THE PRECOCIOUS USE OF SHEEP AND GOAT YOUTH AT REPRODUCTION

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Abstract

The precocious use of sheep and goat male and female youth at reproduction is a method of intensifying the reproduction through which increases the meat production by achieving a higher number of products and also obtaining one more lactation per exploited sheep or goat, reducing the non-productive period of the females; also, by the precocious introduction to reproduction of the young sheep and goats at the age of 7-10 months the non-productive expenses are avoided by maintaining them in the effective for one year more, because even at the age of 20-22 months, when they are normally used for reproduction, they do not have appropriate reproductive qualities. The researches were made on effectives of sheep and goats (on sheep of Merinos de Palas breed, Palas milk breed, Palas meat breed, prolific population of Palas, Țurcană breed and on goats of Carpathian breed). At the female lambs which were precociously introduced at reproduction, at the age of 7-10 months, the non-returns had values of 81,25-89,47%, the fecundity of 81,25–89,47%, prolificacy of 105,26–115,38%, and at the young female kids the non-returns had values of 79,92-83,33%, the fecundity of 76,92 -83,33%, the prolificacy of 120,0–130,0%. The reproduction indicators of the sheep and goats which were mounted or artificially inseminated with sperm from the males with the age of 7-10 months were: at the young rams, the fecundity was 55,55-91,30% and prolificacy of 100,0-122,22%, and at the young male goats the fecundity was 71,42-91,30% and prolificacy of 107,69-122,22%.

Key words: precocious, reproduction, fecundity, prolificacy, non-returns

INTRODUCTION

The aim of the work is the precocious use of the male and female youth at reproduction. The young female sheep and goats resulted from the early births can make, at the age of 8-10 months, the weight of 75% from that of an adult, fact that permit their entrance in the economic circuit with approx. 10-12 months earlier (as it is usually in the farms of sheep and goats), without damages upon the ulterior productive and reproductive performances [1, 5]. By this method the meat production increases by obtaining a higher number of products and is also obtained an extra lactation per exploited sheep or goat, reducing the non-productive period of the females [3, 6].

Often it is purchased male youth for reproduction, which have a very valuable origin, appropriate conformation and body development, but which, at the controls before mounting, prove to be inapt for reproduction from various reasons (absence of sexual reflexes, bad quality sperm) [3]. It is recommended to establish the reproductive capacity of the sheep and goat male youth at the age of 7-10 months, because it was noticed that the males which at this age do not have sexual reflexes or have seminal material of poor quality, nor at the age of 20-22 months, when they are normally used at reproduction, will have appropriate reproductive qualities. However, the males in the age of 7-10 months which are inapt for reproduction can be put on fattening and be valuable for the meat production, avoiding the non-productive expenses by maintaining them in the effective one more year.

The precocious use at reproduction of the sheep and goat young males and females was tried, but it was not expanded in the practice of SHEEP AND GOAT BREEDING AND EXPLOITATION. At present, the males and females are given to reproduction at ages of 20-22 months [2, 7].

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The manuscript was received: 14.04.2013
Accepted for publication: 15.05.2013

MATERIAL AND METHOD

The researches were made on sheep and goats from the Institute of Research-Development for Sheep and Goat Breeding Palas-Constanța **(**sheep of Merinos de Palas breed, Palas milk breed, Palas meat breed, prolific population of Palas, Țurcană breed and on goats of Carpathian breed). It was aimed the introduction to mounting of the female sheep and goats in the age of 7-9 months; introduction to mounting of the male youth in the age of 7-10 months. It was made the establishing of the reproductive capacity of the young male sheep and goats by determining the sexual reflexes, the capacity by establishing the fecundity capacity of the seminal material, the volume was measured (the gathering glass) the mobility of the spermatozoids was determined (microscopic exam between lame and lamella), the concentration in spermatozoids (counting on Bűrker meter); determination of the percent of dead spermatozoids and with anomalies, by eosin coloration. The sexual behavior of the young rams and young male goats was watched, effecting natural guided mounting sessions and artificial inseminations at sheep and goats being in the first or the second gamete cycle, observing the inseminated females and calculating the non-returns, the fecundity and the prolificacy.

