

SOME TRAITS OF KID MEAT DERIVING FROM AUTOCHTHONOUS BALKAN GOAT BREED

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Kid meat is very important in human nutrition, especially in poor countries, although, recently, due to its high biological value, the demand for this type of meat is constantly increasing even in countries with high standard of living. Production of kid meat was not in focus of attention in Serbia, in the previous period, especially since the Second World War goat breeding was prohibited in former Yugoslavia. However, since 70 ties of the 20th century, in Serbia, the interest for goat breeding has been increasing and kids for slaughtering are supplied to the market, more often lighter (8 - 12 kg), rarely slightly heavier (over 15 kg) kids.

In scientific literature there are almost no references to quality of carcass of Balkan autochthonous goat breeds. In investigation of the effect of age (from 56 to 166 days) on dressing percentage of kids of Alpine goat breed it was established that older kids, i.e. kids of higher body mass, had statistically significantly lower dressing percentage (**Fehr et al.**, 1975). Kids of Domestic improved goat at the age of approx. 2 months reach average body mass of approx. 10 kg and average dressing percentage of warm carcass with giblets of approx. 59% (**Zujovic and Josipovic**, 1983; **Zujovic**, 1988; **Zujovic et al.**, 2007). The average body mass of kids of Domestic White goat at the age of 60 days of 13.21 kg was established (**Ceranic, et al.**, 191), also that kids of Domestic Balkan goat at the age of approx. 60 days reach the body mass of approx. 10 kg (**Ceranic**, 1984) and kids of Red and Spotted Balkan goat at the age of approx. 90 days reach the average body mass of approx. 11 kg (**Markovic**, 1997). It was also established that kids of larger

goat breeds realize better dressing percentages (**Chanin and Moud**, 1990). In regard to the effect of Barbari and Jamnapari breeds on dressing percentage of kids, it was established that this effect is not statistically significant (**Saminni et al.**, 1988). In reference to this, it was also established that lighter kids of crosses between Domestic White goat and Saanen goat, compared to heavier kids, have higher dressing percentage (**Zujovic et al.**, 1998, 2000). It was established that heavier kids have more favourable carcass evaluation in regard to conformation, covering of carcass and kidneys with fat tissue, colour of meat and tallow, compared to lighter kids (**Zujovic et al.**, 2006, 2008).

MATERIAL AND METHODS

Investigation was carried out within the programme of protection of genetic resources of autochthonous goat breeds. Trial was performed on private farms on the territory of Svrlijig region, on 12 male kids of Balkan breed, at the average age of 63 days and average body mass prior to slaughtering of 10.54 kg. Prior to slaughtering body mass of kids was measured and after slaughtering the mass of warm carcass with giblets. Subsequent to cooling (in duration of 18 - 20 hours, on 2 to 4°C), mass of cooled carcass was measured and carcasses were visually evaluated in regard to the conformation, covering of carcass and kidneys with fat tissue, and colour of meat and tallow. Scoring system was from 1 to 5, higher mark is for better properties. Three rib cut, which included 9th, 10th and 11th rib, was separated from back part of the carcass, and by dissec-

tion muscle, fat and binding tissues and bones thereof were separated. Obtained data was sorted and following statistical parameters calculated: mean value, standard deviation and variation coefficient.

RESULTS

Results of investigation show that kids of Balkan goat breed at the age of approx. 2 months realize average body mass of 10.54 kg, average dressing percentage of warm carcass with head and giblets of 58.89%, average dressing percentage of cooled carcass with head and giblets of 56.26% and average dressing percentage of cooled carcass without

head and giblets of 42.81% (table. 1). Results of investigation are in accordance with results obtained in investigation with kids of Domestic improved goat [2], as well as kids of Barbari and Jamnapari breeds [9]. Based on obtained results and literature data it can be concluded that in regard to investigated properties, kids of Balkan goat realize the same or approximately the same results as kids of pure breeds at the approximately same age.

Measures taken on the carcass and carcass sides, fat tissues thickness, evaluation of carcass in regard to conformation and covering of carcass and kidneys with fat tissue, colour of meat and tallow (table 2) are satisfactory and are within values deter-

Table 1. Average age and body mass prior to slaughtering, mass of carcass and dressing percentage of kids of Balkan goat

Index	\bar{x}	min – max	Sd	Kv
Age days)	63.00	51 – 81	9.1917	14.59
Body mass (kg) prior to slaughtering	10.54	8.8 – 12.5	0.1838	11.23
Mass (kg) of warm carcass with giblets	6.20	5.38 – 7.76	0.082	13.22
Dressing percentage (%) of warm carcass with giblets	58.89	52.40 – 62.96	0.3875	6.58
Mass (kg) of cooled carcass with giblets	5.93	5.09 – 7.39	0.7758	13.09
Dressing percentage (%) of cooled carcass with giblets	56.26	50.08 – 61.58	3.7384	6.65
Mass (kg) of cooled carcass without head and giblets	4.51	3.74 – 5.57	0.6488	14.38
Dressing percentage (%) of cooled carcass without head and giblets	42.81	37.45 – 47.77	3.4312	8.02
Cooling loss ,%	4.47	3.72 – 4.72	0.4054	9.07

Table 2. Measures on carcass and carcass sides and evaluation of the carcass of kids of Balkan goat

