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Maternal and lamb behaviour of the Karacabey Merino ewes at pre- and post-parturition

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Abstract

The objective of this study was to investigate the maternal and the lamb behaviours of the Karacabey Merino ewes at pre-parturition and post-parturition periods. Data were collected from 7 heads primiparous and 11 head multiparous ewes and their 19 heads offspring. The average value of ewes' standing/laying number at lambing was not significantly (P>0.05) affected on maternal experience, birth type and sex. The primiparous (15.198 number) ewes have higher number of standing/laying than the multiparous (10.033 number) ewes for the duration of the parturition. The duration of the parturition for the primiparous and the multiparous ewes was 02:19:00 and 1:06:59 hour: minute: second, respectively. The mean values of lamb birth weight, the number of standing/laying, duration of the first head act, duration of the first standing, duration of the first walking, duration of the going towards the teat and duration of the first suckling were 4.87 kg, 10.10 number, 01:34, 16:18, 21:13, 24:36 and 40:35 minute: second, respectively. Experienced ewes began to lick the head and neck of lambs after birth, however, ewes which had given birth for the first time started to lick other parts of the lamb's body. When the lamb attempted to suck, the ewe's circling movement, backing and moving forward behaviours were most often observed among primiparous ewe, whereas, with the multiparous ewes, these negative characteristic were observed very rarely. It can be concluded that multiparous ewes become familiar with their own lamb much quicker compared with the primiparous ewes.

Keywords: Karacabey Merino sheep; maternal behaviour; lamb behaviour

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Introduction

The sheep production has a very important percentage amongst the agricultural activities in Turkey. The sheep production studies in Turkey have shown that it is much intertwined with agriculture and the socio-economic structures. Sustainable and profitable sheep breeding requires applying every scientific data available to new technologies and combines it with management processes. The number of sheep in Turkey has been rapidly decreasing just like other species except for the cattle. The population of the sheep has been reduced by 57.2% to 23 million from 40 million since 1990 (Turkstat, 2012).

The Karacabey Merino sheep was improved in order to meet the demand for high quality wool and meat in Turkey in 1933, however, in the recent decades the breeding was almost completely for meat production (Yılmaz et al., 2002).

The behaviours of the ewes and lambs have a major influence on lamb survival during and after parturition, particularly under extensive conditions. The ability of a lamb to survive the weaning period is widely known that is determined by genetics, behaviour, physiology and the environment, including the farm management practices. The majority of lamb deaths occur in the first 3 days after birth and range from 5 to 30% for individual sheep flocks and the

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predominant primary cause of lamb deaths from parturition to three days of age was dystocia (difficult births). This level of lamb mortality is not acceptable from both welfare and production perspectives, and therefore, practices that can reduce lamb losses will not only have welfare and production benefit, but also an economic impact (Kerslake et al., 2005; Everett-Hincks and Dodds, 2008).

Some behaviour such as licking or grooming, lamb recognition, and early suckling are identified as common behaviours among different breeds of ewe (Whateley et al., 1974; Alexander et al., 1983; Alexander et al., 1990; Cloete, 1992). The evaluations of maternal behaviour where the differences in the breeds have been observed, such as separation of a ewe from her lambs (Alexander et al., 1983) have reported the primary cause as the poor attachment between the ewe and lamb. Maternal behaviours of the ewes associated with attachment are licking or grooming, early suckling lamb (Dwyer, 2008), olfaction and audition (Matthieu et al., 2003), the concentration of plasma oestrogen, progesterone hormones (Dwyer and Smith, 2008) and the time of kept with their mothers (Çam et al., 1999). There are some environmental diversity factors such as ewe breed and feeding at gestation affecting the expression of social behaviour in ewes (Matthieu et al., 2003; Snowder and Knight, 1995)

Several studies have shown that there are some differences in the maternal behaviour of primiparous and multiparous ewes. Primiparous ewes do not show the same level of competency in the maternal behaviour as the multiparous mothers (Dwyer, 2008; Dwyer and Smith, 2008; Dwyer et al., 2001). The aim of this study is to investigate the effect of maternal and lamb behaviours of Karacabey Merino ewes at pre-parturition and post-parturition.

