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EVALUATION OF THE WOOL PRODUCTION ON ROMANIAN SHEEP BREEDS

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Abstract

Sheep breeding is a traditional activity in Romania and wool production has been for a long period the main resource for the farmers' prosperity. The opportunity of this study was generated by two main aspects: the change of the exploitation directions of sheep towards milk and meat production , which contributed to the lack of interest in selection and breeding for wool and to the reduction of the productive level and quality parameters of the wool ; the absence of a national standard for classifying raw wool adapted to the current breeds structure, the conditions of sheep farming and the market requirements for this animal product

An extensive study was carried out over 5 years on flocks of sheep belonging to the main local breeds Merinos de Palas, Tsigaie, Tsurcana, the newly created breeds at ICDCOC Palas Constanta respective Palas Meat Breed, Palas Milk Breed, Palas Prolific Breed as well as on some hybrids obtained through crossbreeding of new breeds with imported sheep breeds specialised for meat production (Texel and Rouge de l' Ouest). The main goals of this study were: to establish the average level of wool production, the limits of variation and the potential for selection for wool quantity, by individual weighing of the wool fleeces harvested during the shearing season; to evaluate the wool quality level in the flocks analysed on the basis of the objective determination, by laboratory analysis on randomly collected samples, of the average fibre diameter, relative length of the staples, individual fibre length, degree of crimp, degree of impurity and the limits of variation of these quality parameters. This paper presents a summary of the values obtained for the quantity of raw wool and the fineness of wool as an essential quality parameter for the classification and valorisation of this natural resource.

The results obtained in the study revealed in general a large variability in the productivity level of local sheep breeds and their hybrids with specialised imported breeds. The existence in the analysed herds of a percentage of 40-50 % of sheep performing above the flocks average (plusvariants) shows a potential for selection for the quantitative level of wool production. Thus, for these selected flocks (lines) an additional 10.23 ≈ 24.09 % wool production can be obtained compared to the averages levels.

In terms of average fineness the analysis of the data shows that : the Palas Merino sheep, fall into the category of fine wool breeds ; the three new sheep breeds created at ICDCOC Palas and the Tsigaie breed belonging to the Reghin - Mures Experimental Base have semi-fine wool (fiber diameter over 25 microns); the flock of White Tsurcana breed from the Bilciuresti - Dambovita Experimental Base falls into the category of sheep with semi coarse - coarse wool.

The range of variation in diameter was very wide for all the breeds analysed. Thus in the Palas Merino breed differences of 5-7.5 µm between the maximum and minimum diameter measured represent according to the Bradford classification (English system) a difference of 7 fineness classes . The Tsigai breed has also a large uneveness of this parameter, CV over 20 % in rams and sheep yearlings. The analysis of the data on wool diameter revealed that more than 40% of the studied sheeps had above-average fineness, they could constitute selected flocks (lines) with higher values of the main wool quality parameter that determines the market value. Thus an increase in wool fineness of 3.63 ≈ 11.52 % can be achieved within a selected flock .

The results presented showed that, under the current conditions of breeding and exploitation of sheep in the analized flocks, there is a potential of selection for wool production and for fibre diameter as the main quality parameter . Also, on the basis of the analysis carried out on the grading/classing/ sorting of wool worldwide and the results obtained within this study, proposals were made to improve the quantity and increase the commercial value of wool production obtained from the sheep breeds reared in Romania.

Keywords: sheep breed, raw wool production, fibre diameter

1. INTRODUCTION

Wool is a natural resource with unique properties being 100% natural, renewable, sustainable due to its biodegradable/recyclable nature and is an important raw material not only for the textile industry but also for related fields. Worldwide, due to their specific properties, wool fibres have found use in a multitude of fields, such as technical textile products based on wool fibres used for their wet-thermal and acoustic performance (thermal/phonic insulating panels for building envelopes) or for their mechanical and biodegradability performance (geotextiles for soil stabilisation or depollution, agrotextiles for germination and crop protection in cold periods). All this products having the major advantage of being environmentally friendly, with a very low carbon footprint.

