

## RESEARCHES RELATED TO MEAT YIELD APTITUDES OF CARPATINA BREED REARED IN ROMANIA

C. Pascal<sup>1</sup>, I. Pădeanu<sup>2</sup>, I. Călin<sup>3</sup>, St. Daraban<sup>4</sup>, G. Nacu<sup>1</sup>

<sup>1</sup>University of Agricultural Sciences and Veterinary Medicine Iasi

<sup>2</sup>U.S.A.M.V.B. Faculty of Animal Sciences and Biotechnologies, Timișoara

<sup>3</sup>University of Agricultural Sciences and Veterinary Medicine, Bucharest

<sup>4</sup>Faculty of Animal Husbandry and Biotechnologies,

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca

e-mail: pascalc@uaiasi.ro

### Abstract

*The researches aimed to evaluate the meat yielding capacity of goat youth fattened on pasture. Biological material comprised young goats not used at breeding, from indigenous goat populations, reared in Romanian private farms (N-E area). Fattening lasted 160 days (May-October) and was done in accordance with local traditions. The results revealed different final weight values between groups, within identical husbandry conditions. Better growing capacity was recorded by youth issued from simple parturitions. Thus, although performances were 2.87% better than in the goats issued from double parturitions, no statistical significance occurred for  $p < 0.01$ . The females from simple parturitions presented higher live weights (significant differences for  $p < 5\%$ ).*

**Key words:** goats, meat, technology, extensive, pasture

### INTRODUCTION

Economic efficacy reliability of a farm hosting goats for meat production is strictly influenced by the amount of kids born and raised till slaughter. Meat yield could be easily improved, knowing that, among all domestic ruminant species, the goat has highest prolificacy. Intensifying of parturitions, mixed with the natural prolificacy of this species could generate higher amount of kids designed for fattening and slaughtering. This target could be reached through the organization of two mating seasons per year, in order to achieve three parturitions every two years/reproductive goat. Other issue refers to the usage of certain fattening technologies which should be able to provide appropriate meat yields of high quality parameters. Therefore, goat meat production could be a profitable activity in our country, due to the high area covered with pastures and also to the increased demand of goat meat worldwide [1, 3, 4, 5, 11].

### MATERIAL AND METHODS

The biological material we used during fattening comprised goat youth that was not retained for reproduction and belonged to the

indigenous goat populations from private farms in the North-Eastern side of the country. Fattening has been carried out in accordance with local traditions and availabilities in the area, during 160 days (May – October). Control weightings have been run at the end of fattening, in order to assess the live weight. Certain carcasses were elected after slaughtering, in order to run meat quality analyses, according to the standard investigation procedures. In order to better characterize the meat yield aptitudes, the animals grouping was done in accordance to kids gender and parturition type (simple or multiple). Finally, 4 individuals were slaughtered from each group. The carcasses were trenched in 4 quarters: neck and shoulder blade, breast and rib, loins I + II and leg chump on. Meat:bones ratio was calculated for each carcass part. Data analysis was done through the REML procedure (REstricted Maximum Likelihood), which guarantees the achievement of certain statistical parameters, within normal ranges.

### RESULTS AND DISCUSSION

**Live weight.** The kids were supposed to an 8 hours complete diet prior to

slaughtering. Although husbandry conditions were similar, statistical analysis revealed the occurrence of certain differences between groups. Thus, related to kids gender, the youth issued from simple parturitions presented better growing speed. In males it was found a difference of +2.87 % live weight, at the group issued from simple parturitions, compared to those from multiple parturitions. However, no statistical significance occurred for  $p < 0.01$ . In females, those individuals issued from simple parturitions had higher average live weights, the statistical difference being significant for the  $p < 5\%$  edge.

**Slaughtering efficacy** (dressed weight) was assessed through carcass weighting after

slaughter (table 1). Thus, certain differences occurred between the achieved means. Better values for males suggested that in this species, kids gender has relevant influence on meat yield, therefore in meat production strategy. L1 group presented 3.18 % better values. The occurrence of the same situation in females groups also indicated that parturition type was an influential factor of meat production and of dressed weight, as well. The values calculated for slaughter efficacy were close to other findings in or country, for other goat populations. Thus, in other researches, Taftă V. [10, 11] assessed 44.66% slaughter efficacy in males and 42.90% in females.

Table 1. Body weight at the end of fattening, carcass and dressed weight

Notice	Statistics	Males		Females	
		from simple parturitions (L1)	from double parturitions (L2)	from simple parturitions (L3)	from double parturitions (L4)
Live weight (kg)	$\bar{X} \pm s \bar{x}$	31.815 ± 0.104	30.910 ± 0.501	29.400 ± 0.251	28.065 ± 0.330
	s	0.35	0.29	0.41	0.39
	minim	25.50	24.00	26.50	24.00
	maxim	33.00	31.00	30.00	29.00
Slaughter efficacy - dressed weight (%)	$\bar{X} \pm s \bar{x}$	46.704 ± 0.103	45.217 ± 0.051	44.405 ± 0.047	43.742 ± 0.029
	s	0.27	0.22	0.27	0.26
	minim	40.70	39.85	41.90	39.55
	maxim	44.85	45.15	48.15	43.50
Carcass weight (kg)	$\bar{X} \pm s \bar{x}$	14.858 ± 0.071	13.976 ± 0.020	13.055 ± 0.461	12.276 ± 0.043
	s	0.18	0.19	0.23	0.25
	minim	11.75	18.00	10.00	15.50
	maxim	14.25	21.80	13.00	19.55

**Carcass weight** is a relevant trait to be considered when meat producing animals are evaluated. This trait is strongly influenced by certain factors, such as: live weight, fattening degree, age group, fattening technology etc.

