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The effect of carcass weight of primiparous sows on their slaughter value and quality of meat

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Seventy carcasses were assessed of sows slaughtered 31 days after the first farrowing. The carcasses were divided into three weight groups: less than 115 kg (n=24), from 115 to 125 kg (n=21) and above 125 kg (n=25). Generally, a rise in carcass weight was followed by an increase in backfat thickness and in loin eye area. However, significant intergroup differences were identified in this respect only between sows with the lowest carcass weight and those of the other two groups. An increase in carcass weight was also accompanied by a higher belly and backfat content of carcass and by external fat content of ham, with simultaneous lower proportion of neck in the carcass and of bones and meat content of ham. Meat from the lightest carcasses (up to 115 kg) showed significantly lowest dry matter and fat content. In the remaining two groups, the dry matter and fat contents of meat were higher and comparable. The content of the other chemical components as well as the values of physico-chemical traits of pork were similar in all groups. Meat from the heaviest carcasses received higher scores for tenderness and juiciness.

KEY WORDS: carcass / meat / primiparous sows / slaughter value

Slaughtering of sows after weaning their first litter renders it possible to obtain valuable raw material, and piglets for further rearing, thus reducing the overall costs of pork production [Kapelański and Grajewska 2005]. Primiparous sows may be culled for two reasons: low reproductive efficiency (including a too small litter size), or inherited defects of newborn piglets. A greater number of such sows may

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be supplied for slaughter if the adopted pork production technology was based upon first-litter sows and piglets [Kapelańska *el al.* 2002, Kapelański and Grajewska 2005]. The results of studies conducted hitherto show that despite the high live body weight at slaughter the carcasses of primiparous sows are characterized by high meat and low fat content [Kapelański and Grajewska 2005, Wajda *et al.* 2005, Daszkiewicz *et al.* 2005].

The relatively low carcass fatness in primiparous sows can be ascribed to their high expenditure of energy and nutrients during lactation. In sows, the lactation leads to a considerable loss in body weight, mainly fat, protein and water [Noblet and Etienne 1989, Jones and Stahly 1999]. The post-weaning period in sows can be viewed as a certain form of compensatory growth, accompanied by the restoration of energy stores and a considerable body weight gain. Both periods involve a high incidence of metabolic changes, which considerably alter the body weight. Therefore, a question arises whether and to what extent the slaughter value and meat quality in first-litter sows are related to carcass weight. In light of this the present study aimed at determining the effect of carcass weight on slaughter value and pork quality in primiparous sows.

Material and methods

Seventy hybrid sows (Polish Large White × Polish Landrace) were used originating from the same farm, from 20 litters by three boars. A detailed description of the feeding system, reproductive performance of sows and fattening results are given by Kapelański *et al.* [2007ab]. After 21 days of suckling and 10 days of post-weaning period, sows were transported to a meat processing plant. Slaughter and carcass processing were carried out in accordance with the relevant standards. Meat pH_1 was measured 45 min *post-mortem* on *longissimus lumborum* (LL) muscle at the level of the second to fourth lumbar vertebra, with the WTW 340i pH-meter (POL-EKO). After carcass chilling, backfat thickness was measured at five points on hanging right half-carcass, as recommended by the Pig Progeny Testing Station [Różycki 1996]. Next, the carcasses were weighted and divided into primary cuts. After division of carcasses, dissection of proper ham (ham without a shank), which involved the separation of meat, subcutaneous fat, intermuscular fat, bones and skin was made. In the course of half-carcass division, the width and height (measured at a right angle to the width) of LL muscle and loin eye area (height × width × 0.8) were determined. Samples of LL muscle were taken from the region between the last thoracic and the second lumbar vertebra. Approximately 48 h *post-mortem,* the chemical composition of meat (content of dry matter, fat, total protein, soluble protein, ash) was determined by conventional methods [Rak and Morzyk 2002] while pH_u in a meat water homogenate. Water-holding capacity was determined by the Grau and Hamm method [Oeckel Van *et al.* 1999], cooking loss after Honikel [1998], and color brightness using a Spekol spectrocolorimeter with

a R 45/0 remission attachment, at a wavelength of 560 nm. The sensory properties of cooked meat were scored using a 5-point scale according to Polish Standard PN-ISO 4121 [1998].

