

EXPERT AND TECHNOLOGICAL CHARACTERISTIC OF THE WOOL AND CERTIFICATION OF FLEECES OF SHEEP FROM CAUCASIAN BREED *

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INTRODUCTION

During the recent years the selection of finefleece breeds was directed toward high efficiency bred animals, equal in type and productivity rate. Special attention is put on the wool that is going to be received from the corresponding type of animals (7). The wool has to be equalized by thickness of the fibers as well as their curliness, length, quality of the grease; with high yield, clear merino type and good trade look.

Mezencev and others (2) claim that the merino character of the wool depends almost entirely of the duration of the selection work done with sheep and not significantly of the environment conditions. The research done from Speshneva and others is proving this statement (6). They determine that the fleece type of the Ascanian finefleece sheep is genetically determined and has very high repeatability ($R_p=0.90$).

According Kulakov and Nechinennaya the main signs to differ merino wool from the nomerino wool are: the equality of the fibers in the staple and in the fleece. Because of that at the selection for typefication of wool the topographic and staple equality of fleeces are very important because in the equal fleeces there is no need for industrial sorting (tearing of the fleeces to different parts) in order to form batches with one type of wool.

According to some authors (3) the wool is considered to be equalized if the fleece has not more than two or three qualities. Our researches (4) on sheep from Thracian finefleece breed shows that a significant percentage from the tested animals is with one ore two qualities of the wool.

The studies on the type of the wool in Bulgaria are limited (4, 5). It is necessary to increase the number of the investigations in that field in order to use their results in the textile industry.

The aim of this article is to make expert technological characterization of the wool fineness and certification of the fleeces of the sheep from Caucasian breed.

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MATERIAL AND METHODS

The study was carried out with 41 ewes at the age of 2.5 years from Caucasian breed. Estimation of the topographic and staple equality was made on the basis of 246 wool samples from 6 parts of the body (neck, shoulder, side, back, belly and leg). The average thickness of the fibers was determined with Lanimeter. From each sample were tested 100 fibers and the equality of the fibers in the main part of the body (the side) was determined by measuring 100 fibers in three different parts - top, middle and base.

The results of the research were processed variation-statistically.

The level of typification of the wool fineness was determined by dividing the sheep according to the number of wool qualities in the fleece (Bradford classification).

The type of wool of each ewe was also determined according to the Bulgarian State Standard (BSS 507-88) on the basis of fibers' thickness of main topographic area of fleece: shoulder, side and back.

RESULT AND DISCUSSIONS

The data of Table 1 show that the average thickness of fibers of the six topographic areas is in the frame of limits of 64th quality. The wool of shoulder is finest (22.60 mm) and the wool of leg is coarsest (23.44 mm). Although the close average values of studied areas, that change in the frame of 1 mm, the differences between them are reliable ($p > 0.999$). The wool of studied animals could be distinguished by a very good staple equality of fibers on thickness. The values of variation coefficient are significantly lower than the requirements of Bulgarian State Standard for fine wool (23-25%) in all areas.

On Table 2 is shown the equality of fibers on the main topographic area (the side). The results show slight decrease of average diameter of fibers in direction from the top to the basis of the staple. The average thickness of fibers in the middle of the staple is 97% but in the basis of staple - 96% in comparison with those of the top. The thinness of fibers in the middle and in the basis of the staple probably is connected to the pregnancy of sheep and their intensive use for milk.

The sheep were divided according to the qualities number in the fleece on the base of the completed studies of wool fineness of the six topographic areas (Figura 1). The figure shows that the main part of animals (76%) is with two qualities of wool and only 10% are with three qualities of wool. The fleeces of sheep with two qualities are formed mainly by the most preferable wool qualities (60th and 64th) for Bulgarian finefleece races. The sheep with one quality of wool are of particular interest to the selection. They form 14% of studied animals. Our previous studies on wool types in 4 breeding herds of the Thracian finefleece race (4) showed significant better results on this index. The number of animals with one quality of wool in this mentioned above study is two ways higher than Caucasian race and it vary from 18% to 43% at the separate herds.

The allocation of sheep according to the type of wool is presented in Figure 2. The results show that all animals are with the desired types of wool: 49% with fine merino and 51% with merino wool. At the sheep with fine merino wool predominate those with 64th quality. The determination of wool type of each animal at the expert evaluation according to the standard in force permits to certificate the fleeces. This allows to classify the types of fleeces immediately after the shearing and in this way to avoid the qualification of wool at the moment of its buying up.

CONCLUSIONS

The studied ewes were with very good topographic and staple equality of the wool on fineness. The finest was the wool on the shoulder (22.60 mm) and the coarsest was the wool on the leg (23.44 mm).

The fleeces of 14% of animals were with one quality of the wool; 76% of animals had a wool with two qualities and only 10% had a wool with three qualities.

According to the technical requirements of the Bulgarian State Standard 49% of the sheep were with fine merino wool and 51% with merino wool.

