

Partial Results Regarding Exploitation Characteristics, Morpho-Productive Traits for Saanen Breed Goats in South of the Country

Iulian Vlad¹, Marius Maftai¹, Mirela Stanciu², Gheorghe Săvoiu³, Andi Fița⁴

¹University of Agricultural Sciences and Veterinary Medicine 01146- București, Marasti, 59, Romania

²„Lucian Blaga”University 550200-Sibiu, Nicolae Teclu Sibiu, 41, Romania

³University of Pitesti, Faculty of Economics, 110040-Pitesti, Targu din Vale, 1, Romania

⁴Sanitary Veterinary and Food Safety National Agency, 060603-București, Dudului, 3, Romania

Abstract

Over about 92% from national goat livestock come from local unameliorated breeds, namely Carpathian breed which is traditionally exploited in a mixed way next to sheep in a proportion of over 65% from the breed total. Expectations towards a qualitative and quantitative production led to pretty important imports for specialized breeds like the Saanen one, from communitary states, during the last 10 years. This study presents the results of some research started since the last semestre of the previous year on some goat livestock from Saanen breed, livestock which was brought to the Garbovi farm, Ialomita county. The livestock presents the following morpho-productive traits, such as: weight 57.375 ± 0.23 Kg as an average, back length 67.47 ± 0.38 cm, crupper length 69.25 ± 0.41 cm, oblique body length 70.98 ± 0.38 cm, thoracical perimeter $89.17 \text{ cm} \pm 0.32$ cm, resulting a dolicomorphe body structure. The medium milk production in is of 2.19 l/head/day during the stalling months November-February, with average of November 58.05 ± 1.77 l., December 70.47 ± 2.07 l., January 92.30 ± 2.93 l., and February 45.10 ± 1.38 l., only during the first 120 days, and the chemical composition of the main constituent parts: Dry matter nonfat 9.3%, protein 3.53%, fat 4.02%, a significant quantitative and qualitative gain of goat milk especially when the local breeds don't yield them. The females prolificity is of 128%, being a lot below the breed average 150-170% in comparison with the average proven by the breed but also in comparison with the unameliorated breeds, this aspect being also a basical element in selection, next to the milk quantitative aspect. The gain recorded for goat youth over the 90 days is comprised between 127g, 198g, 122g/day of males and 109g, 173g, 106 g/day of females, during the whole period which was much over the average of Carpathian breed. Shortage of some agricultural policies on breed, of trained staff in the farm, speciality information concerning the exploitation of some performant breeds led to goats purchase, especially milk ones, which have typical dolicomorphe structure but with a great productive and somatometric variability.

Keywords: body structure, goats production, goats somatometers, milk production

1. Introduction

According to the agricultural statistics, goats and sheep livestock increased over the last 10 years with over 16%, representing one good aspect concerning livestock activity, clearly showing an alarming decrease of population even after the

1990s but also of the production profile, a level of performance in this respect not being found.

National goat breeding increases in the last decade with over 1.66%, surpassing today 1389 thousand heads, a dramatic evolution of the succeeding population shows that goats are not only changing structural report but also its morpho-productive traits performance by imports of modern breeds that comes to improve milk production in particular and business profile.

* Corresponding author: Iulian Vlad
E-mail: vladiul@yahoo.com

In this context, in the last decade, goats exploitation units with legal personality have been multiplied of over 5.4 times as a new business environment specialized on farms with modern breeds. In the breed structure, at a national level, from the total mentioned above, over 1,000 thousand animals belong to Carpathian breed, which though gives a remarkable biological plasticity capable even of half-transhumance next to the Țurcană breed exploited in the traditional system, but may not meet the requirements of production quality and quantity-as a new modern livestock production environment but also competitive throughout the community. In this context, some of the farmers who have already a cultural breed also went to mixed breeds with ameliorated breeds and others have directly imported powerful breeds, but in both cases there is still a lot to learn, to catch or to do in order to exploit correctly, such a population that can be performant.

2. Materials and methods

The study of livestock and zootechnical investigation was carried out at the farm of goats in the A.F. Cojocaru Ovidiu Ialomița County Gîrbovi on a total of 88 Saanen goats breed imported last year in particular, pregnant females which started the parturition at the beginning of the second part of the previous year.

