

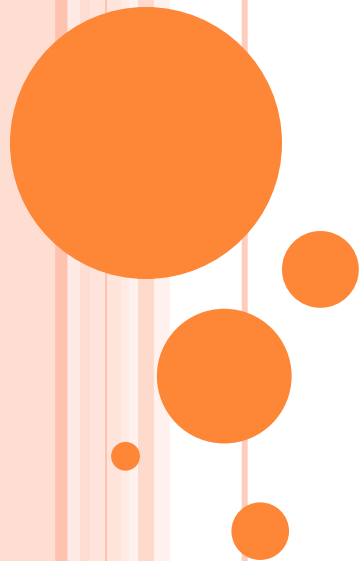
"VALAHIA" UNIVERSITY OF TÂRGOVIȘTE  
FACULTY OF ENVIRONMENTAL ENGINEERING AND FOOD  
SCIENCE

Department: ENVIRONMENTAL ENGINEERING

## **Study on the diversity of products obtained from sheep in the current bioeconomy context**

**Author :Lavinia Udrea \*<sup>1</sup>, Gabriela Teodorescu<sup>2</sup>, Sînziana  
Venera Morărița<sup>3</sup>, Ivona David<sup>4</sup>**

**Smmer school septembrie 2021**



# INTRODUCTION

- The sheep species has been particularly appreciated, due both to the diversity of its products and their superior nutritional and economic value. Taking into account the natural conditions and the requirements of the national economy, currently sheep breeding, as an important sector of animal husbandry, has been oriented, stimulated and supported, in the direction of its intensive and multilateral development, to cover domestic production of raw materials. for the textile, fur, leather and food industries in continuous development and technological improvement. Therefore, the treatment of this problem was achieved through the prism of economic efficiency, using a rich material, closely related to scientific and production results, recorded in recent years, in the field of application, mainly new technologies for exploiting the productive potential of the species.
- At the same time, special attention was paid to the practical ways of intensifying the breeding and exploitation of sheep, in the conditions of the new revolution in the agriculture of our country. Interest in this species has increased even more, with the development of agriculture and in general with the evolution of socio-economic bills, which have generated new food requirements and raw materials of animal origin.



# The evolution of sheep worldwide

Specification	2017	2018	% of the total on 2019
Africa	164.859	183.562	+1.34
North America	22.410	21.961	-2.92
Asia	293.778	324.561	+21.45
South America	102.563	107.790	-6.45
Europe	126.343	134.249	+5.55
TOTAL	1.044.316	1.120.092	+4.15

Thus, the table above shows that recently, large increases in sheep numbers are recorded in Asia, followed by Africa and Europe, while the other continents mark a slight decrease. In some transoceanic countries, large sheep farmers, such as Australia and New Zealand, until recently the exploitation for the production of fine wool predominated, and now the one for crossbred meat and wool, mainly of the Corriedale type, has prevailed. In Eastern Europe and the Balkans, concern for meat production has been boosted, along with wool, milk and skins.



# The situation of sheep reared at national level

The directions of exploitation for the sheep species are determined by the requirements of the national economy, and the possibilities of achievement, by the productive potential of the breeds and by the system and technology of breeding, improvement and exploitation of the sheep. Among these directions, we can mention: Direction for wool production of all categories, including coarse and surface; The direction for meat, mainly young fattened sheep, which together with the wool is in the first place; Direction for the production of Karakul type skins; Milk production, although not a separate direction, must be given special importance.

