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Pre-Lambing behaviour of Muzzafarnagri sheep

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Abstract

The peri-parturient behaviour of 10 Muzzafarnagri ewes were observed at Livestock Farm Complex, A.N.D.U.A.T., Kumarganj, Ayodhya. All the ewes, in advance stages of pregnancy, that is one or two days prior to lambing, there were relaxation of pelvic ligament; the udder enlargement distended and tightened and waxy; vulva became oedematous and flabby, showing mucus discharge. The restlessness in ewes generally observed 152.25 ± 16.565 min before actual birth of lamb. Onset of intermittent abdominal straining in ewes started 76.66 ± 8.223 min before actual birth of lamb and it was repeated at an interval of 10-12 min, during peak stage of labour. Intense and regular straining in ewes, started on an average 6.33 ± 0.69 min, before actual birth of lambs. The appearance and rupture of chorio-allantoic sac occurred on an average 4.73 ± 0.532 min, before actual birth of lamb. The average time taken by lamb to appear vulva was 3 ± 0.362 min before actual birth of lamb.

Keywords: Muzzafarnagri ewes, pre-parturient behaviour, lambing presentation

Introduction

Sheep raising in India is one of the traditional occupation of some people popularly known as shepherds or Gadariya. People of some regions of our country are raising sheep as a domestic animal for fulfilling family nutrition demand and business purpose from the ancient time such as in Kashmir region sheep is reared for delicious mutton and for beautiful and warm woollen clothes, sheep reared in Uttarakhand and other Himalayan region used as food for scarcity season. Sheep is a small sized, ruminant, calm animal and grows fast and the raising system is very easy and simple. There are various sheep breeds are available in our country which are suitable to the particular region and climate. Now a day, many people are taking the opportunities of sheep farming as business to grow family income. Sheep with its multi-facet utility for wool, meat, milk, skins and manure, form an important component of the rural economy particularly in the arid, semi-arid and mountainous areas of the country. It provides a dependable source of income to the shepherds through the sale of wool and animals.

Sheep is an important species of farm livestock. There is a vast genetic diversity in sheep and out of about 200 breeds listed in the world, 43 breeds of sheep are found in India. The Indian subcontinent is a rich source of diverse ovine germplasm, and only very few countries have such a large number of breeds with wide genetic diversity. In India Sheep make a valuable contribution to the livelihood of the economically weaker sections of the society. Amongst the livestock owners, the shepherds are the poorest of the lot. The export earnings from different woollen products and mutton are also noticeably contributing to the National income. Sheep-skin in the form of leather and leather products is also exported.

The breed Muzzafarnagri is distributed in Muzzafarnagar, Bulandshaher, Saharanpur, Meerut and Dehradun districts of Uttar Pradesh, Uttarakhand and parts of Delhi and Haryana. The animals are medium to large in size. Face line is slightly convex. Ears and face are occasionally black. Both sexes are polled. Males occasionally show rudimentary horns. Ears are long and drooping. The tail is extremely long and reaches fetlock. The fleece is white, coarse and open. Belly and legs are devoid of wool. The overall least square means for lambs 1st and 2nd six monthly and adult annual clips were 582.17, 538.75 and 1217.62g, respectively under farm conditions. The overall averages were 3.63, 15.59, 23.52, 27.14 and 30.76kg, respectively at birth, 3, 6, 9 and 12 month age. Least square means of wool quality attributes viz. fibre diameter, hetro fibres, hairy fibres, medullation and staple length were $38.39 \pm 1.36\mu$, $14.35 \pm 1.37\%$, and $46.89 \pm 3.42\%$.

Knowledge of animal's natural behaviour is essential in ensuring to create an environment, manage and care for individual animals and flocks in a manner that enables them to express

themselves naturally and to remain healthy with a high quality of life. The behaviour of sheep is likely to be a complex interaction between their genetics and the fundamentally important early life experiences with their dam, further complicated by their association with their peers, particularly around weaning, and the quality and availability of grazing (Lawrence and Dwyer, 2000) [3].

Materials and Methods

The aim of present investigation was to examine the pre-lambing behaviour of Muzzafarnagri sheep. Study has been carried out at Sheep and Goat production unit of Livestock Farm Complex of College of Veterinary and Animal Husbandry, A.N.D.U.A.T., Kumarganj, Ayodhya, U.P. (India). Experimental observations were made on 10 Muzzafarnagri ewes and their lambing behaviour was made during three season’s autumn, winter and spring season of the country.