Wool production accounts for about 1% of the global textile fibre supply (according to Textile Exchange, 2019). In traditional markets, consumer demands for wool products are oriented towards comfort, easy care, value for money. These markets rely mainly on knitted outerwear, which is traded in the northern hemisphere countries in the autumn-winter season. The high degree of seasonality of this market limits sales during the warmer months of the year. The wool industry has optimised wool products as a niche area due to the environmental properties of these fibres, the comfort provided to the consumer and the health benefits. Future demand for wool will be determined by the ability of this raw material to capitalise on new emerging markets. Due to declining profitability in traditional markets, new markets such as knitwear for underwear, multi-purpose

sportswear, medical articles and technical products offer an area of growth for wool (E.K Doyle et.al [1]).
The processing of wool from an animal by-product (EC 1069/2009 confirms the classification of greasy wool as an animal byproduct of category 3), a potential waste, into a natural resource valued at its true value requires the involvement of all participants in the production, marketing and promotion chain, both at national and European level. In this context, sheep farmers, who are the first link in the chain of obtaining wool as a commodity, must be aware of and apply all the measures that can increase the commercial value of the shorn wool.
In Romania, sheep raising is currently mainly carried out on extensive family farms, which involve low costs in areas where agricultural alternatives are limited.
This activity is perceived as economically vulnerable, a vulnerability that is also accentuated by the quality of the products obtained. The increasing of sheep herds represents one of the economical procedure imposed to be solved every one year, in the generations succession, through a judicious oeganizing of a complex reproducstion activity, of breeding, of exploiting, of improvement and economical analyzing[11]. Sheep reared in Romania are mainly represented by the 3 local historical breeds: Tsurcana, Tsigaie and the Palas Merino, breeds with mixed productions, relatively modest at present compared to their maximum potential, and the rest is represented by various hybrids (crossbreeds sheep), resulting from not following a coherent breeding program. The decrease in the number of indigenous breeds and the increase in the number of hybrids is due to the fact that sheep farmers, in order to obtain higher milk and meat production, have acquisitioned rams of various specialised breeds and used them for crossbreeding for several years. As a result of the disappearance of the processing industry and the traditional markets for wool products, the change in the direction of exploitation, selection and breeding for wool production was no longer of interest to sheep farmers, and hybridisation led in most cases to a quantitative decreasing of wool production and an increase in the unevenness of its quality parameters. At the same time, the lack of a Romanian standard for classifying raw wool adapted to the current breeds structure and exploitation conditions, the absence of a dialogue between the sheep breeder and the trader or processor makes it difficult to make efficient use of this natural resource of animal origin.
In view of the aspects presented, this study aimed to evaluate the quantitative level of wool production, to determine the qualitative parameters of fibers that can constitute selection and improvement criteria for sheep and that can be the basis for a classification/sorting system of raw wool obtained from some local sheep breeds and their hybrids. The results and recommendations presented are mainly useful for breeders, breeders' associations or institutions in charge of the official control of sheep production who wish to commercialize wool regardless of the direction of exploitation of sheep (meat, milk or mixed production) by making flock management, harvesting and wool fleeces preparation activities more efficient.

2. MATERIALS AND METHODS

The study was carried out in 2018-2022, beeing analysed a number of 3222 sheep from which 842 wool samples were collected for laboratory analysis. The 6 local breeds taken in the study were Palas Merino - MP, Palas Meat Breed - RCP, Palas Milk Breed- RLP , Palas Prolific Breed- RPP, Tsigaie and Tsurcana belonging to the Research and Development Institute for Sheep and Goat Breeding Palas Constanta (ICDCOC Palas), Reghin and Bilciuresti Experimental Base. Also 4 types of hybrids obtain from the crossbreeding of imported meat breeds (Rouge de l`Ouest, Texel) with RCP and RPP females were studied.
The evaluation of the productive potential was carried out by individual weighing of wool fleeces harvested during the sheep shearing season from the whole flock under study.
The analysis of wool quality parameters was carried out on wool samples collected randomly during the sheep shearing season, by performing laboratory determinations of fineness, relative staple length, absolute length of individual fibres, crimp degree and contamination degree (wool impurity content) followed by statistical processing of the data obtained.
Based on of the obtained results and the documentation carried out on the grading/classing/ sorting systems used worldwide (Le Valley [2], Macpherson S. [4], Clay P. Mathis et al. [5]), general criteria for classifying the types of wool poduced in Romania were proposed. Classification recommendations for local breeds and hybrids according to the micron (direct measurement) and English Bradford classification systems were presented.

