

# STUDIES REGARDING THE APPLICATION EFFECT OF PRODUCTIVE CONTROL TECHNIQUES ON IMPROVEMENT OF KARAKUL LAMBSKINS QUALITY

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## Abstract

*Rearing and exploitation of sheep, for lambskins production, represent a current concern of rural population from northeast area of Romania. To evaluate the actual stage of improvement degree for Karakul de Botoșani breed were utilised data obtained after application of productive control during several research seasons. The effectuated studies were focused on processing and interpretation of the obtained data regarding the quality of loops at Karakul lambs, black variety, obtained in different calving seasons. After analysing the obtained results could be said that generally, the lambskins had a high expressing degree for many qualitative features. All are mainly due to a rigorous selection of breeders and also due to a permanent leading of mating. In their ensemble, all the actions realised constantly and at a sustained level, had a direct influence on the quality of biological material, which was utilised for breeding and facilitate an obvious increasing of esthetical and commercial value of lambskins.*

**Key words:** Karakul, skins, lambs, sheep romanian

## INTRODUCTION

Sheep rearing and exploitation also for lambskins represent an actual preoccupation of the breeders from the traditional rearing basin placed in the North-East area of Romania. In these areas the work for Karakul breeding is a current activity realised by almost all the flocks' owners whom are included in the productive control. To evaluate the breeding degree and the reached level regarding lambskins quality was made estimation during 2009-2012. The effectuated research was based on processing and interpretation of the data obtained on appreciation of loops quality at lambs from Karakul breed coming from calving season 2011-2012.

The final results confirm the fact that lambskins have superior qualitative features for loops, aspect due mainly to a rigorous and sustained selection of breeders and also to direct matting. All those actions, performed at an intense and sustained level, had a direct influence on quality of biological material

retained for breeding and facilitate an increasing of esthetical and commercial value of lambskins.

## MATERIAL AND METHODS

The analysed biological material belongs to husbandry exploitations in which are reared sheep from Karakul de Botoșani breed, placed in Botoșani County, the analysed flock being in exploitation also in private households and in research stations. In evaluation of lambskins quality we take in account the actual legislation which establish the minimal demands for each characteristics and features which contribute at expressing the specific qualities of lambskins gathered from Karakul sheep. Evaluation of lambskins' qualities were based on appreciation of loop quality from lambs calved in 2009-2012, resulted from the total number of sheep included in official control of production and in Genealogic Register of Karakul de Botoșani breed.

## OBTAINED RESULTS

**Technical action plan** applied for improving of lambskins quality have a

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permanent applicability and suppose the approach of some aspects which could be a real genetic progress for each new generation of lambs. Having in view that the value and quality of lambskins could be appreciated only in a very short period of time (2-5 days postpartum) this activity has a permanent character, being applied on the whole duration of sheep calving season. Further evaluation of individuals is almost impossible because the research carried out for establishing correlations between lambskins quality and the aspect of wool at adult sheep didn't prove any result [Wiee, 1954, cited by N. Pipernea].

To assure favourable conditions for improving of loops' quality all the flocks' owners included in productive control apply the same protocol which involve the following activities: elaboration and application of matting scheme, preparation of breeders for matting, reproduction of the sheep in according with matting plan,

assuring of optimal conditions for pregnant sheep, preparation of calving for reducing the losses through mortality, appreciation of lambskins quality and establishment of lambs' destination, estimation of reproduction activity and elaboration of the report regarding evaluation of lambskins quality. Through this technical plan are assured all the necessary conditions for Karakul sheep breeding.

Analysis carried out during 2009-2010 on Karakul sheep included in official control of production and in Genealogic Register of breed, show the fact that in that period only 34% from the total number of ovine were included in the main section, other 31% in secondary section and 4% in secondary section class I. So the difference of around 31% from the total number doesn't satisfy the minimal requirements written in Genealogical register of Karakul de Botoșani breed (fig. 1).

