The Indian Journal of Animal Reproduction: 27 (1): 37-41; June 2006

Research Article

Reproductive disorders in Corriedale ewes

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Received : October 18, 2004
Accepted : December 31, 2005

ABSTRACT

Reproductive disorders of Corriedale ewes were studied for twelve years (1992-2003) at Sheep research station, SKUAST-K, Srinagar. The reproductive disorders recorded were dry ewes, abortion, stillbirths, dystocia, lamb died due to dystocia, ewes died before lambing and retained placenta. The occurrence of reproductive disorders varied significantly among the years. Out of total reproductive disorders, dry ewe percentage was highest (2.19 to 80.86 %; Av. 23.62 %) and retained placenta was lowest (0.03%). Incidence of other disorders recorded were abortion 0.25 %, still births 1.60 %, dystocia 1.23 %, lamb died due to dystocia 0.43% and ewes died before lambing 6.87 %. The incidence of lamb mortality within 24 hours (0 to 2.86 %; Av. 1.04 %), lambs died due to poor mothering ability (0 to 4.5 %; Av. 1.31 %) and mastitis (0 to 1.90 %; Av. 0.71 %) varied significantly among the years.

Key words: Corriedale sheep, reproductive disorders, postnatal mortality, yearly variation

Reproductive disorders in livestock are of great economic concern to the farmers as it directly hampers the production of flocks in many ways. Different infertility problems like abortion, still births, dry ewes, and repeat breeding etc. cause wastage of precious productive life span of the farm livestock. Sheep is a seasonal breeder in temperate region where the autumn breeding is commonly practiced and missing of one breeding season leads to heavy economic loss to the poor owners. Scientific management of sheep flocks is an important pathway for eradicating the root causes of the infertility problems and to augment lamb crop production and thereby, the economic upliftment of the poor owners. The proper database of the problem is essential to find out the control measures and also to focus the research priorities. The present study was attempted to study the extent of different reproductive disorders in Corriedale sheep in an organized farm of Kashmir.

MATERIALS AND METHODS

The data pertaining to reproductive traits of Corriedale sheep available at University Sheep Research Station, Shuhama were studied from 1992 to 2003. The number of ewes put for breeding was recorded from the yearly breeding plan maintained at the Farm. The year wise incidence of dry ewes (ewes put for breeding but did not conceive), abortion, stillbirths, dystocia, death of new born lambs and retained placenta was calculated from the lambing records. The number of breedable ewes died from the time of breeding up to the end of the lambing period (September to March) was also screened for each year.

Different parameters were studied based on the following formula:

$$\text{\% of dry ewes} = \frac{\text{Ewes put for breeding} - (\text{Ewes lambed} + \text{still births} + \text{abortion} + \text{lambs died due to dystocia} + \text{ewes died before lambing})}{\text{Ewes put for breeding}} \times 100$$

$$\text{\% of Dystocia} = \frac{\text{Number of occurrence}}{\text{Ewes lambed}} \times 100$$

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% of abortion/ still births/ lamb died due to dystocia/ ewes died before lambing/ retained placenta/ Mastitis = $\frac{\text{Number of occurrence}}{\text{Ewes put for breeding}}$ X 100

% Lamb died upto 24 hours of lambing/ Lamb died due to poor mothering ability of ewes = $\frac{\text{Number of occurrence}}{\text{No of lambs born}}$ X 100

The ewes sold or auctioned during the period of breeding (Tupping to lambing) were excluded from this study. The incidence rates of different disorders obtained were compared among the years by determining 'Z' value to test the significance as per Snedecor and Cochran (1980).

RESULTS AND DISCUSSION

Year-wise incidence of different reproductive disorders obtained in Corriedale ewes is presented in the table 1 and rate of per natal mortality in table 2.

Dry ewe percentage: The dry ewe percentage was significantly lower in the year 1997 (2.19%) and highest in the year 1999 (80.86%) with an overall mean of 23.62 %. The later was due to an outbreak of PPR (Peste des Petits Ruminants) like disease in the farm. Underweight hoggets put for breeding might also be one of the causes for increased dry ewe percentage which was evident in the year 2003, where 25 maiden ewes (hoggets) below 25 kg body weight were put for breeding. Sharma et al. (1981) found 19.18% overall incidence of anestrus in Muzaffarnagari flock of ewes. The dry ewe percentage of 9.33 to 18.0% in ½ Merino and 8.66 to 16.0% in ¾ Merino has been reported in farmers flock of migratory sheep (Nadroo, 2004). The higher dry ewe percentage (23.62%) observed in the present study might be due to the exceptionally high incidence recorded in the year 1999 and also due to the difference in breed and obviously the managemental condition of the flock.