## The main indicators of race groups

Groups of race sheep	Body weight (kg)			The main indicators of race groups	Length of strands (cm)	Prolificity (%)
	Lambs	Ramsi	Sheep			
Țigaie	40	70-85	45-60	5-7	10-11	120
Țurcană	35	65-80	40-45	4-5	25	110
Merinos	42	89-90	55-65	7-8	8-9	135



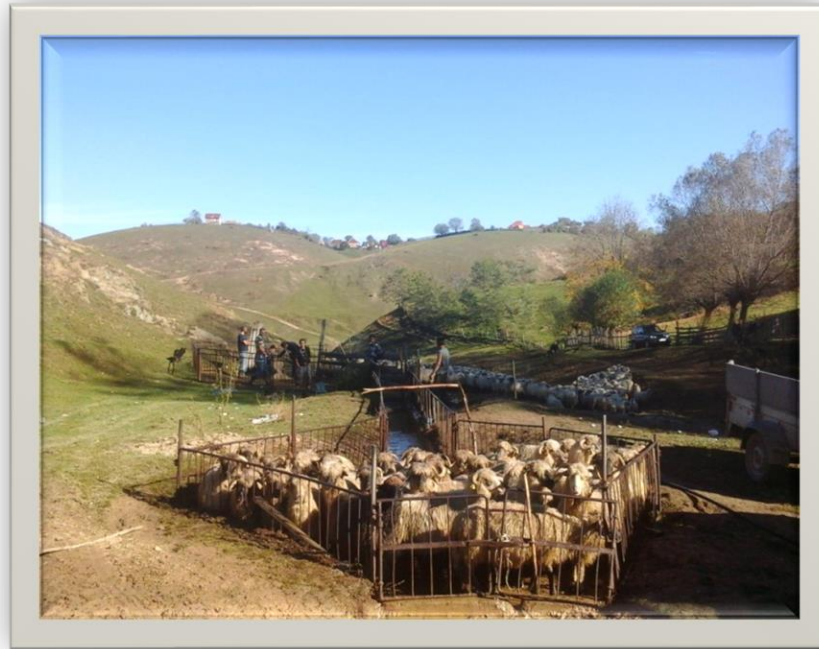
# Material and methods

The researches were performed on Țigai and Țurcană sheep.

Races	no animals	Sheep with milk	barren	Sheep with problems	rams	sheep
Turca na	228	100	60	15	10	43
Tigai e	185	102	40	5	6	32



- Calendar of sanitary-veterinary actions Within all sheep exploitation systems, it is necessary to take measures to prevent and combat various diseases, according to the Technical Action Plan.



- sheep rattling



# RASA ȚURCANĂ



Within the breed there are varieties:

White

Black

Brumaire

Rotca

**Indicii medii de producție la efectivele de ovine din rasa Țurcană cuprinse în Controlul oficial de producție pe anii 2005-2011**

Specificare	Nr. capete	Lână (kg)	Lungimea șuviței (cm)	Greutatea corporală (kg)
Berbeci	10	3,815	27,075	54,900
Oi	175	2,385	24,172	34,997
Mioare	43	2,195	21,735	30,58





Currently, the Tığaie breed represents about 26% of the total number of sheep in our country, being raised in the hilly, plateau and depression areas, with atmospheric precipitation of 650-800 mm, and to a lesser extent in some sub-mountain areas.





- Analyzed: milk production, wool production, meat production and production of hides, furs and skinsMilk productionThis is, on average, 80-110 liters per lactation, with a plus-variety of 140-160 liters, the Țurcană breed being the best milk producer among our local breeds.

