

STUDY ON THE CHARACTERISTICS OF THE AUTOCHTHONOUS GOAT BREEDS EXPLOITED IN THE FARM OF S.C. AGROFAM HOLDING FETEȘTI

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Abstract

The paper studies the characteristics of the goats' breeds Alba de Banat and Carpatina, in terms of fur aspect, exterior particularities, assessing the body development level and body indices determination. For determining the goats' body development level, the somato-metrical method was used, in which animal body measurements were made, at females in lactations 1, 2 and 3 and at males of ages 1, 2 and 3 years and, based on these, the following statistical indicators were calculated: average, variance, standard deviation, standard error of the average and coefficient of variation. The results of body measurements performed at Alba de Banat show that the superior line of the animal body describes an upward trend from the anterior train to the back train, medium size (67.467 ± 0.886 cm for females and males 72.278 ± 0.932 cm) and back train more developed than the anterior (for females, the height at croup 68.500 ± 0.753 cm, for males 73.278 ± 0.651 cm). At Carpatina breed, the superior line of the animal body also describes an upward trend from the anterior train to back train, medium size (67.033 ± 1.033 cm for females and 71.833 ± 1.070 cm for males) and back train more developed than the anterior train (for females, the height at croup 68.033 ± 0.902 cm, 72.167 ± 1.054 cm for males). The values calculated of body indices (lateral body format index, transverse body format index, skeleton index, massiveness index) show that the animals fit in the morpho-productive type of milk. Regarding the characteristics of goats breeds exploited in the farm of S.C. AGROFAM HOLDING FETEȘTI, the research results has shown that they fit within the breed's standard.

Key words: breeds, goats, index, measurements, size.

INTRODUCTION

The goats' raising had in the recent period a remarkable development, both in terms of herds and of productions level. Thus, according to FAO statistics, in 2013, worldwide there were over 1,005.6 millions heads. In Romania, raising goats shows an upward trend in the structure of animal production; following the global evolution manifested, in our country, in the past 10 years, was an upward trend of the total goats herds, from 558,000 heads in 2000, reaching to 1,265,676 heads in 2013, so an increase of 126% (<http://faostat3.fao.org/browse/Q/QA/E>).

MATERIALS AND METHODS

The research was conducted on the two autochthonous breeds of goats, Alba de Banat and Carpatina, exploited in the Farm 1 Ovidiu, from Borcea commune, Calarasi County, a farm

owned by S.C. AGROFAM HOLDING S.R.L. Thus, Alba de Banat breed represents 50.4% (340 females and 9 bucks) of the total number of goats of the farm and Carpatina breed 43% (302 females and 8 bucks).

The fur colours and exterior particularities were evaluated outside in daylight conditions.

For determining the goats' body development degree, the somato-metrical method was used, in which animal body measurements were made, their position being placed forced. The measurements were performed at females in lactations 1, 2 and 3 and at males of ages 1, 2 and 3 years, with zoometer, tape measure and Wilkens compass.

There were performed 10 different body measurements: size (height at withers), croup height, trunk length, chest width, chest perimeter, chest depth, croup length, croup width at ischia, croup width at ilium, whistle perimeter for which were calculated the following statistical indicators: average, variance, standard deviation,

standard error of the average and coefficient of variation, by using the available application from Microsoft Excel program.

RESULTS AND DISCUSSIONS

ALBA DE BANAT BREED

The fur colour and exterior particularities

The fur colour of the goats from Alba de Banat breed in the farm under study is white, with some particularities: uniform white, white with reddish and white with brown aroused out as a result of a crossing the pure breed with getters from other breeds. In Table 1, there are displayed these characteristics.

Table 1. Fur colour particularities at the goats of Alba de Banat breed

| Colour | Particularity | No. heads | % |
|---------------------------|---------------|-----------|-------|
| White | uniform | 442 | 87,7 |
| | with reddish | 27 | 5,4 |
| | with brown | 35 | 6,9 |
| <i>Total white colour</i> | | 504 | 100,0 |