In order to determine the relationship between the carcass weight and the slaughter value and pork quality in primiparous sows, the carcasses were divided into three groups: group I – 24 carcasses weighing below 115 kg, group II – 21 carcasses weighing from 115 to 125 kg, and group III – 25 carcasses weighing above 125 kg.

The data were verified statistically using STATISTICA (ver. 8) software. The significance of differences between group means was determined with a one-factorial analysis of variance in a non-orthogonal design and with Duncan's multiple range test.

Results and discussion

Earlier studies have confirmed a high slaughter value of first-litter sows and good quality of pork from their carcasses [Kapelański *et al.* 2002, Wajda *et al.* 2005, Daszkiewicz *et al.* 2005]. Therefore, it seemed important to determine the association between the carcass weight of such sows and quality of their pork. In the present study sows were allocated to three groups based on carcass weight. The mean cold carcass weight of sows in group I, II and III were 106.08 kg, 119.89 kg and 133.02 kg, respectively (Tab. 1), and the difference between group I and II and group II and III reached 14 kg. The widest variation in cold carcass weight was observed in group I (standard deviation = 8.35 kg), while the lowest in group II (standard deviation = 2.96 kg).

The slaughter value of animals depends markedly on carcass dressing percentage, which in this study occurred comparable in all groups, ranging from 78.38% (group II) to 79.07% (group III) – Table 1. No significant difference was found as regards this trait between means for individual groups. The dressing percentage determined in this study, was by about 1 per cent unit lower than that reported for growing-finishing pigs by Bobček *et al.* [2006] and Czyżak-Runowska *et al.* [2006].

Backfat thickness is considered a reliable indicator of carcass fatness [Wajda *et al.* 2004a]. In the present study, backfat thickness measured at five points, increased together with the increasing carcass weight of sows, but differently at different measurement points. A steady increase in backfat thickness, resulting from a rise in carcass weight by around 14 kg, was noted only for the measurement taken over the shoulder, which was reflected by significant differences between mean values for groups. As regards the other four measurements and the mean determined for five points (measurements pooled), significant differences were found only between group I (carcass weight of up to 115 kg) and groups II and III. It follows that in carcasses weighing about 120 kg or more, backfat thickness increase was very small as compared to the carcasses of lighter sows. Table 1 shows that the highest standard deviation was observed for backfat thickness determined for group I

Table 1. Slaughter and carcass indicators in primiparous sows in relation to cold carcass weight

Item		Cold carcass weight			Significance of differences between groups
		group I <115 kg (n=24)	group II 115-125 kg (n=21)	group III >125 kg (n=25)	
Live weight at slaughter (kg)	mean	135.92	152.98	168.28	I<II** & III**
	SD	10.99	5.56	9.14	II<III**
Cold carcass weight (kg)	mean	106.08	119.89	133.02	I<II** & III**
	SD	8.35	2.96	7.51	II<III**
Dressing percentage	mean	78.96	78.38	79.07	-
	SD	4.97	2.02	2.14	
Backfat thickness (mm)					
over the shoulder	mean	30.11	35.61	38.62	I<II* & III**
	SD	8.81	5.51	4.21	II<III*
on the back	mean	11.12	15.3	17.22	I<II* & III**
	SD	6.01	5.3	5.91	
on loin I	mean	18.12	25.5	25.6	I<II** & III**
	SD	7.11	5.91	6.11	
on loin II	mean	11.12	17.41	18.41	I<II** & III**
	SD	6.12	5.21	6.61	
on loin III	mean	16.11	22.92	24.73	I<II** & III**
	SD	7.11	6.11	6.31	
mean for 5 points	mean	17.31	23.32	24.91	I<II** & III**
	SD	6.31	4.82	4.61	
Loin eye					
height (cm)	mean	5.8	6.01	6.08	-
	SD	0.56	0.71	0.56	
width (cm)	mean	10.97	11.32	11.63	I<III*
	SD	1.01	0.73	0.83	
area (cm^2)	mean	50.96	54.5	56.72	I<III*
	SD	7.94	7.43	7.39	

*P?0.05; **P?0.01.

(carcass weight of up to 115 kg). Wajda *el al.* [2005] working on Danish Landrace × Danish Yorkshire crossbred females reported no significant differences in backfat thickness between gilts and primiparous sows, despite a difference of about 36 kg in carcass weight.