[6]. Our researches suggested that animal gender also play an important role in carcass weight determination. Table 2 shows significant and high significant differences for the statistical edges we considered.

Table 2. Statistical significance of the difference found for live weight at slaughter and carcass weight (kg)

Live weight	Tukey Test	L1	L2	L3	L4	Carcass weight
	L 4	3.75**	2.84**	1.33*		
	L 3	2.41**	1.51*		0.78*	
	L 2	0.90 n.s.		0.92*	1.70**	
	L 1		0.88*	1.80**	2.58**	
For live weight prior to slaughter: *Significant at the 0.05 level (w = 1.01); **Significant at the 0.01 level (w = 1.55); n.s: not significant				For carcass weight: *Significant at the 0.05 level (w = 0.76); **Significant at the 0.01 level (w = 1.60); n.s: not significant		

Within the same gender, higher values were provided by those kids issued from simple parturitions, which presented better initial weights and better slaughter efficacy.

**Carcasses structure.** Analysis of carcass structure and composition are highly relevant criteria for breeding researches, knowing that they deal with physical, tissue and chemical composition of sheep and goat meat [7, 8, 9]. Physical carcass macrostructure, in accordance with trenching nomenclature includes: neck and shoulder, breast and rack, loin and leg chump on. Several factors influence the values of these parts in carcass: breed, age, gender, fattening rank. As in sheep, in goats, tissue structure is given by the ratios existing between meat, fat, bones and directly influences meat qualitative value [11]. As higher is the muscle masses participation in carcass, as better their commercial values becomes. Goat carcasses are less compact and more elongated than those issued from sheep. This fact influences trenched parts proportion in carcass and the separable tissues, which finally affects meat quality production [2, 3, 4].

**Meat weight** from whole carcass presented different values in the studied groups. Thus, in males, participation of muscle mass in carcass reached 75.50% in L1 group and 75.4% in L2 group (twin kids). In females, meat percentage in carcass presented higher values in L4 group and lower in the L3 one, which meant 74.09 % (twin females) and 73.00%. Statistical analyses revealed high significance degree between groups, except for females groups, whose differences was significant for  $p > 1\%$ . The occurrence of this situation suggested that muscle participation in carcass structure was mainly influenced by the fattening rank. The weight of carcasses issued from local populations of goats youth is very low, compared to the performances achieved by certain breeds with real meat yield aptitudes. Thus, Essel, Albert E., 1996 noticed that in some goats, such as Boer or other Spanish breeds, the carcasses could be higher than 22 kg.

**Analysis of carcass trenched parts** is presented in table 3.

Table 3. Physical structure of carcass and proportion of trenched parts from whole carcass

Notice	M.U	Males		Females	
		from simple parturitions (L1)	from double parturitions (L2)	from simple parturitions (L3)	from double parturitions (L4)
		$\bar{X} \pm s \bar{x}$			
Meat in carcass	Kg	11.218 ± 0.141	10.539 ± 0.209	9.531 ± 0.180	9.096 ± 0.235
Bones in carcass	kg.	3.640 ± 0.095	3.437 ± 0.151	3.524 ± 0.105	3.180 ± 0.081
Bones : meat ratio	-	1 : 3.08	1 : 3.06	1 : 2.70	1 : 2.86
<b>Neck and shoulder blade</b>	Kg	4.718 ± 0.062	4.530 ± 0.088	4.240 ± 0.069	3.954 ± 0.061
% of carcass	%	31.76	31.09	32.48	32.21
<b>Breast and rib</b>	Kg	3.146 ± 0.043	3.018 ± 0.071	3.109 ± 0.081	2.983 ± 0.052
% of carcass	%	21.18	21.60	23.81	24.30
<b>Loins I+II</b>		2.630 ± 0.039	2.497 ± 0.041	2.347 ± 0.095	2.158 ± 0.086
% of carcass		17.52	17.87	17.98	17.58
<b>Leg chump on</b>	Kg	4.390 ± 0.070	4.041 ± 0.112	3.359 ± 0.135	3.181 ± 0.129
% of carcass	%	29.54	29.44	25.73	25.91

Neck and shoulder reached more than 32% in females and less in males. In this carcass area, muscular masses were found around 73% and bones:meat ratio passed over 1:2.6, except for the group of females issued from simple parturitions (1:2.41) (table 3).

Breast and rack presented different proportion in the studied groups: fewer than 22% in males, 23.81% in L3 and 24.30 in L4. Bones:meat ratio was better in males groups.

## CONCLUSIONS

1. The usage of goats youth surplus, after an appropriate fattening period could be recommended, knowing that a plus of 55% body mass could be achieved, compared to youth slaughtering moment after weaning.

2. The extension of fattening technologies for goats youth will directly contribute to the improvement of economic efficacy of goat farms.

3. Better values for males dressed weight indicated that gender also represents a key factor in rationing goat meat yield.

4. Carcass weight presented better values at the individuals issued from simple parturitions, which had higher initial weights and slaughter efficacy.

5. Proportion of leg chump on from carcass was higher in males; meat quantity in that carcass part represented 77.83% in males issued from simple parturitions and 78.94 % in twin kids, therefore bones:meat ratio was higher, of 1:3.50, respectively.

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