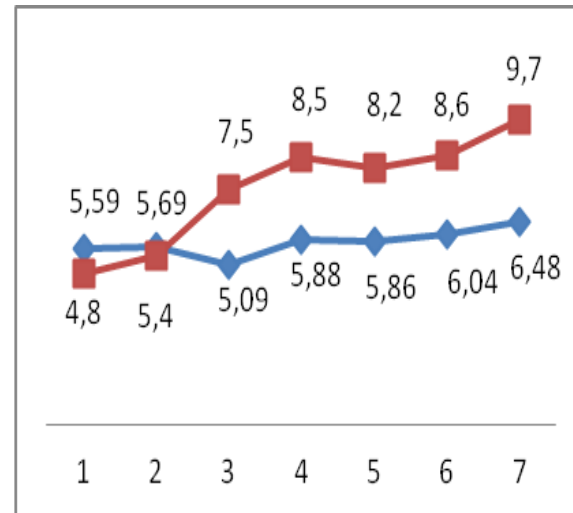
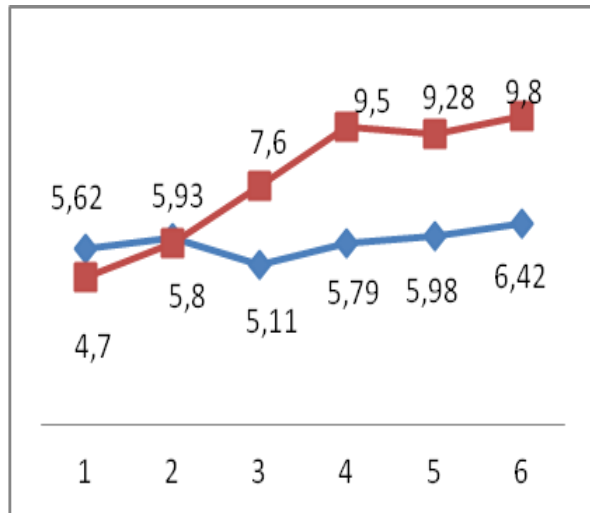
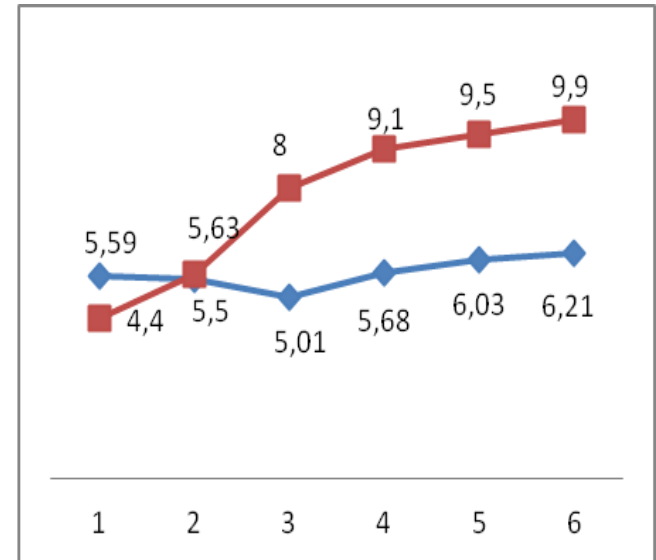
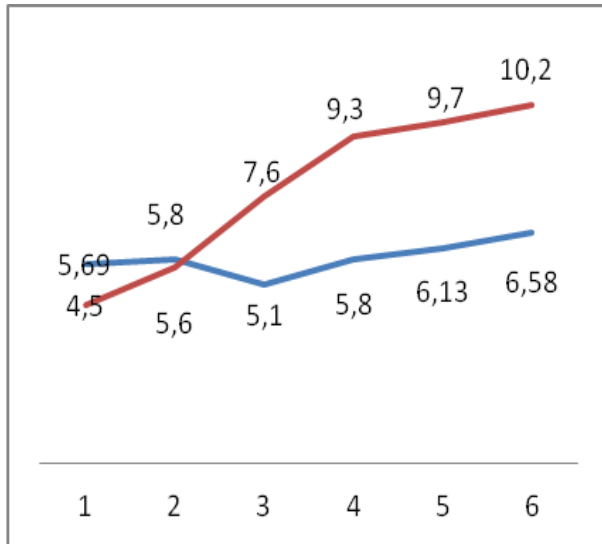


# MONTHLY DYNAMICS OF THE AVERAGE PROTEIN CONTENT

Years	N	Average percent age of protein per lactation	Average percentage of protein per month of lactation						
			Month I	Month II	Month III	Month IV	Month V	Month VI	Month VII
2015	45	5.83	5.69	5.86	5.10	5.86	6.13	6.38	-
2016	52	5.70	5.59	5.63	5.07	5.68	6.03	6.21	-
2017	50	5.77	5.62	5.73	5.11	5.79	5.98	6.42	-
2018	45	5.79	5.59	5.69	5.09	5.83	5.86	6.04	6.48
2019	25	5.86	5.68	5.72	5.13	5.69	6.11	6.19	6.56