Loin eye area is a key indicator of leanness (meat content) of carcass [Winarski *et al.* 2004a]. The current study involved the determination of loin eye height, width and area, which were found to increase along with a rise in carcass weight. However, significant differences were identified only for loin eye width and area between the lightest (group I) and the heaviest (group III) carcasses. In an investigation by Krzęcio *et al.* [2003], loin eye area in the carcasses of growing-finishing pigs classified as EUROP grade E reached 52.51 cm ±5.75, and was lower than that observed in the present study.

The slaughter value of pigs is determined by the content (per cent) of cuts of the highest market value of the whole carcass. In the present study the weight and content of primary cuts (neck, loin, ham, shoulder, belly) and backfat were compared

Table 2. Primary cuts weight and content of cold carcass (%) and tissue composition of ham lean in primiparous sows as related to cold carcass weight

Item		Cold carcass weight			Significance of differences between groups
		group I <115 kg (n=24)	group II 115-125 kg (n=21)	group III >125 kg (n=25)	
Weight of primary cuts (kg)					
neck	mean	3.93	4.66	4.54	I<II** & III**
	SD	0.69	0.61	0.62	
loin	mean	5.72	6.84	6.92	I<II** & III**
	SD	0.9	0.94	1.25	
ham	mean	13.03	14.75	16.26	I<II** & III**
	SD	1.21	0.94	2.38	II<III**
shoulder	mean	8.92	9.99	10.81	I<II** & III**
	SD	0.87	0.62	0.72	II<III**
belly	mean	3.19	3.83	4.49	I<II** & III**
	SD	0.51	0.48	0.69	II<III**
backfat	mean	2.88	3.97	4.53	I<II** & III**
	SD	0.7	0.88	0.92	II<III*
Primary cuts content (%) of carcass					
neck	mean	7.63	7.69	7.06	II>III*
	SD	1.23	0.87	0.85	
loin	mean	10.75	10.87	10.51	-
	SD	1.96	0.88	1.12	
ham	mean	25.49	24.73	24.87	-
	SD	1.22	1.41	1.05	
shoulder	mean	17.21	16.75	16.86	-
	SD	1.16	0.89	0.75	
belly	mean	6.28	6.41	6.98	I & II<III*
	SD	1.03	0.72	0.81	
backfat	mean	5.51	6.45	7.03	I<II* & III**
	SD	1.11	1.3	1.26	
Tissue content (%) of ham lean					
meat	mean	69.30	67.95	67.01	I>III*
	SD	3.97	3.72	3.91	
external fat	mean	14.27	16.38	17.73	I<III**
	SD	4.01	3.95	4.38	
intermuscular fat	mean	3.5	3.67	3.61	-
	SD	0.89	0.66	1.07	
bones	mean	8.05	7.11	6.96	I>II* & III**
	SD	1.44	0.8	1.09	
skin	mean	4.88	4.78	4.68	-
	SD	1.18	0.75	0.67	

*P≤0.05; **P≤0.01.

(Tab. 2). A rise in carcass weight by approximately 14 kg was accompanied by an 1 kg increase of the weight of neck, loin, shoulder and backfat, and by an increase of 1.5 kg in the weight of ham. The increase was mostly due to differences in carcass weight, and therefore data on the content (%) of particular cuts in the carcasses seem more informative [Wajda et al. 2005]. The content of primary cuts, *i.e.* loin, ham and shoulder, proved to be similar in groups, while significant differences were reported in relation to the content of neck, belly and backfat. A rise in carcass weight was followed by an increase in the per cent of belly and backfat, and by a decrease in the content of neck. There were significant intergroup differences in the mean neck per cent of carcass between sows of group II (carcass weight of about 120 kg) and group III (carcass weight above 125 kg). The heaviest carcasses showed also the highest content of backfat and belly. The carcasses of primiparous sows described in this report contained a high proportion of cuts of the highest market value, similar to that quoted for the carcasses of high-producing pigs [Grześkowiak *et al.* 2001, Zybert *et al.* 2005].

Proper ham was also dissected in this study. The tissue composition of proper ham provides a basis for determining the proportions of tissue components of pig carcasses [Winarski *et al.* 2004b]. The lightest carcasses had the highest meat content of ham (69.30%). An increase in carcass weight by about 14 kg caused a 1.5 per cent unit drop of the meat content of ham between carcasses of group I and II. A further increase in carcass weight (by another 14 kg between group II and III) resulted in a 1 per cent unit decrease in the meat content of ham. Significant differences in the meat content of ham were identified between the heaviest and the lightest carcasses. A lower meat content of ham in the heavy-weight carcasses of growing-finishing pigs was also reported by Wajda *et al.* [2007] in comparison to low-weight carcasses.