Abortion: Incidence of abortion varied from 0 to 1 % which was lower than permissible value of 2 to 5 % (Roberts, 1982). Tomar and Mahajan (1981) reported a higher rate of abortion (4.68%) in Gaddi ewes. They also reported significant effect of the year on the incidence of abnormal birth as revealed in the present study. The incidence of abortion in other reports were 2.8 to 9.1 % (Bird *et al.*, 1984) and 0.75 to 2.78 % (Quinlivan and Jopp, 1982) in different breeds of sheep. However, the present study showed a lower incidence than the earlier reports probably due to the better mnagemental condition on the farm.

Stillbirths: Incidence of stillbirths was significantly higher ($p<0.01$) in the year 1997 (3.07%) and lower in the year 1996, 1999, 2000 and 2001 (Table 1). The average incidence over the years (1.60%) on the farm was lower than that reported by Tomar and Mahajan (1981) in Gaddi ewes (2.91%) but compared well with the findings of Wani *et al.* (1981) in Muzaffarnagri (0.8%) and cross-bred ewes (3.33%). The incidence of stillbirth ranged from 2.33 to 8.33% in ¾ Merino ewes in farmers flocks in Kashmir (Nadroo, 2004). The lower incidence found in the present study might be due to the difference in genetic constitution and management of the flock.

Dystocia: Incidence of dystocia was significantly ($p<0.01$) higher in the years 1992, 1993, 1996 and 2003 and 2003 (2.99 to 3.60 %) compared to other years. This might be due to the underweight ewes put for breeding. Higher incidence (5.70%) of dystocia was reported in West African Dwarf (WAD) ewes mated with OUDA, Permar and Yanska rams. However, WAD ewes mated with WAD rams showed no incidence of dystocia (Osuagwuh *et al.*, 1980). George (1976) found that 34% of ewes lambing had dystocia in Dorset horn ewes and dystocia was more frequent in 2 years old ewes than in the other age groups as observed in present study. In contrast, Krueger and Wassmuth (1974) found no relation in the incidence of dystocia to age of the ewe. The present incidence of dystocia (1.23%) was in close agreement with the report of Tomar and Mahajan (1981) in Gaddi ewes (0.62%) under sub-temperate conditions and much lower than the report of Smith (1977) in Corriedale lambs (22%). This difference of incidence between the same breed might be attributed to the rearing of the animal in different agroclimatic conditions. Several workers reported that the frequency of dystocia increased with the increasing birth weight of lambs (Krueger and Wassmuth, 1974; George, 1976; Wooliams *et al.*, 1983) and male lambs had the higher incidence than ewe lambs (Osuagwuh *et al.*, 1980; George, 1976).

Table 1. Reproductive disorders in Corriedale ewes of an organized farm in Kashmir.

Lambing year	Ewes put for breeding	Ewes lambed	Dry Ewes %	Abortion %	Still births %	Dystocia %	Lamb died due to Dystocia %	Ewes died before lambing %	Retained placenta %
1992	346	294	13.58 (47)	-	0.87 (03)	2.38** (07)	0.58(02)	-	-
1993	412	276	22.57 (93)	0.24(01)	1.70 (07)	2.54** (07)	0.97**(04)	7.52 (31)	-
1994	400	244	26.00 (104)	1.00(04)	3.00** (12)	0.41 (01)	-	9.00* (36)	-
1995	247	171	22.27 (55)	-	2.02 (05)	-	-	6.48 (16)	-
1996	259	139	37.45* (97)	-	0.77•• (02)	3.60** (05)	1.16**(03)	6.95 (18)	-
1997	228	185	2.19••(5)	0.88(02)	3.07** (07)	-	-	12.72**	-
1998	248	178	21.77 (54)	-	2.02 (05)	-	-	4.44•• (11)	-
1999	256	26	80.86**	-	0.39•• (01)	-	-	8.59 (22)	-
2000	241	207	5.39•• (13)	-	0.41•• (01)	0.48 (01)	0.41(01)	7.88 (19)	-
2001	199	162	9.55• (19)	-	0.50•• (01)	1.23 (02)	0.50(01)	8.04 (16)	-
2002	210	159	14.29 (30)	-	1.90 (04)	0.63 (01)	0.48(01)	7.62 (16)	-
2003	211	151	21.50 (46)	0.47(01)	1.87 (04)	1.99* (03)	0.93**(02)	4.67•• (10)	0.66 (01)
Overall	3260	2192	23.62 (770)	0.25(08)	1.60 (52)	1.23 (27)	0.43(14)	6.87 (224)	0.03 (01)

*, ** Significantly higher at 5% and 1% level; •, •• Significantly lower at 5% and 1 % level, respectively.
Figures in parentheses indicate number of cases.

