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PARTICIPATION OF MAIN PARTS AND INTERNAL ORGANS IN RABBIT MEAT

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Abstract: This study shows the results of examination of main rabbit carcass parts and internal organs. A total of 22 rabbits of mixed breed (Californian and New Zealand rabbits) were examined. The average live mass of the rabbits was 2.467 g varying from 2.000 g to 2.800 g, while the hide participated with 428 g varying from 385 g to 480 g. The head participated with 5.93%, the forelegs and hinde legs participated with 0.8% and 1.94%, and the internal organs participated with 0.51% (lungs) and 17.61% (bowels).

Key words: live mass, average share, head, hide, internal organs

Introduction

In previous years the interest in the production of meat containing less fat, i.e. meat poorer in cholesterol, increased.

Under today's economic conditions the production of rabbit meat becomes more and more significant. Also, due to rabbit fertility and growth potential the breeding of rabbits becomes more attractive for production of food reserves. The rabbits are very fertile and characterized with a quick and intensive growing, large biological value of the meat and high feed conversion degree of the food. *(Hammond and Marshall, 1925; Hammed and Casida, 1969; Hafiez 1970; Urosevic et al.,1986; Urosevic et .al.,2000; Kapitan 2006);*

The rabbit meat has good nutritional and dietetic value. It is very nutritional and easily digestible with a high content of proteins and a small percentage of fat, which makes it better than beef, pork and lamb meat. The human organism adopts up to 90 % of the proteins in the rabbit meat, while only 82% of the beef meat. *(Dale Zote et.al.,1986; Dale Zote 2002; Pascual et.al.,.2004; Polak et.al.,.2006).* That is why it is highly recommended to children, pregnant women, people with cardiac and other diseases of the blood vessels.

In foreign literature the studies of rabbit slaughter values, mainly Californian breed, are numerous. Such studies were conducted by *(Kovacevic and Raseta, 1983; Grujic 1985; Trojan and Mach, 1982; Mach et.al., 1983; Chavoshki*

and Riminskaya ,1982; Skandro et.al., 2004; Panic and Petrovic, 1989). Their examination data show a variance of the yield of meat from 49.8% to 53.3%.

Because of the use of different cutting schemes, it is very difficult to compare the results pertaining to cutting of the cooled carcasses. That is why we shall show only the data given by *Grujic (1985)*, who claimed that the front part participated with 22-24%, the back with 34-38%, the thighs 32-36%, the heart and the liver 5-7%.

According to the data of *Chavoshki and Raminskaya (1982)* who examined Californian breed rabbits with average carcass mass of 3.200 g, the pelvic-thigh part contributed 30-34%, the flank part 20-22%, the forelegs 12-13.5% and the neck-breast part 21-24%. The same authors the head participated with 6.25% and the hide with 11.5%. According to the data of *Panic et.al. (1986)* who examined Californian breed rabbits with average body mass of 3.000 g, the pelvic-thigh part contributed 33.3%, the flank part 25.6%, the forelegs 15.5% and the neck-breast part 25.6%.

Since in our literature there is no data on the share of the basic parts and internal organs in the mass of the carcass of the rabbits, we have decided to set our goal to determine the percentage contribution of some parts and categories of meat in the carcass of rabbits from Macedonia.

Materials and Methods

The research of the share of rabbit carcass parts was conducted on 22 slaughtered rabbits of mixed Californian and New Zealand breed.

The rabbits were fed *ad libitum* with granulated rabbit food - palettes that contain alfalfa hay, barley, corn, wheat, soya pods, sunflower pods, premix, salt, vitamins and minerals. Rabbits were not fed twenty hours before slaughtering.

The slaughtering and primary processing were conducted in accordance to all veterinarian and sanitary conditions prescribed by the law. The slaughtering was done by cutting open the blood vessels.

After the skinning, each hide was weighed on an electronic scale to determine the percentage of the hide in total body mass. Then the internal organs of each rabbit (heart, liver, lungs, and intestines) were weighed to determine their separate share in the body mass. After weighing of the carcass with the head and without the head, the carcass was cut in four parts.

The pelvic-thigh part was extracted first by cutting in parallel of the spine by the cranial rim of the bowel bone’s wings. Then the flank part was extracted by a cut going in parallel with the spine by the rim of the last rib.

The back with the ribs was extracted from the foreleg and the neck by a cut going parallel with the spine in the area of the sixth vertebrae cutting the ribs and the inter-rib muscles. Thus the following parts were obtained: pelvic-thigh part,

flank part, forelegs and neck-breast part. All research was conducted by the firm RABBIT Sveti Nikole, R. Macedonia which has its own rabbit farm and rabbits for slaughter. Slaughterhouse operates under the HACCP system. All data were processed according to a variation statistical method (average value, standard deviation, variation coefficient, minimum and maximum value) computed by the UNIVARIATE procedure of the statistical program SAS *(SAS Institute 1999)*.

