RESEARCHES ON YOUNG KARAKUL OF BOTOSANI SHEEP GROWTH INTENSITY

Al.M. Florea[1], I. Nechifor[1], A. Crîşmaru[3], C-tin Pascal[1,2*]

[1]Research and Development Unit for Sheep and Goat Breeding, Popăuţi-Botoşani, Romania
[2]Iasi University of Life Sciences, Faculty of Food and Animal Sciences, Romania

Abstract

The purpose of the research was a detailed analysis on the way that the different technologies applied can influence the process of growth and body development at young female sheep, belonging to the Karakul of Botosani breed. The biological material subject to the research belongs to Karakul of Botosani breed, it has a known origin and it is raised and bred for pelts production. During the time of research, the biological material was represented by the breeding animals of the Karakul of Botosani breed, which was represented by the youth categories, at different ages.

For studying the impact and the influence caused by the experimental factor taken into consideration, two other batches were set up, which benefited from a differentiated experimental treatment, after weaning. Basically, the two batches, which were analysed in the lactation period, were kept, but the lambs from the batch that was maintained together with their mothers where taken outside to the pasture and the one that benefited from supplementary food was kept in the stable during the plant growing season. The data was processed by using the spreadsheet application MS Excel 2007. This way, the database was prepared with the corresponding variation strings, each being coded according to the specific of the studied parameters.

The results obtained confirm the fact that the intervention in the raising process in the first neonatal period, only by modifying some technological factors that don't require a special financial effort and are accessible to every sheep farmer, can have favourable effect, which will, eventually, contribute in obtaining superior results in their use in reproduction and production.

Key words: pelts, Karakul sheep, lambs, growth intensity

INTRODUCTION

Raising sheep for pelt production is a traditional activity of breeders located in the north-eastern part of Romania. After the World War II ended, there has been an extensive process of forming a new local breed specialized in providing high quality pelts.

The unit, where all the research took place, represents the place where the Karakul of Botosani breed was created, it has an important sheep stock and the entire herd is in the activity of performance control. Likewise, an important proportion of the herd is registered in the Genealogical Register of the breed, a situation that facilitates the unit to be producer and supplier of biological material meant to improve the pelt production in the area represented by the north-eastern part of Romania.

This breed was selected and exposed to the process of breeding almost exclusively for the characters that influence the pelt's quality. Recently, it can be noticed a decline in the interest of skin production, both nationally and internationally. Based on these facts, in order for the Karakul of Botosani breed to keep its local and regional importance, it is necessary to include specific objectives for milk and meat production in the breeding program. This is the motivation of the research that was done in order to determine the growth intensity for this breed of sheep.

MATERIAL AND WORKING METHODS

The biological material subjected to research belongs to the Karakul of Botosani breed, it has known origin and it is raised and bred for pelts production. During the research, the biological material was

*Corresponding author: pascalc61@yahoo.com
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represented by the breeding nucleus of the Karakul of Botosani breed, represented by youth categories at different ages.

In order to verify if the applied technology, in case of breeding youth categories within the respective breed, has an influence on the rhythm of body development, weightings were performed at both birth and at lambs weaning (3 months). Also, the weightings were performed at the age of 6, 9 and 12 months, as well as the transition at breeding herd, when the entire herd is included in the age category represented by the group of adult sheep

The collected data were processed using the MsExcel 2007 spreadsheet application. Thus, the database was prepared with the corresponding variation strings, each being coded according to the specifics of the studied parameters.

To test the statistical significance of the differences between the averages values of the studied parameters, as well as the correlations between them, the algorithm Analysis of Variables (ANOVA Single Factor) and the Pirson Correlation were used, both included in the MsExcel 2007 software package.

RESULTS AND DISCUSSIONS

In the research unit, special attention is paid to the replacement youth growth, in order to have better developed individuals with a better degree of expression of basic productions. According to the lambs' technology applied, weaning is done only if two major requirements are met, namely the age of the lambs and the live weight at the time of weaning.

Through the applied experimental protocol, being a question of replacement youth, it was decided that the complete separation of the lambs from the mother sheep should be done at the average age of 90 days, with variations between 85 and 90 days. In order to verify the way in which the applied technology, in case of young categories growth, has an influence on the rhythm of corporal development, a research was initiated in which the experimental factors were also of technological order.

For this, two other groups were set up, which benefited, after weaning, from a differentiated experimental treatment. Basically, the two groups, which were analysed during the lactation period, were kept, but the lambs from the group that was maintained together with the mother sheep were taken out to pasture, and the one that benefited from additional feed was kept in stable throughout the plant vegetation season.

Proceeding in this way, we wanted to check how the extension of the housing period, but also continuous optimization of same technological factors has favourable effects compared to traditional technology which involves keeping the weaned youth on the pasture until the snow.

The lambs from the first batch were taken out to pasture immediately after weaning and in order to be weighed at the ages established by the experimental protocol, they were distinctly marked.

In the case of the young lambs group which benefited from continued maintenance at stable after weaning, it was housed in paddocks placed on the longitudinal sides of the stables and had a ration in which all the nutritional requirements specific to each group of age were met. After nine months' age, the maintenance and feeding conditions were the same for both groups.