Assessments of body development at the goats of Alba de Banat breed

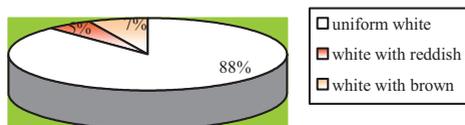


Figure 1 – The fur colour and its particularities at Alba de Banat breed

Table 3. The main body dimensions at Alba de Banat breed (cm)

| Specification | Males | | | Females | | |
|--------------------------|---|--------|-----------|---|--------|-----------|
| | Average ± standard error of the average | V% | % of size | Average ± standard error of the average | V% | % of size |
| Height at withers (size) | 72.278 ± 0,932 | 3,869 | 100 | 67.467 ± 0,886 | 5,084 | 100 |
| Croup height | 73,278 ± 0,651 | 2,667 | 101,4 | 68,500 ± 0,753 | 4,256 | 101,5 |
| Trunk length | 73,333 ± 1,083 | 4,432 | 101,5 | 68,933 ± 0,862 | 4,841 | 102,2 |
| Chest depth | 35,944 ± 1,232 | 10,280 | 49,7 | 32,500 ± 0,535 | 6,37 | 48,2 |
| Chest width | 25,333 ± 0,882 | 10,444 | 35 | 21,800 ± 0,942 | 16,738 | 32,3 |
| Croup width | 18,611 ± 0,865 | 13,945 | 25,7 | 16,333 ± 0,326 | 7,733 | 24,2 |
| Chest perimeter | 92,167 ± 2,705 | 8,806 | 127,5 | 87,567 ± 1,724 | 7,627 | 129,8 |
| Whistle perimeter | 10,278 ± 0,409 | 11,944 | 14,2 | 9,067 ± 0,182 | 7,762 | 13,4 |

The body measurement results show that the top line of the animals body describes an upward trend from the anterior train to the back train, medium size (67.47 cm for

Regarding the exterior particularities, following the evaluation, it was found that there are some differences between animals regarding presence or absence, shape or size of the horns and ears, udder shape, its degree of development, the presence of formations called earrings, or goatie. Among these particularities, some are presented in Table 2.

Table 2. Morphological particularities at Alba de Banat goats

| Morphological particularities | No. heads | % |
|-------------------------------|-----------|-------|
| Goats with horns | 294 | 58.37 |
| Goats with goatie | 451 | 89.46 |
| Goats with earrings | 427 | 84.8 |
| Earless goats | 42 | 8.29 |
| Total | 504 | 100 |

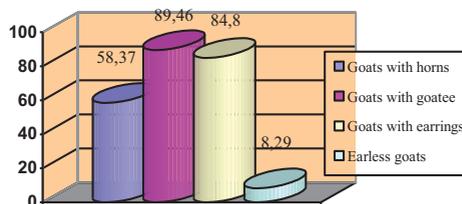


Figure 2. Alba de Banat breed – morphological particularities

The results show that almost 90% of the Alba de Banat goats herd presents a goatie and at nearly 85% are present the earrings. Regarding the absence of ears, this feature is found in only 8.29% of the herd.

females and 72.28 cm for males) and the back train more developed than the anterior train (the croup height at females 68.50 cm, and at males 73.28 cm). The values obtained are

mostly similar to those reported by other authors for this breed (Călin, 2004; Taftă, 2002).

The animals have long shapes and small widths, the body format being dolicomorph, having a relatively harmonious conformation, fine, thin and elongated head, medium ears, in a slight bent position, thin neck, medium sized horns, held back, with divergent direction, laterally flattened, elongated trunk, pear-shaped, narrow back, sloping croup, relatively narrow chest, developed abdomen, long and thin limbs, but powerful, with normal position (Fig. 1).

The udder is generally medium or well developed, globular or pear-shaped, with good fixation, supple and smooth skin and well-developed nipples, suitable for mechanical milking.



Photo 1. Alba de Banat goats, from the farm in study
Source: Photo made by author

Determining the body indexes

In order to assess the proportionality and the development harmony of the different body regions or parts, as well as of the productive capabilities assessment, based on the body measurements performed, there have been calculated the body indexes, which are the ratio between two dimensions morpho-physiological correlated. They are presented in Table 4.

Table 4. The main body indexes at Alba de Banat goats (%)

| Index | Males | Females |
|------------------------------|--------|---------|
| Lateral body format index | 102,0 | 101,63 |
| Transverse body format index | 35,74 | 34,78 |
| Skeleton index | 11,15 | 10,39 |
| Massiveness index | 127,52 | 129,79 |

The lateral body format index values, expressed by the trunk length value reported to height at withers and the transverse body format index, obtained by reporting the chest

width to the size, show that the animals fall into the morpho-productive type of milk.

