THE INFLUENCE OF MELATONIN IMPLANTS INSERTED TO MOTHER SHEEP ON BODY WEIGHT AT PARTURITION AND WEANING REGISTERED IN TURCANA AND TIGAIE LABS BREEDS

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Abstract
The research was made on lambs from 11 Turcana breed sheep and 14 Tigaie breed sheep, and it revealed that the Melatonin inserted on mother sheep did not significantly influenced (p>0,05) lamb`s body weight at parturition and weaning, and neither the average daily gain. This suggests that Melatonin does influence the lamb's body weight at parturition and weaning.

Keywords: melatonin, body weight, Turcana, Tigaie

INTRODUCTION

The best reproduction season of ovine in our country is autumn, which accords with the gradual decreasing of long day-light (over 14 hours) to a ratio of 12 hours of light and 12 hours of dark (1:1). (Pădeanu, 2002; Vigue et al., 1997; Anderson et al., 2005) There have been specified some important differences between breeds: sheep with fine and semifine have a normal reproduction season near to the light-dark ratio 1:1 (September), while latish sheep (with thick wool) answer to the days with a long period of dark (October). (Thiery et al., 1997) The seasonality of the reproduction function on sheep is more striking, as the change between seasons is higher. (Daveau et al., 1997; Lalilots et al., 1997)

Melatonin used as subcutaneous implants is frequently used in the West European countries on advanced sheep breeds (Abecia et al., 2005; Misztal et al., 2004; Gomez et al, 2006), for estrum induction, prolificacy increase, shortage of the mount period, etc. in this research we've tried to evaluate the influence of the Melatonin implants inserted on mother sheep from indigenous breeds, upon the lamb's body weight on parturition and early weaning (30-45 days).

MATERIALS AND METHODS

The experiment was made on ewe lambs from Turcana and Tigaie breed, raised near Sannicolau Mare, in Timis County. In 18 august 2007, were implanted with Melatonin (product named MELOVIN) 14 ewe lambs from Tigaia breed and 11 ewe lambs from Turcana breed, each one having body weights ranging between 50-55 kg.

After 28 days from the Melatonin implants insertion, in every group were inserted 2 lambs from the same breed. They realized the free natural breeding for 40 days.

Animals on which were used the Melatonin implants, were monitored under the aspects of time of entrance in estrum, breading and the evolution of the pregnancy up to parturition.

On parturition were registered the number of lambs, the sex and the body weight of the lambs obtained. Next was calculated the total gain and the average daily gain from parturition to 1st of April 2010.

RESULTS AND DISCUSSIONS

To evaluate the influence of the Melatonin implants used on mother sheep upon the body weight of the lambs obtained from these sheep, lambs were weighed at parturition and at weaning.

Statistical indexes for body weight on parturition, body weight on weaning, body weight gain and average daily gain are presented in tables 1, 2, 3, and 4.

On Table 1 are presented the body weight at lambing and the growing speed for lambs from Turcana breed, from the experimental group on which the mother sheep were treated with Melatonin. From the table we can observe the fact that the body weight at lambing on simple lambings vary between 3,4 and 5,1 kg and on double lambings vary between 1,9 and 3,7 kg. The average body weight at lambing on the experimental group was 3,38 kg.

The average daily body weight gain from lambing to weaning on lambs from single births ranges between 254,7 and 297,2 g/day and for lambs from double births ranges between 191,9 and 262,8 g/day, the average being of 250,23 g/day. On Turcana breed lambs from the control group (table 2), the body weight on lambing, varies between 3,1 and 4,2 kg for single births and between 2,1 and 3,2 kg for double births, with an total average of 3,39 kg. The average daily body weight gain varies less, on single lambings varies between 238,1 and 294,1 g/day and on double births, varies between 215,6 and 273,2 g/day, with an average of 258,45 g/day. The

average daily body weight gain both the experimental group and the control group is situated at a higher level compared to the breed standard, which is 180 g/day.

On Tigaie breed lambs from seep treated with Melatonin (table 3), the body weight at parturition varies in limits very similar to those from Turcana breed lambs, the average being of 3,25 kg. Instead, the average daily body weight gain is 283,55 g/day, higher than the ones obtained from the other breed. On lambs from the control group (table 4) that come from sheep untreated with Melatonin, the body weight on parturition is very similar (3,24 kg) with the one obtained by the lambs from the experimental group. Average daily body weight gain is 270,34 g/day, value that is a little bit lower than the one obtained by the lambs from the experimental group.