For the artificial inseminations the sperm was diluted with medium on the basis of glucose (1 g), sodium citrate (2.8 g) and egg yolk (20%). The rate of the dilution of the seminal material was of 1+3, when the seminal material had a concentration of 3 billion spermatozoids/ml to be ejaculated; de 1+2 when the seminal material had a concentration of 2 billion spermatozoids/ml to be ejaculated and of 1+1 when the seminal material had a concentration of 1 billion spermatozoids/ml to be ejaculated. The seminal material, since dilution to the artificial insemination was kept into a thermos for animal breeding, at the temperature of 15^{o}C, and the time from gathering, until use was of 2 - 4 hours, maximum 8 hours.

The lambs were used, since the age of 8-10 days, to consume, in special stables, vegetal fodders, hay of very good quality and concentrated fodders, consisting of 50% corn, 40 % oats and 10% peas or grits, the feeding being made at discretion [4]. This foddering continued up to the weaning of lambs.

After weaning and separation on sexes of the lambs and kids they were fed separately, depending on the keeping for reproduction or sending them to the meat production. The young rams which were precociously used for reproduction received ratios of 2.41 kg SU, 2.1 UNL, 279g PDIN and 228 g PDIE during grazing period and 2.76 kg SU, 2.15 UNL, 182 g PDIN and 209 g PDIE during stable period, and for the male young goats which were precociously used for reproduction the ratios were of 1.56 kg SU, 1.64 UNL, 184 g PDIN and 154 g PDIE during stable-staying and 2.32 kg SU, 1.98 UNL, 247 g PDIN and 206 g PDIE during grazing.

For the young female sheep and goats which were precociously introduced to reproduction (8-10 months) the following fodder ratios were given: the ratios of the young sheep were of 2. 14 kg SU, 1.9 UNL, 217g PDIN and 192 g PDIE during grazing period and 2.15 kg SU, 2.06 UNL, 234 g PDIN and 213 g PDIE during stable period, and for the young female goats were of 1.27 kg SU, 1.55 UNL, 201 g PDIN and 156 g PDIE uring grazing period and 1.33 kg SU, 1.51UNL, 196 g PDIN and 153 g PDIE in the stable period.

It was followed the entering in estrum of the female young sheep and goats by introducing the males in the flock, after that, the natural guided mounting was made.

The data were statistically processed by usual methods.

RESULTS AND DISCUSSIONS

The young female sheep and goats which were to be used precociously at reproduction, at the age of 8-10 months if they made 75% from an adult's weight, were weaned at the age of 60 days or at the age of 75 days. It was observed the development of the body development of the body development of the body development of the young female sheep and goats: at the breed of Merinos de Palas the weight at the females at which the weaning was made at 60 days was at the age

of 9 months of 43.37 ± 2.18 kg and of 43.15 ± 2.43 kg at those at which the weaning was done at 75 days; at the female lambs from the prolific population of Palas which were weaned at 75 days the weight at the age of 9 months was of 41.07 ± 2.86 kg; at Țigaie at the age of 9 months the weight at the females weaned at 60 days was of 28.37±0.23 kg and of 29.16 ± 1.12 kg at those weaned at 75 days; at Țurcană breed the weight at the age of 9 months the weight at the females weaned at 60 days was of 31.52 ± 1.42 kg and 32.29 ± 1.34 kg; at those weaned at 75 days; at the female lambs of milk breed of Palas, which were weaned at 75 days, at the age of 9 months had the weight of 41.387 ± 2.28 kg.

The female young goats which were kept for precocious reproduction had, at the age of 8 months, at the lot weaned at 60 days, the weight of 35.65 ± 1.626 kg, and at the lot weaned at 90 days, 36.48 ± 1.352 kg.

At the young female sheep and goats which made 75% from an adult's weight the mountings were made in September and the beginning of October, and for inducing the estrum, males were introduced in the lots of females.

The effect of the male was noted after 15-20 days, when the females entered the estrum, the natural guided mounting being effected. After mounting, the females were watched one cycle more, the mounting of returned female being done and calculating the non-returns (tables 1 and 2).

The female lambs of Merinos de Palas started the estrum in a proportion of 60.71%, the non-returns were, in the end of the mounting period, of 88.23%, the fecundity of 82.35% and the prolificacy of 107.14%.