Table 2. Postnatal mortality in Corriedale lambs

Lambing year	Ewes put for breeding	No of lambs born	Lamb died (0-24 hours)	Lamb died due to poor mothering ability	Mastitis
			%	%	%
1992	346	296	0.34••(01)	1.69(05)	0.28••(01)
1993	412	278	0.36••(01)	-	-
1994	400	244	0.82(02)	4.51**(11)	0.50(02)
1995	247	171	0.58(01)	-	0.81(02)
1996	259	140	2.86**(04)	0.71(01)	1.16**(03)
1997	228	185	1.08(02)	1.08(02)	0.44•(01)
1998	248	178	2.25**(04)	0.56(01)	0.81(02)
1999	256	26	-	-	0.39•(01)
2000	241	213	0.47•(01)	-	0.83(02)
2001	199	168	1.19(02)	1.19(02)	0.50(01)
2002	210	160	2.50**(04)	1.88(03)	1.90**(04)
2003	211	151	0.66(01)	2.65**(04)	1.87**(04)
Overall	3260	2210	1.04(24)	1.31(29)	0.71(23)

*, ** Significantly higher at 5 % and 1% level, respectively. •, •• Significantly lower at 5 % and 1 % level, respectively., Figures in parentheses indicate number of cases.

Lambs died due to dystocia: In the year 1996, 1.16 % lambs died due to dystocia which was highest among the years. Incidence varied among the years from 0.41% to 1.16%. Dalton *et al.* (1980) found dystocia as the most frequent cause of death at birth or at 1-3 days of age among singles and the lambs from the older age group of dams (4 to 5 years) survived best. This was in close agreement with the present findings. Dystocia was the cause of 36% of all perinatal mortality in Dorset horn ewes (George, 1976) and 10 % of all neonatal mortality in fine wool Merino ewes (George, 1975). Dystocia increased lamb mortality by 8.6% in pure breds (Smith, 1977). The present investigation also showed a higher incidence of lamb mortality due to dystocia.

Ewes died before lambing: Highest incidence of ewes died before lambing was recorded in the year 1997 (12.72%) and the lowest in the year 1998 (4.44 %). Significantly higher incidence was recorded in the year 1994, 1997, and lower in the year 1998 and 2003. Increased in the death of ewes died before lambing might be due to the more numbers of old aged (7 years and above) animals put for breeding in the respective years. Pregnancy toxaemia might also be one of the causes as some animals with same symptoms could be cured with glucose therapy.

Retained placenta: Only one case (0.66%) of retained placenta was registered in the year 2003. No such incidence was observed in other years probably due to the lack of proper attention for recording this parameter. The lower incidence in the present study might also be attributed to less genital infections in the flock as revealed by less numbers of abortion and still births on the farm. However, Dhanani *et al.* (1987) reported 10% placental retention in sheep and goat out of the total cases of reproductive disorders examined.

Lambs died within 0 to 24 hours of birth: Percentage of death occurred immediately (0 to 24 hours of birth) after birth ranged from 0.34% (1992) to 2.86% (1996) with an average of 1.04 % amongst the years. The mortality of lambs immediately after birth was mainly due to hypothermia and also due to exposure to extreme cold as the maximum numbers of lambing took place during February months when atmospheric temperature ranged from – 5°C to 15°C. Dalton *et al.* (1980) report that most mortality occurred at birth or at 1-3 days o age, which was in agreement with the current stud They also found that lambs of birth weight from 3.5 to 5.5 kg, and from the older age group of dams (4 to 5 years) survived best. The highest mortality in the newbo lambs was also observed in the present study in ewes at their maiden lambing.

Lambs died due to poor mothering ability of ewe On an average 1.31% lambs died due to poor mi production of dams over the years, and the incidence ranged from 0.56% (1998) to 4.51 % (1994). The lambs died due to poor milk yield was significantly ($P<0.01$) higher in the year 1994 and 2003 (Table 2). The poor milk production has also been observed mostly in the underweight groups of maiden ewes put for breeding which was evident in the year 2003. Mastitis was also one of the factors observed to cause lamb mortality and the incidence of the problem observed to be ranged from 0 % (1993) to 1.90% (2001) with an average percentage over the years as 0.71. Postnatal lamb mortality due to starvation has also been reported in the earlier reports (Dalton *et al.*, 1980).

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