A higher weight of carcass was accompanied by a decrease in the content of bones and increase in the external fat content of ham. Differences in carcass weight had no effect on the content of skin with intermuscular fat of ham.

Means for traits determining meat quality – chemical composition, physico-chemical and sensory properties – are presented in Table 3. The dry matter and intramuscular fat content of meat increased with a rise in carcass weight, but the increase was not uniform. The lowest content of both components was found in the lightest carcasses (up to 115 kg), while in the other two groups it was higher and comparable. Carcass weight was not found related significantly to the content of total protein, soluble protein and ash. The chemical composition of meat determined in the current study occurs similar to that of growing-finishing pigs as reported by Grześkowiak *et al.* [2001], Koćwin-Podsiadła *et al.* [2004], Wajda *et al.* [2004b], Kortz *et al.* [2005]. The only exception was the content of total protein, slightly lower in the carcasses of primiparous sows.

The physico-chemical evaluation of pork involved a determination of pH, water-holding capacity, cooking loss and color brightness (Tab. 3). The pH_1 and pH_u were comparable in all groups and remained within the reference range given for normal-

Table 3. Chemical composition and physico-chemical and sensory properties of meat from primiparous sows in relation to cold carcass weight

Item		Cold carcass weight			Significance of differences between groups
		group I <115 kg (n=24)	group II 115-125 kg (n=21)	group III >125 kg (n=25)	
Dry matter (%)	mean	24.03	24.55	24.72	I<II* & III**
	SD	0.61	0.74	0.60	
Fat (%)	mean	1.30	1.72	1.76	I<II** & III**
	SD	0.40	0.46	0.47	
Total protein (%)	mean	21.23	21.16	21.30	-
	SD	0.89	0.86	0.91	
Soluble protein (%)	mean	5.87	6.01	6.07	-
	SD	0.68	0.43	0.46	
Ash (%)	mean	1.15	1.14	1.14	-
	SD	0.07	0.02	0.03	
pH_1	mean	6.46	6.33	6.41	-
	SD	0.30	0.24	0.23	
pH_u	mean	5.54	5.55	5.56	-
	SD	0.06	0.08	0.07	
Water-holding capacity (cm^2)	mean	8.67	8.05	8.46	-
	SD	1.55	1.76	1.49	
Cooking loss (%)	mean	41.55	37.20	38.19	-
	SD	10.13	9.96	11.53	
Color brightness (%)	mean	18.58	18.67	18.00	-
	SD	2.34	2.46	2.48	
Aroma – intensity (points)	mean	4.94	4.88	4.98	-
	SD	0.22	0.31	0.10	
Aroma – desirability (points)	mean	5.00	4.98	5.00	-
	SD	0.00	0.11	0.00	
Tenderness (points)	mean	3.67	3.71	3.94	-
	SD	0.88	0.78	0.77	
Juiciness (points)	mean	4.06	4.19	4.26	-
	SD	0.66	0.64	0.60	
Palatability – intensity (points)	mean	4.52	4.60	4.62	-
	SD	0.45	0.52	0.39	
Palatability – desirability (points)	mean	4.52	4.62	4.62	-
	SD	0.45	0.47	0.39	

*P≤0.05; **P≤0.01.

quality pork by Kortz [2001]. Good quality of pork, reflected by normal pH values, could be related to the fact that quality faults caused by stress (PSE meat) occur less frequently [Garcia-Macias *et al.* 1996, Larzul *et al.* 1997, Koćwin-Podsiadła *et al.* 2000] in meat from older pigs, slaughtered at higher body weight than in meat from younger animals, slaughtered at a lower live weight, even in populations that carry the porcine stress syndrome (PSS) gene [Garcia-Macias *et al.* 1996, Beattie *et al.* 1999].

The water-holding capacity of meat was similar in all groups. Meat from carcasses weighing more than 125 kg was slightly darker in colour. Intergroup differences were not found significant.

Meat samples obtained from sows of individual groups did not differ significantly as regards sensory properties. However, meat from the heaviest carcasses (above 125 kg) was scored higher for tenderness and juiciness, which is indicative of a beneficial influence of a high intramuscular fat content on the eating quality of pork [Eikelenboom *et al*. 1996, Park *et al.* 2001].

