

THE TECHNOLOGY OF FATTENING THE KIDS OF LOCAL CARPATHIAN GOAT

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Abstract

It was aimed to increase the quantity of kid meat, to increase the quality of carcasses by industrial crossbreeding which determines the improvement of the performances of the obtained products, associating the quality of two breeds, having benefits of complementarities and heterosis, using the technologies of intensive (120 days) and semi-intensive (200 days) fattening. There were achieved good rates of body weight gain, higher at the crossbreds comparatively to those of the kids of Carpathian breed, reaching a final weight of 28.74 kg at the kids of Carpathian breed and of 32.69 kg at the crossbred kids fattened in semi-intensive system and of 29.23 kg at the kids of Carpathian breed and of 31.51 kg at the crossbred kids fattened in intensive system. At the control slaughtering the yield was of 43.11% at the kids of Carpathian breed and of 45.53% at the crossbred kids fattened in semi-intensive system, and at the kids fattened in intensive system the slaughter yield was of 44.68% at the kids of Carpathian breed and of 45.76% at the crossbred kids. At the commercial cutting the carcass meat of 1st quality was of 50.25% at the kids of Carpathian breed and of 51.78% at the crossbred kids fattened in semi-intensive system, and at the kids fattened in intensive system of 51.27% at the kids of Carpathian breed and of 52.88% at the crossbred kids.

Key words: kids, meat production, intensive fattening, semi-intensive fattening

INTRODUCTION

The work has aimed to increase the quantity of kid meat, to increase the quality of the carcasses, in the actual international context where the kid meat is more and more appreciated by the consumers for its organoleptic qualities and for the low content of fat. The production of goat faced a special development, in many countries in the world, both in the Middle East and Asia, and also in the west of Europe [4].

At present there are policies of implementing a more healthy eating, limited in fats and especially in saturated lipids, the food markets adapting themselves at the requirements of contemporary consumption, fact that produced an increase of the interest for goat meat, which is placed in a favorable position from this point of view, determining the increasing of the interest of breeders for exploiting goats for meat [5]. At the goat meat the content of fat is lower with 50-65%, besides beef, lower with 42-59% besides the

lamb meat and with 25% besides the calf meat. The quality of fat, respectively, the content of saturated fat acids is lower with 40% besides the chicken meat, without skin, and the comparisons with beef, pork or lamb meat reveals the fact that it has with 85, 110 and respectively 90% fewer saturated fat acids. The goat meat contains proteins of great biological value and healthy fats, a high report between unsaturated and saturated fat acids and a low level of cholesterol [3] being evidenced. At present it can be stated for sure that the industry of goat meat is in full growing, but nowadays there are a few breeds which are specialized for meat.

The use of industrial crossbreeding is a rapid way of increasing and improving the meat production, allowing the improvement of the obtained products, associating the qualities of two breed and thus having benefits of the effect of complementarities and heterosis. The method is frequently used in many countries, which oriented the goat

breeding to the meat production, this meaning the crossbreeding of the local breeds with Boer breed. The orientation to the increase of the kid meat quantity and in the same time the increase of the carcasses' quality is an activity which can make the goat exploitation more profitable [1].

MATERIAL AND METHODS

The works were made on an effective of goats in the frame of the **Institute of Research – Development for Sheep and Goat Breeding Palas-Constanța** – goats of Carpathian breed, the ecotype of Dobrogea. The animals have been individually observed under the report of own performances, registering the data regarding: control of productions; the weight of kids at birth, the evolution of the body weight on the whole growing period until weaning and calculated the increase rate of body weight (at 21 days, at weaning, at 2 months-60 days); control of fodder consumption; body measurements.

The maintenance of goats is made in stable for 150-160 days and 205-215 days on pasture, assuring fodder ratios depending on the physiological stage of the animals [2]. The feeding of youth was made beginning with the age of 8-10 days, when in the arranged stables it was assured hay of very good quality and concentrated fodders, the administering being done at discretion, until the kids' weaning, then being made the