Materials and Methods

This study was carried out at Bandırma Sheep Research Station. Mating was applied from June 15th to August 15th and continued for 45-60 days. In the initial periods of gestation, the ewes were grazed at night and the flock was kept during the day. Four weeks before the start of the lambing season, flocks were kept indoors and concentrates were given at a ratio of 400-500 and 800 gm hay per ewe per day, in addition to access to fresh water.

The material of the study consisted of 7 head the primiparous ewes and 11 head the multiparous Karacabey Merino ewes and their 19 heads offspring. The ewes with similar lambing date were taken into a straw-bedded monitoring pen of size 6.0 x 8.0 m^2 in a group of 18 ewes. The behaviours of the ewes and the lambs were recorded continuously by the four cameras placed in this monitoring area. The ewes were kept in the monitoring pen from seven days before the expected date of the first parturition until the end of the parturition period so that their maternal behaviour and post-parturient lamb behaviour were recorded. In order to distinguish the ewes in the video recordings, all the ewes placed in the monitoring area were given numbers, which were painted on their backs, left side and right side ribs. The lambs were removed from the lambing monitoring area after the postnatal maternal behaviour of the ewes, at least first successful suckling time of the lambs, was recorded. The sheep that were the material of the experiment were measured for live weights and body condition score, which were based on 0-5 scale, at before the mating period and after the lambing season.

In the literature the ewes' behaviours are described in three main categories, which are ewe's behaviour at lambing time, the behaviour of the pre-parturition ewe, and post-parturition lamb behaviour.

The ewes' behaviours during the lambing time are the numbers of standing and lying, the duration of the parturition (hour), and the duration until the first standing after birth.

Descriptions of the behaviours of the pre-parturition ewes were investigated in the current study. Detailed descriptions of the behaviours are described by O'Connor and Lawrenc (1992), Dwyer and Lawrence (1998), and Dwyer (2003), and those behaviours are mainly grooming (Licking and nibbling movements directed towards the lamb), facilitating sucking (Ewe crouches, turns one hind leg out to aid lamb sucking), sniffing/nosing (Ewe touches the lamb with her nose, no evidence of grooming), withdrawing (Ewe moves back directly away from the lamb at her head), butting/forwards (Ewe pushes lamb down or away with downwards, sideways or movements of her head), preventing sucking (Ewe movements as lamb moves to udder and attempts to suck), sucking attempt (Lamb has head under ewe in udder region), successful suck (Lamb has teat in its mouth, appears to suck), and abandonment/rejection (Ewe does not lick lamb, leaves the lamb soon after birth, butts lamb if it approaches, frequently accompanied by high-pitched bleating).

Behaviours related to start of the parturition in sheep are the number of standing and laying, duration of the parturition (minute: second), difficulty of parturition (yes/no), and the behaviours of the ewes belonging to the after lambing period include dam's acceptance of the lamb, and the first time of licking. Behavioural traits recorded in the investigation were the proportion of the time spent grooming the lambs, the number of sucking attempts received per minute, the response of the ewe to lamb sucking attempts (prevents sucking, stands), incidences of negative maternal behaviour (butting the lamb and abandonment or rejecting the lamb).

The characteristics of the lamb behaviour are the duration of the first standing (minute: second) and the first sucking time (minute: second) after lambing, and the first sucking period (minute: second).

Statistical Analysis

The frequency of negative and positive behaviours after ewe parturition such the liking of the other ewes, lamb crushing, butting, ewe circling, ewe backing, licking and nibbling, subsidence when suckling lamb, lifting leg when lambs suckle and some maternal behaviours such as type of parturition, type of presentation, first licking area were analysed by chi-squared tests. The effects of groups, sex, and birth type on the behaviour of the pre-parturition ewes were analysed using the General Linear Model. In the analyses of the behaviour characteristics of the ewes and lambs, SPSS statistical software package was employed (SPSS, 2001).