Also, the skeleton index, with a value greater than 10%, indicates a population with well-developed bones, belonging to the morpho-productive type of milk. The massiveness index shows that these animals have a body development characteristic to the milk production type, with a relatively low massiveness.

CARPATINA BREED

The fur colour and exterior particularities

The predominant colours of the fur at the goats of Carpathian breed under study are brown and black (29.9% and 20.9%), but there are animals which have the following colours and particularities: black with white, reddish, grey, dark grey with black, grey with brown, brown with black (Table 5).

Table 5. Colours and colour particularities at Carpatina breed

| Colour | Particularity | No. heads | % |
|------------------------|---------------|-----------|------|
| Black | uniform | 121 | 20,9 |
| | with white | 52 | 9,0 |
| Total black colour | | 173 | 29,9 |
| Reddish | uniform | 97 | 16,8 |
| Grey | uniform | 43 | 7,4 |
| | with black | 52 | 9,0 |
| Dark grey | with brown | 27 | 4,7 |
| | | 79 | 13,6 |
| Total dark grey colour | | 79 | 13,6 |
| Brown | uniform | 173 | 29,9 |
| | with black | 14 | 2,4 |
| Total brown | | 187 | 32,3 |
| Total | | 579 | 100 |

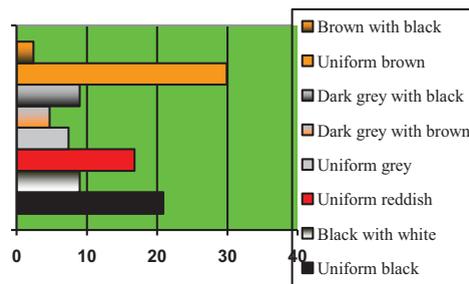


Figure 3. Carpatina breed – the fur colours and colour particularities

Regarding some particularities of exterior, following the assessment, it was found that there are certain differences between animals, which are presented in Table 6.

Table 6. Morphological particularities at Carpatina goats

| Morphological particularities | No. heads | % |
|-------------------------------|-----------|-------|
| Goats with horns | 401 | 69,25 |
| Goats with goatee | 529 | 91,47 |
| Goats with earrings | 410 | 70,83 |
| Earless goats | 25 | 4,37 |
| Total | 579 | 100 |

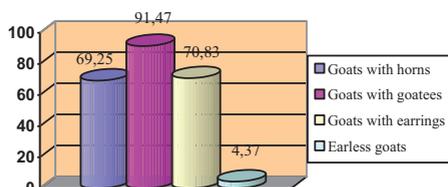


Figure 4. Carpatina breed – morphological particularities

The results show that 91.47% of Carpatina goats have goatee and at a number of approximately 70% are present earrings and horns. Regarding the absence of ears, this

feature is found in only 4.37% of the herd. Between the two breeds, there are horned goats with 18.6% more at Carpatina than Alba de Banat and with 2.2% more goats with goatee, but with 16.5% fewer goats with earrings and with 47% fewer earless goats at Carpatina compared to Alba de Banat.

Assessments of body development at the goats of Carpatina breed

The body measurement results show that the top line of the animals body describes an upward trend from the anterior train to the back train, medium size (67.03 cm for females and 71.83 cm for males) and the back train more developed than the anterior train (the croup height at females 68.03 cm, and at males 72.17 cm). For this breed, also, the values are similar with those from other authors (Călin, 2004; Taftă, 2002). In Table 7 are presented these data.