Table 1. Fineness of the wool

Parts of body	No of animals	No of fibres	min - max (μm)	Fineness (μm) $\bar{x} \pm S_x$	C (%)
1. Neck	41	4100	20,24 - 25,00	23,24 \pm 0,0536	14,78
2. Shoulder	41	4100	19,26 - 24,18	22,60 \pm 0,0558	15,82
3. Side	41	4100	21,40 - 24,44	23,06 \pm 0,0399	15,67
4. Back	41	4100	20,52 - 24,84	22,86 \pm 0,0568	15,91
5. Belly	41	4100	20,16 - 24,46	22,74 \pm 0,0544	15,33
6. Leg	41	4100	20,20 - 25,34	23,44 \pm 0,0587	16,03

Table 2. Egallite of the wool

Parts of body	No of animals	No of fibres	Fineness (μm) $\bar{x} \pm S_x$	C (%)
1. Base	41	4100	22,68 \pm 0,0549	15,4
2. Middle	41	4100	23,06 \pm 0,0399	15,7
3. Top	41	4100	23,66 \pm 0,0580	15,6

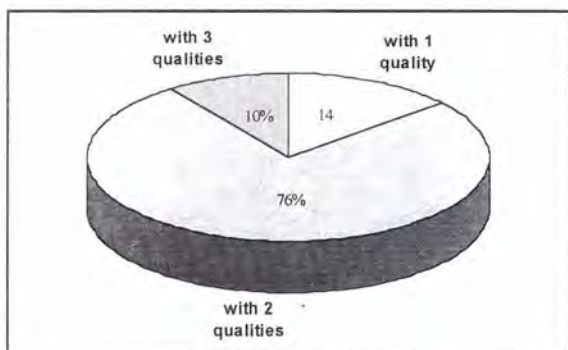


Figure 1. Distribution of the sheep according to number of wool qualities in the fleece

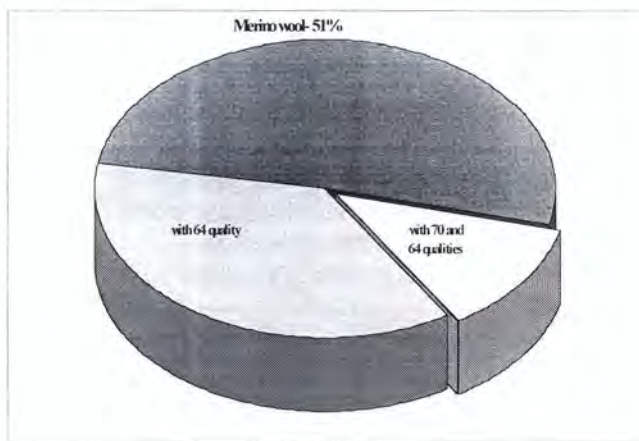


Figura 2 Distribution of the sheep according to type of the wool

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ЕКСПЕРТСКИ И ТЕХНОЛОШКИ КАРАКТЕРИСТИКИ НА ВОЛНАТА И ОДРЕДУВАЊЕ НА ВОЛНИТЕ НА ОВЦИТЕ ОД КАВКАСКАТА РАСА

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Во последниве неколку години селекцијата на расите со квалитетна волна беше насочено кон животни со поголема ефикасност, со еднаква стапка на продуктивност и тип. Посебно внимание се дава на волната која ќе се добие од соодветниот тип на животни (7). Волната треба да биде изедначена како и според дебелината на влакното така и според кадравоста?, должината, квалитетот на мрснотијата; со висок допринос, чист мерино тип и добар трговски изглед?

Мезенцев и др. (2) тврдат дека мерино карактерот на волната зависи скоро единствено од времетраењето на селекцијата која се прави со овците и не толку многу од природните услови. Истражувањата извршени од Спешнева и др. го докажува ова тврдење (6). Тие утврдија дека типот на волната на Асканската овца со квалитетно влакно е генетички одредена и има многу висока повторливост ($R_p=0.90$).

Според Кулаков и Нечиненаја главните знаци според кои се разликува мерино волната од немерино волната се: еднаквоста на влакната во коренот? И во волната. Заради ова при селекцијата за типификација на волната топографската и еднаквоста на влакната на волните е многу важна, бидејќи кај еднаквите волни нема потреба од индустриско сортирање (кинење на волните на различни парчиња) за да се формираат купови со еден тип на волна.

Според некои автори (3) волната се смета за изедначена ако руното нема повеќе од две до три квалитети. Нашите истражувања (4) на овци од Тракиската раса со квалитетна волна покажаа дека значителен процент од испитаните животни се со еден или два квалитета на волната. Истражувањата за типот на волната во Бугарија се ограничени (4, 5). Неопходно е да се зголеми бројот на истражувањата во тоа поле за да може да се употребат нивните резултати во текстилната индустрија.

Целта на овој напис е да се направи експертска технолошка карактеризација на финоста на волната и сертификација на волните на овците од Кавкаската раса.