Index	\bar{x}	min - max	Sd	Kv
<i>Measures on carcass ,cm</i>				
Calcaneum – Ischium	23.09	22.0 – 25.0	0.9328	4.04
1st Coccygeal vertebrae – Neck	43.46	40.0 – 48.0	2.5902	5.96
1st Coccygeal vertebrae – Atlas	59.79	56.0 – 69.0	3.0971	5.18
Articulatio genus – Scapula	56.92	52.0 – 70.0	6.1474	10.8
Width of both legs	10.17	9.0 – 12.0	0.8441	8.3
Breast width	9.71	8.5 – 12.5	1.1836	12.19
Breast depth	18.37	16.0 – 21.0	1.5008	8.17
Breast circumference	49.04	45.0 – 54.0	3.114	6.35
<i>Measures on carcass sides ,cm</i>				
Pubis – Articulatio genus	14.37	12.0 – 16.0	1.0116	7.04
Pubis – Calcaneum	26.88	25.0 – 30.0	1.7418	6.48
Pubis – 1st rib	47.84	44.0 – 54.0	3.0187	6.31
Pubis – Atlas	59.34	56.0 – 65.0	3.0382	5.12
Leg circumference	24.42	22.0 – 27.0	1.5849	6.49

Continuation of table 2

Index	\bar{x}	min - max	Sd	Kv
<i>Thickness (mm) of fat tissue</i>				
On the breast	4.34	2.0 – 7.0	1.851	42.65
Above back muscle	1.45	1.0 - 3.0	0.1923	13.26
On the lateral side	2.1	1.0 - 4.0	0.4429	21.09
<i>Carcass evaluation</i>				
Conformation (points)*	3.38	1.0 - 4.5	0.8697	25.73
Covering of carcass with fat tissue (points)**	3.96	3.0 – 5.0	0.7785	19.66
Covering of kidneys with fat tissue (%)***	50.42	15.0 – 100.0	32.9747	65.4
Colour of meat (points)****	4.09	3.0 – 5.0	0.6442	15.75
Colour of tallow (points)*****	4.25	3.5 – 5.0	0.4327	10.18

*Evaluation: very favourable – 5; favourable – 4; medium – 3; poor – 2; bad – 1.

** Evaluation: equal, tallow thickness to 5 mm – 5; partially no tallow, tallow thickness to 5 mm – 4; larger areas without tallow – 3; substantial areas without tallow and tallow thicker than 5 mm – 2; carcass almost without tallow, tallow thickness to

*** Evaluation: 100% - kidney fully covered with tallow; 75% - tallow covers approx. 2/3 of the kidney surface; 50% - tallow covers approx. 1/2 of the kidney surface; 25% - tallow covers approx. 1/4 of the kidney surface.

**** Evaluation: light red – 5; pink – 4; light pink – 3; pale pink – 2; dark – 1.

***** Evaluation: white – 5; light brown – 4; red – 3; red-light brown – 2; yellow-red – 1.

Table 3. Share and ratio of tissues in three rib cut of kids of Balkan goat

Index	g	\bar{x}	min-max, %	Kv
Mass of three rib cut	91.98	-	-	38.41
<i>Share of tissues in three rib cut</i>				
Muscle tissue	52.29	56.94	40.35 – 63.91	10.77
Fat tissue	10.3	10.53	5.50 – 16.77	33.56
Binding tissue	3.62	4.01	1.86 – 5.56	21.41
Total soft tissue	66.21	71.48	56.13 – 82.27	9.76
Bones	24.76	26.8	17.19 – 35.56	17.89
<i>Tissue ratio</i>				
Muscle – fat	5.08	-	2.48 – 11.19	43.35
Muscle – bones	2.11	-	1.03 – 3.72	29.51
Fat – bones	0.42	-	0.16 – 0.85	45.06

mined in kids of pure breeds at the same age.

In regard to the tissue ratio in three rib cut (table 3), the highest share (approx. 52%) was determined for muscle tissue, considerably less (approx. 10%) for fat tissue and only 3.62% for binding tissue, which together represents approx. 66% of meat in broader sense. Share of bones is 24.76%.

CONCLUSION

Based on obtained results in the investigation of the meat yield, evaluation and carcass composition of kids of Balkan goat at the age of approx. 2 months, it can be concluded that:

- The values of dressing percentages of warm and cooled carcass with head and giblets as well as

cooled carcass without head and giblets are favourable and within values realized by kids of pure goat breeds;

- Evaluation of carcasses in regard to conformation, covering of carcass and kidneys with fat tissue, colour of meat and tallow was favourable;

- Muscle, fat and binding tissue (meat) make 2/3 of the carcass;

- Very favourable ratio of muscle and fat tissue.

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SUMMARY

Investigations were carried out within the program of protection of genetic resources of autochthonous goat breeds - Balkan breeds. Trial was realized on private farms - goat breeders on the territory of Svrlijig region, on 12 male kids of average age of 63 days and average body mass prior to slaughtering of 10.542 kg. Objective of the investigation was to determine the meat yield (dressing percentage), share of by-products of slaughtering in body mass prior to slaughtering and mass of cooled carcass, commercial value of the carcass (by evaluation of conformation, covering of carcass and kidneys with fat tissue, colour of meat and tallow). Results of the investigation indicate that kids of Balkan goat in stated age realize average body mass of 10.542 kg and dressing percentage of warm carcass with head and giblets of 58,89%, which is high value and within values of dressing percentage realized by purebred kids of the approximately same age. Commercial value of the carcass established based on conformation evaluation (favourable), covering of carcass and kidneys with fat tissue (medium), colour of meat and tallow (very favourable) was food and within values realized by kids of other pure breeds. Muscle, fat and binding tissue (meat in specific sense) makes 2/3, whereas bones make 1/3 of the mass of three rib cut, which is also very favourable.

Key words: *Kids, carcass mass, meat yield, dressing percentage, carcass evaluation, tissue ratio.*

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