Results

Some descriptive characteristics of ewe and lamb behaviours of the Karacabey Merino ewes are given in Table 1. At birth, ewes show distinctive behavioural patterns (e.g., licking or grooming, low-pitched bleats, udder acceptance) that facilitate the transition of the lamb from pre- to postnatal life and that accompany the formation of an exclusive olfactory memory for the lamb. The lamb also performs a specific sequence of behaviours directed toward standing, finding the udder, and sucking.

The least squares means of some of the behaviours at lambing time of the Karacabey Merino ewes are presented in Table 2. The mean value of standing/laying at lambing of the ewes was not significantly affected by maternal experience, birth type and sex.

The primiparous (15.198 number) ewes have higher number of standing/laying than the multiparous ewes (10.033 numbers) for the duration of the lambing period. The effects of groups on the ewe live weights were significant (P<0.05), but the birth type and the sex of lamb were not significant (P>0.05). The body condition score of the ewes are different for the single and twin lambing ewes. Single lambing ewes have lower value body conditions score than twin lambing ewes. The average parturition time was significantly for groups and sex. The primiparous ewes (1:02:19 hour: minute: second) and the multiparous ewes

Table 1: Some descriptive characteristic of ewe and lamb behaviours

Characteristics	N	$\bar{X} \pm S_{\bar{x}}$	Minimum	Maximum
Ewe live weight (kg)	18	68.67±1.680	57.0	82.0
Body Condition Score at Lambing	18	1.94±0.151	1.0	3.0
The number ewe standing and laying (number)	18	8.83±7.040	2	30
Duration of the parturition (hour: min:sec)	18	1:05:10±0:09:50	0:22:45	3:37:09
Duration of the first standing after birth (min:sec)	19	0:06:50±0:01:32	0:00:00	0:20:55
Birth weight (kg)	19	4.53±0.208	2.0	6.0
Duration of the lamb standing/laying (number)	19	10.10±10.427	2.0	45.0
Duration of the first head act (min:sec)	19	0:01:34±0:00:51	0:00:00	0:15:25
Duration of the first standing (min: sec)	19	0:21:13±0:02:47	0:07:16	0:59:04
Duration of the first suckling attempt (min:sec)	19	0:24:36±0:03:03	0:06:46	0:59:04
Duration of the first suckling (min:sec)	19	0:40:35±0:06:02	0:11:07	1:51:31

Table 2: The least squares means of some ewe behaviour of at lambing time

Investigated Factor		The number of standing/ laying at parturition	Duration of the Parturition (hour: min: sec)	Ewe Live Weight (Kg)	Body Condition Scour
	n	$\bar{X} \pm S_{\bar{x}}$	$\bar{X} \pm S_{\bar{x}}$	$\bar{X} \pm S_{\bar{x}}$	$\bar{X} \pm S_{\bar{x}}$
Groups		NS	NS	*	NS
Primiparous	7	15.198±2.968	1:02:19±0:06:46	62.724±3.060	1.626±0.275
Multiparous	11	10.033±2.876	1:06:59±0:15:51	69.668±2.966	1.492±0.266
Birth Type		NS	**	NS	*
Single	2	8.490±1.649	2:16:59±1:20:09	68.380±1.700	2.074±0.153
Twining	17	16.741±4.758	0:56:11±0:04:40	64.011±4.905	1.045±0.441
Sex		NS	NS	NS	NS
Male	9	13.375±2.559	1:10:03±0:18:53	67.185±3.406	1.514±0.306
Female	10	11.857±3.304	1:00:17±0:07:01	65.207±2.639	1.604±0.237
Overall Mean	19	12.616±2.475	1:05:10±0:09:50	66.196±2.552	1.559±0.229

