

## NATIONAL RESEARCH & DEVELOPMENT INSTITUTE FOR ANIMAL BIOLOGY AND NUTRITION

# INVESTIGATIONS CONCERNING THE MORPHOLOGICAL TRAITS OF THE KARABASH SHEEP COMPARED TO TSIGAI SHEEP

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#### Introduction

Our previous investigations have shown that the sheep named Karabash by the inhabitants of southern Romania and northern Bulgaria, recorded by Filip (1912) within the Tsigai breed, have several distinct breed traits. They are also spread in Bulgaria, Croatia, Hungary, Serbia, bearing the name of Tsigai in the last three countries. They may, however, be an old type Ruda breed (Drăgănescu, 2002 proposed the international denomination Black head Ruda), clearly distinct from Tsigai sheep, which will have to be stated by nomenclature, and they must originate from Serbia.

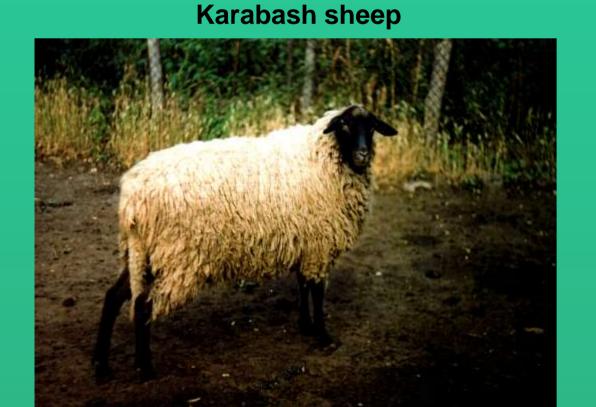
Considering this observation we will use for the time being the name of Karabash for these sheep. Although it is a distinct breed, its morpho-productive analysis and its suitability to certain systems of production is absolutely required as basis for its further use and improvement. Our investigations aim at stating as accurately as possible the useful and taxonomic traits of the breed. Checking is very important currently when cheep production in our country badly needs a breed specialised for milk and suckling lambs.

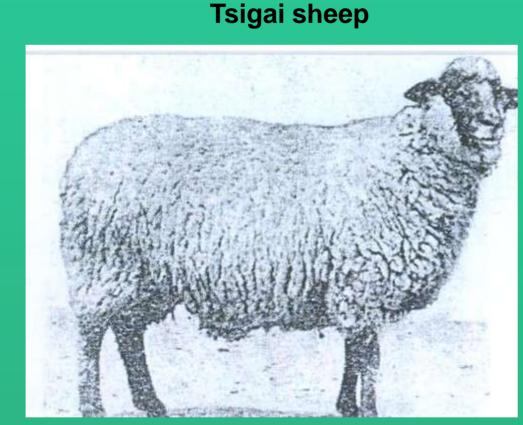
OBJECTIVE

The purpose of this research is to verify our previous investigations (Ghiţă, 2000, 2001, 2002) and to show the type of conformation and body development of this breed compared to Tsigai sheep.

#### Material and Methods

The eye measurement of Karabash body showed that is tends to have larger sizes and larger weights than the other native breeds. Tsigai included (Ciolcă, 1962), which seems to be eumetric (average size). In order to check this assessment that may be subjective, we measured the body of 120 sheep belonging to two farmers from Măldăieni, 44 belonging to farmers from Orbeasca, 58 sheep belonging to two farmers from Călineşti, 108 belonging to two farmers from Mavrodin. Teleorman and 44 sheep raised in the experimental farm of INCDBNA. The data were treated separately in order to show the inner variation and they were compared with the body size of Tsigai sheep determined in several places (Trestia-Buzău, Slobozia etc.) by several researchers (Popescu, 1950; Ştefănescu, 1959). Comparison was done, however, only with one group. The other data on Tsigai are presented separately in order to show that the data we use for comparison are conclusive.





