

## **The Main Index of Carcasses Conformation at Young Sheep**

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### **Abstract**

Research purpose is to obtain information on the development of carcasses obtained from Tsigai race and its hybrids with Suffolk and German blackface breeds. The results showed that hybrids Suffolk x Tsigai and German blackface x Tsigai have made a better form of carcass compared with Tsigai race, being superior with 1.86% to the Suffolk x Tsigai hybrids and 1.48% German blackface x Tsigai hybrids. Regarding the index of carcass compacted, its value is around the value of 100% in all three groups. The best development of the leg of mutton is found at Suffolk x Tsigai hybrids. Value of leg of mutton development index was 203.58% for hybrids with race Suffolk, being superior with 14.91% compared with Tsigai race, while the index value at German blackface x Tsigai hybrids was higher only 4.56% compared to Tsigai breed. The best proportionality of leg of mutton meets to the Suffolk x Tsigai hybrids, the index value was 65.42%, with 11.05% higher, compared with Tsigai race. At German blackface x Tsigai hybrids, the index was higher with 6.45%, compared with that obtained at Tsigai breed. Carcasses obtained from hybrids are appropriate format, to those corresponding meat breeds.

**Keywords:** carcass, format, hybrid, index, sheep

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### **1. Introduction**

Biometric measurements realised to determine the main sizes of carcasses, contribute to the overall assessment of the carcasses, some sizes are correlated with the quantity of meat in carcass. Carcasses dimensions give information on its development, to be able to determine the main assessment indices of carcass. Studies regarding the main sizes of carcasses are numerous and different, in terms of anatomic reference points, in the measurement or calculation of indices. In the research work in the field, is an important relationship between carcass geometry and its conformation. In the case of meat production, are preferred carcasses with large dimensions, and

with hindquarters well developed, carcasses with a medium - high lengths.

### **2. Materials and methods**

The research was conducted at the Research and Development Station for Sheep and Goat Reghin, Mures County, on the carcasses from the slaughter of young male sheep intensively fattened, with a period of fattening of 100 days, belonging to the local Tsigai breed of mountain ecotype and its half-breeds with Suffolk and German blackface. For each experimental group, at the end of the fattening process, five heads were randomly selected and slaughtered, after a diet of 24 hours. The animals had one appropriate conformation, with weight differences between 35.50 – 38.20 kg to batch of Tsigai race, 39.5-41.8 kg to batch of hybrids with Suffolk race, and 39.0-41.0 kg to batch of hybrids with German blackface race.

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Measurements on carcasses were carried out using the compasses, ribbon for tailors and callipers, and have determined the main indicators of carcass conformation. The indices were calculated through formulas [1].

### 3. Results and discussion

Analysis of variation of the main size of carcasses from the three groups of young sheep submitted to intensive fattening, show the difference between the three breed structures (table 1).

**Table 1.** Variation of main carcasses dimensions evolutions at young rams depending on genotyp (cm)

Specification	Breed/Half-breeds n = 5	$\bar{X} \pm s\bar{x}$	d	t	Significance of difference
Cold carcass weight (kg)	Tsigai	16.56 ± 0.44	-	-	-
	Suffolk x Tsigai	19.48 ± 0.27	2.920	5.035	**
	BF x Tsigai	18.66 ± 0.38	2.100	3.621	**
Big length of the carcass (cm)	Tsigai	71.22 ± 0.11	-	-	-
	Suffolk x Tsigai	72.43 ± 0.48	1.210	2.420	*
	BF x Tsigai	74.12 ± 0.67	2.900	4.265	**
Small length of the carcass (cm)	Tsigai	61.53 ± 0.09	-	-	-
	Suffolk x Tsigai	62.31 ± 0.26	1.780	6.357	***
	BF x Tsigai	63.36 ± 0.28	1.830	6.310	***
Width at shoulders (cm)	Tsigai	18.62 ± 0.19	-	-	-
	Suffolk x Tsigai	20.30 ± 0.18	1.680	6.462	***
	BF x Tsigai	20.21 ± 0.16	1.590	6.360	***
Width at thorax (cm)	Tsigai	25.65 ± 0.24	-	-	-
	Suffolk x Tsigai	27.16 ± 0.26	1.510	4.194	**
	BF x Tsigai	26.72 ± 0.27	1.070	2.972	*
Width at leg of mutton (cm)	Tsigai	19.81 ± 0.19	-	-	-
	Suffolk x Tsigai	21.33 ± 0.27	1.520	4.606	**
	BF x Tsigai	21.54 ± 0.49	1.730	3.204	*
Deep of the thorax (cm)	Tsigai	26.69 ± 0.48	-	-	-
	Suffolk x Tsigai	29.80 ± 0.52	3.110	4.380	**
	BF x Tsigai	28.55 ± 0.46	1.730	2.776	*
Thorax perimeter (cm)	Tsigai	71.63 ± 0.59	-	-	-
	Suffolk x Tsigai	74.56 ± 0.24	2.930	4.578	**
	BF x Tsigai	74.82 ± 0.16	3.190	5.230	***
Leg of mutton perimeter (cm)	Tsigai	42.20 ± 0.64	-	-	-
	Suffolk x Tsigai	48.78 ± 0.58	6.580	7.561	***
	BF x Tsigai	46.92 ± 0.49	4.720	5.827	***
Length the leg of mutton (cm)	Tsigai	23.82 ± 0.49	-	-	-
	Suffolk x Tsigai	23.96 ± 0.38	0.140	0.222	ns
	BF x Tsigai	25.33 ± 0.33	0.510	2.517	*