Table 1 The non-returns and the main reproduction indicators at the female young sheep precociously introduced to reproduction

No	Species, breed or population	Females in experiment (n)	Females in clinic estrum - mounted		Non-returns in the end of mounting period (%)	Fecundity (%)	Prolificacy (%)
			n	%			
1.	Merinos de Palas	28	17	60.71	88.23	82.35	107.14
2.	Prolific Population -Palas	24	16	66.66	81.25	81.25	115.38
3.	Țigaie	40	23	57.50	86.95	82.60	105.26
4.	Țurcană	35	19	54.28	89.47	89.47	111.76
5.	Milk Breed- Palas	24	15	65.50	86.66	86.66	107.69

The female lambs of Prolific population of Palas started the clinical estrum in a proportion of 66.66%, and the non-returns were of 81.25%, the fecundity of 81.25% and the prolificacy of 115.38%. The female lambs of Țigaie breed started the clinical estrum in a proportion of 57.50%, the non-returns were of 86.95%, the fecundity of 82.60% and the prolificacy of 105.26%. The female lambs of Țurcană started the clinical estrum in a proportion of 54.28%, and the non-returns were of 89.47%, the fecundity was of 89.47% and the prolificacy of 111.76%. The female lambs from the milk breed of Palas started the clinical estrum in a percent of 65.50% and the non-returns were of 86.66%, the fecundity of 86.66% and the prolificacy of 107.69%.

The females of goat species, from Carpathian breed - ICDCOC Palas the beginning of the clinical estrum was produced at 52.17% from the lot of females which were subject of the experiment, achieving a percent of 83.33% of non/returned female kids in the end of the period of mounting, the fecundity of 83.33% and the prolificacy of 130.0%.; at the female kids of Carpathian breed - SCDCOC Caransebeș the start of the clinical estrum of the females was produced in a proportion of 72.22%, and the non-returns in the end of the mounting period were of 84.61%, the fecundity of 76.92% and the prolificacy of 120.0%.

Table 2 The non-returns and the main reproduction indicators at the female young sheep precociously introduced to reproduction

No	Species/ breed or population	Females in experiment (n)	Females in clinic estrum - mounted		Returned females after the second mounting	Non-returns in the end of the mounting period (%)	Fecundity (%)	Prolificacy (%)
			n	%				
1.	Carpathian ICDCOC Palas	23	12	52.17	2	83.33	83.33	130.0
2.	Carpathian SCDCOC Caransebeş	28	13	72.22	2	84.61	76.92	120.0

The actual technology of breeding and exploiting the sheep and goats for reproduction uses the young male sheep and goats at the age of 16-18 months, or even over 22 months and often without a previous knowledge of their capacity of reproduction (sexual reflexes, quality of sperm). The young rams used in the experiment were chosen by their origin, body development, conformation and constitution, being healthy animals with a body weight of over 20 kg at weaning. It was watched the ulterior development of the young rams by periodical weighing until august when the experiment started. It was watched the sexual behavior of the young rams regarding the females which were in estrum, appreciating by marks from 1 to 5, establishing the average per period and the general average. The young rams obtained higher marks in the last period when their age exceeded 7.5 months, to 8 months. In parallel with the notes upon the sexual behavior, quantitative and qualitative analyzes of the seminal material were made, The young rams which have sexual reflexes have a good quality sperm, making good mean values regarding the volume, density, mobility and proportion between the living and dead spermatozoids (table 3).

Table 3 The appreciation of the seminal material and of the mounting capacity of the young rams of 7-10 months

Breed/code	Quantity and quality of sperm				Mounted sheep (n)	Fecundity (%)	Prolificacy (%)
	Volume (ml)	Quality of sperm					
		Density	Mobility	Living spermatozoids / dead spermatozoids			
Merinos- (2)	0.3	Rare	65.5	75/25	7	85.00	111.76
Merinos- (3)	0.7	Medium	71.43	96/14	7	91.30	109.52
Merinos- (4)	0.6	Dense	80	80/20	5	88.46	108.69
Merinos- (6)	0.9	Medium - Dense	42.85	82/18	7	81.25	107.69
Merinos- (10)	0.5	Medium - Dense	83	86/14	9	88.88	112.5
Prolific population (13)	0.6	Medium - Dense	80	80/20	11	81.81	122.22
Prolific population (15)	0.9	Medium - Dense	28	82/18	7	71.42	120.0
Prolific population (16)	1.2	Medium - Dense	66	85/15	9	66.66	100.0
Ţurcană (5)	0.6	Rare	50	89/11	8	62.50	100.0
Ţurcană (7)	0.6	Medium - Dense	80	95/5	7	71.42	100.0
Ţurcană 8)	0.8	Medium - Dense	75	91/9	9	55.55	100.0
Ţurcană (9)	0.7	Medium - Dense	55	92/8	8	62.50	120,0