*: P<0.05, **: P<0.01, NS: non-significant

Table 3: The least squares means of post-parturient lamb behaviour

Investigated Factor	n	Birth Weight	The time of first head act	The number of lamb falling- stand up	The time of first stand up	The first walking time	First Suckling attempt	The time of first suckling
Group		NS	NS	*	NS	NS	NS	NS
Primiparous	7	4.51±0.440	0:01:46±0:01:02	15.25±5.354	0:19:21±0:05:18	0:22:46±0:03:42	0:24:53±0:03:22	0:44:56±0:13:01
Multiparous	11	5.08±0.145	0:01:16.±0:01:26	6.67±0.899	0:14:38±0:05:04	0:20:19±0:03:57	0:24:26±0:04:31	0:38:04±0:06:14
Birth Type		*	NS	NS	NS	NS	NS	NS
Single	2	5.09±0.145	0:01:25±0:00:57	10.75±2.834	0:16:17±0:03:57	0:21:40±0:03:28	0:24:08±0:03:51	0:38:38±0:06:57
Twin	17	4.08±0.626	0:02:10±0:02:10	7.50±2.958	0:16:30±0:00:00	0:19:34±0:03:18	0:26:20±0:02:03	0:47:56±0:13:03
Sex		NS	NS	NS	NS	NS	NS	NS
Male	9	4.80±0.270	0:02:57±0:01:49	9.67±2.934	0:11:07±0:03:22	0:16:55±0:04:34	0:18:30±0:02:47	0:35:01±0:07:08
Female	10	4.94±0.281	0:00:26±0:00:13	10.45±3.622	0:20:53±0:06:08	0:25:05±0:02:32	0:30:05±0:04:42	0:45:36±0:09:34
Overall mean	19	4.87±0.190	0:01:34±0:00:51	10.10±2.332	0:16:18±0:03:43	0:21:13±0:02:47	0:24:36±0:03:03	0:40:35±0:06:02

*: P<0.05, NS: nonsignificant

Table 4: Parturition behavioural characteristics of ewes

Characteristic	Primiparous	Multiparous	Overall mean
Type of parturition position	NS	NS	
Standing, %	12.5	50.0	35.0
Recumbent, %	87.5	50.0	65.0
Type of presentations	NS	NS	
Normal Parturition%	75.0	91.7	85.0
Dystocia, %	25.0	8.3	15.0
First licking area	NS	NS	
Head-Neck, %	75.0	100	90.0
Genital Area, %	25.0	0.0	10.0
Type of suckling lamb	NS	NS	
Desirous, %	87.5	83.3	85.0
Undesirous, %	12.5	16.7	15.0

NS: nonsignificant

(1:06:59 hour: minute: second) have the same parturition time.

The least squares means of post-parturition lamb behaviours are shown in Table 3. The group, sex, and birth type do not have an effect on the duration of the first head act, first standing up, first walking, the going towards to teat, and the first suckling of lambs. There were differences between the primiparous and the multiparous ewe lambs for the numbers of lamb standing and laying after lambing. The average values of birth weight, the number of standing/laying, the duration of the first head act, the duration of the first standing of the lamb, the duration of the first walking of the lamb, the duration of the going towards to the teat, and the duration of the first suckling were 4.87 kg, 10.10 number, 01:34, 16:18, 21:13, 24:36 and 40:35 minutes: second, respectively.

Some parturition behavioural characteristics of the Karacabey Merino ewes are given in Table 4. The primiparous ewes have higher incidence of dystocia than the multiparous ewes. The rates of normal birth and dystocia for the lambs of the Karacabey ewes were 85% and 15%, respectively. The parturitions were observed to be 65% recumbent and as 35% standing. The type of parturition position for the experienced ewes (multiparous) was 50% recumbent, however, for the primiparous ewes it was 87.5% recumbent and 12.5% standing. The licking behaviour of the Karacabey Merino usually started at the head-neck (90%) of the offspring. This period is an important time for establishing the maternal-offspring bond.

The observed suckling behaviour of the Karacabey Merino ewes towards their lambs was 85% desirous and 15% undesirous. The multiparous ewe's first licking was directed primarily at the head (100%), and the proportion for the primiparous ewes was %75 head-neck followed by 25% towards the genitals.

Ewe Behaviour after Parturition: Some maternal behavioural characteristics of the Karacabey Merino Ewes after parturition are given in Table 5. The pregnant ewes (25%) showed interest in the other lambs in the flock, where they showed behaviours such as cleaning, and grooming.