test “t”; ns - P > 0.05; \* - P < 0.05; \*\* - P < 0.01; \*\*\* - P < 0.001; BF x Ti - German Blackface x Tsigai;

From the data of the table it results that between Suffolk x Tsigai hybrids, and Tsigai breed were shoulders, and leg of mutton perimeter; significant differences were observed about cold carcass weight, width at thorax, width at leg of mutton, deep of the thorax, and thorax perimeter (P

noted very significant differences (P < 0.001) regarding small length of the carcass, width at < 0.01). The big length of the carcass is higher with 1.21 cm to hybrids with Suffolk race, compared with Tsigai race, the difference being significant (P < 0.05).

Also, very significant differences ( $P < 0.001$ ) were noted between German blackface X Tsigai hybrids, and Tsigai breed about small length of the carcass, width at shoulders, leg of mutton perimeter, and thorax perimeter.

Regarding the cold carcass weight, and big length of the carcass, those have higher value at hybrids with German blackface race, compared with Tsigai race, the differences being distinctly significant ( $P < 0.01$ ). For all other sizes (width at thorax, width at leg of mutton, deep of the thorax,

length the leg of mutton), the differences were significant ( $P < 0.05$ ).

Based on carcass sizes, were determined the main indices of carcass conformation (table 2), namely: index of carcass format (ICF), index of carcass compacted (ICC), index of leg of mutton development (IMD), index of leg of mutton proportionality (IMP).

Lots of hybrids show better format of carcass, compared with Tsigai race, which prove that is approaching of the carcass format proper of meat breeds, which have widths and lengths big.

**Table 2.** Variation of main index of carcass conformation from young rams at young rams depending on genotype

Specification	Breed/Half-breeds n = 5	$\bar{X} \pm s\bar{x}$	d	t	Significance of difference
The index of carcass format (ICF)	Tsigai	27.58 ± 0.20	-	-	-
	Suffolk x Tsigai	29.44 ± 0.27	1.860	5.471	***
	BF x Tsigai	29.06 ± 0.23	1.480	4.774	**
The index of carcass compacted (ICC)	Tsigai	99.73 ± 1.58	-	-	-
	Suffolk x Tsigai	102.94 ± 0.57	3.210	1.911	ns
	BF x Tsigai	100.94 ± 1.04	1.210	0.640	ns
The index of leg of mutton development (IMD)	Tsigai	177.16 ± 4.40	-	-	-
	Suffolk x Tsigai	203.58 ± 1.08	26.420	5.845	***
	BF x Tsigai	185.23 ± 4.30	8.070	1.314	ns
The index of leg of mutton proportionality (IMP)	Tsigai	58.91 ± 0.66	-	-	-
	Suffolk x Tsigai	65.42 ± 0.75	6.510	6.576	***
	BF x Tsigai	62.71 ± 0.72	3.800	3.878	**

test "t"; ns -  $P > 0.05$ ; \*\* -  $P < 0.01$ ; \*\*\* -  $P < 0.001$ ; BF x Ti - German Blackface x Tsigai

ICF = Width at leg of mutton/ Big length of the carcass x 100;

ICC = Thorax perimeter/ Big length of the carcass x 100;

IMD = Leg of mutton perimeter/ Length the leg of mutton x 100;

IMP = Leg of mutton perimeter/ Thorax perimeter x 100.

Regarding the carcass compacted index, its value is around the value of 100% in all three groups.

The best development of leg of mutton is observed at Suffolk x Tsigai hybrids. Value of leg of mutton development index was 203.58% for hybrids with Suffolk race, being superior with 14.91%, compared with Tsigai race, while the index value at German blackface x Tsigai hybrids was higher only 4.56% compared to Tsigai breed.

The best proportionality of the leg of mutton meets to the Suffolk x Tsigai hybrids, the index value was 65.42%, with 11.05% higher, compared with Tsigai race. At German blackface x Tsigai hybrids, the index was higher with 6.45%, compared with that obtained at Tsigai breed.

#### 4. Conclusions

Indices calculated by measuring the conformation of the housing main dimensions of the carcasses, highlighted carcasses from Suffolk x Tsigai hybrids, followed by BF x Tsigai hybrids as having a better conformation compared with Tsigai race.

#### References

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