Lambs from Tigaie breed both from the experimental and the control group is over the Tigaie breed standard (200 g/day), with 35-41%.

In Table 5 are presented the differences of body weight on lambing and average daily body weight gain for lambs that come from mother sheep treated or untreated with Melatonin. Analyzing the data from the table, we can observe that there are no significant differences ($p > 0,05$) for body weight on lambing, body weight on weaning and average daily body weight gain from lambing to 1-1,5 months between lambs that come from sheep treated or untreated with melatonin, both on Turcana and Tigaie breed.

Table 1.

Body weight at lambing and growing speed for lambs from Turcana breed from the experimental group

Code number	Date of parturition 2006	Lambs sex	Body weight on parturition (kg)	Body weight at 01.04.2006 (kg)	Body weight gain (kg)	Number of days	Average daily gain (g)
1.	16.02	F	4,2	15,2	11,0	43	255,8
2.	17.02	M	2,4	11,0	8,6	42	204,8
		M	2,8	12,3	9,5	42	226,2
3.	17.02	F	4,0	14,7	10,7	42	254,7
4.	20.02	M	1,9	10,0	8,1	39	207,7
		F	2,6	12,0	9,4	39	241,0
5.	22.02	F	3,2	11,7	8,5	37	229,7
		F	2,9	10,0	7,1	37	191,9
6.	23.02	M	3,8	14,5	10,7	36	297,2
7.	24.02	F	3,9	13,9	10,0	35	285,7
8.	24.02	M	3,7	12,4	8,7	35	248,6
		F	2,8	12,0	9,2	35	262,8
9.	26.06	F	3,4	12,0	8,6	33	263,7
10.	28.02	M	4,0	12,9	8,9	31	287,1
11.	01.03	M	5,1	14,0	8,9	30	296,6
x			**3,38**	**12,57**	**9,19**	**-**	**250,23**
Sx			**0,21**	**0,42**	**0,27**	**-**	**8,66**
s			**0,83**	**1,62**	**1,06**	**-**	**33,52**
CV%			**24,56**	**12,86**	**11,54**	**-**	**13,39**

Note: x = media; Sx = eroarea mijlocie a mediei; s = abaterea standard; CV% = coeficientul de vaiație

Table 2.

Body weight at lambing and growing speed for lambs from Turcana breed from the control group

Code number	Date of parturition 2006	Lambs sex	Body weight on parturition (kg)	Body weight at 01.04.2006 (kg)	Body weight gain (kg)	Number of days	Average daily gain (g)
1.	16.02	M	3,2	13,4	10,2	43	273,2
		F	3,0	12,8	9,8	43	227,9
2.	17.02	F	4,0	14,0	10,0	42	238,1
3.	18.02	M	4,2	14,3	10,1	41	246,3
4.	22.02	M	3,1	13,9	10,8	37	291,9
5.	25.02	M	2,9	11,0	8,1	34	238,2
		M	3,2	11,4	8,2	34	241,2
6.	25.02	F	3,5	13,5	10,0	34	294,1
7.	27.02	F	2,1	10,0	7,9	32	246,9
		F	2,9	9,8	6,9	32	215,6
8.	28.02	M	3,8	12,0	8,2	31	264,5
9.	02.03	M	4,0	12,4	8,4	29	289,6
10.	05.03	F	4,2	11,8	7,6	26	292,3
11.	Not pregnant	-	-	-	-	-	-
X			**3,39**	**12,33**	**8,94**	**-**	**258,45**
Sx			**0,17**	**0,41**	**0,35**	**-**	**7,58**
s			**0,63**	**1,49**	**1,24**	**-**	**27,28**
CV%			**18,43**	**12,10**	**12,90**	**-**	**10,56**

Table 3.

Body weight at lambing and growing speed for lambs from Tigaia breed from the experimental group