For the studied livestock, there were observed phenotypic characteristics concerning somato-metrical measurements, the prolificity of prime-pair females for the first lactation represented an important element in the investigation.

The dynamics of the breeding process for goat youth was pursued through the increased weight of the determinations, at intervals of 30 days during the first three months of the onset of the growing process (Table 1).

Milk production was determined on the basis of the method of control- particularly those that started in the period in which the market does not exist, goat milk being each time analyzed, in terms of the basic chemical composition, as the quality of this product.

3. Results and discussion

Prolificity. In the case of the population which was analysed respectively for the primiparous animals who have given birth during the second half of the previous year, it has been achieved a prolificity of 128% quite small when compared to the standards of the breed which reach over 150%, but very similar to our Carpathian breed, representing another criterion that can be improved on-farm [3].

Body conformation. According to calculations carried out by somato-metrical measurements on primiparous animals we can affirm that they present a typical dolicomorphe conformation typical to milk animals, with the chest, shoulders and ungular. The conformation aspect was determined by measurements of mean value presenting the following basic values, respectively: The height at the back, (67.47 ± 0.38 cm), the height at the crupper (69.25 ± 0.41 cm), the oblical length of the trunk (70.98 ± 0.38 cm), the chest width (18.56 ± 0.15 cm), the crupper width at the hip (20.26 ± 0.14 cm), thoracical perimeter (89.17 ± 0.32 cm) and shinbone length (9.0 ± 0.15 cm).

According to calculations made on variability of characters on tangible measurements taken into account in the study, it has been shown that ranch livestock is phenotypically homogenous even in Gîrbovi from the same batch that came from different farms, to the same category of age rating level but within the same breed. There is an argument that demonstrates the homogeneity of the modern phenotypical breed at the base of generation of farmers and an extremely rigorous selection can state. In this sense, there have been studied morfoproductive characters of the breed in the country of origin but also in the States with a goatbreeding culture such as Switzerland and France, advanced countries possessing the most modern milk goats. (See Capsud, Caprigene +) [1,6].

Body weight dynamics of youth goat. For both groups of kids there were considered growing monthly intervals that showed different bonuses to both sexes. Since the very parturition it has been found a difference in weight between the males by about 15.6% than females as dimorphism of the species.

Table 1. The evolution of the body weight as relation to age of youngs goats (kg)

Specification	n	Birth Kg	(0-30)	(31-60)	(60-90)
			days	days	days
			I st month	II months	III months
Sing.Males	42	2.66	6.85	12.85	16.55
Sing.Females	48	2.30	5.58	10.78	13.98

Rise recorded from male parturition and after measurements at intervals of 30-60 and 90 days has highlighted the following values: Adg1 in the first month of lactation is 126g, Adg2 from the second month is 198g, and from the third month of lactation is 122g (Figure 1).