3. RESULTS AND DISCUSSIONS

Wool producing is a year-round process and its quantity and quality is determined by the genotype, the feeding and farming technologies used and the environment in which the sheep are reared. The wool washing efficiency is influenced by hereditary characters and environmental factors. The percentage of impurities in the wool is closely related to thecare and maintenance of sheep during herding, grazing and shelter care (Udrea L. et al. [10]). Sheep farmers, and especially those who breed sheep for wool, need to understand the basic technological process, recognise the needs of processors and therefore the range of prices they can get for wool. Quality parameters such as fineness, uniformity, length, clean wool yield, colour and appearance determine the value of wool and hence the type of product that can be obtained from it. A better understanding of fibre properties and how they are classified will allow the farmer to identify the major aspects to be considered, namely the genetic uniformity of the flock, the

management of the flock operation and maintenance process, the shearing and preparation of the wool obtained (wool clip) (C. J. Lupton et al.[3], Muhammad Jamshed Khan et al.[6]).

Breed selection and improvement is the basis for improving the quantity and quality of wool production. From a genetic point of view, the main trait affecting wool quality and quantity is wool diameter and density, with high follicle density being associated with both low average fibre diameter (higher wool fineness) and high fleece weight (higher wool production). The great variability in wool diameter and length is usually the result of poor selection and a high degree of crossbreeding. Within different breeds, the rate of wool growth and wool uniformity is closely correlated with the nutritional status of the sheep.

The assessed productivity level of the sheep flocks studied is shown as average raw (greasy) wool production in Figures 1 and 2.

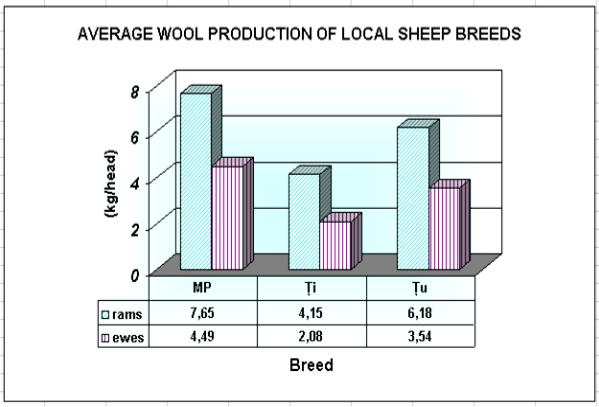

Figure 1. Averages of wool production on local sheep breeds

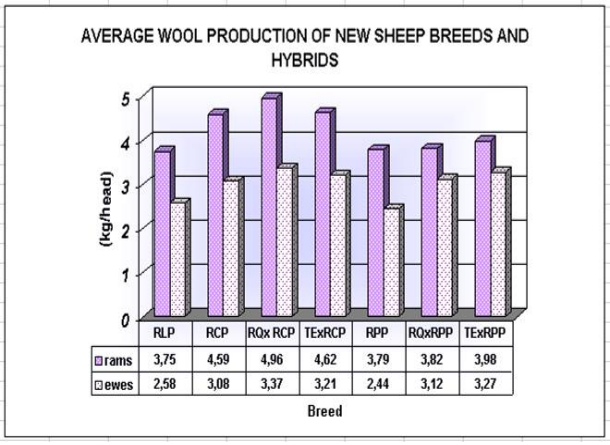

Figure 2. Averages of wool production on new sheep breeds and hybrids

Table 1 also shows the ranges (limit values) for the quantity of wool obtained for the breeds and hybrids analysed.

Table 1. Limits for raw wool quantity

Breed	Category	Rams	Ewes
Palas Merino MP	Range of wool production (kg)	4.9 ≈12.5	3.1 ≈ 6.2
Palas Meat Breed RCP	Range of wool production (kg)	3.0 ≈ 6.2	1.5 ≈ 5.3
Palas Milk Breed RLP	Range of wool production (kg)	2.2 ≈ 5.5	0.7 ≈ 4.9
Palas Prolific Breed RPP	Range of wool production (kg)	3.0 ≈ 5.1	0.9 ≈ 4.3
Tsigai Ti	Range of wool production (kg)	3.4 ≈ 5.0	1.0 ≈ 4.4
Tsurcana Tu	Range of wool production (kg)	6.4 ≈ 8.2	2.3 ≈ 4.9
Rouge de l' Ouest x RCP	Range of wool production (kg)	4.3 ≈ 5.9	2.1 ≈ 4.9
Rouge de l' Ouest x RPP	Range of wool production (kg)	3.2 ≈ 4.6	2.2 ≈ 4.4
Texel x RCP	Range of wool production (kg)	3.8 ≈ 5.6	2.2 ≈ 4.9
Texel x RPP	Range of wool production (kg)	2.9 ≈ 4.6	2.4 ≈ 4.9

The results obtained in the study revealed in general a large variability in the productivity level of local sheep breeds and their hybrids with specialised imported breeds. A unevenness in the amount of wool expressed by CV of more than 20% was evident in adult females of the newly created meat, milk and high prolificacy Palas breeds, as well as in ewes of the Tsigai breed.