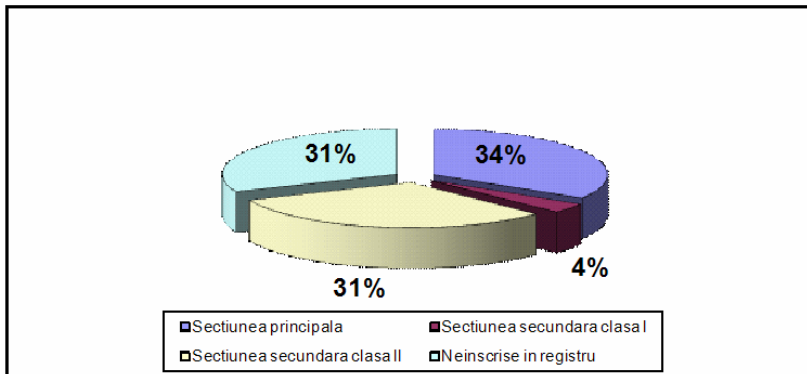


Fig. 1 Situation of ovine flock included in Official control of production by affiliation at Genealogical Register during 2009-2010

Analysis of those data show the fact that for those 34% ovine included in main section are know all the data regarding the quality of ascendancy and were identified since birth, fulfilling some of the basic conditions which are specific to register.

In table 1 is presented the distribution total sheep flock registered in the sections of Genealogic Register of Karakul breed, for the whole analysed period. From the presented data could be observed that during 2009-

2010, from the total flock enrolled in Genealogic register 49.28% fulfil all the conditions for being included in main section. The difference of 50.71% from flock, even if fulfil the specified requirements in breed standard and correspond from a certain point of view, doesn't fulfil the minimal requirements for being included in basic section.

Table 1 Distribution on classes of the flock enrolled in Genealogic Register of Karakul de Botoșani breed

Period	Main section	Secondary section class I	Secondary section class II
2009-2010	2094	219	1936
2011-2012	1714	407	1230

For the period 2011-2012, as a consequence of the activities realised by Association of sheep and goat breeders Moldoovis Botoșani, has changed the rate of classification in the basic sections of Genealogic Register of Karakul de Botoșani breed. So, from the analysis of the data shown in figure 2 could be observed that the rate of sheep included in Main Section increased up to 52.44% (fig. 2).

This thing enlightened the fact that a systematic application of selection and

breeding plan facilitate the increasing of flock which over-pass the level established by breed standard. The justification of this affirmation is assured by technical specifications which show that an individual could be enrolled in Genealogic Register (Main) only if fulfil the following conditions:

- to be descendent from parents and grandparents of Karakul de Botosani breed;
- to be identified after birth in according with the actual national legislation;
- to have a origin certificate issued by the person in charge with register in according with the authorisation given by;
- to fulfil the standards of Karakul de Botosani breed;
- to fulfil the criteria imposed by Breeding Programme, and the main features aimed for Karakul de Botosani sheep selection.

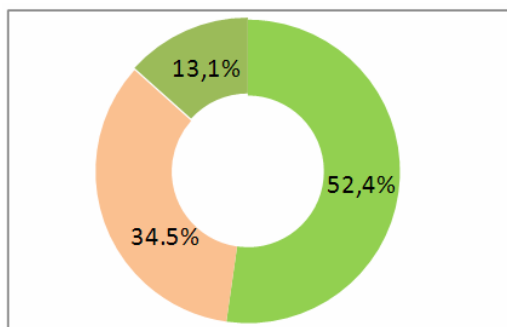


Fig. 2 Distribution of Karakul sheep flock in connection with the membership at Genealogic Register sections for period 2009-2010

Also based on achievement of new data regarding the origin and productive value of sheep, it increases from 4% up to 13.1 % the rate of sheep, which fulfil the nominalization demands for Secondary Section-Class I of Genealogic Register.

The fact that around 53% from all sheep are included in Main Section could offer us the possibility to tell that in the very next future it will be possible another evaluation of Karakul de Botoșani breed for elaborating a new standard.

The difference of 47.6% from total ovine which not fulfils the nominalization demands for in Main section was represented by 430

heads enrolled in Secondary Section Class I respectively 1130 sheep in Secondary Section Class II (table 2).

**It could be enrolled in Supplementary Register Class II,** animals which fulfil the following demands:

- to be identified in according with the actual legislation;
- to be know the origin in according with Appendix (I)-A;
- to fulfil the minimal performance criteria in according with the breeding programme;
- to fulfil the breed standard;

**It could be enrolled in Supplementary Genealogic Register class I**, animals which fulfil the following conditions:

- to be identified in according with the actual legislation;

- to be know the origin in according with Appendix (1)-B;
- to fulfil the minimal performance criteria in according with the breeding programme.