fattening in intensive system for a period of 120 days, structured in 3 stages: **stage I - "accommodation"** (15 days), the animals were fed with fodders as unique mixture which was given „ad libitum”, in 3 daily meals, the content of the daily ration in the nutritive principals being of 0,97 UNC, 92 g PDIN and 89 g PDIE;; **stage II "properly fattening"** (80 days), unique mixture was administrated, the content in nutritive principals of the daily ratio being of 1,29 UNC, 159 g PDIN and 125 g PDIE; the fodders were administered in two daily ratios; **stage III - "finishing"** (25 days), the content of the daily ration in the nutritive principals being of 1,55 UNC, 201 PDIN and 156 g PDIE; or semi-intensive fattening, assuring the necessary fodders and pasture surfaces for applying the scheme of growing and fattening: **in stable** –accommodation -15 days, growing and fattening 35 days; **at grazing** -accommodation 15 days, growing and fattening 90 days; **in stable** – accommodation 10 days, growing and fattening 35, total 200 days. During grazing period the fattening of goat youth was made with a green mass from a pasture cultivated with the fodder mixture of: 70-75% grain plants (*Dactylis glomerata*, *Festuca pratensis*, *Lolium perene*) and 25% perennial vegetable plants (*Medicago sativa*, *Trifolium repens*). During stable period the goat youth received the following ratio from table no.1.

Table no.1
Fodder ratio given to the kids during the period of in-stable fattening – semi-intensive fattening

Specification	kg	S.U.	UNC	PDIN g	PDIEg
Lucerne hay	0,30	0,26	0,17	28	14
Corn	0,25	0,22	0,26	24	29
Barley	0,25	0,22	0,29	19	17
Wheat bran	0,20	0,18	0,12	18	12
Chalk	0,005	-	-	-	-
Salt	0,005	-	-	-	-
Total	1,00	0,88	0,84	89	72

The control of fattening was made by periodical individual weighing sessions, establishing the total average increasing rate on all the three stages of the fattening period and by the average daily body gain. In the end of the fattening period the control slaughtering was made, calculating: **the**

slaughter yield and **commercial yield**. **The cutting of the carcass** per commercial regions was made according to the French system. It was made the statistic processing of the data

RESULTS AND DISCUSSIONS

After the weaning of Carpathian breed and crossbred kids from the Boer X Carpathian industrial crossbreeding there were composed the lots of kids and it was made the fattening in semi-intensive and intensive systems. The semi-intensive

systems is recommended to be made because it is cheaper comparatively to the intensive one [6], assuring a more rentable exploitation. The development of the body weight of the goat youth fattened in semi-intensive system which was made on pasture and in stable is presented in table no. 2.

Table no. 2

The evolution of the body weight of the kids semi-intensively fattened, on pasture and in stable

Specification	n	Crossbred kids of Boer x Carpathian		n	Kids of Carpathian breed	
		$\bar{X} \pm s\bar{x}$	V%		$\bar{X} \pm s\bar{x}$	V%
Average initial body weight (kg)	16	11,36 ± 0,32	11,26	16	11,18±0,27	9,66
Average final body weight (kg)	16	32,69±0,67	8,19	16	28,74±0,89	12,38
Weight increase (kg)	16	21,33± 0,75	14,06	16	17,56± 0,56	12,75
Average daily gain of body weight (g)	16	106,6±5,48	20,56	16	87,8±2,71	12,36

At the fattening of Carpathian breed kids and of the Boer X Carpathian crossbred kids fattened in semi-intensive system there were obtained the following weights and average daily gain of body weight: the initial weight was of 11,36±0,32 kg at the Boer x Carpathian half-breeds and of 11,18±0,27 kg at the kids of Carpathian breed, similar average body weights in the beginning of the experiment at the two lots of male young goats; from table no. 2 it is noticed, in the end of fattening a difference of the body weight which is bigger with 14% at the lot of

Boer x Carpathian half-breed kids beside the kids of Carpathian breed, 21,33±0,75 kg at the Boer x Carpathian half-breeds and 17,56±0,56 kg at the kids of Carpathian breed; the average daily increasing rate being of 106,6±5,48 g at the Boer x Carpathian half-breed kids and of 87,8±2,71 at the Carpathian breed kids.

At the fattening of Carpathian breed kids and of Boer X Carpathian crossbreds fattened in intensive system the weights and increasing rates from table no. 3 were obtained.