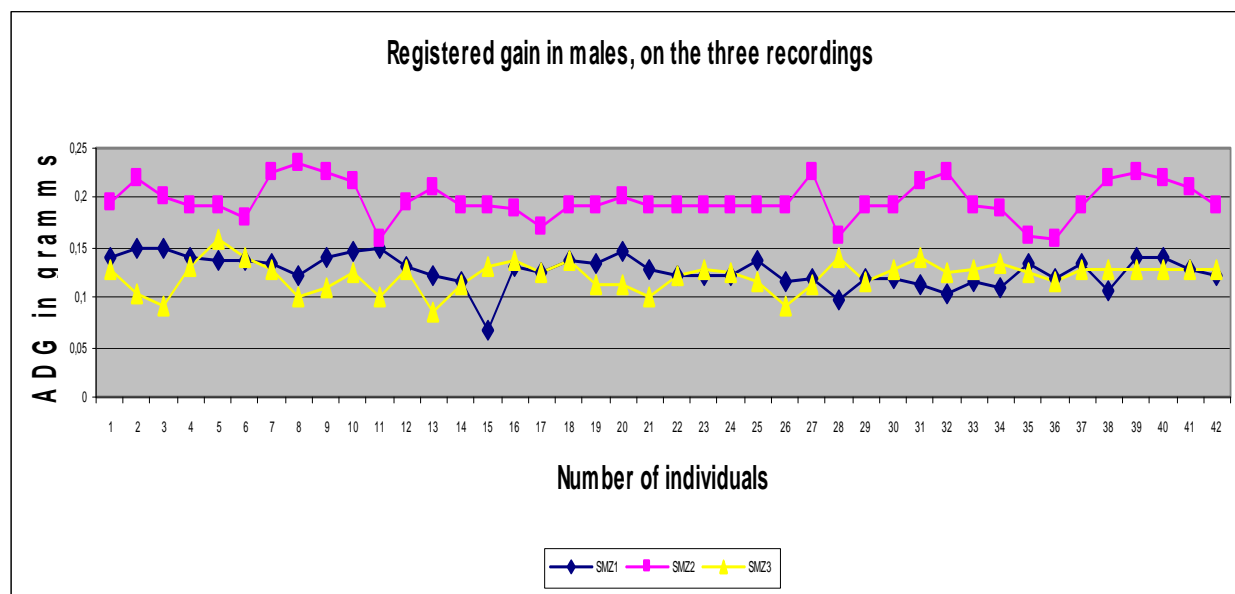


Figure 1. The gain recorded for the three stages for young males

Differences in gain recorded the two sexes at the same time shows the same values with growth of male youth over 15%, but no attempt was made to highlight the differences that demonstrate the growing youth dimorphism of Saanen goat.

From the same category in the same period in both sexes there is a gain which is considerably higher than the second period of 29-60 days or second month, considerably higher than the growth with over 50% youth males and 45% for female youth which demonstrates a second month of lactation much better but also a much higher nutrient intake (Figure 2).

The onset of the process is due to the growth and consumption of other feed even if this ingesta begins from the second week for performant or ameliorated breeds. The variability of the distribution in the three periods or phases of growth have not exceeded 15% for this character.

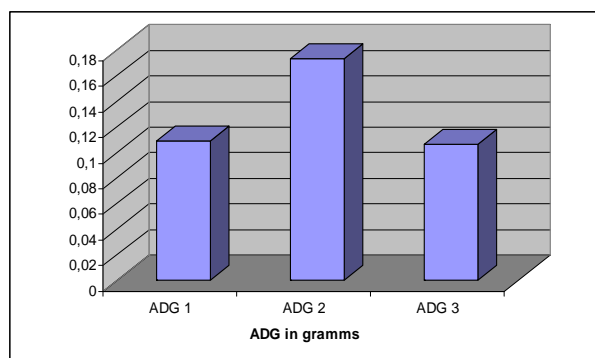


Figure 2. The gain recorded for the three stages for females

Compared with the goats Carpathian breed, as a cultural one, we can say that there are some similarities to the evolution of the distribution increase with over 45% in the second month of life and later during the third, it almost falls below the level achieved in the first 30 days postpartum [3,4,5].

These aspects of the process of kids growth in the first few months of life can be different on different stages of the dynamics in large part

obviously related to specific genetic characteristics of the breed but there are not omitted any operating environment in particular the nutrient intake and the focussed plant type, which oblige any farmer to ensure it even since the first days after the colostrum.

It begins with the second and third weeks when the enzyme equipment formation starts in close connection with their precocity but all in the same context, there also appears the type of weaning or milking transfer mode which is regarded as a major factor of stress regardless of breed or species [3,6].

There were considered particularly female goat youth in order to monitor in particular the precocity character : reaching a weight of CA. 70-75% of the adult weight in females and 45Kg (adult weight for Carpathian breed), considered suitable for placing in the breeding stock, according to speciality literature [3,6].

According to the growing onset, female goat youth making part from the studied livestock did achieve these body weights at an age of over 10 months and a half starting from an average calculated gain of 140g/day, aspect that allows any farmer to stimulate these parameters but on getting through a feeding stimulant activity both in quantitative and qualitative report.

There may be an intangible goal keeper's but normally all farmers reduce substantially the consumption of breast milk as early as the second third weekend but they do not substitute this product effectively breast in a manner, or if they do not know all aspects of this very important issue.