Table 2 Distribution of sheep flock included in control in according with the Genealogic Register demands

Enrolment in sections	Animal number from GR of Karakul de Botoșani breed	Mean weight at calving	Actual rate of animals in sections
Main	1722	4.7 kg	52.4%
Secondary Class I	430	4 kg	13.1%
Secondary Class II	1134	3.9 kg	34.5%

In period 2011-2012 the rate of sheep which were included in productive control and were also enrolled in the Main section decreased to 45% (fig. 3). This aspect is due to the fact that the breeders had a lower interest in promoting individuals in productive control. The main reason is the lack of supporting of breeders by the national authorities.

As a direct effect, application of selection programme had an immediate response, capitalized through the increasing of lambs' number which fulfils the requirements for enrolment in superior classes after evaluation of productive performances. So the selection of a feature induce a simultaneous answer of the correlated character, amplify the final effect of selection (Niekerk, 1971, cited by C. Pascal 2005). From this reason knowing the transmission way of the main features, the way in which those ones are correlated represents a main condition for breeding process.

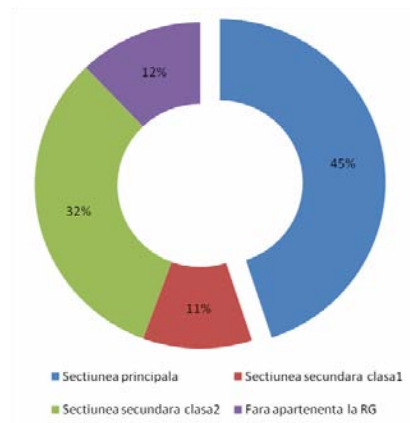


Fig. 3 Distribution of Karakul sheep flock in according with the membership at Genealogic Register section for period 2011-2012

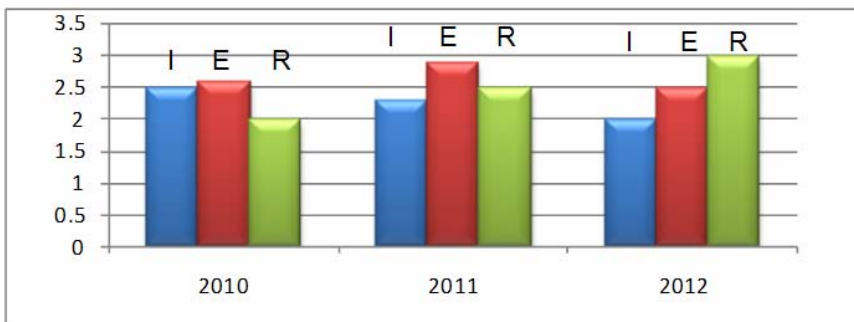


Fig. 4 Hierarchy in according with productive performance during 2010-2012 of Karakul lambs–black variety (I = class I, E = elite, R = record)

Analysis of the data presented in figure 4 enlightened the fact that the effect of

selection on loop quality didn't stalled. Practically, the whole sheep flock produce

valuable lambs with remarkable features of lambskins. This aspect is very well enlightened by loop quality, information regarding this aspect is shown in figure 4. Taking in account the fact that on national and international market the demands are for

lambskins with an unitary loop as shape and dimensions, we could tell that the selection generate a significant increase of lambs with large grain loop type and intermediate shapes short grain combined with large grain or medium tube associated with medium grain.

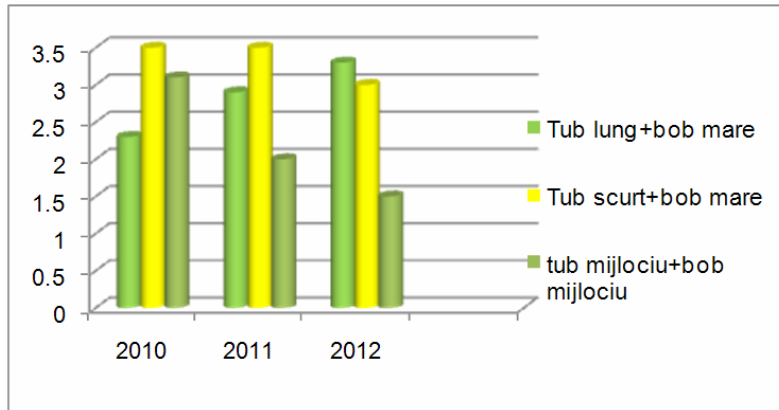


Fig. 5 Effect of selection on loop shape and type

The carried out research enlightened the fact that effect of breeding programmed is situated at the expected level. Directed reproduction and selection utilised at Karakul sheep facilitate the increasing of rate of lambs with a desired loop, respectively loops with large tube and large grain. This aspect is shown in figure 5. So, if in 2010 respectively 2011 the greatest rate belonged to the lambs with small tube type loop combined with large grain, in 2012 the rate reversed. This fact proves that the effect and selection and directed matting is efficient and facilitate the genetic breeding of Karakul sheep.