Body development of adult Karabash sheep

	Măldăieni				INCDBNA		Călinești	
	n = 98		n = 22		n = 44		n = 58	
	$\overline{X}\pm S_{\overline{X}}$	cv%	$\overline{X}\pm S_{\overline{X}}$	cv%	$\overline{X}\pm S_{\overline{X}}$	cv%	$\overline{X}\pm S_{\overline{X}}$	cv%
Body weight ( kg)	78.77 0.67	8.47	76.31 1.39	8.54	58.01 1.33	15.32	79.29 1.41	13.61
Withers height (cm)	76.58 0.38	5.02	74.31 0.91	5.74	71.22 0.42	3.93	75.74 0.30	3.03
Croup height (cm)	77.35 0.38	4.91	76.81 0.54	3.35	71.88 0.43	4.02	76.70 0.28	2.81
Oblique body length (cm)	86.11 0.39	4.55	86.81 0.77	4.18	73.65 0.50	4.50	88.39 0.73	6.29
Thorax depth (cm)	38.07 0.25	6.52	37.59 0.43	5.48	32.93 0.22	4.49	36.06 0.35	7.39
Thorax width (cm)	21.41 0.16	7.55	25.40 0.57	10.63	19.54 0.28	9.56	22.24 0.24	8.30
Croup length (cm)	25.40 0.17	6.91	27.40 0.47	8.17	24.17 0.15	4.30	25.67 0.23	7.01
Croup width (cm)	23.81 0.21	8.74	25.77 0.47	8.62	19.12 0.23	8.13	21.29 0.26	9.47
Thorax perimeter (cm)	107.89 0.61	5.67	109.68 1.08	4.65	89.59 0.88	6.52	98.08 0.76	5.97
Foot perimeter (cm)	9.73 0.06	6.84	9.68 0.19	9.23	9.11 0.09	6.88	10.82 0.13	9.65
Head length (cm)	25.95 0.13	5.09	29.27 0.51	8.31	23.37 0.20	5.78	26.58 0.16	4.83
Ear length (cm)	13.79 0.12	9.24	16.86 0.35	9.90	15.57 0.16	6.88	19.32 0.17	6.81

#### Results and discussion

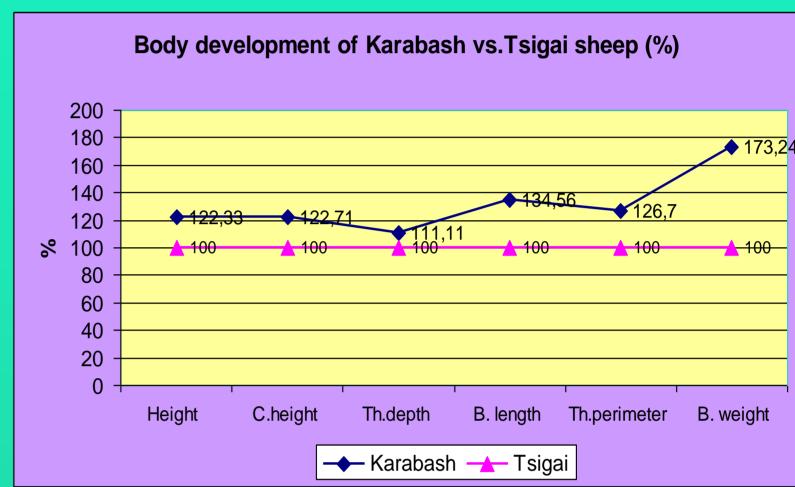
The measurements done on body size and development of Karabash sheep from Mavrodin, compared to Tsigai sheep, showed the following:

- Karabash sheep are larger in size in all analysed dimensions than Tsigai sheep, in all compared groups.
- The larger development of different body segments is not equal.
- The body weight of adult Karabsh sheep is 73.24% higher than the smallest Tsigai sheep (mountain area) and 22% higher than the largest recorded Tsigai sheep.
- The height, croup height, thorax perimeter and oblique length of the body are 22-35 % higher in Karabsh than in Tsigai sheep.
- Thorax depth had the smallest increase (11%) compared to Tsigai sheep.

The data show clearly that Karabash sheep are hypermetric, larger, with higher body measurements in all respects compared to Tsigai sheep, which is considered to be eumetric, of middle size.