Following observations were recorder during entire course of study

1. Onset of restlessness	3. Onset of intense and regular straining	5. Appearance of lamb at vulva
2. Onset of intermittent abdominal straining	4. Appearance and rapture of chorio-allantoic sac	6. Total duration of lambing

Statistical Analysis

The data so obtained was analyzed statistically by using suitable standard method (Snedecor and Cochran, 1989) [5].

Results and Discussion

Ten Muzzafarnagri sheep maintained at sheep and goat unit of

L.F.C., A.N.D.U.A.&T., Kumarganj, Ayodhya were utilised to study their lambing behaviour. The studies were made on pre-partum behaviour of Muzzafarnagri sheep. Results obtained for pre-lambing behaviour of Muzzafarnagri sheep have been shown as below:

Pre-lambing behaviour of ewe

The following changes were exhibited by the ewes while approaching lambing. In advance stage of pregnancy, that is one or two days prior to lambing, there were relaxation of pelvic ligament and the spine at the base of the tail become prominent and flexible; the udder enlarged, distended, and tightened; the teat become tightened and waxy; vulva become oedematous and flabby, showing thick mucus discharge.

The present investigation revealed quite variation among ewes for various signs during course of lambing. The chronological time intervals from the onset of restlessness to delivery of observed during the lambing in present study were in the range of those reported by Yilmaz *et al.* (2012) [6].

1. Onset of restlessness:

The restlessness in ewes generally observed 152.25 ± 16.565 min before actual birth of lamb. In most of the ewes the restlessness was expressed by animals walking, tail straight, pawing the ground frequently standing up and lying down, looking and kicking at abdomen, high rising of head above normal position and bleating frequently. There was significant difference among the single birth and twin birth ewes; however single birth showed restlessness earlier than twin birth ewes (Table-1)

Table 1: Least square mean ± S.E. of pre-lambing behaviour of ewes (Min Before birth of Lamb)

Factors	Overall	Single Birth	Twin Birth
No of observation	10	8	2
Onset of restlessness	152.25±16.57	149.875±2.12	157±1.73
Onset of intermittent abdominal straining	76.66±8.22	76±1.90	78±1.15
Onset of intense and regular straining	6.33±0.69	6.125±0.44	6.75±0.48
Appearance and rapture of chorio-allantoic sac	4.73±0.53	4.5±0.33	5.25±0.48
Appearance of lamb at vulva	3±0.36	2.875±0.26	3.25±0.48
Lambing duration	2.25±0.26	2.25±0.25	2.25±0.25

There was no significant effect of sex of lamb on the time from the restlessness to birth of lamb. However, ewes of

female lambs exhibited signs earlier than ewes of male lambs (Table-2).

Table 2: Least square means ± S.E. of pre-lambing behaviour of ewes in relation to sex of lamb (Min. Before birth of lamb)

Factors	Overall	Male	Female
No of observation	12	7	5
Onset of restlessness	152.25±1.784	154.85±1.502*	148.6±3.249
Onset of intermittent abdominal straining	76.66±1.316	78.28±1.357**	74.4±2.315
Onset of intense and regular straining	6.33±0.333***	6.14±0.508	6.6±0.4
Appearance and rapture of chorio-allantoic sac	4.75±0.278	4.85±0.459	4.6±0.244
Appearance of lamb at vulva	3±0.246	2.85±0.340	3.2±0.374
Lambing duration	2.25±0.179	2.14±0.260	2.4±0.244

-Level of significance 0.001

The sex of the lamb had no significant difference from the onset of intense and regular straining to delivery of lamb. However, the ewes of female lamb exhibited the signs earlier than the ewes of male lamb.

The present study revealed that the duration of onset of restlessness in ewes averaged 152.25±16.565 min before

actual birth of lamb. Restlessness was noticed earlier in single birth ewes than the than the twin birth ewes. Mondal *et al.* (2010) [4] reported that the pregnant does showed the restlessness to onset of labour 102.11 ± 25.69 min before parturition; which value was lesser to the present findings.