Medium rise recorded in female goat youth during the first three months of growth is close to that in the intensive youth goat fattening on the local segment, subject to proving the contrary better precocity. 2 and 3. Instead the lack of specialized knowledge concerning the interruption of breastfeeding or breast milk replacers , resulted in the vast majority of farms who have powerful biological material, to the numerous problems which are ultimately a mismanagement. [3,5,6].

The production of milk. It is the main objective of the Saanen goat breed which was established during the first four months of lactation through biannual inspections and the results are presented in summary below.

According to quantitative assays of milk product in the first month of lactation it was found a quite

high variability with an average production of 58,05 l/head with a variability of 22.51% (min. 24.8l and max 85.25l), representing a wider productive palette right from the first lactation, though distribution of this character is somewhat normal.

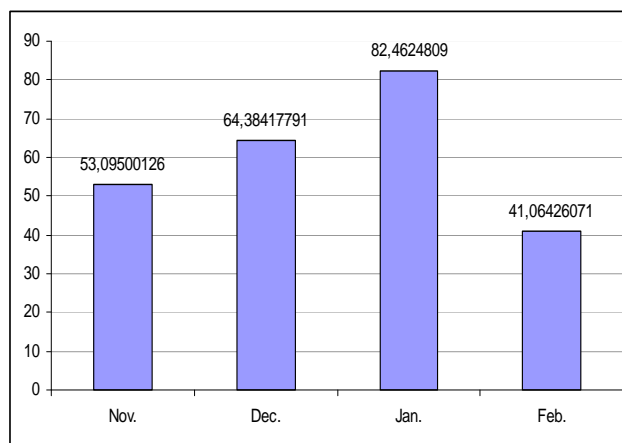


Figure 3. Monthly average milk productions of goats

On the analysis of histograms for milk production both in the morning and in the evening of the first month of production, data are normally distributed, however, spotlighted differences of the extreme series allow a better selection with animals distribution in stokes but also with specific production.

Evolution of lactation curve upward is typical of large and small ruminant mammals in the first three months, strictly linked to sheep and goats of local seasonal food—that coincide with a stimulant succulent feeding activity. The lactation curve on months presents the following evolution: it increases in the second month from 58.05l to 70.47l with about 1.2 times, and in the third month as peak of the first lactation is of 92,31 with about 1.3 times in comparison with the second lactation, and for the first with 1.6 times. Lactation curve is atypical but which in the fourth month, the decline is pretty obvious even emphasized, reaching half of the production of the third month and not a slight involution that in some productive animals which have an easy plateau. But in the fourth month which is the poorest in production of milk, the medium milk quantity is quite low 45.10 l ascertaining a decrease in almost half of the production of milk, in particular due to the worrying phenomenon of the environment and in particular of the problems of all the defective

management in the sharp conditions of February, this year, it can be said that water and food and sometimes precarious environment clearly influence all aspects of production (Figure 3).

In contrast, for this population of specialized goats, their physiological particularities (i.e. reproductive plan) are to yearn and produce milk in the off-season, provide a better justification for new acquisitions and imports of modern breeds, but also their use in improving cultural populations.

For cultural breeds, it may be used for reproduction with import males, but also to direct the farmer not to operate with typical or extensive sheep (which neither for mixed breeds can give results) but by an operation based on permanent housing in stables with Paddock outside or with close meadows but taking into account the requirements of comfort in all aspects of modern farms.

Qualitative composition of milk

The main component elements of goat's milk were determined on the control day (Figure 4). Chemical composition determinations of milk from indigenous breeds show that there are at least 10 smaller values for imported breeds. The latter are influenced by the type of feeding which is different than the one of domestic goats, but which bring nevertheless a substantial contribution as a quality aspect in goats [2, 4, 5].

The quality of milk obtained on the farm can be considered superior not only because due to basic values is somewhat superior to other populations of analysed goats, but certainly under hygienic conditions due especially to mechanical milking aspect that cannot be implemented at the cultural breed [3, 5].

4. Conclusions

According to analyses effected on the imported goats livestock from Saanen breed, in Gârbovi farm, the following aspects can be emphasized.