Body development (absolute dimensions) of adult Karabash sheep

	CO	mparea	to i sigai	sneep		
Breed	Height (cm)	Croup height (cm)	Thorax depth (cm)	Oblique body length (cm)	Thorax perimeter (cm)	Body weight (kg)
Karabash Mavrodin	76.3	77.7	32.7	87.9	101.4	61
Tsigai, Trestia	62.37	63.32	29.43	65.32	80.03	35.2
Difference Karabash/Tsigai (%)	122.33	122.71	111.11	134.56	126.7	173.24
Tsigai, Palas	62.40	63.60	30.00	67.2	91.70	50.0
Tsigai, R. Sărat	59.52	61.13	29.6	72.53	84.39	39.41
Tsigai, Slobozia	66.0	-	30	68.4	85.40	42.20
Tsigai, Rusetu	66.75	67.75	31.17	70.20	88.10	43.5



The different development is not the same for all traits, which suggests that the two breeds also have differences of conformation.

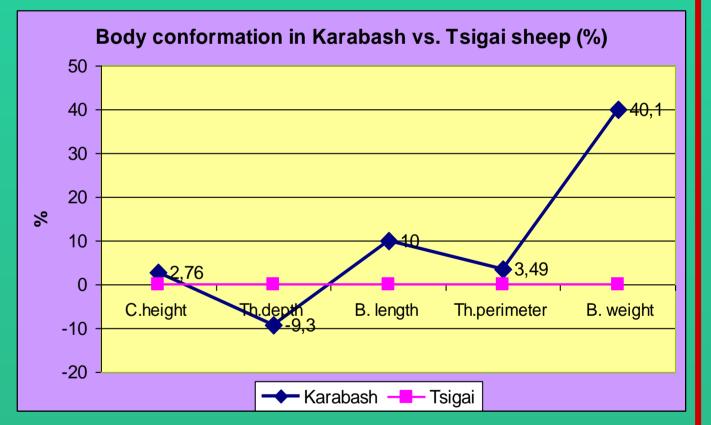
Analysing the body measurements of several herds from Teleorman county with the herd raised in INCDBNA farm, we can observe the following:

- There is a great variability of body measurements between the surveyed Karabsh herds. This variability can be accounted by the lack of a centralised management and methodology of breed selection, which varied according to each producer.

Body conformation of Karabash sheep vs. Tsigai sheep was analysed based on the relative dimensions (% of the height), the main body indices being reflected by some relative dimensions.

Body confo	rmation	in Kara	bash sheep v	vs. Tsigai she	ер	
Breed	Height	Croup height (cm)	Thorax depth (cm)	Oblique body length(cm)	Thorax perimeter (cm)	Body weight (kg)
arabash. Mavrodin	100	101.8	42.8	115.2	132.8	78.6
sigai. Trestia	100	101.52	47.18	104.72	128.31	56.11
fference Karabash/ sigai (%)	-	+ 2.76	- 9.3	+ 10.0	+ 3.49	+ 40.1
sigai. Palas	100	101.92	48.07	108.32	149.53	-
sigai. R. Sărat	100	102.7	49.7	121.85	141.78	-
rigai Slobozia	100		45.60	103.63	120.30	

46.71



The analysis of the relative dimensions of Karabash sheep from Mavrodin vs. Tsigai sheep measurements done in various places and at various times, it results that:

65.19

- Karabash sheep are clearly taller standing and have relatively longer body than Tsigai sheep.

132.04

- They are relatively taller in the hind part and have larger thorax perimeter.

105.21

- All this argues for a dolicomorph of Karabash breed, compared to the mesomorph conformation of the Tsigai sheep.



101.54

100



Karabash lambs

### Conclusions

■ Development and body conformation are important breed traits and indicators of the meat production. Our investigations aimed to determine the type of conformation and development of Karabash sheep vs. Tsigai sheep.

Tsigai. Ruşeţu

- Karabash sheep are larger than Tsigai sheep in all surveyed traits, which shows that they are hypermetric, while Tsigai sheep are eumetric.
- The differences in development are not the same or close in all body dimensions, which suggests that conformation differences exist between the two breeds. There was a large variability of body size between the Karabash herds under investigation, which can be accounted by the lack of centralised management and selection methodology. Karabash sheep are taller standing, are taller at croup height and have larger thorax perimeter than Tsigai sheep.
- All this suggests that Karabash sheep have dolicomorph conformation, while Tsigai sheep have mesomorph conformation.