In the study, the proportion of the licking attempts of the lambs was observed for all the primiparous and the multiparous ewes. The proportion of the butting attempts where the ewe moves forward was higher in the primiparous ewes than the multiparous ewes. It was observed that the multiparous ewes are more likely to attempt to lick other new born lambs then the pririmiparus ewes. When observing the negative maternal behaviours of the Karacabey Merino Ewes, behaviours such as butting the lamb and abandonment/rejecting of the lamb were detected as the negative maternal behaviours. In the current study, all ewes displayed grooming behaviour more or less within one hour after lambing and no ewe abandoned or rejected her lambs permanently. The proportion of the primiparous and the multiparous ewes butting the lamb was only 12.5 % and 25%, respectively.

Discussion

The aim of the study was to assess the, behaviour of the Karacabey Merino ewes and lambs at lambing. The successful accomplishment of these behaviour patterns is vital for the formation of a strong attachment between both partners, and for the survival of the lamb (Dwyer, 2008). As a proportion of the maternal body

Table 5: Some maternal behavioural characteristics of Karacabey Merino ewes

Characteristic	Primiparous		Multiparous		Overall Mean	
	Positive	Negative	Positive	Negative	Positive	Negative
The other ewe liking, %	75.0	25.0	75.0	25.0	75.0	25.0
Lamb crushing, %	100	0.0	83.3	16.7	90.0	10.0
Butting, %	87.5	12.5	75.0	25.0	80.0	20.0
Ewe circling, %	50.0	50.0	83.3	16.7	70.0	30.0
Ewe backing, %	87.5	12.5	91.7	8.3	90.0	10.0
Licking and nibbling, %	87.5	12.5	100	0.0	95.0	5.0
Subsidence when suckling lamb, %	87.5	12.5	83.3	16.7	85.0	15.0
Lifting hind leg when lambs suckling, %	75.0	25.0	91.7	8.3	85.0	15.0

weight, the multiparous and single lambing ewes tended to be heavier than the primiparous and twin lambing ewes for the Karacabey Merino, and our finding is parallel with the results by Dwyer and Lawrence (1998).

The duration of the parturition time for the primiparous and the multiparous Karacabey Merino ewes were 1:02:19±0:06:46 and 1:06:59±0:15:5 hour: minutes: second, respectively. This result was in agreement with Cloete (1992), Dormer sheep (1.824), South African mutton merino (1.962), and Dwyer and Lawrence (1998) who reported that overall labour was shorter in Blackface ewes relative to Suffolk ewes (62 vs. 84 min). When litter sizes were compared, labour was significantly quicker for Blackface singleton lambs compared to Suffolk singleton lambs, but not for twin lambs. Regardless of breed, first-born twins were born significantly more quickly than single lambs (58.5 and 34.0 min),

The birth weights in the study were recorded between 4.51 kg and 5.08 kg , which are in line with Blackface and Suffolk lambs birth weights (4.36 and 5.51 kg) as reported by Dwyer and Lawrence, (1998).

Primiparous ewes were more likely to move as the lamb attempted to suck, and to show withdrawal or aggression towards the lamb11. Dwyer and Lawrence (1998) reported the latencies for singleton Blackface and Suffolk lambs to stand (12.15 and 27.79 min), reach the udder (19.60 and 45.21 min) and attempt to suck (34.72 and 80.71 min) and successful suck (95.149 and 116.42) and twin for Blackface and Suffolk lambs to stand (12.97-14.09 and 28.1-35.43), reach the udder (21.83-18.36 and 49.45-61.00) and attempt to suck (30.99-27.03 and 69.79-93.95) and successful suck (63.3-92-9 and 115-82-126.5) and Dwyer (2003) reported that the lambs born to first parity ewes were slower to stand and suck than lambs born to experienced ewes and that lamb shakes head (33,6 s), lamb onto knees (2.80 min), lambs' attempt to stand (5.7 min), lamb's stand (19.4 min), lamb's reach to the udder (28.5 min), and lamb's suck (68.02 min). These reported results are different from the findings in this study. The differences could be attributed to the differences in the breeds.