The female primiparous livestock presents the following morpho-productive traits, such as: weight 57.375 ± 0.23 Kg as an average, back length 67.47 ± 0.38 cm, crupper length 69.25 ± 0.41 cm, oblique body length 70.98 ± 0.38 cm, thoracical perimeter $89.17 \text{ cm} \pm 0.41$ cm, resulting a dolicomorphe body structure. The shinbone

perimeter 9.0 ± 0.15 cm, the crupper length at the loins 20.26 ± 0.14 cm, the chest width 18.56 ± 0.15 cm. This livestock may be considered as having a fine constitution but which presents some bigger values in comparison with the local Carpathian breed.

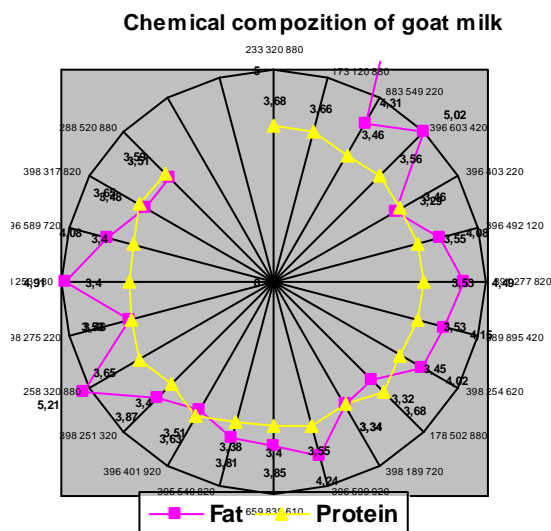


Figure 4. Chemical composition of goat milk

The evolution of body weight of youth goat achieved from the imported primiparous have highlighted rises of between 106 g and 173g, and for the female goat youth, 122g respectively 198g, for male youth, data which don't surpass registered gains for the breed. Milk production of the analysed population is considered well above the potential of local breeds, taking into account the onset of lactation during the 4 months of study, but also with a production considered off-season in comparison to local goats breeds. And the lactation curve presents the following evolution. It grows in the second month from 58.05 l to 70.47 l with about 1-2 times, and in the third month as peak of the first lactation of 92, 3 l with a sudden decrease in February of 45.1/head

The qualitative component of goat milk shows average values of protein of 3.50 % and fat of 4.02 during the first four months of lactation, during the winter months.

Other aspects or features that may give some clues of the breed, to import may be meat production but also the fibres composition and the leather, which emphasizes the analysis that can be compared to the cultural breed race, but that will be made later.

Acknowledgements

This work represents a synthesis of a survey and the analysis still from the second part of the previous year on the performance of morphologically productive livestock of Saanen goats breed imported in Ialomița, Gîrbovi farm. On behalf of the collaborators, we thank Mr. Cojocaru Ovidiu as farmer, for your support and cooperation

References

- 1 Boros V., Herian K, Changes of certain minerals contents in goats milk during the lactation period. Hungary, 1988, 37, 49-53.
- 2 Damien, H., Jean-Claude Le Jouen, Tools for technology transfer in the French Caprine sector: Tropical and Subtropical Agrosistem; 2009, 11, 171-179.
- 3 Taftă, V., Rău V., Neag S., Cercetări comparative privind principalele însușiri morfo-productive ale caprei Carpatine și ale metişilor F1 și F2 cu Saanen. Lucr. Științifice, 1993, seria D, XXXV-XXXVI, 1992-1993, Zootehnie București.
4. Zamfir, Camelia Zoia., Sporirea producției de lapte la caprinele din rasa Carpatină. Revista de Zootehnie și Medicină Veterinară, 2003, 4
5. Vlad, I., Călin, I., Răducuță, I. 2006, Cercetări privind particularitățile productive ale unei populații locale de capre., A 35 a Sesiune Internațională de Comunicări Științifice în Zootehnie, București.
6. Vlad, I., Maftei, M., Marmandiu, A., Stanciu, M., Research of Carpathian goat breed productive performance in the south-eastern part of the country. Simpozionul Științific "Protecția mediului și Siguranță Alimentară Priorități și Perspective", ISSN 2067-1989., Tîrgoviște, 2009, 20-21 Noiembrie.