# Monthly dynamics of the average protein content



## Wool production

According to the external appearance, the woollen clothing at Țurcană is rare, loose and hanging, characteristics that allow together with the sharp shape of the strands, the easy draining of rainwater, thus constituting a way to protect the body against African diseases.

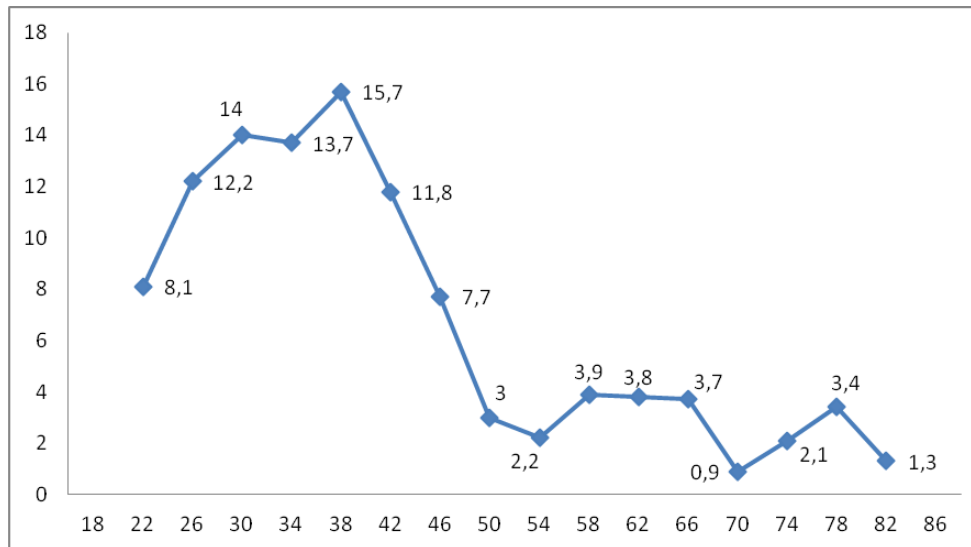
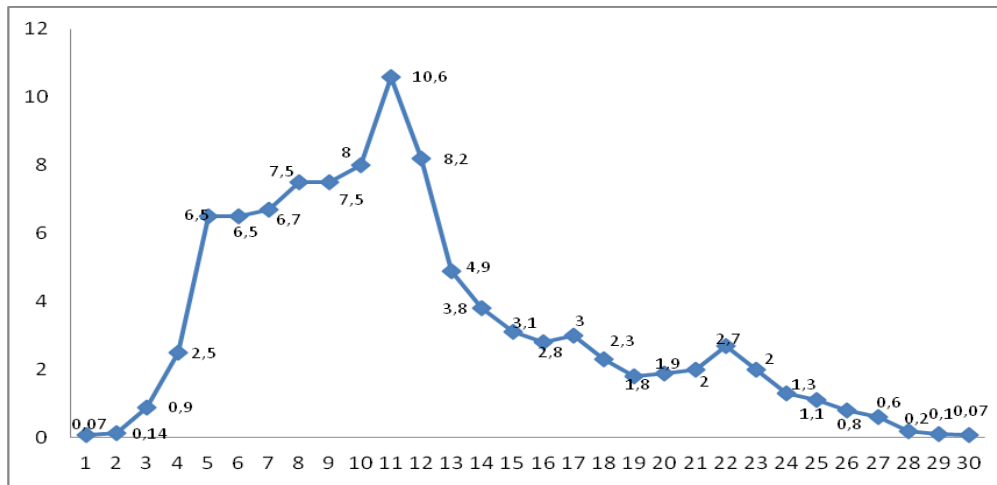
In general, the wool produced by the Țurcană sheep is rough, with a usually weak and very poor luster, due to the small number of sebaceous glands. By washing, it loses 30% - 35% of weight, the yield varies between 65% - 70% in sheep raised in mountain conditions.



