm$ 0.81 (98)	323.10 $\pm$ 0.68 (265)	252.84 $\pm$ 1.47 (305)	177.34 $\pm$ 0.82 (315)	465.79 $\pm$ 1.67 (310)
Location					
Nagaon	52.42 $\pm$ 1.33 (33)	323.22 $\pm$ 1.00 (89)	249.03 <sup>a</sup> $\pm$ 2.14 (104)	175.23 <sup>a</sup> $\pm$ 1.21 (110)	465.23 $\pm$ 2.49 (109)
Kamrup	51.89 $\pm$ 1.34 (32)	323.76 $\pm$ 0.96 (93)	252.93 <sup>a</sup> $\pm$ 2.17 (102)	177.16 <sup>a</sup> $\pm$ 1.26 (103)	465.47 $\pm$ 2.61 (103)
Darrang	52.53 $\pm$ 1.33 (33)	322.32 $\pm$ 1.04 (83)	256.56 <sup>a</sup> $\pm$ 2.23 (99)	179.62 <sup>a</sup> $\pm$ 1.30 (102)	466.67 $\pm$ 2.72 (98)
Type					
A	52.89 $\pm$ 1.21 (39)	322.68 $\pm$ 0.93 (102)	256.47 $\pm$ 1.98 (123)	178.29 $\pm$ 1.14 (129)	470.20 $\pm$ 2.37 (124)
K	50.66 $\pm$ 1.39 (30)	323.98 $\pm$ 1.02 (85)	251.28 $\pm$ 2.30 (92)	176.25 $\pm$ 1.31 (95)	462.11 $\pm$ 2.70 (95)
C	53.31 $\pm$ 1.41 (29)	322.65 $\pm$ 1.05 (78)	250.77 $\pm$ 2.84 (90)	177.47 $\pm$ 1.34 (91)	465.06 $\pm$ 2.76 (91)
Lactation					
L <sub>1</sub>	-	324.15 $\pm$ 1.23 (56)	252.09 $\pm$ 2.56 (67)	177.77 $\pm$ 1.53 (65)	466.62 $\pm$ 3.13 (67)
L <sub>2</sub>	-	322.52 $\pm$ 1.21 (58)	251.71 $\pm$ 2.61 (68)	178.02 $\pm$ 1.50 (72)	469.52 $\pm$ 3.22 (67)
L <sub>3</sub>	-	323.29 $\pm$ 1.67 (59)	256.46 $\pm$ 2.48 (72)	178.03 $\pm$ 1.47 (72)	470.99 $\pm$ 3.08 (70)
L <sub>4</sub>	-	321.32 $\pm$ 1.30 (48)	248.66 $\pm$ 2.79 (57)	173.10 $\pm$ 1.62 (60)	451.43 $\pm$ 3.34 (60)
L <sub>5</sub>	-	324.23 $\pm$ 1.30 (45)	255.28 $\pm$ 3.24 (41)	179.75 $\pm$ 1.81 (45)	470.41 $\pm$ 3.72 (46)
Season					
S <sub>1</sub>	47.68 <sup>a</sup> $\pm$ 2.14 (12)	323.44 $\pm$ 2.91 (15)	263.87 <sup>a</sup> $\pm$ 4.49 (20)	185.69 <sup>a</sup> $\pm$ 2.45 (24)	477.15 <sup>a</sup> $\pm$ 4.91 (26)
S <sub>2</sub>	52.86 <sup>b</sup> $\pm$ 1.37 (29)	322.55 $\pm$ 0.91 (86)	235.19 <sup>b</sup> $\pm$ 2.12 (89)	167.16 <sup>b</sup> $\pm$ 1.26 (91)	450.94 <sup>b</sup> $\pm$ 2.67 (87)
S <sub>3</sub>	55.09 <sup>b</sup> $\pm$ 1.29 (33)	322.55 $\pm$ 0.86 (95)	211.17 <sup>c</sup> $\pm$ 1.87(115)	145.94 <sup>c</sup> $\pm$ 1.10(118)	433.25 <sup>c</sup> $\pm$ 2.36(112)
S <sub>4</sub>	53.50 <sup>b</sup> $\pm$ 1.50 (24)	323.85 $\pm$ 1.02 (69)	301.12 <sup>d</sup> $\pm$ 2.23 (81)	210.55 <sup>d</sup> $\pm$ 1.33 (82)	501.82 <sup>d</sup> $\pm$ 2.70 (85)

NB : Subclass means having different superscript differed significantly (P<0.05)

Figures in the parenthesis indicate the number of observations

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