

Mortality of lambs at birth to weaning in nomadic flocks of Esfahan province

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Abstract: The data used for this study were collected in 9 nomadic flocks (4 flocks Bakhtiari and 5 flocks Ghashghaei) in Esfahan province. Data collected on 900 lambs born alive in the different flocks were included in the analyses. Average pre-weaning mortality rate was 19% and ranged from 17.5% for Bakhtiari flocks to 20.4% for Ghashghaei flocks. Mortality rate in male lambs was higher than that recorded for female lambs ($P < 0.05$). When comparing the management systems followed from mating up until weaning in the different flocks with the corresponding pre-weaning mortality rates, it is obvious that there was discernible trend. Of the 171 lambs deaths recorded, the probable cause for 157 (91.1%) deaths was known. The most important problems were health issues and disease, malnutrition, management and welfare. About 45.03% of pre-weaning mortalities was due health issues and disease. Birth weight and sex of the kid had a significant influence on pre-weaning mortality rate. Single-born kids had the lowest mortality rate, followed by twin-born and triplet-born lambs.

Introduction: Reproduction and lambs survival rate are the most important traits influencing income in shepherd. The number of lambs born per ewe is certainly an economically important trait in a commercial sheep enterprise. However, profitability is largely determined by the number of lambs sold per ewe. Therefore, a great deal of effort should be put toward the care of pregnant ewes and their lambs before, during, and after birth. A knowledge of when and how lamb mortality occurs could be helpful to keep the mortality rate to a minimum. Very little work on mortality rate in sheep, especially on lambs pre weaning, has been published to date (Vetter et al, 2010; Turkson, 2003). These authors cited losses of 10 to 30%. Similar losses occur in sheep, and considerable research effort has focused on investigating possible causes of lamb mortality (Alexander, 1984; Dwyer, 2008). The objective of this experiment was to determine firstly, to quantify the extent of lamb's mortalities, secondly to identify the major causes of mortality, thirdly to determine if management practices influence lambs mortality rate.

Materials and Methods: The data used for this study were collected during a project that involved an investigation into reproductive performance and lambs mortality aspects in nomadic herds of west east Esfahan province. This study was conducted from 2011 to 2013 in 4 flocks of Bakhtiari sheep and 5 flocks of Ghashghaei sheep, kept under different management systems. Data collected during the lambing seasons included the following information for each lamb: lamb identity, ewe identity, birth date, birth weight, sex, birth and rearing status, rearing group and weaning weight. Ewes that failed to lambs, aborted or delivered stillborn lambs, needed help with lambing, had udder defects, or lambs that needed help with suckling, were also recorded. Furthermore, probable cause of death was recorded where possible. Data collected on 900 ewes lambing in the different studs were included in the analyses. Statistical analyses were conducted using General Linear Models procedure of SAS (SAS Institute Inc., Cary, NC). The level of significance was established at $P < 0.05$.

Discussion and Result:

Survival rate from birth to weaning is summarized in Table 1 for data collected from 2011 to 2013. Average pre-weaning survival rate was 81 ± 0.67 and ranged from $79.6 \pm 1.00\%$ in Ghashghaei flocks to $82.75 \pm 0.52\%$ in Bakhtiari flocks among years. There was no significant difference in survival rate between ram and ewe lambs. This is in contrast with the findings of Vetter et al (2010). Pre-weaning survival rates for lambs in the different studs are presented in Table 1. There was a large variation in kid survival rate among the different studs ($P < 0.01$). Management system had an overall significant effect on survival rate ($P < 0.01$) and significant differences were observed among most of the management

systems. However, when comparing the management systems followed from mating up to weaning in the different studs with the corresponding pre-weaning survival rate, it is obvious that there was discernible trend. The most important problems were health issues and disease, malnutrition, management and welfare. About 45.03% of pre-weaning mortalities was due health issues and disease. Birth weight and sex of the kid had a significant influence on pre-weaning mortality rate.

Table.1 Lambs mortality in different nomadic sheep heard of Esfahan province

Breed	Bakhtiari				Ghashghaei				
	1	2	3	4	1	2	3	4	5
No.	14	17	30	8	16	21	18	24	23
Mortality %	8.19	9.94	17.54	4.68	9.36	12.28	10.53	14.41	13.45

Causes of lambs mortalities from birth to weaning are summarised in Table 2 for the data collected from 2011 to 2013. Of the 171 deaths recorded, the probable cause for 14 (8.19%) is unknown. The most important problems were health issues and disease(45.03%), malnutrition(30.41%), management and welfare(16.37%).

Table.2 Causes of lambs mortalities from birth to weaning

Breeds	Bakhtiari		Ghashghaei		Total	
	No	%	No	%	No	%
malnutrition	15	21.74	37	36.27	52	30.41
health issues and disease	33	47.83	44	43.14	77	45.03
management and welfare	13	18.84	15	14.71	28	16.37
unknown	8	11.59	6	5.88	14	8.19
Total	69	100	102	100	171	100

Keywords: Lamb, Mortality , Bakhtiari, Ghashghaei, Nomadic.

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