Also, the existence in the analysed flocks of a percentage of 40-50 % of sheep performing above the flock average (plusvariants) shows a potential for selection for the quantitative level of wool production. Thus, for these selected flocks (lines) an additional 10.23 ≈ 24.09 % wool production can be obtained compared to the averages shown in Figure 1. Depending on the breed the rams can reach: 9.30 kg raw wool/head - Palas Merino, 5.15 kg raw wool/head - Palas Meat Breed, 4.36 kg raw wool/head - Palas Milk Breed, 4.30 kg raw wool/head - Palas Prolific Breed, 4.85 kg raw wool/head – Tsigai, 7.6 kg raw wool/head -Tsurcana, 5.56 kg raw wool/head – Palas Meat Breed hybrids and 4.4 kg raw wool/head - Palas Prolific Breed hybrids. The diameter of the fibres determines the final use of the wool, examples of which are shown in Figure 3. Fine wool is more versatile and can be used for a wider range of garments than coarse wool. Fine wool produces quality knitwear, woven outerwear and underwear. Coarse wool is generally used for socks, blankets, carpets, mattress fillings, pillowcases, knitting and hand-knitting yarns (Clay P. Mathis et al.[5], [8]).

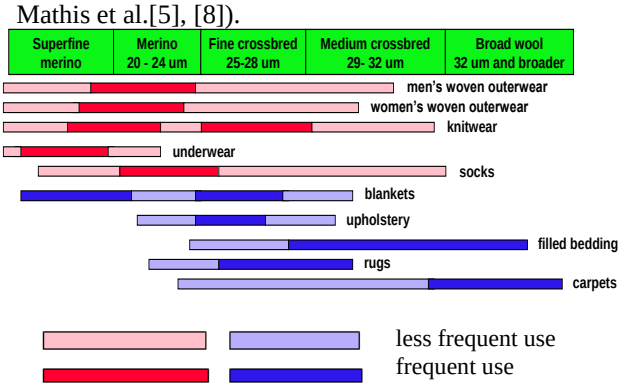

Figure 3. Final uses of the wool
Source: The Woolmark Company (2005)

The values obtained through objective measurement for the mean fiber diameter (wool fineness) and its variation limits (range) in the breeds and categories of sheep

studied - are shown in Figures 4 and 5 respectively in Table 2.