It may be concluded that in primiparous sows a higher carcass weight was followed by an increase in both backfat thickness and loin eye area. However, significant differences were observed only between the lightest carcasses and carcasses of the other two groups. An increase in carcass weight was also accompanied by a higher belly and backfat content of carcass and external fat of ham, as well as by a lower proportion of neck in the carcass and of bones and meat in ham. Meat from the lightest carcasses (to 115 kg) showed the lowest content of dry matter and fat. In the remaining two groups of carcasses the dry matter and fat contents of meat were higher and comparable. The content of the other chemical components as well as the values of physico-chemical properties of pork were similar in all groups. Meat from the heaviest carcasses was scored higher for tenderness and juiciness than that from remaining groups.

REFERENCES

1. BEATTIE V.E., WEATHERUP R.N., MOSS B.W., WALKER N., 1999 – The effect of increasing carcass weight of finishing boars and gilts on joint composition and meat quality. ***Meat Science*** 52 (2), 205-211.
2. BOBČEK B., BAHELKA I., BOBČEK R., MRAZOWA J., DEMO P., 2006 – Effect of magnesium oxide supplementation on carcass value and meat quality of pigs with malignant hyperthermia. ***Annals of Animal Science*** Suppl., 2/1, 239-244.
3. CZYŻAK-RUNOWSKA G., ŁYCZYŃSKI A., POSPIECH E., RZOSIŃSKA E., FRANKIEWICZ A., BESTYŃSKA A., 2006 – Slaughter value of pigs from lines 990 and 890. ***Annals of Animal Science*** Suppl., 2/1, 255-259.
4. DASZKIEWICZ T., WAJDA S., KAPELAŃSKI W., 2005 – Porównanie jakości mięsa loszek i loch pierwiastek (Comparison of the quality of meat from gilts and primiparous sows). ***Żywność. Nauka. Technologia. Jakość***. 3 (44), 21-27.
5. EIKELENBOOM G., HOVING-BOLINK A.H., VAN DER WAL P.G., 1996 – The eating quality of pork. The influence of intramuscular fat. ***Fleischwirtschaft*** 76, 517-518.
6. GARCIA-MACIAS J.A., GISPERT M., OLIVIER M.A., DIESTRE A., ALONSO P., MUNOZ-LUNA A., SIGGENS K., CUTHBERT-HEAVENS D., 1996 – The effects of cross, slaughter weight and halothane genotype on leanness and meat and fat quality in pig carcasses. ***Animal Science*** 63, 487-496.
7. GRZEŚKOWIAK E., BORZUTA K., STRZELECKI J., WICHŁACZ H., 2001 – Culinary and processing usefulness of raw material obtained from fatteners of PIC synthetic line. ***Polish Journal of Food and Nutrition Sciences*** 10/51, 3 (Suppl.), 119-122.
8. HONIKEL K.O., 1998 – Reference Methods for the Assessment of Physical Characteristics of Meat. ***Meat Science*** 49 (4), 447-457.