It is very important to know, for lambskins improvement breeding works, the way of hereditary transfer of this important feature. Regarding at this aspect Nikerek (1971) cited by Mochnacs show that between shapes, closing degree and placement mode of loops are established certain correlations. Same author mention that loops' shape is negative correlated with modelling and positively correlated with loop quality, situation in which selection in according with genetic modelling generate short fibres with small loop and selection for loop quality

breeding have an reversed effect. In selection of Karakul lambs in according with loop shape the effect is the desired one because the value of heritability coefficient is between 0.4 and 0.61, so it sends incomplete dominant descendants.

Fibres and loop gloss represent an important indicator of the selection applied at Karakul breed. Importance of gloss is due to the fact that no matter of loop quality, if gloss is weak expressed the commercial and esthetical value of lambskins is diminished. The practical importance of selection on gloss basis is due to the fact that this feature is positively correlated with other quality features.

From the above mentioned reasons are kept for matting only the lambs with a very good gloss of lambskins. In this way from the data presented in figure 5 could be observed that the rate of lambs with a very good gloss of lambskins had an ascendant trend during our research. If in 2010 lambs with a loop with a good gloss were in top, in 2011 and 2012 dominant were the lambs with a very good gloss. Also could be remarked a progressive increase of lambs with an intense gloss (fig. 6).

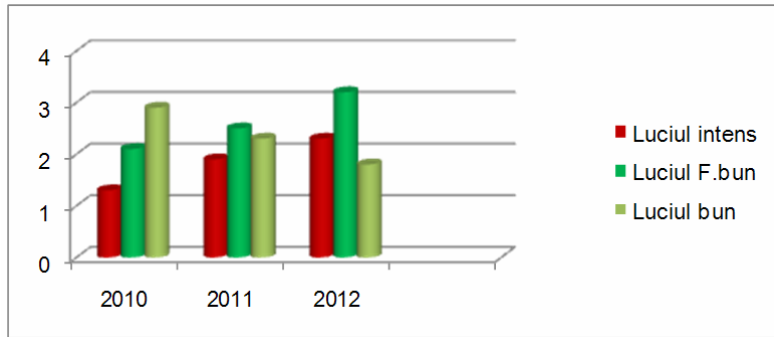


Fig. 6 Effect of selection on loops' gloss

Effect of mass selection in numerous cases provides good results, depending in a great rate by the hereditary structure of population, the desired features and especially by the value of heritability coefficient. Keeping for matting of the lambs with desired particularities and utilization for reproduction only of selected individuals, judicious matching of pairs and assuring of optimal conditions in favour of valuable genes were at the base of lambskins quality increasing and at increasing of breeding degree for Karakul de Botoșani sheep.

Applied selection for gloss is, together with breeding in according with other fibres' characteristics (thickness, length, silk), very important because influence in a great way the commercial and esthetical value of lambskins.

## CONCLUSIONS

1. Selection applied at Karakul de Botoșani sheep represents an activity with permanent character of ovine breeders from Botoșani County.

2. In period 2009-2010 only 34% from ovine total was included in main section, other 31% in secondary section and 4% in secondary section class I.

2.1. From the total number of evaluated sheep during the above mentioned period only around 31% didn't fulfil the minimal requests for the sections of Genealogic Register of Karakul de Botoșani breed.

3. In the period 2011-2012, as an effect of the activities realised by Association of sheep and goat breeders Moldoovis Botoșani, the hierarchy rate was modified in the basic

sections of Genealogic Register of Karakul de Botoșani breed, and the rate of sheep enrolled in Main section increased at 52.44%.

4. The quality of loop and the characteristics which give the commercial value of lambskins prove that selection applied at Karakul breed is efficient, increasing the rate of sheep at which those features have very good values.

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