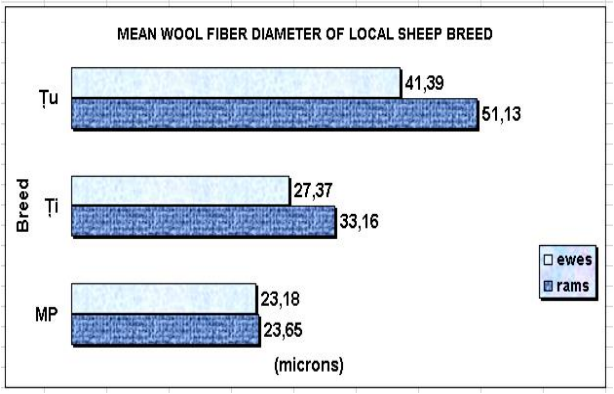

Figure 4. Mean fibre diameter of local sheep breeds

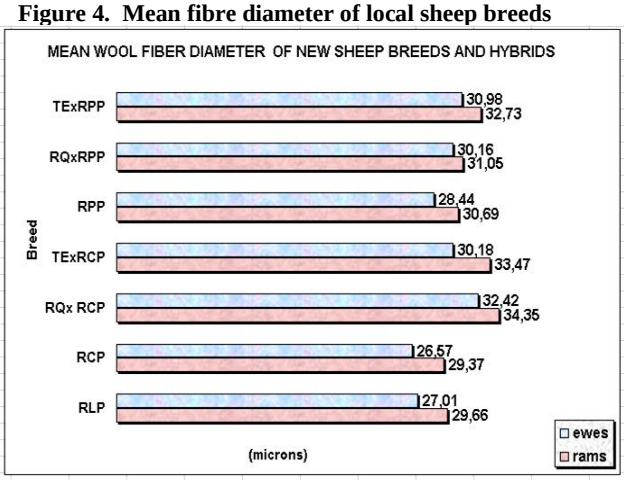

Figure 5. Mean fiber diameter of new sheep breeds and hybrids

Table 2. Range for wool fineness

Breed / Category		Rams	Ewes
Palas Merino MP	Limits for average fibre diameter (µm)	20.313 ≈ 27.854	21.042 ≈ 26.012
Palas Meat Breed RCP	Limits for average fibre diameter (µm)	24.731 ≈ 35.647	21.650 ≈ 32.459
Palas Milk Breed RLP	Limits for average fibre diameter (µm)	26.480 ≈ 35.659	22.058 ≈ 31.195
Palas Prolific Breed RPP	Limits for average fibre diameter (µm)	26.676 ≈ 36.520	24.382 ≈ 32.884
Tsigai Ti	Limits for average fibre diameter (µm)	25.469 ≈ 40.931	24.773 ≈ 31.779
Tsurcana Tu	Limits for average fibre diameter (µm)	44.926 ≈ 59.798	37.035 ≈ 46.670
Rouge de l' Ouest x RCP	Limits for average fibre diameter (µm)	30.795 ≈ 37.313	30.081 ≈ 35.568
Rouge de l' Ouest x RPP	Limits for average fibre diameter (µm)	28.849 ≈ 33.638	26.228 ≈ 36.374
Texel x RCP	Limits for average fibre diameter (µm)	31.221 ≈ 39.722	27.218 ≈ 33.593
Texel x RPP	Limits for average fibre diameter (µm)	30.204 ≈ 33.749	27.163 ≈ 34.752

The analysis of the data shows that the Palas Merino sheep, in terms of average fineness, fall into the category of fine wool breeds and the other three new breeds studied at ICDCOC Palas have semi-fine wool (fiber diameter over 25 microns). The range of variation in diameter was very wide for all the breeds analysed. Thus in the Palas Merino breed with differences of 5-7.5 µm between the maximum and minimum diameter measured, the flock falls between the Bradford (English system) 70 S~54 S classes (the difference between maximum and minimum fineness was 7 classes).

Flocks of the Milk and Prolific Palas sheep breeds also had a percentage of thick, medullary fibres in the fleece. Thus in the Palas Milk Breed between 6 ≈ 28.6 % of the sheep flock presented medullar fibers with an average diameter of 52.57 ≈ 54.0 µm. In the Prolific Palas breed, the proportion of individuals with medullar fibers was 42 ≈ 50 %, the average diameter of these fibers being in the range 57.23 ≈ 73.95 µm. The sheep flock of the Tsigaie breed belonging to the Reghin - Mures Experimental Base falls into the category of semi-fine wool, exception being in the case of males individuals with semi-coarse wool (with average diameters ranging between 35 ≈ 40 microns); there was also a large uneveness of this parameter, CV over 20 % in rams and sheep yearlings.

The White Tsurcana breed from the Bilciuresti - Dambovita Experimental Base has a wool fleece made up of mixed locks containing several categories of fibres: shorter thin fibres located at the base of the locks, intermediate fibres, long thick fibres which form the skeleton of the locks and determine the relative length of the wool as well as a variable percentage of dead fibres (kemp). The analysed flock falls into the category of sheep with semi coarse - coarse wool, with a percentage of 26.32 ≈ 50.83 % of fibres with a medullar canal . The average fineness of the thin and intermediate fibres was 27.28 ≈ 36.70 µm and the thick fibres with medullar canal had average diameter values of 59.58 ≈ 95.56 µm. A high non-uniformity of wool diameter is also noted, with CV of fineness being over 26% in all categories of sheep taken in the study.

The analysis of the data on wool diameter revealed that more than 40% of the sheep flocks studied had above-average fineness, which could constitute selected herd (lines) with higher values of the main wool quality parameter that determines the market value of this natural resource. Thus, for the Palas Merino sheep flock, a selected line can ensure an improvement in wool fineness by 5.49 ≈ 10.06 %, the average diameter thus reaching 21.736 µm in rams, 20.851 µm in ewes , i.e. classification in the 64 S fineness range, which can be sold at a more advantageous price than the 62/60 S initially obtained for the whole flock analysed.

