SLAUGHTER VALUE OF PIGS OF DIFFERENT PRODUCTION TYPES

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INTRODUCTION

Through the increase of standard and through changes in the alimentation of population in economically developed countries great important changes advanced in pig breeding production. Through intensive selection new pig breeds were created relatively quickly, which beside other advantages (early maturing, high fertility, favorable feeding stuff conversion) gives very favorable relation in meat and fat tissue in total body mass.

In less developed on the contrary some time after the World War II, the pork fat was more expensive than meat. Therefore small farmers fattened pigs mostly for fat and bacon. Shortly before the World War II in the lowland of Yugoslavia one of the most represented pig breed was Mangulitsa, which is a typical example of fat breed which created in Panonia-Lowland.

According to world motions at the end of 19 th century and beginning of 20 th century, through crossing of Mangulitsa, Berkshire and other offsprings and Poland China created Black Slavonian or Pfeiffer Pig (Ilancic 1958; Belic 1972). According to the characteristics this pig represented the transitional type between fatty and meaty breeds.

In Yugoslavia today it is almost impossible to find pigs of primitive breeds of fatty type, neither fatty-meaty type. This fact led us to make parallel researches with Mangulitsa and Black Slavonian Breed on the slaughter line in relation to the pigs of meaty and outstanding meaty types.

MATERIAL AND METHODS

For the researches were taken four groups per 22 pigs of different production types. The first group = fatty (breed Mangulitsa), second = fatty-meaty (breed Black Slavonian), third = meaty (Thrigeneric Hybrids: Swedish Landrace x Big Yorkshire x German Landrace) and fourth = outstanding meaty (Hybrid Pig "Hypor"). The slaughtering and primary process were done on usual manner. The mass of primary processed carcasses included two carcasses of the same body skin, head, legs, tail, kidney and kidney-lard. The dressing percentage is the proportionate relation of mass of primary processed carcasses in ratio to the mass of living animal immediately before slaughtering. The length of carcasses was measured from *tuberculum ossis pubis* to the cranial edge of the first rib. The thickness of bacon was measured on two spots: in the middle of back in the height of the 13 th and 14 th inter-rib space and on sacrum where musculus gluteus medius most deeply enters in bacon. The quantity of meat in a carcass is determined by a method regulated by a Book of Regulations of YU-Standard (1985), and the value in kilograms of percentage is declared from an appropriate table of determined mass of primary processed warm carcasses and sum of measured bacon thickness on already mentioned spots.

The surface of back section is determined in the highest of the last rib. The values for surface *m.longissimus dorsi* (MLD) and belonging bacon is measured by surface measuring apparatus with digital display.

Table 1 - Slaughtery value of pigs of different productional types

Indicator	Group I		Group II		Group III		Group IV	
	$\bar{x}$	Vk	$\bar{x}$	Vk	$\bar{x}$	Vk	$\bar{x}$	Vk
Mass of living pigs, kg	101,63	2,10	101,45	2,46	100,05	2,36	100,82	1,74
Mass of warm carcasses, kg	81,32	2,17	81,05	3,08	78,82	2,72	79,77	2,32
Dressing percentage, %	80,01	0,79	79,89	1,05	78,78	0,95	79,12	0,98
Mass of cooled carcasses, kg	80,11	1,95	79,80	3,03	77,27	2,53	78,27	2,33
Dressing perc. of cooling, %	1,48	33,11	1,56	40,94	1,88	33,51	1,96	31,63
Length of carcasses, cm	65,11	3,90	67,00	3,46	80,77	2,63	80,45	4,97

Table 2 - Thickness of bacon and participation of meat in pig carcasses of different productional types

Indicator	Group I		Group II		Group III		Group IV	
	$\bar{x}$	Vk	$\bar{x}$	Vk	$\bar{x}$	Vk	$\bar{x}$	Vk
Bacon thickness:								
- back (mm)	61,84	7,29	51,35	9,15	25,05	16,32	16,73	10,64
- sacrum(mm)	63,63	8,34	48,75	9,00	24,27	20,93	15,91	17,98
- total(mm)	125,47	5,47	100,10	6,88	49,32	17,09	32,64	8,57
Participation of meat in carcasses as per YU-Standard:								
(kg)	20,73	2,94	23,10	3,94	32,33	4,94	35,24	3,06
(%)	25,49	2,24	28,51	2,70	41,82	3,61	44,17	1,99

Table 3 - Surface of MLD and participation of meat in ham of pigs of different productional types

Indicator	Group I		Group II		Group III		Group IV	
	$\bar{x}$	Vk	$\bar{x}$	Vk	$\bar{x}$	Vk	$\bar{x}$	Vk
Back cross:								
- MLD (cm^2)	24,23	8,25	27,14	4,63	35,04	13,24	41,14	13,75
- fat tissue (cm^2)	43,64	3,91	40,40	4,87	27,70	15,59	17,40	16,10
Participation of ham meat in carcasses:								
(kg)	7,49	7,87	9,49	13,69	13,35	7,94	15,31	7,83
(%)	9,34	6,53	11,87	12,13	17,26	7,18	19,57	7,31

The participation of meat in the ham is determined by splitting of ham area on muscle tissue, fatty tissue with skin and bones. The participation of ham meat in carcasses is calculated as a percentage ratio of mass of cooled primary processed carcasses.