Results and Discussion

The average values of the live mass before slaughtering and the average mass of some parts and organs of the examined rabbits are given in Table 1.

The average mass of the rabbits prior to slaughtering was 2,467 g. The average weight of the head was 124 g, of the hide 428 g, of the lungs 12 g and of the full intestines 445 g. The average share of the carcass with and without the head was 56.18 % and 50.66 % of the total mass of the rabbit (yield), respectively. The highest variation was confirmed for the head and the lungs (Cv 22.83 and 27.50), while the smallest variation was confirmed for the kidneys (Cv 1,10).

Table 1. Average values and variation of the body mass of rabbits before slaughtering structured in certain parts and organs.

Attributes	x	Sd	Cv	Min	Max
Live mass (kg)	2.467	0.1045	4.24	2.000	2.800
Head (kg)	0, 124	0.0370	22.83	0.105	0.135
Hide (kg)	0.428	0.0240	5.81	0.345	0.495
Kidneys (kg)	0.035	0.0038	1.10	0.010	0.025
Lungs (kg)	0.012	0.0033	27.50	0.010	0.020
Liver (kg)	0.078	0.0150	19.23	0.050	0.100
Heart (kg)	0.060	0.0033	5.50	0.005	0.010
Full bowels (kg)	0.445	0.0421	9.26	0.405	0.555
Forelegs (kg)	0.020	3.2252	16.12	0.015	0.020
Hinder legs (kg)	0.048	14.4871	12.52	0.035	0.048
Carcass with head (kg)	1.386	0.3650	26.62	1.288	1.478
Carcass without head (kg)	1.250	0.1000	8.00	1.112	1.480

Obtained results of the share of the parts and organs compared to live mass are slightly higher than those reported by some other authors *Mach et.al. (1983)* and *Skandro et.al (2008)* who examined New Zealand white rabbits. The yield results that we obtained are similar to the results of other authors *Caklovica et.al. (1986), Omrcen (1995), (Skandro et.al. 2004*) and *Ali (2007)* who report yield

values from 40 % to 55 %. The share (in %) of some basic parts and internal organs in the live mass are given in Table 2.

Table 2. Share in % of some basic parts and internal organs in the live mass

Basic parts and organs	**Share (%) in the live mass**
Carcass with head	54.96%
Carcass without head	50.06%
Head	5.93%
Hide	17.27%
Kidneys	0.65%
Lungs	0.51%
Liver	3.10%
Heart	2.42%
Full bowels	17.61%
Forelegs	0.80%
Hinder legs	1.94%

As the table shows the largest share in the live mass was determined for cleaned carcass with the head (54.96 %), while the smallest share was determined for forelegs (0.8%) and the hind legs have 1.94 %. In regard to internal organs the smallest share was determined for lungs (0.51%) and the largest share has the full bowels (17.61%).

Our results for the percentage of carcass parts and internal organs of rabbits in the live mass are slightly bigger than the results of other authors *Grujic (1985* and *Panic et al. (1986)* who explored New Zealand white rabbits with smaller average live mass.

The participation of the main meat categories in the mass of the carcass with head on are given in Table 3.

Table 3. Share of main meat categories of rabbit carcass with head

	Share	
Main meat categories (parts) of the carcass of slaughtered rabbit	g	%
Pelvic - thigh part	420,5	30,67
Flank part	398,5	29,04
Forelegs	300,5	21,94
Neck - breast part	267,0	18,35

The chart clearly shows that the largest share was determined for thighs (30.67%) and the smallest share for neck-breast part (18.35%).

The results are in accordance with the results of other authors *Panic et al. (1986), Ali (2007)* and *Scandro et al. (2008)*.

Conclusions

Based on the achieved results we could conclude the following:

The average shares of the carcass with the head and the carcass without the head was 55.65% and 50.66 % of the average rabbit live mass, respectively. Internal organ with smallest share in live mass was lungs with 0.51 % and with largest share of 17.61 % were the full intestines. The shares of the thighs and the flank part were 30.67 % and 29.04 %.

Učesce osnovnih delova trupa i unutrašnjih organa kod kunića

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Rezime

U radu su izneti rezultati od istraživanja o učešću osnovnih delova unutrašnjih organa u trupovima kunića . Ukupno je ispitano 22 grla zaklanih kunića koji predstavljaju križanci između kalifornijskog i novozelandskog kunića. Prosečna živa masa kunića je iznosila 2467 g sa varijacijama od 2000 do 2800 g. Učešće kože u živoj masi trupa je iznosilo 428 g sa varijacijama od 385 do 480 g. Glava u živoj masi trupa je učestvovala sa 5,93%. Učešće prednjih i zadnjih sepa u živoj masi trupa je iznosilo 0,60% i 1,94%. Od unutrašnjih organa najmanje učešće u živoj masi trupa bilo je kod pluća 0,51% a najveće kod punih creva 17,61%.

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