For a direct verification of the fecundating capacity of the seminal material it was made the natural mounting of the females in the first or the second gamete

cycle. The young rams which were apt for reproduction, from the breed of Merinos de Palas achieved fecundity between 81.25 and 91.30% and a prolificacy of 107.69-112.5%. At the young rams from the prolific population the fecundity was between 66.66 and 83.33% and the prolificacy between 100 and 122.22%. At the young rams from Țurcană breed the fecundity was between 55.55 and 71.42% and the prolificacy between 100.0 and 120.0%. After a year, at the age of 20-22 months, the value of the reproducers was not modified much. There still were young males which did not have normal reflexes and fecundating capacity of the seminal material; only 3 young rams which did not have sexual reflexes at the age of 8-10 months proved to be capable of reproduction. We can appreciate that, at the age of 8-9 months, by determining the sexual capacity and the spermatic production the reproductive performances of the rams can be predicted.

The inactive young rams, without sexual reflexes at this age keep their inapt condition for reproduction also during the next year, with few exceptions (with an error of 10-15%), this not justifying the expenses with their maintenance for one year more. The experiment was made also at the young male goats of Carpathian breed and the data are presented in table 4.

At the male kids of Carpathian breed the fecundity was of 71.42-91.30% and the prolificacy was of 107.69-122.22%. At the age of 20-22 months, the value of the reproducers was not modified much; there were he-goats that even at this age did not have normal reflexes and fecundating capacity of the seminal material, only 2 males which did not have sexual reflexes at the age of 8-10 months proved to be apt for reproduction.

On the basis of the obtained data we can appreciate that at the age of 8-9 months, by determining the sexual capacity and the spermatic production of the males, both for natural mounting and for artificial insemination can be predicted. The inactive male goats, without sexual reflexes at this age keep their inapt condition for reproduction also during the next year.

Table 4 The appreciation of the seminal material and of the mounting capacity of the young male goats of 7-10 months with normal sexual reflexes

Code	Quantity and quality of the sperm				Mounted Goats (n)	Fecundity (%)	Prolificacy (%)
	Volume (ml)	Quality of sperm					
		Density	Mobility	Living spermatozoids/ dead spermatozoids			
(2)	0.3	Rare	65.5	75/25	7	85.00	111.76
(4)	0.7	Medium	71.43	96/14	7	91.30	109.52
(5)	0.6	Dense	80	80/20	5	88.46	108.69
(6)	0.9	Medium-Dense	42,85	82/18	7	81.25	107.69
(12)	0.5	Medium-Dense	83	86/14	9	88.88	112.5
(14)	0.6	Medium-Dense	80	80/20	11	81.81	122.22
(15)	0.9	Medium-Dense	28	82/18	7	71.42	120,0

CONCLUSIONS

1. At the female young sheep and goats precociously used for reproduction it was closely watched the appearance of non-returns, and also the fecundity and the prolificacy:

- The young sheep of Merinos de Palas entered the estrum in a proportion of 60.71%, the fecundity of 82.35% and the prolificacy of 107.14%;

- The young sheep of the prolific population -Palas entered the clinical estrum in a proportion of 66.66%, the fecundity of 81.25% and the prolificacy of 115.38%;

- The young sheep of Țigaie the entrance in estrum was of 57.50%, the fecundity of 89.47% and the prolificacy of 105,26%;

- The young sheep of Țurcană entered the estrum in a proportion of 54.28%, the fecundity 89.47% and the prolificacy 111.76%;

- The young sheep of the milk breed of Palas entered the estrum 65.50%, the fecundity 86.66% and the prolificacy 107.69%;

- The female young goats from ICDCOC Palas entered the estrum 52.17%, the fecundity 83.33% and the prolificacy 130.0%;

- The female young goats from SCDCOC Caransebeş entered the estrum 72.22%, the fecundity 76.92% and the prolificacy 120.0%;

2. By precocious use at mounting of the young rams and he-goats which are apt for reproduction it was obtained:

- At the breed of Merinos de Palas a fecundity of 81.25-91.30% and a prolificacy of 107.69 -112.5%;

- At the young rams from the prolific population a fecundity of 66.66-83.33% and a prolificacy of 100-122.22%;

- At the young rams of Ţurcană breed a fecundity of 55.55-71.42% and a prolificacy of 100.0-120.0%;

- At the young male goats of Carpathian breed the fecundity was between 71.42 and 91.30% and the prolificacy between 107.69 and 122.22%.

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