The analysis of the growth intensity in the two groups highlights, in a very clear way, the great effect due to the optimization of the respective technological factors. In the case of actual weightings at 6 months of age, the differences between the lots were not statistically significant. There is a relatively small difference between the lots as the lot kept in the stable had an average weight of only 3.14 kg compared to those maintained on pasture. The explanation for this situation could be represented by the fact that this age range overlapped with the period in which, the vegetation is richer, being spring months.

The statistical processing of the data obtained from the control performed at the age of nine months indicates the existence of marked differences for $P \leq 0.05$. In the group moved on pasture after weaning, the growth intensity was slower because being summer months, excessive heat, drought, lignification of vegetation, longer trips to look for food had negative effects. Instead, the group kept

at the stable benefited from an adequate feeding, it was maintained in the shade and in July, when the temperatures exceeded the thermal comfort threshold, the bribing of young females was practiced. Under these conditions, the batch in the stable recorded an average body weight of 34.874±0.114, while in the other batch this character weighed only 28.666±0.145 kg. The difference between the live weights was 6.20 kg (table 6.2 and fig. 6.4) and had a high degree of statistical significance for P>0.05.

Table 1 Evolution of growth intensity relation with breeding technology applied after weaning (n = 30)

Age when weighing	Applied maintenance technology						Difference ± significant
	growth on pasture (L1)			growth on enclosed space (L2)			
	$\bar{X} \pm s_{\bar{x}}$	V%	Limits	$\bar{X} \pm s_{\bar{x}}$	V%	Limits	
At 6 months (kg)	23.107±0.087	9.5	21 - 25	26.251±0.010	10.5	23-29	+ 3.14^{ns}
At 9 months (kg)	28.666±0.145	11.5	24 - 33	34.874±0.114	12.8	32-35	+ 6.20^{cd}
At 12 months (kg)	33.058±0.114	10.7	28 - 38	38.041±0.180	8.7	37-44	+ 4.98^{bc}
TB (kg)	40.505±0.463	9.6	35 - 45	45.021±0.241	11.5	43-51	+4.51^{cd}

Note: TB = transition to the basic herd

$^{a, b, c, d}$ – environments with different symbols show significantly different values (*P<0.05*);

NS – non-statistically significant differences (P> 0.05); * - statistically significant differences (P<0.05); *** - statistically significant differences (P <0.001).

In the case of weightings carried out at the age of one year and at the time when the females were transferred to the reproduction herd, the superiority of the live weight is kept in the group of females that was maintained in the stable, the differences being slightly greater than 4 kg and have the same statistical significance for P>0.05. The graphic rendering of the growth intensity in the two groups highlights very clearly the effect due to keeping the young sheep in stable in the first year of life.

The extension of this practice may have favourable effects on the degree of bodily development, the increase of precocity and the significant improvement of the main reproductive indices. So the optimization of some factors in a period in which the intensity of growth and bodily development have a high rhythm leads into obtaining a youth better conformed and better prepared to be introduced in the productive and reproductive circuit.

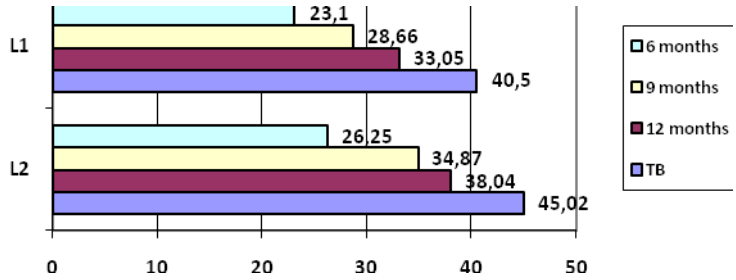

Fig. 1 Dynamics of body mass evolution in ewes' batches raised differently (kg)

Intervention in these stages is favourable because growth and development are parallel processes, not identical, as many say. Growth is the quantitative process that increases the volume and body mass, development is a qualitative process that generates a gradual differentiation of the main parts of the body, organs and system that ensure the functionality of adult organisms.

In our country, a similar study was for Merinos de Palas breed, but the biological material was represented by males weaned at 60 days and raised in different technological systems, traditional and household system [1, 3, 4, 5, 6, 7, 8].

Based on the body weight at different ages, it is known that the total accumulated increase had the greatest values between the ages of 3 and 6 months. During this period, the group maintained in an intensive-industrial system gained an additional 18.6kg, respectively 200% and 16.26 kg representing 177% compared to the lots maintained in the intensive-household and in the household system [2a].

CONCLUSIONS

1. To evaluate how some technological factors, exert influence on body development in youth categories during lambing and until the age of 9 months, the lots have benefited from differentiated experimental treatments, one being maintained on pasture and the other in enclosed space with an optimized diet.

2. In the batch maintained, after weaning, on the pasture, the growth rate was slower because of the summer months, excessive heat, drought, lignification of vegetation, and longer distances travelled in searching food.

3. In the batch kept on enclosed space, average body weight at 9 months was 33.058±0.114 kg while at the other batch the weight was only 28.666 ± 0.145 kg.

4. The difference between live weights was 6.20 kg and had a high degree of statistical significance for P>0.05.

5. Weighing at the age of 12 months and at the transition to the base herd, the weight differences remain at a level close to 5 kg and have a high degree of statistical significance for P>0.05.

6. All data obtained as well as the statistical significance of the differences between batches confirm that the extension of this practice can have favourable effects on the degree of body development, the increase of precocity and the significant improvement of the main breeding indexes.

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