Lambs born to first parity mothers were slower to stand and reach the udder than lambs of the more experienced ewes, where the lamb birth weight had a significant positive effect only on the time taken by the lamb to reach the udder; our results are in agreement with Dwyer et al. (2005). Darwish et al. (2010) reported Egyptian Rahmani lambs' interval to first attempt to stand (min) (3.9 and 3.5); interval to first stand (min) (17.0 and 14.8); interval to reach the udder (min) (22.4 and 19.7); interval to first suckling (min) (34.1 and 28.1), which are different from the findings of the current study. The differences could be attributed to the differences in the breeds, live weight of the lamb, climate and environment, etc.

Dwyer and Lawrence (2000) reported the latency to stand (13.91 to 23.25 min), the latency to suck (42.68 to 98.77 min), and described that the primiparous ewes maternal rejection was also accompanied by aggressive behaviours towards that lamb, whereas in the analysis of the multiparous ewes behaviours indicative of maternal aggression (butting and pushing) were on a separate dimension to behaviours associated with rejection (withdrawal, moving away from the lamb as it attempts to suck). Also, the primiparous ewes took longer to start to groom their lambs after delivery, were more likely to butt or withdraw from their lambs and made more high pitched vocalisations than the multiparous ewes.

Darwish and Ashmawy (2011) presented that the ewes that had prolonged and difficult births did not show competent maternal behaviour compared to mothers with short and un-complicated deliveries, as they were slower to begin grooming their lambs after birth, spent less time licking their lambs, made less low-pitched vocalizations and nosing, were more likely to show rejection behaviour (10.34 % and 5.4 %), and were more likely to move away when the lamb sought the udder in an attempt to suck (acceptance rate, 55.5 % and 64.79 %).

Dwyer and Smith (2008) reported that there were no significant effects of breed, ewe age or litter size on the proportion of lamb sucking movements where the ewe stood still (accepted), however, primiparous ewes tended to move away from the lamb more frequently than multiparous ewes, although this did not reach significance. Negative behaviours (butting, pushing, and withdrawing) were seen in 20% of primiparous

ewes but were not expressed by multiparous ewes. Only one primiparous ewe butted her lamb in this study.

Hild et al. (2011) reported that the multiparous ewes tended to groom their offspring longer than the primiparous ewes. These results are not different from our findings. Peeva (2009) claimed that the temperament influenced the maternal selectivity behaviour and reactivity toward alien and own lambs in primiparous dairy sheep. The sheep of calm temperament demonstrated stable maternal selectivity behaviour toward alien and own lambs, whereas the lambing stress at the first parity caused significant negative effect on the maternal selective behaviour in the animals of nervous temperament.

When the lamb attempted to suck, the ewes were observed to show behaviours such as circling, licking, butting and backing, nibbling, and subsidence when suckling the lambs. In the current study, the primiparous and the multiparous ewes displayed grooming behaviour soon after lambing. Similar to the current study, circling behaviour was reported to be the primary ewe movement, when their lambs attempted to suck, by O'Connor and Lawrence (1992) and Ekiz et al. (2007).

Maternal licking that occurs within a few minutes after parturition, not only dries, cleans and stimulates the lamb, but it also facilitates the formation of a strong bond with the newborn lamb through recognition of its odours (Poindron et al., 2007). Darwish et al. (2010) reported than maternal care appeared to be of shorter duration in the Rahmani ewes compared to the crossbred Finnish ewes. In general, the proportion of the Karacabey Merino ewes which expressed positive maternal behaviours found in the current study were similar to those reported in Merino ewes (Alexander et al., 1982) and Scottish Blackface ewes, but were lower than those reported in Suffolk ewes (Dwyer and Lawrence, 1998) and crossbred Finnish ewes (Darwish et al., 2010).

When the lamb attempts to suck, the amount of experience of the ewe plays an important role in her response to the attempt of the lamb. An inexperienced ewe usually tries to keep the lamb in front of her (O'Connor and Lawrence, 1992). This could be usually achieved by circling movements. Dwyer and Lawrence (1998) described the circling movement as a co-operative behaviour and reported that the aim of this behaviour is to guide the unsuccessful lamb for the next sucking attempt. Circling movement of the ewe assists the lamb to reach the udder, also facilitates the improvement of the bond between ewe and her lambs (O'Connor and Lawrence, 1992). Therefore, high levels of circling behaviour in the primiparous Karacabey Merino (50%) ewes found in the current study might be a reflection of the efforts of primiparous ewes to learn nursing behaviour. On the other hand, backing and moving forward behaviours are non-cooperative behaviours, which indicate failure in the ewe-lamb bonding (Dwyer and Lawrence, 1998). However, these behaviours were observed less in both groups in the current study.