Code number	Date of parturition 2006	Lambs sex	Body weight on parturition (kg)	Body weight at 01.04.2006 (kg)	Body weight gain (kg)	Number of days	Average daily gain (g)
1.	16.02	M	4,1	14,5	10,4	44	329,5
2.	15.02	M	3,4	12,6	9,2	44	210,0
		F	3,0	12,5	9,5	44	215,9
3.	17.02	M	4,0	15,7	11,7	42	278,6
4.	17.02	M	3,8	16,2	12,4	42	295,2
5.	29.02	F	2,6	12,8	10,2	40	255,0
		F	2,9	9,0	6,1	40	152,5
6.	22.02	F	2,7	14,1	11,4	37	308,1
7.	22.02	M	2,6	13,0	10,4	37	281,1
		M	2,9	12,9	10,0	37	270,3
8.	26.02	F	3,0	13,2	10,2	33	309,1
9.	26.02	M	4,1	15,9	11,8	33	357,5
10.	27.02	M	2,3	10,7	8,4	32	262,5
		F	2,5	13,6	11,1	32	246,9
11.	28.02	F	3,6	14,3	10,7	31	345,2
12	28.02	M	3,6	11,2	7,6	31	245,2
		F	3,2	12,8	9,6	31	309,6
13	01.03	F	4,0	14,8	10,8	30	360,0
14	02.03	M	3,4	13,7	10,3	29	355,2
X			**3,25**	**13,34**	**10,09**	**-**	**283,55**
Sx			**0,13**	**0,41**	**0,35**	**-**	**12,78**
s			**0,58**	**1,80**	**1,51**	**-**	**55,71**
CV%			**18,0**	**13,46**	**14,97**	**-**	**19,65**

Table 4

Body weight at lambing and growing speed for lambs from Tigaie breed from the control group

Code number	Date of parturition 2006	Lambs sex	Body weight on parturition (kg)	Body weight at 01.04.2006 (kg)	Body weight gain (kg)	Number of days	Average daily gain (g)
1.	16.02	F	3,0	13,2	10,2	43	237,2
2.	19.02	F	2,7	12,0	9,3	40	232,5
		F	3,0	11,4	8,4	40	210,0
3.	21.02	M	3,6	14,0	10,4	38	273,7
4.	22.02	M	3,2	15,4	12,2	37	329,7
5.	25.02	M	2,9	13,0	10,1	35	288,6
		F	3,1	12,2	9,1	35	260,0
6.	26.02	F	3,4	13,8	10,4	33	315,1
7.	27.02	M	4,0	15,0	11,0	32	243,7
8.	01.03	M	3,0	11,2	8,2	30	273,3
		M	3,2	12,9	9,7	30	223,3
9.	01.03	M	2,8	10,1	7,3	30	243,3
		F	2,9	10,5	6,6	30	220,0
10.	02.03	F	3,7	12,0	8,3	29	286,2
11.	04.03	M	4,1	11,9	7,8	27	288,9
12	06.03	F	3,0	13,0	10,0	25	400,0
13	07.03	F	3,5	12,3	8,8	24	366.6
14	Not pregnant	-	-	-	-	-	-
X			**3,24**	**12,58**	**9,28**	**-**	**270,34**
Sx			**0,10**	**0,35**	**0,35**	**-**	**11,85**
s			**0,41**	**1,44**	**1,43**	**-**	**48,82**
CV%			**12,72**	**11,46**	**15,39**	**-**	**18,06**

Table 5.

Effect of the Melatonin implants upon the body weight and average daily gain of the lambs and differences signification

Breed	Specification	Group	n	x±Sx	s	CV%	Differences		Test Mann Whitney p>
							absolute	relative %	
Țurcana	Body weight on parturition (kg)	E	15	3,38±0,27	0,83	24,56	- 0,01	0,29	0,71
		C	13	3,39±0,17	0,63	18,43			
	Body weight on weaning(kg)	E	15	12,57±0,42	1,62	12,86	0,24	3,28	0,59
		C	13	12,33±0,41	1,49	12,10			
	Average daily gain (g)	E	15	250,32±8,66	3,52	13,39	- 8,22	1,98	0,64
		C	13	258,45±7,58	27,28	10,56			
Țigaie	Body weight on parturition (kg)	E	19	3,25±0,13	0,58	18,00	0,01	0,30	0,89
		C	17	3,24±0,10	0,41	12,72			
	Body weight on weaning (kg)	E	19	12,57±0,42	1,80	13,46	0,76	4,88	0,12
		C	17	12,33±0,41	1,44	11,46			
	Average daily gain (g)	E	18	283,55±12,78	55,71	19,65	13,21	6,04	0,46
		C	16	270,34±11,58	48,82	18,06			

Note: p>0,05 insignificant difference; p<0,05 Significant difference

E – experimental group

C – control group

CONCLUSIONS

Body weight on lambing and average daily body weight gain from parturition to weaning on lambs that come from sheep treated with melatonin does not differ significantly ($p > 0.05$) from the sheep in the control group, both on Turcana and Tigaie breed.

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