Table no. 3

The evolution of the body weight of the kids which were fattened in intensive system(120 days)

Lot	Weight at the beginning of fattening (kg)		Weight in the end of fattening (kg)		Total weight increasing rate (kg)		The average daily increasing rate (g)	
	$\bar{X} \pm s\bar{x}$	V%	$\bar{X} \pm s\bar{x}$	V%	$\bar{X} \pm s\bar{x}$	V%	$\bar{X} \pm s\bar{x}$	V%
Carpathian breed (n=25)	12,72±0,32	12,57	29,23±0,81	13,85	16,51±0,37	11,20	137,5±4,89	17,78
Boer x Carpathian crossbreds (n=25)	13,85±0,37	13,35	31,51±0,76	12,05	17,66±0,52	14,72	147,1±5,1	17,33

The kids of Carpathian breed had, in the beginning of fattening, the average weight of 12,72±0,32 kg, and the Boer x Carpathian half-breeds had, in the beginning of fattening, the average weight of 13,85±0,37 kg. The average weight in the end of the fattening

period at the kids of Carpathian breed was of 29,23±0,81 kg, the total average weight increasing rate was of 16,51±0,37 kg, and the average daily increasing rate was of 137,5±4,89 g/day.

At the half-breeds of Boer x Carpathian the average weight in the end of the fattening period was of $31,51 \pm 0,76$ kg, the total weight increasing rate was of $17,66 \pm 0,52$ kg, and the average daily increasing rate of $147,1 \pm 5,1$ g/day. It was determined, in the end of the fattening, a difference of the body weight which was bigger with 8% at the lot of Boer x Carpathian crossbred kids besides the lot of

Carpathian breed kids. The average specific consumption of the kids of Boer x Carpathian half-breeds was of 8,86 UNC/kg of increasing rate, 1082 g PDIN/kg of increasing rate and of 862 g PDIE/kg as it is shown in table no. 4. The average specific consumption at the kids of Carpathian breed was of 9,47 UNC/kg of increasing rate, of 1158 g PDIN/kg of increasing rate and 922 g PDIE /kg of increasing rate.

Table no. 4
The average consumption of UNC, PDIN and PDIE/kg of increasing rate at the intensively fattening of kids

Breed/ population	Total increasing rate (kg)	Total consume of UNC	Average consume of UNC /kg increasing rate	Total consume of PDIN	Consume of PDIN/kg	Total consumption of PDIE	Consume of PDIE/kg
Carpathian Kids	16,51	156,5	9,47	19125	1158	15235	922
Boer x Carpathian Kids	17,66	156,5	8,86	19125	1082	15235	862

As a result of the experimental slaughtering at the lots of kids fattened in semi-intensive and intensive system appreciations of carcasses were made, noticing the bigger dimensions of the carcass at kids of Boer x Carpathian crossbreds, especially the bigger

dimensions of the leg, the length and the width of the leg, comparatively to those from the carcasses of the kids of Carpathian breed.

In table no. 5 there are presented the results of the experimental slaughtering.

Table no. 5.
The results of the experimental slaughtering

Specification	UM	Kids of Carpathian breed (n=9)		Kids of Boer x Carpathian crossbreed (n=9)	
		$\bar{X} \pm s\bar{x}$	V%	$\bar{X} \pm s\bar{x}$	V%
Kids semi-intensively fattened					
Live weight	kg	28,74±0,89	9,29	32,69±0,67	6,14
Weight of the carcass	kg	12,39±0,64	15,49	14,82±0,47	9,51
Slaughter yield	%	43,11±0,95	6,61	45,33±1,12	7,41
Commercial yield	%	48,32±0,98	6,08	50,47±1,13	6,71
Percentage of meat/ bones		3,22/1		4,02/1	
Kids intensively fattened					
Live weight	kg	29,23±0,81	8,31	31,51±0,76	7,23
Weight of carcass	kg	13,06±0,52	11,94	14,42±0,49	10,19
Slaughter yield	%	44,68±0,97	6,51	45,76±1,02	6,68
Commercial yield	%	49,88±0,96	5,77	50,87±1,17	6,89
Percentage of meat/ bones		3,28/1		4,12/1	

There were obtained bigger values of the slaughtering yield at the kids of Boer x Carpathian half-breeds, both in the semi-intensive and intensive systems:

45,33±1,12%, besides 43,11±0,95% at the kids of Carpathian breed, in the system of semi-intensive fattening and respectively, 45,76±1,02%, besides 44,68±0,97% at the kids of Carpathian breed, in the system of intensive fattening due to the bigger weight of the carcasses (14,82±0,47 kg at the Boer x Carpathian half-breeds and 12,39±0,64 kg at the kids of Carpathian breed, in the system of semi-intensive fattening and respectively, 14,42±0,49 kg at the kids of Boer x Carpathian half-breeds and 13,06±0,52 kg at the kids of Carpathian breed, in the system of

intensive fattening); and also at the commercial yield, 50,47±1,13% besides 48,32±0,98%, in the system of semi-intensive fattening and respectively, 50,87±1,17% besides 49,88±0,96%, in the system of intensive fattening.