Normal lambing in sheep should be completed within two hours after the water sac appears. The most common types of presentations are anterior and posterior. In an anterior presentation, the front feet, with the head resting between them, appear first. When the head has exited the vulva, expulsion of the lamb quickly follows. Dystocia can also occur when the lamb is in the wrong position for the parturition; this is called malpresentation (Neary and Hepworth, 2005). Yılmaz et al. (2012) who found the majority of does (67%) gave birth while recumbent, whereas the remaining does (33%) gave birth standing and the majority of the does (83%) accepted and nursed their kids after parturition. In the current study, types of parturitions were found as 65% recumbent and 35% standing in the Karacabey Merino and the types of suckling of the Karacabey Merino ewes were 85% desirous and 15% undesirous to their lambs. Although, the studies differ in the types of species, the types and rates for the parturition and suckling were similar.

In conclusion, this study has demonstrated that the multiparous ewes associated with their own lamb much quicker and capable when compared with the primiparous ewes. Furthermore, the multiparous ewes licked a greater proportion of the head-neck part of the lamb's body. When the lamb attempted to suck, ewe's circling movement, backing and moving forward behaviours were observed at higher rate among the primiparous ewes, whereas the multiparous ewes very rarely displayed these negative characteristic.

References

Alexander, G., Bradley, L.R. and Stevens, D. 1983. Effect of age and parity on maternal behaviour in single bearing Merino ewes. *Australian Journal of Experimental Agriculture,* 33: 721-728.

Alexander, G., Stevens, D., Bradley, B and Barwick, S.A. 1990. Maternal behaviour in Border Leicester, Glen Vale and Merino sheep. *Australian Journal of Experimental Agriculture,* 30: 27-38.

Alexander, G., Stevens, D., Kilgour, R., de Langen, H., Mottershead, B.E. and Lynch, J.J. 1982. Separation of ewes from twin lambs: incidence in several sheep breeds. *Applied Animal Ethology,* 10: 301-317.

Çam, M.A., Kuran, M. and Selçuk, E. 1999. Karayaka'larda kuzuların doğum sonrası anaları ile birlikte bulunma sürelerinin koyun ve kuzu ile kuzuları gelişimine etkileri. *Turkish Journal of Veterinary and Animal Sciences,* 23(2): 335-341.

Cloete, S.W.P. 1992. Observations on litter size, parturition and maternal behaviour in relation to lamb mortality in fecund Dormer and South African Mutton Merino ewes. *South African Journal of Animal Science,* 22: 214-221.

Darwish, R.A, and Ashmawy, T.A.M. 2011. The impact of lambing stress on post-parturient behaviour of sheep with consequences on neonatal homeothermy and survival. *Theriogenology,* 76, 999-1005.

Darwish, R.A., Abou-Ismail, U.A. and El-Kholya, S.Z. 2010. Differences in post-parturient behaviour, lamb performance and survival rate between purebred Egyptian Rahmani and its crossbred Finnish ewes. *Small Ruminant Research,* 89: 57-61.

Dwyer, C.M. 2003. Behavioural development in the neonatal lamb: effect of maternal and birth-related factors. *Theriogenology,* 59 (3): 1027-1050.

Dwyer, C.M. 2008. Genetic and physiological determinants of maternal behavior and lamb survival: Implications for low-input sheep management. *Journal of Animal Science,* 86 (E. Suppl.):E246-E258.

Dwyer, C.M. and Lawrence, A.B. 2000. Maternal behaviour in domestic sheep (Ovis aries): constancy and change with maternal experience. *Behaviour,* 137(10): 1391-1413.

Dwyer, C.M. and Lawrence, A.B.1998. Variability in the expression of maternal behaviour in primiparous sheep: Effects of genotype and litter size. *Applied Animal Behaviour Science,* 58: 311-330.