Table 7. The main body dimensions at Carpatina breed (cm)

| Specification | Males | | | Females | | |
|--------------------------|---|--------|-------|---|--------|-------|
| | Average ± standard error of the average | V% | | Average ± standard error of the average | V% | |
| Height at withers (size) | 71,833 ± 1,070 | 3,648 | 100 | 67,033 ± 1,033 | 5,970 | 100 |
| Croup height | 72,167 ± 1,054 | 3,578 | 100,5 | 68,033 ± 0,902 | 5,133 | 101,5 |
| Trunk length | 72,167 ± 1,295 | 4,396 | 100,5 | 67,533 ± 0,983 | 5,635 | 100,7 |
| Chest depth | 35,583 ± 1,344 | 9,253 | 49,5 | 32,333 ± 0,410 | 4,913 | 48,2 |
| Chest width | 24,833 ± 1,014 | 10,000 | 34,6 | 21,233 ± 0,649 | 11,837 | 31,7 |
| Croup width | 18,750 ± 0,588 | 7,683 | 26,1 | 16,400 ± 0,219 | 11,380 | 24,5 |
| Chest perimeter | 91,833 ± 3,683 | 9,823 | 127,8 | 83,333 ± 1,560 | 7,252 | 124,3 |
| Whistle perimeter | 10,083 ± 0,539 | 13,088 | 14,0 | 9,267 ± 0,153 | 6,406 | 13,8 |

The animals of this breed have also long forms and small widths, dolicomorph body format, conformation relatively smooth, thin and fine head, medium ears, medium-sized horns, more developed at males, longish trunk, narrow back, sloping croup, relatively tight chest, thin limbs (Fig. 2). The udder is generally medium or well developed, globular or pear-shaped, with smooth skin, nipples generally well developed, most suitable for mechanical milking.



Photo 2 – Carpatina goats, from the farm in study
Source: Photo made by author

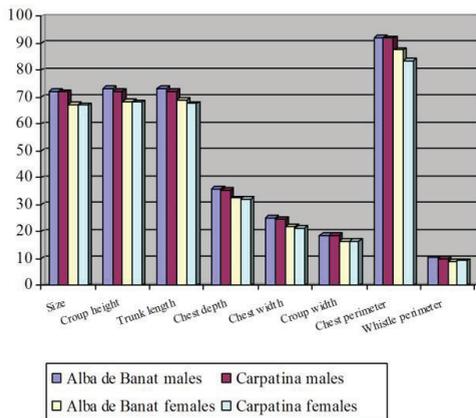


Figure 5. Comparison between the two breeds regarding the main body dimensions

Comparing the body dimensions of the two breeds, it appears that they are superior at Alba de Banat breed compared to Carpatina and at males compared to females.

Determining the body indexes

Based on the body measurements performed, there have been calculated the body indexes, which are presented in Table 8:

Table 8. The main body indexes at Carpatina goats (%)

| Index | Males | Females |
|------------------------------|--------|---------|
| Lateral body format index | 101,39 | 100,75 |
| Transverse body format index | 35,04 | 34,80 |
| Skeleton index | 10,98 | 10,76 |
| Massiveness index | 127,84 | 124,32 |

The lateral body format index values, as well as of the transverse body format index show that the animals of this breed fall also into the morpho-productive type of milk.

Also, the skeleton index, with a value greater than 10%, indicates a population with well-developed bones, belonging to the morpho-productive type of milk. Also, the skeleton index, of more than 10%, indicates a population with well developed bones, belonging to the milk production type. The massiveness index shows that these animals have a development characteristic to the milk production type, with a relatively low massiveness.

CONCLUSIONS

Regarding the characteristics of the goat breeds exploited in the farm of S.C. AGROFAM HOLDING FETEȘTI (Alba de Banat and Carpatina), the research results show that they fall within the breed standard. The fur colour of the goats from Alba de Banat in the farm under study is white, with some peculiarities: uniform white (87.7%), white with reddish and white with brown. The predominant colours of the fur at the goat of Carpatina breed in the farm under study are brown and black (29.9% and 20.9% respectively), but there are animals who have the following colours and particularities: black with white, reddish, grey, dark grey with black, dark grey with brown, brown with black.

The body measurements results performed at Alba de Banat breed show that the top line of the animal body describes an upward trend from the anterior train to back train, the medium size (67.47 cm at females and 72.28 cm at males) and the back train more developed than the anterior train (at females, the croup height 68.50 cm, at males 73.28 cm). The values obtained are mostly similar to those reported by other authors for this breed.

At Carpatina breed, the top line of the body of animals also describes an upward trend from the anterior train to back train, the medium size (67.03 cm at females and 71.83 cm at males) and the back train more developed than the anterior (at females, the croup height 68.03 cm, at males 72.17 cm). For this breed also, the values are similar to those reported by other authors. The values calculated of the body indexes show that the animals fall in the morpho-productive type of milk.

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