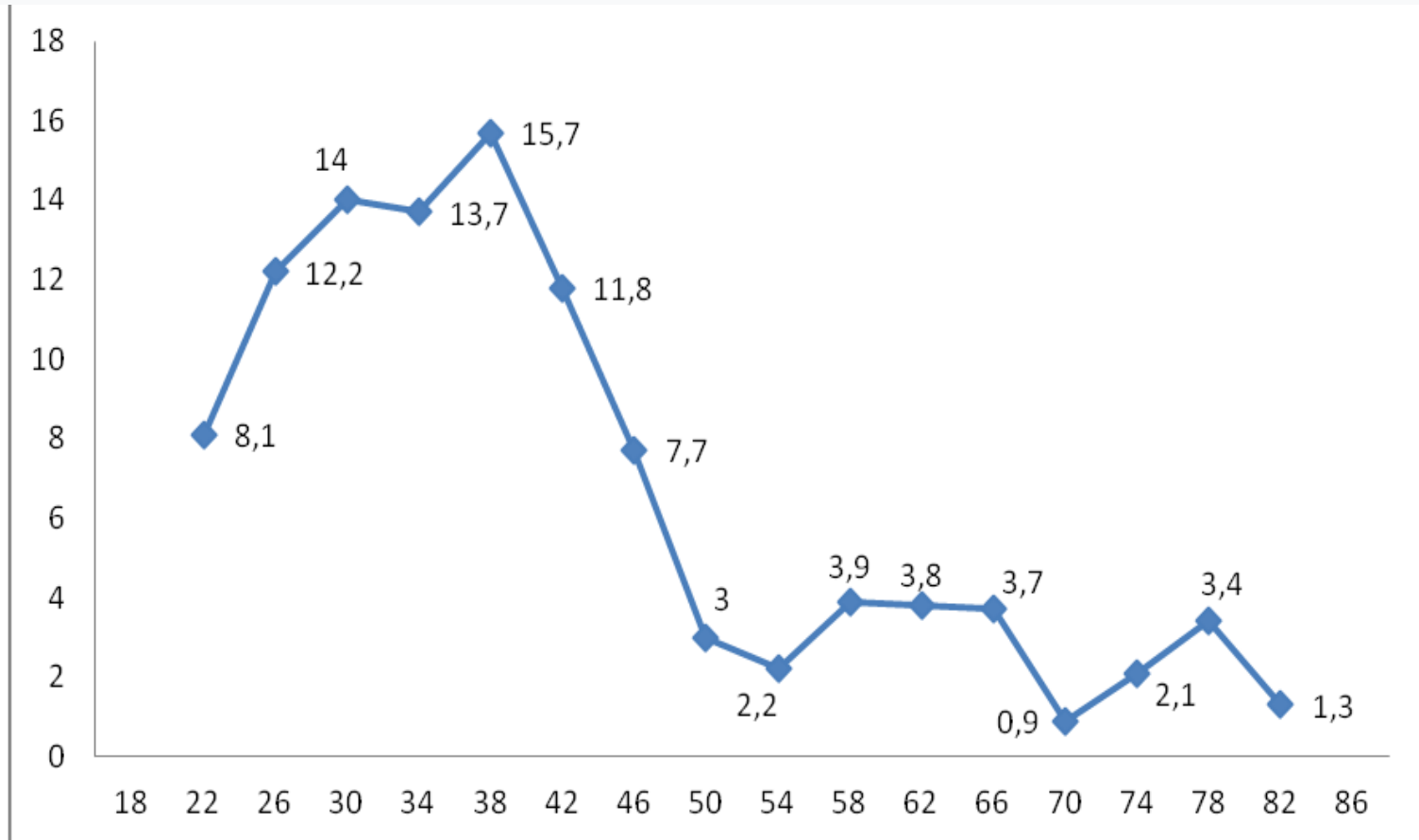
# Wool production

Years	Rams				Adult sheep			
	n	$\bar{x} \pm s_x$	s	cv %	n	$\bar{x} \pm s_x$	s	cv %
2015	17	3.87 ± 0.08	0.34	8.78	345	2.75 ± 0.75	0.75	27.24
2016	20	3.27 ± 0.08	0.39	11.91	395	2.33 ± 0.02	0.33	14.23
2017	23	3.18 ± 0.07	0.38	11.92	341	2.25 ± 0.01	0.28	12.47
2018	18	3.63 ± 0.11	0.46	12.66	348	2.43 ± 0.30	0.56	23.25
2019	21	3.88 ± 0.07	0.36	9.27	334	2.54 ± 0.01	0.31	12.20





## DIAMETER OF WOOL FIBERS IN WHITE TURKEY SHEEP



- Absolute tear strength and extensibility are important properties of fiber, as they determine the strength and plasticity of wool fabrics. These properties are closely correlated with the fineness of the fiber, in the sense that the fine fibers have a lower strength and extensibility than the thick ones, in correlation with the body region, appreciable influences having the ecotype as well as the average and physiological factors.





# Production of meat

In good conditions of feeding and maintenance and in the case of herds, where a certain selection has been made, the young sheep show a higher growth energy, achieving on average weaning weights of 18 kg.



# THE EFFECT OF RECONDITIONING TURCANĂ ADULT SHEEP ON THE QUANTITY AND QUALITY OF MEAT

Number of fattened animals	Average live weight before reconditioning	Days of refurbishment	Average live weight after reconditioning	Average daily increase
23	40.5	50	50.6	0.202



Average reconditioning

By reconditioning, adult sheep achieve an average of 0.202 g per day. The proportion of live meat expressed by the slaughter yield increases by 7.3%, and after fattening the share of sheep in class I quality increases to 95.6%.



# Production of hides, skins and furs

- Among the breeds of sheep raised in our country, the Țurcană breed is the only one that produces high quality leathers for the leather goods and leather clothing industry. The skin from Țurcană is more resistant, because the collagen fibers are woven together in a denser structure. The skin is more resistant to elongation and tearing.