For the Palas Meat Breed, an increase in wool fineness of 5.93 ≈ 9.19 % can be achieved within a selected flock, the average wool diameter becoming in this case 27.285 µm in males, 24.127 µm in females. Thus, it can be noticed that ewes and sheep yearlings belonging to this breed can be classified in the fine wool category (below 25 µm) i.e. they range from 56 S to 60 S (equivalent to two fineness classes in the Bradford system) and selection for these categories is very efficient if justified from the point of view of marketing at a competitive wool price. Within the Palas Milk Breed a selected flock had an increase in wool fineness of 3.63 ≈ 8.14 %, by sheep category the average fiber diameter in this case being 28.297 µm in rams i.e. grading from 50 S to 54 S, and 25.387 µm, in ewes representing an improvement in grading from 56 S to 58 S. In the Prolific Palas breed it is possible to improve wool fineness by 6.27 ≈ 8.74 %, by selection it is possible to reach an average diameter of 28.745 µm (54 S) in males and 26.656 µm (56 S) in females.

The selected lines formed in the Tsigaie breed by sheep with better fineness than the average of the flock can record values higher by 5.36 ≈ 11.52 % than the average diameter, reaching wool fineness values of 25.381 ≈ 29.339 μm, which corresponds to a higher classification in the Bradford system from 56 S ~46 S to 58 S~ 50 S. In the case of the Tsurcana breed a selected flock representing 50.0 ≈ 62.5 % of the total can record average diameter values of 38.692 μm in ewes and 47.817 μm in rams.

Analysis of the data in the table shows that the F_1 hybrids of the Rouge l' Ouest and Texel breeds with the Palas Prolific Breed and the Palas Meat Breed respectively fell into the medium crossbreed wool category, with average wool diameter values of 30.164 ≈ 34.345 μm (50 S ~46 S). In terms of fibre fineness CV, this was over 19%, with crossbreed females recording a higher wool diameter unevenness (over 21%). For the two categories of hybrids studied, it was found that more than 40 % of the flocks had above average fineness, thus allowing the formation of lines with higher values of the main wool quality parameter, i.e. average fineness values of 27.4 ≈ 29.5 μm (56 S~ 50 S), thus classifying them in the fine crossbreed wool category (below 30 μm). The application of efficient selection associated with appropriate husbandry measures in sheep can ensure the reduction or minimisation of genetic defects such as: coloured wool, white wool with pigmented fibres, non-uniform wool (in fineness and length), brittle wool, felted wool and acquired defects (canary stained wool, wool with impurities, yellowed, altered and second cuts wool) which reduce the commercial value of wool produced by farmers (Muhammad Jamshed Khan et al.[6], Tafta V. [7]).

The amount of clean wool in a sheep's fleece depends on the breed, climatic and geographical conditions and the general state of maintenance of the animals. With these aspects in mind, wool producers should try to minimize any source of contamination both during the farming of sheep and during the shearing and preparation of wool fleeces. The main contaminants that reduce the value of wool and incur additional costs for processors are:

- Natural contaminants occurring in the natural growth process of wool. For fine and semi-fine wool fleeces, contaminants may include medullar fibers, hair or dead fibers, coloured fibers (pigmented fibers). Urine and faeces also contaminate the wool
- Contaminants acquired from environmental sources are classified as : plant impurities (seeds, weeds, straw, twigs, etc.). ; mineral impurities (soil, dust, sand);
- Applied contaminants: paint brands, dewormers and topical sprays.

The objective of wool grading at the farm or collecting centre is to create uniform lines (visually and according to test results), saleable wool lines that have uniform processing capabilities, meet the requirements of wool processors and maximise profit for the sheep farmer.

The grading/classing criteria considered are breed of sheep, range of wool fiber diameters, flock concept, staple trength, colour, length, clean wool yield (C. J. Lupton et al.[3], Macpherson S.[4], [9])

For the wool obtained from sheep breeds and hybrids reared in Romania we propose the following classification criteria:

