

# COMPARATIVE ESTIMATION OF THE QUALITY OF MEAT OF PIGS AND LAMBS

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## Introduction

Meat of animals is one of the basic biologically valuable food stuffs of the population in many countries of the world. However its deficiency was marked in all the periods of development of mankind, but it becomes most expressed in the beginning of XXI century. Resources of agricultural cattle are already in use almost completely; therefore one of the reserves for increasing the manufacture of meat for the population is the rearing and fattening of animals in the early postnatal period of maturing.

## Materials and Methods

The purpose of the present research was a comparative study of the quality of meat received from animals in the early postembryonic development of pigs and lambs.

As material for research pigs and lambs in the suckling period of development have used.

Pigs of the large white breed up to 2-months of age were on suck under the sows. Slaughtering of pigs was carried out at the following age periods: 1; 15; 42 and 60 days.

Lambs of the romni-march breed also were on suck under the ewes up to 4-months of age. After attaining lambs at 1; 15; 42 and 120-days of age, they were slaughtered.

Three young boars and rams are killed in each investigated group of animals, according to the Technological instruction on processing cattle at the enterprises of the meat industry.

## Results and Discussion

With the slaughtering of pigs at 42-days of age, the following had been received: the output of the carcasses with the skin has made 56,73%. The absolute weight of the muscular tissue for the given period has increased 10,79 times, fatty tissues 54,37 and bones - 6,92 times. In comparison with the 1-day's old pigs the relative weight of a muscular tissue has been raised by 2,74 %, fat - 8,51 %, but bones were decreased by 8,50 % (T.1).

Table 1. Morphological structure of the carcasses of pigs

Parameter of weight	Age, days			
	1	15	42	60
Live weight, kg	1,31 ±0,03	4,40 ±0,09	11,5 ±0,10	18,4 ±0,12
Weight of the carcass, r	633,0 ±14,0	2 814 ±91,2	6 524 ±175,0	10 360 ±341,5
Relative weight, % from the weight of the carcass				
Weight of the muscles of the carcass	58,23	59,20	60,97	61,39
Weight of fat in the carcass	1,99	4,63	10,50	13,21
Weight of the skin of the carcass	13,90	12,65	11,15	10,23
Weight of bones in the carcass	25,88	23,53	17,38	15,17

Edible parts in the carcass make 82,62 % while the bacon pigs (100 kg) - 89,97 %, i.e. less by 7,35 %.

If pigs at 15-days of age are considered, those that are allowed to be slaughtered by the veterinary-sanitary rules for meat, then it is visible that the lethal parameters considerably concede the 42-days old young boars.

The weight of the carcass from the 15-day's old pigs in comparison with the 42-day's old is less by 3,71 kg, or by 131,84 %. In the carcass, the relative content of muscular tissues is less by 1,77 %, fat - by 5,87 %, but the skin is more by 1,50 and bones – by 5,95 % (by to the difference).

It is also necessary to stop on the morphological parameters of the carcass that are received from 2-month's old pigs that were still on suck. Meat from pigs of such age is considered to be dietary.

The absolute weight of the carcass of 60-day's old suckling pigs has increased in comparison with the weight of the 42-day's old pigs by 3,84 kg, or 58,80 %. Thus the relative weight of fat has considerably raised in the carcass (by 2,71 %) and an insignificant increase in the muscles (0,42%), but the relative weight of bones in the carcass has been decreased by 2,21 % and the skin by 0,92 %.

The big interest represents the morphological structure of the carcass of lambs.. The fact of the matter is that there is a question on the use of meat from lambs killed even at 1-3 days of age for astrakhan skins, or, according to the veterinary-sanitary rules at 14-days of age for economic necessity.

Results from the slaughtering of lambs show, that the absolute weight of the carcass from the 1-day old up to the 42-day's old lambs has increased by 3,97 times, muscles of the carcass - 4,35 time, fat - 5,94 and bones - 3,22 times.

The relative weight of the muscular tissue of the 42-day's old lambs in comparison with that of the newborn lambs has raised by 5,62 %, fatty tissue - by 1,08 while the weight of bones has decreased by 6,73 % (by the difference).

Under the cultivation of lambs up to 4-months of age, i.e. before the termination of the suckling period, the absolute weight of muscles has raised by 2836 r, or by 75,35 %, fat - by 212 r, or 111,58 %, bones by 350 r, or 20,83 %.

For deeper estimation of nutritious and biological value of the meat received from animals of the early post-natal period of development, researches were carried out chemical by the standard techniques (tab. 2).

Table 2. The Chemical compound of the longest muscle of a back of different kinds of animals in the early postnatal period, %

Age, days	Water	Protein	Fat	Ashes
Boars (hogs - from 42 days of age)				
1	81,41	16,50	1,08	1,01
15	80,33	17,38	1,25	1,04
42	78,86	18,44	1,67	1,03
60	77,29	19,81	1,89	1,01
198	72,74	21,00	4,27	1,03
Lambs				
1	81,26	16,50	1,15	1,09
15	79,42	17,62	1,81	1,15
42	78,42	18,56	1,90	1,12
60	77,25	19,79	1,95	1,01
300	74,83	20,56	3,58	1,03

The data in tab. 2 shows that the chemical compound of muscles, as well as their morphology, changes with the growth of animals. One-day old animals contain more water in the muscles within the limits of 80,85 - 81,58 %.

Analyzing the given quantities of water in muscles it is visible, that from 1 up to 42-day's old there is a decrease in water in young boars by 2, 55 %, and lambs - 2, 84%.

In a counterbalance to decrease the amount of water in the muscles of pigs, lambs and calves there is a strengthened accumulation of protein. In comparison with newborns in the muscles of 42-day's old animals there is an increase by 1, 94 and 2,06 %.

As to intramuscular fat its quantity with the growth of animals increases, but it is not very drastic. For 42-day's old animals the maintenance of fat in the longest muscle of the back of pigs has increased - by 0,59 %, or 1,55 times, lambs - by 0, 5 %, or 1,65 times.

Numerous researches of chemical compound of muscular tissues show, that the maintenance of water and the most valuable proteins and fat in a biological manner, ranges depending on age, the internal structure of muscles, breed and feeding level. Scientists establish close interrelation between dynamics of accumulation of chemical components (water, fat, protein and ashes) and the growth of morphological parts - muscular, fatty and bone tissues.

Researches carried out by us show, that chemically mature (comprehensible) structure of various chemical components is formed at various times. First such maturity is usually gained by protein (nitrogen), and then lipids. There are difficulties in an attempt to define the degree of the chemical maturity of skeletal muscles in the corresponding age periods.

In muscular tissues of 42-days old pigs and lambs, there is a lot of water and a small amount of protein and fat, i.e. meat from them on a scientifically-practical concept did not ripen. But it possesses the ability to actively raise the exchange processes in the organism of a person.

### Conclusions

In the conclusion it is necessary to note, that meat of pigs and lambs at 42-days of age is morphologically and chemically "not ripe". But on the biological parameters their meat surpasses pork, beef and mutton, and on the some parameters they concede. Therefore it is expedient to include in the food of the person meat from different kinds of animals in view of age of the person.