# Conclusions

- Sheep breeding is a traditional activity. The diversity of the productions they make, the low energy consumption and the nature of the fodder they consume, give to the breeding and exploitation of sheep the character of a sustainable and promising activity;
- Development of new systems and technologies for breeding, breeding and intensive exploitation of sheep, under the conditions of an improved diet and adequate sanitary-veterinary and experimental research actions, designed to contribute to the achievement in the shortest possible time of bioeconomic objectives set for the sheep sector;
- Ensuring the quantitative and qualitative food needs, in relation to the breed and the physiological state of the sheep, especially in June - August in the lowland area and in the winter months for the hill and mountain areas;
- Since sheep are grazing animals, the biological requirements for housing conditions are limited only to winter housing, which is why investments are lower than other species;
- The technical-hygienic requirements of the shelter concern, mainly, both the location and the assurance of the microclimate comfort conditions, according to the biological and exploitation requirements. Due to the advantages obtained from the breeding and exploitation of sheep through the multiple products they provide, as well as due to the large capacity for efficient use of natural, material and social resources, increased herds in parallel with improving their breed structure;
- Regarding the current trends in the orientation of sheep farming, they are mainly based on market requirements, the biological characteristics of sheep breeds and the specific environmental conditions. Thus, in central and western Europe, exploitation for meat production predominates;
- The rational use of material resources, labor and the entire production capacity of agricultural units in order to obtain maximum yields, is one of the essential requirements for raising the economic efficiency of production.
- elements of the respective species;



Thank you for  
attention!