- *Merino sheep breeds*. If they are selected for wool production, in flocks reared under the same conditions most Merino fleece can be classified in the main line with a fineness range of 64S ~ 62S. In the case of mixed wool-meat farming of Merino breeds, the fineness range can be higher 64S/62S/60S and several lines can be formed depending on marketing opportunities. For fleeces with thicker, shorter wool, with a high degree of contamination or with other defects, secondary lines can be formed, and also the portions removed during the skirting operation are collected separately
- *Merino sheep hybrids* are graded separately from the mother breed according to the range of variation in fineness, length and degree of contamination (impuritity content).
- *Native sheep breed with mixed production* . Wool quality will vary within these breeds due to the emphasis that the individual producer places on wool in mixed ewes (meat, milk, prolificacy, pelt).
- *Semi-fine wool sheep breeds*: Meat breed Palas RCP, Milk breed Palas RLP, Prolific breed Palas RPP, Tsigaie Ti and others. In these breeds, where appropriate, the fleeces with semi-coarse wool, wool with a medullar canal or pigmented fibers are separated into secondary lines.
- *Sheep Breeds with coarse wool:* Tsurcana TU, Tsurcana varieties. It is recommended to shear and classify these breeds differently according to colour variety.
- *Imported sheep breeds for meat production:* These breeds fall into the medium to coarse wool category. They are usually classified according to the colour of the extremities (of the fleece), the length of the fibres, the degree of contamination with impurities and the risk associated with the presence of pigmented fibres in the fleece or the tendency to naturally shed wool (Dorper), the presence of significant amounts of medullar/kemp fibres. Flocks of meat sheep breeds may fall along different lines in terms of wool fineness when volume and market opportunities are financially advantageous.
- *Imported sheep breeds for milk production:* Their classification and that of their half-breeds are mainly based on fleece colour and the degree of contamination.

4. CONCLUSIONS

The study opportunity was generated by two main aspects: the change of exploitation directions of sheep towards milk and meat production has contributed to the lack of interest in selection and breeding for wool and to the reduction of the productive level and quality parameters of the wool: the absence of a national standard for classifying raw wool adapted to the current

breed structure, the conditions of sheep breeding and farming and the market requirements for this product

In view of these aspects, this study aimed to evaluate the quantitative level of wool production, to determine the qualitative parameters of fibers that can constitute selection and improvement criteria for sheep and that can be the basis for a classification/sorting system of raw wool obtained from some local sheep breeds and their hybrids.

The results obtained revealed in general a large variability in the productivity level of local sheep breeds and their hybrids with specialised imported breeds. The presence in the analysed herds of a percentage of 40-50 % of sheep performing above the flocks average (plusvariants) shows a potential for selection for the quantitative level of wool production. Thus, for these selected flocks (lines) an additional 10.23 ≈ 24.09 % wool production can be obtained compared to the averages levels.

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The range of variation in diameter was very wide for all the sheep breeds studied. Also, the analysis of the data on wool diameter revealed that more than 40% of the sheeps had above-average fineness, they could constitute selected flocks (lines) with higher values of the main wool quality parameter that determines the market value of this natural resource. Thus, for the Palas Merino sheep flock, a selected line can ensure an improvement in wool fineness by 5.49 ≈ 10.06 %, meaning a classification in the 64 S fineness range, which can be sold at a more advantageous price than the 62/60 S initially obtained for the whole analysed flock. Regarding the Tsigai breed a selected line from sheep with better fineness than the average of the analysed flock can record values 5.36 ≈ 11.52 % higher than the average diameter, which corresponds to better classification in the Bradford system from 56 S ~46 S to 58S~ 50 S.

The presented results showed that, under the current conditions of breeding and exploitation of sheep in the analized flocks, there is a potential of selection for wool production and for fibre diameter as the main quality parameter

These results and recommendations are mainly useful for breeders, breeders' associations or institutions in charge of the official control of sheep production who wish to commercialize wool regardless of the direction of exploitation of sheep (meat, milk or mixed production) by improving flock management, enhancing of efficiency of harvesting and wool fleeces preparation activities

A number of measures that can help to make wool valorisation more efficient at national level are:

- initiation of a national programme to improve wool quality at the farm level (on farms with fine and semi-fine wool breeds) through objective testing of the main quality parameters. This will allow a more accurate selection of animals at a younger age and will generate a faster progress in the genetic selection process of flocks.
- organizing of a network made up of local and regional, collection /grading and packing centers to ensure that uniform batches are produced for all wool categories obtained from sheep breeds reared in Romania;
- organizing of training courses for wool shearers and graders/sorters;
- price incentives for wool sheared and graded by specialised personnel;
- stimulating innovation in the field of technical applications for qualitatively inferior fiber categories of coloured wool and fleeces obtained from hybrids sheep , uneconomic for textile use.

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