The obtained results were worked out by approved statistical methods.

RESULTS AND DISCUSSION

The results in the tables 1-3 were obtained by application of ahead described methods. From the results given in the table 1 it is visible the mass of living pigs in all groups was rather equal. The mass of warm primary processed carcasses differentiated and that resulted with different values for dressing percentage. The values for dressing percentage by fatty breeds (I and II group) were higher for 0.7 to 1.2% in relation to meaty breeds. The tested differences between these groups were highly significant ($P < 0.01$). These results are completely in accordance with the statements of Ilancic et al. (1966), but they differentiated with results which were given by Rahelic et al. (1978). The mentioned authors have stated 81.5% by Big Yorkshire and 81.0% by Swedish Landrace.

The ullage of cooling showed a slight tendency of increase from the first toward the group (I = 1.48; II = 1.56; III = 1.88 and IV = 1.96% but the tested differences between some groups were not significant.

The length of carcasses importantly moved in favour of meaty breeds and the difference was even to 15 cm. The tested differences between the groups were highly significant ($P < 0.01$), except between the third and fourth group ($P < 0.05$). Such and similar length differences of carcasses of fatty and meaty breeds were stated and by other authors, among them Rahelic at al. (1978), Popovic and Savin (1979).

From the results showed in the table 2 a great difference in bacon thickness is visible, on some spots as well as totally. Specially is remarkable that the bacon of the first group (Mangulitsa) was four times that thick as the fourth group (Hypor). The tested differences between all groups were significant on the level of $P < 0.01$.

The participation of meat was in accordance with the measured bacon thickness, in the range of 25.49% (I group) to 44.17% (IV group). These differences ware through application of total dissection even higher, according to our recent finding, because the methods of YU-Standards do not include meat of head and "hamburg-bacon". The differences by meat participation in carcasses were between all groups significant on level of $P < 0.01$. Similar data for these characteristics of fatty and meaty breeds and the differences between them were cited by many authors (Ilancic 1958, 1966; Carroll 1962; Skelley 1966; Rust 1968; Unshelms 1971; Kauffman 1973; Pedersen 1981; Petricevic 1988 and others).

From the data of table 3 is obvious that proportionate to the increase of meat participation in carcasses (table 2) also increased the surface of MLD which was in the first group (Mangulitsa) only 24.23 cm^2, and in the fourth group (Hypor) 41.14 cm^2. The belonging fat tissue acted reversible proportionate to MLD surface, which is logical.

The meat participation in hams, as an important indicator for great presence of meat in pigs, showed the same trend as total meat presence in carcasses (table 2) of the tested pig groups. The tested differences of these indicators of meat presence between some groups were in great part significant on the level of $P < 0.01$.

CONCLUSION

On the basis of the given results and discussions the following conclusions can be made:

1 - The mass of living pigs was uniform and dressing percentage was more favorable in the first (80.01%) and second group (79.89%) than in the third (78.78%) and fourth group (79.12%), what indicates on better exploitation of fatty pigs. The ullage of cooling increased with meatness and the greatest difference (between I and IV group) was approx. 0.5%. The length of carcasses was importantly longer by meaty pigs (III and IV group) in relation to fatty (I and II group).

2 - The sum of bacon thickness measured on two spots was in the first group (Mangulitsa) for 3.84 times greater, in the second group (Black Slavonian) for 3.07 times greater and in the third group (Crossings) for 1.51 times greater compared to the fourth group (Hypor). In favour of that speaks and the high meatness of carcasses (44.17%) compared to other groups.

3 - The largest surface MLD was in the fourth group (Hypor - 41.14 cm^2) and in accordance with decrease of meatness it gradually reduced (III = 35.04; II = 27.14 and I = 24.23 cm^2). At the same time, the surface of belonging bacon proportionate increased with the decrease of MLD surface. The participation of meat in relation to the mass of carcasses increased in accordance with meatness increase, so that the highest was in the

fourth group (19.57%) and the lowest in the first group (9.34%).

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