

BEHAVIOURAL OBSERVATIONS OF DIFFERENT BREEDS OF EWES IN POST-NATAL PERIOD

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Introduction

The significant influence on survival of newborn lambs has the maternal care (compatible with behavioural pattern), lamb's behaviour and establishing the specific bond between mother and her young (Hrdy 2000). Nowadays in some sheep's breed there are some disorders observed in maternal behaviour (expressed as the interaction between mother and her young). It is the effect of domestication and ennoblement of animals and also change of environmental conditions caused by introducing intensive breeding systems (Asante et al. 1999). Cloete et al. (1998) and Dwyer & Lawrence (1999) showed that lambs' mortality rate over 20% could be ascribed to different aspects of mother's influence on offspring in early stage of its life. It indicates that there are great, practical opportunities to avail oneself of behavioral knowledge to improve the effectiveness of sheep's breeding (Rubaines 1992).

The main subject of the investigation was to create the typology of maternal behaviour depending on breed and defining connection between maternal behaviour and development of the offspring.

Results and discussion

Revealing of the correct behavioral forms of care in sheep follows indirect after parturition. The maternal care about young reveals as immediate impulse of licking the newborn. This action, which is not only for removing the fetal membranes and drying the young but also for creating constant relationship between mother and her lamb, was performed from 36 to 68,2 minutes (tab.1). This result is also noticed in literature (Keszthelyi et al. 1987; Le Neindre et al. 1998). The time of licking was not connected with breed but it depended on a litter's size. Mothers of single lamb nursed their young significantly longer than mothers of twins, which also had to indentificate and find their young. This observation was also done by O'Connor et al (1992).

The vocal communication was also registered during licking. The representatives following breeds: wrzosowka (polish heath sheep), polish mountain and zelaznienska, give the biggest

number of characteristic, low sounds (tab. 1). Mothers after finishing the licking were “purring” to their young – it could calm offspring after separation and help them in staying close by. In recognition lamb by his mother the strongest influence had visual, auditory and olfactory impulses and the weakest influence had motorial impulses. Similar impulses order was present by Pollard (1992) and Asente et al. (1999).

Inducing lambs to stand up by strike by front paw or mouth during the licking was observed only in some ewes (tab.1). Lambs, which could stand firmly, began searching for the teats. They systematically investigated female’s abdomen by touch. Mother helped her newborn in this searching. Especially mothers of primitive breed (wrzosowka and polish mountain sheep) were making suckling easier – they push their young in the direction of teats, took away their legs, squated and ceased moving (tab.1). All females place themselves in the front of lambs. This position helped in nursing and creating emotional bond between mother and her young by way of tasting - olfactory – aurally familiarization.

It was observed distinctly preservative interactions between mother and her offspring. They both affect one another and caused definite reaction. The ewes of all breeds incessantly were licking their lambs till they started to rise (tab.2). Later the licking was interrupting according to the lamb’s activity. The lambs developing slower (they later than others tried to stand up, found the treat and in their first hours of life they shorter suckling and more time laying) were protected longer.

The vocal communication by mothers depended on newborn vocalization (tab.2). Females’ voices were answered especially on bleating of weaker lambs.

Resume

The results showed that sheep of primitive breeds as well as ennoblement breeds were very good and solicitous mothers. Their postnatal expression of maternal behaviour was very strong and significant. The correct reactions of protective behaviour had advantageous influence on activity of newborn lambs, their vitality and vigour. Any abnormalities in maternal behaviour in examined sheeps were recorded.

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Tab.1 The correlation between maternal behaviour and lambs' behaviour

	BREED									
	wrzos owka		polish mountain		polish x friesland mountain		zelazni enska		corriedale	
Name of trait	time of licking	mother's vocali - zation	time of licking	mother's vocali - zation	time of licking	mother's vocali - zation	time of licking	mother's vocali - zation	time of licking	mother's vocali - zation
time from birth to the 1st attempt to stand up	0,37*	NS	0,42*	NS	0,61	NS	0,36*	NS	0,59**	NS
total time of standing during the 1st hour of life	NS	-0,38*	NS	-0,43*	NS	NS	NS	-0,39*	NS	NS
total time of laying during the 1st hour of life	NS	NS	0,82**	NS	NS	NS	0,79**	NS	0,40*	NS
number of suckling attempts	NS	0,41*	-0,55**	0,45*	NS	NS	-0,35*	0,36*	-0,42*	NS
time from birth to the 1st attempt of suckling	NS	0,43*	NS	NS	NS	0,42*	NS	0,37*	NS	NS
total time of suckling in the 1st hour of life	NS	NS	0,39*	NS	NS	NS	0,37*	NS	NS	NS
total time of suckling in the 2nd hour of life	-0,64**	NS	-0,69**	-0,44*	NS	NS	NS	NS	NS	NS
number of sounds uttered by lamb	NS	0,41*	0,55**	0,95**	NS	0,60**	NS	0,89**	NS	0,38*

NS – correlation non significant

** correlation high significant at $P \leq 0,01$

* correlation significant at $\leq P \leq 0,05$

Tab. 2 The observed behaviours of mothers after parturition

Name of trait			wrzosowka	polish mountain sheep	Breed		
					polish mountain x friesian sheep	zelaznienska	corriedale
Total time of lamb licking by mother (min.)	Total trial	n	35	11	27	37	35
		LSM	36,8	51,6	65,7	47,6	68,2
		SE	2,25	2,39	2,57	2,61	2,25
	Type of birth						
	twins	n	7	5	3	7	13
		LSM	43,1	93,1	81,7	53,52	65,5*
		SE	3,23	3,24	3,41	3,11	2,89
	single	n	28	6	24	30	22
		LSM	32,1**	47,5**	54,8 **	47,71*	42,3**
		SE	2,97	2,77	2,86	3,61	2,97
	Number of sounds uttered by mother	n	A 22	B 8	C 15	D 22	E 24
		LSM	CdE 275,7	E 222,3	AdE 177,3	acE 217,3	ABCD 95,2
SE		21,8	37,1	30,1	20,8	15,8	
Mother inducing their lambs to stand up (%)		49,7	33,3	42,8	36,4	39,3	
Mothers facilitating to their young (%)		93,7	86,6	51,8	72,8	79,1	

** differences significant at $P \leq 0,01$
* differences significant at $\leq P \geq 0,01$

ABCD differences significant at $P \leq 0,01$
abcd differences significant at $P \leq 0,05$