2. Onset of intermittent abdominal straining

Onset of intermittent abdominal straining in ewes started 76.66 ± 8.223 min before actual birth of lamb and it was repeated at an interval of 10-12 min, during peak stage of labour. The intermittent abdominal straining was evident by arching of back and tail was straight. At this time ewe frequently voided small amount of urine and faeces. There was significant effect at timing ($p < 0.01$) between single birth and twin birth ewes from the onset of intermittent abdominal straining to delivery of lamb. However, single birth ewes showed earlier sign than the twin birth ewes. The sex of the lamb had no significant difference from the onset of intermittent abdominal straining to delivery of lambs (Table-2). However ewes of female lambs exhibited earlier than the ewes of male lambs.

The ewes showed onset of intermittent abdominal straining 76.66 ± 8.223 min before actual birth of lamb. And intense and regular abdominal straining in ewes, started on an average 6.33 ± 0.69 min, before actual birth of lamb. Mondal *et al.* (2010) [4] reported that the intense and regular straining commenced about 8.48 ± 4.49 min before birth of kid in goat which was higher in this study.

3. Onset of intense and regular straining

Intense and regular straining in ewes, started on an average 6.33 ± 0.69 min, before actual birth of lambs. Intermittent abdominal straining graduated into intense and regular straining at final stage of delivery. There was significant ($p < 0.01$) difference among the single birth and twin birth ewes between onset of intense and regular straining to delivery of lamb (Table-1).

The sex of the lamb had no significant difference from the onset of intense and regular straining to delivery of lamb. However, the ewes of female lambs exhibited signs earlier than the ewes of male lamb (Table-2).

4. Appearance and rupture of chorio-allantoic sac

The appearance and rupture of chorio-allantoic sac occurred on an average 4.73 ± 0.532 min, before actual birth of lamb and ruptured instantaneously in some of the cases. There was significant ($p < 0.01$) difference among the single birth and twin birth ewes between the appearance and rupture of chorio-allantoic sac to delivery of lamb (Table-1). The sex of the lamb had no significant difference from the appearance and rupture of chorioallantoic sac to delivery of lamb. However, the ewes of male lamb exhibited signs earlier than the ewes of female lamb (Table-2).

The chorio-allantoic sac like a balloon was expelled out on an average 4.73 ± 0.532 min, before actual birth of lamb. Appearance of chorio-allantoic sac was noticed earlier in single birth ewes than the twin birth ewes, but there was no difference among sex of lamb. Gonzalez-Stagnaro and Madrid Bury (2004) recorded that the rupture of foetal bag and presentation of fore-hooves and muzzle of kid was longer (13.9 min; $p < 0.05$); which is lower in this study, which may be due to species variation.

5. Appearance of lamb at vulva

The average time taken by lamb to appear vulva was 3 ± 0.362 min before actual birth of lamb. In most of cases the ewes lamb appeared at vulva whilst the ewe was in recumbent position. There was significant ($p < 0.01$) difference among the single birth and twin birth ewes between appearance of lamb at vulva delivery of lamb.

The lamb first appears at vulva on an average of 3 ± 0.362 min before actual birth of lamb. All the ewes performed the delivery or expulsion of foetus is natural phenomenon. However; there was significant ($p < 0.01$) difference among the single birth (2.875 ± 0.26 min) and twin birth (3.25 ± 0.48 min) ewes between appearance of lamb at vulva delivery of lamb.

6. Total duration of lambing

The average time taken in delivery of foetus from anterior to posterior or posterior to anterior was 2.25 ± 0.26 min. There was no significance difference among single birth and twin birth of ewes (Table-1). The ewe of female lamb took longer time than that of male lamb. However, there was no significant difference between these (Table-2).

The ewes had taken 2.25 ± 0.26 min for expulsion of lamb. There was no significant difference among single birth and twin birth ewes and among sex of the lamb. The present study revealed that the mean duration of lambing 2.25 ± 0.26 min. The total duration of lambing in this present study was in the range of total lambing duration as reported by Ceyhan *et al.* (2012) [1].

Conclusion

The present investigation entitled "Pre-Lambing Behaviour of Muzzafarnagri Sheep" was evident that restlessness in ewes generally observed 152.25 ± 16.565 min before actual birth of lamb. Onset of intermittent abdominal straining in ewes started 76.66 ± 8.223 min before actual birth of lamb and it was repeated at an interval of 10-12 min, during peak stage of labour. Intense and regular straining in ewes, started on an average 6.33 ± 0.69 min, before actual birth of lambs. The appearance and rupture of chorio-allantoic sac occurred on an average 4.73 ± 0.532 min, before actual birth of lamb. The average time taken by lamb to appear vulva was 3 ± 0.362 min before actual birth of lamb.

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