Dwyer, C.M. and Smith, L.A. 2008. Parity effects on maternal behaviour are not related to circulating oestradiol concentrations in two breeds of sheep. *Physiology & Behavior,* 93, (1-2):148-154.

Dwyer, C.M., Calvert, S.K., Farish, M., Donbavand, J. and Pickup, H.E. 2005. Breed, litter and parity effects on placental weight and placentome number, and consequences for the neonatal behaviour of the lamb. *Theriogenology,* 63(4):1092-1110.

Dwyer, C.M., Lawrence, A.B. and Bishop, S.C. 2001.The effects of selection for lean tissue content on maternal and neonatal lamb behaviours in Scottish Blackface sheep. *Animal Science,* 72: 555-571.

Ekiz, B., Kocak, O., Ozcan, M. and Yilmaz, A. 2007. Effects of parity and litter size on maternal behaviour in Kivircik ewes. *Acta Agriculturae Scandinavica, Section A – Animal Science*, 57(2): 81-88.

Everett-Hincks, J.M. and Dodds, K.G. 2008. Management of maternal-offspring behavior to improve lamb survival in easy care sheep systems. *Journal of Animal Science,* 86: E259-E270.

Hild, S., Coulon, M., Schroeer, A., Andersen, I.L. and Zanella, A.J. 2011. Gentle vs. aversive handling of pregnant ewes: I. Maternal cortisol and behavior. *Physiology & Behavior,* 104: 384-391.

Kerslake, J.I., Everett-Hincks, J.M. and Campbell, A.W. 2005. Lamb survival: A new examination of an old problem. *New Zealand Society of Animal Production,* 65:13-18.

Matthieu, K., Maryse, M., Pascal, P., Raymond, N., Guillaume, F., Michal, S. and Frederic, L. 2003. Maternal experience influences the establishment of visual/auditory, but not olfactory recognition of the newborn lamb by ewes at parturition. *Developmental Psychobiology,* 43(3):167-176.

Neary, M. and Hepworth, K. 2005. Parturition in livestock. Purdue Extension ASS-556611, *Animal Science,* http://www.ces.purdue.edu/extmedia/AS/AS-561-W.pdf. Access date: 22.03.2012.

O'Connor, C.E and Lawrence, A.B. 1992. Relationship between lamb vigour and ewe behaviour at parturition. *Animal Production,* 54: 361- 366.

Peeva, Z.H. 2009. The Role of Temperament over the maternal selectivity behaviour in primiparous dairy sheep. *Bulgarian Journal of Agricultural Science,* 15(6): 583-588.

Poindron, P., Levy, F. and Keller, M. 2007. Maternal responsiveness and maternal selectivity in domestic sheep and goats: the two facets of maternal attachment. *Developmental Psychobiology*, 49: 54-70.

Snowder, G.D. and Knight, A.D. 1995. Breed effects of foster lamb and foster dam on lamb viability and growth. *Journal of Animal Science,* 73:1559-1566.

SPSS, 2001. SPSS for Windows, 2001. Version 11.0. SPSS Inc., Chicago, IL.

Turkstat, 2012. Animal database. http://www.turkstat.gov.tr/Start.do. Accesss:27.02.2012.

Whateley, J., Kilgour, R. and Dalton, D.C. 1974. Behaviour of hill country sheep during farming routines. *New Zealand Society of Animal Production,* 34: 243–245.

Yılmaz, A., Karaca, S., Kor, A. and Bingöl, M. 2012. Determination of pre-parturition and post-parturition behaviors of norduz goats. *Kafkas Universitesi Veteriner Fakultesi Dergisi,* 18 (2): 215-219.

Yılmaz, A., Özcan, M., Ekiz, B. and Akgündüz, M. 2002. Türk Merinosu, Sakız ve Kıvırcık ırkları arasındaki melezlemeler ile et veriminin artırılma olanaklarının araştırılması, 2. Kuzuların besi, kesim ve karkas özellikleri. *Turkish Journal of Veterinary and Animal Sciences,* 26: 1333-1340.