It was made the commercial cut of the carcasses from kids of Carpathian breed and of Boer x Carpathian crossbreeds, which were fattened in intensive and semi-intensive system, and the data are presented in table no. 6.

Table no. 6

The commercial cut of the carcasses of the kids which were fattened in semi-intensive and intensive systems

Quality of meat (%)	Semi-intensively fattened kids		Intensively fattened kids	
	Carpathian breed	Boer x Carpathian crossbreed	Carpathian breed	Boer x Carpathian crossbreed
1 st Quality - leg -filet -chop I	32,12	33,14	32,68	34,16
	9,15	10,19	9,55	10,28
	8,98	8,45	9,04	8,44
Total 1 st quality	50.25	51.78	51.27	52.88
2 nd Quality - chop II - back	7,15	7,22	7,27	7,32
	25,10	23,90	25,40	23,36
Total 2 nd quality	32.25	31.12	32.67	30.68
3 rd Quality - chest - neck	10,70	10,30	10,20	10,30
	6,80	6,80	5,86	6,14
Total 3 rd quality	17.50	17.10	16.06	16.44

The rate of the commercial regions of 1st quality at the kids of Carpathian breed semi-intensively fattened was of 50.25%, and at the kids of Boer x Carpathian half-breeds of 51.78%. The 2nd quality was 32.25% at the kids of Carpathian breed and of 31.2 at the kids of Boer x Carpathian. The 3rd quality was of 17.5% at the kids of Carpathian breed and of 17.1% at the Boer x Carpathian half-breeds. At the kids that were fattened in system intensive the rate of the commercial regions of 1st quality was of 51.27%, and at the la kids of Boer x Carpathian half-breeds of 52.88%. The 2nd quality was 32.67% at the kids of Carpathian breed and of 30.68 % at the Boer x Carpathian half-breeds. The 3rd quality was 16.06% at the kids of Carpathian breed and 16.44% at the kids of Boer x Carpathian.

CONCLUSIONS

- At the fattening of kids of Carpathian breed and of the Boer X Carpathian half-breeds fattened semi-intensive system it was noted:
 - Average body weights which were similar for both lots in the beginning of the experiment;
 - In the end of the fattening it is noticed a final weight of 28.74 kg at the kids of Carpathian breed and 32.69 kg at the kids of Boer x Carpathian half-breeds, calculating a difference of the total increasing rate of the body weight, bigger with 13% at the lot of Boer x Carpathian half-breed kids besides the lot of the kids of Carpathian breed.
- At the fattening of the kids from the Carpathian breed and of the Boer X Carpathian half-breeds, fattened in

intensive system the following were observed:

- The average weight in the end of the fattening period, at the kids of Carpathian breed was of 29,23 kg and of 31,51 kg at the kids of Boer x Carpathian half-breeds, calculating a difference of the total weight increasing rate bigger with 8 % at the lot of half-bred kids of Boer x Carpathian besides the lot of Carpathian breed kids;
- The specific average consumption at the kids of Boer x Carpathian half-breeds was of 8,86 UNC/ kg increasing rate and of 1082 g PDIN/ kg increasing rate, of 862g PDIE/kg;
- The specific average consumption at the kids of Carpathian breed was of 9,47 UNC/ kg of increasing rate and of 1158 g PDIN/ kg of increasing rate, 922 g PDIE/kg of increasing rate;
- There were obtained bigger values of the slaughtering yield at the Boer x Carpathian half-breed kids, both at those intensively and semi-intensively fattened, the slaughtering yield was of 13.11% at the kids of Carpathian breed and of 45.53% at the half-bred kids fattened in semi-intensive system, and at the kids fattened in intensive system the slaughtering yield was of 44.68% at the kids

of Carpathian breed and of 45.76% at the half-bred kids.

- At the commercial cut of the carcasses, the meat of 1st quality was of 50.25% at the kids of Carpathian breed and of 51.78% at the half-bred kids fattened in semi-intensive system, and at the kids fattened in intensive system of 51.27% at the kids of Carpathian breed and of 52.88% at the half-bred kids.

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