9. JONES D.B., STAHLY T.S., 1999 – Impact of amino acid nutrition during lactation on body nutrient mobilization and milk nutrient output in primiparous sows. ***Journal of Animal Science*** 77, 1513-1522.
10. KAPELAŃSKA J., DYLAS R., KAPELAŃSKI W., DYBAŁA J., RAK B., GRAJEWSKA S., 2002 – Slaughter value and meat quality of primiparous gilts. ***Annals of Animal Science*** Suppl., 2, 297-300.
11. KAPELAŃSKI W., GRAJEWSKA S., 2005 – Problematyka rzeźnego użytkowania loszek jednorazówek (The issue of slaughter utilisation of the first farrowing sows). ***Żywność. Nauka. Technologia. Jakość***. 3 (44), 65-77.
12. KAPELAŃSKI W., GRAJEWSKA S., BOCIAN M., KAPELAŃSKA J., 2007a – Slaughter indicators and carcass traits as related to changes in body weight during lactation and post-weaning period of primiparous sows. ***Animal Science Papers and Reports*** 25 (4), 231-239.
13. KAPELAŃSKI W., GRAJEWSKA S., WAJDA S., BOCIAN M., KAPELAŃSKA J., 2007b – Meat characteristics as related to changes in body weight during lactation and post-weaning period of primiparous sows. ***Animal Science Papers and Reports*** 25 (4), 241-248.
14. KOĆWIN-PODSIADŁA M., ANTOSIK K., KRZĘCIO E., ZYBERT A., SIECZKOWSKA H., GRZEŚ B., ŁYCZYŃSKI A., POSPIECH E., 2004 – Effect of carcass muscling on culinary and technological pork properties in fatteners of three genetic groups. ***Animal Science Papers and Reports*** 22 (4), 451-458.
15. KOĆWIN-PODSIADŁA M., ZYBERT A., KRZĘCIO E., 2000 – The influence of carcass weight of fatteners with different Hal genotype on carcass leanness and selected traits. 46th International Congress Meat Sciences Technology Argentine, vol 1, 92-93.
16. KORTZ J., 2001 – The chief defects of meat and methods of detection. ***Journal of Food and Nutrition Sciences*** 10/51, 3 (S), 6-10.
17. KORTZ J., OTOLIŃSKA A., RYBARCZYK A., KARAMUCKI T., NATALCZYK-SZYMKOWSKA W., 2005 – Meat quality of Danish Yorkshire porkers and their hybrids with Polish Large White pigs. ***Polish Journal of Food and Nutrition Sciences*** 14/55, 1, 13-16.
18. KRZĘCIO E., ZYBERT A., SIECZKOWSKA H., KOĆWIN-PODSIADLA M., ANTOSIK K., 2003 – Wpływ mięsności tusz wieprzowych na wybrane cechy rzeźne i cechy jakościowe mięsa tuczników pogłowia masowego (The influence of meatiness of carcasses on some selected slaughter and meat quality traits of fatteners from mass population). ***Żywność. Nauka. Technologia. Jakość***. 4 (37), 194-203.
19. LARZUL C., ROY P. LE, GUEBLEZ R., TALMANT A., GOGUE J., SELLIER P., MONIN G., 1997 – Effect of halothane genotype (NN, Nn, nn) on growth, carcasses and meat quality traits of pigs slaughtered at 95 kg or 125 kg live weight. ***Journal Animal Breeding and Genetics*** 114 (4), 309-320.
20. NOBLET J., ETIENNE M., 1989 – Estimation of sow milk nutrient output. ***Journal of Animal Science*** 67, 3352-3359.
21. OECKEL M. J. VAN, WARNANTS N., BOUCQUEE CH. V. 1999 – Comparison of different methods for measuring water holding capacity and juiciness of pork versus on-line screening methods. ***Meat Science*** 51 (4), 313-320.
22. PARK B., CHO S., KIM J., YOO Y., LEE J., AHN CH., KIM Y., YUN S., 2001 – Carcass composition and meat quality by intramuscular fat contents in *Longissimus dorsi* of Hanwoo. Materials of 47th International Congress of Meat Science and Technology, August 26th – 31th, Kraków, Poland, Vol. I, 116-118.
23. Polish Standard PN-ISO 4121., 1998 – Sensory analysis. Methodology. Evaluation of food products by methods using five point scales.
24. RAK L., MORZYK K. A. 2002 – Chemiczne badanie mięsa (Chemical analysis of meat). Wydawnictwo Akademii Rolniczej we Wrocławiu.

25. RÓŻYCKI M., 1996 – Zasady postępowania przy ocenie w SKURTch (the vules and metodology in estimation of pigs in Polish Pig Testing Stations). Stan hodowli i wyniki oceny świń. ***Roczniki Instytutu Zootechniki*** XIV, 69-82.
26. WAJDA S., WINARSKI R., BORZUTA K., 2004a – Przydatność pomiarów grubości słoniny do szacowania udziału mięsa w tuszach wieprzowych (The use of backfat measurments for the prediction of the lean meat content of pork carcasses). ***Zeszyty Naukowe Przeglądu Hodowlanego*** 72, 2, 177-184.
27. WAJDA S., DASZKIEWICZ T., WAJDA M., 2004b – Quality of pig carcasses belonging to different classes in the EUROP grading system. ***Animal Science Papers and Reports*** 22, 4, 569-576.
28. WAJDA S., DASZKIEWICZ T., KAPELAŃSKI W., PUCHALSKA D., 2005 – Wartość rzeźna tusz loszek i loch pierwiastek (The Slaughter value of carcass from gilts and primiparous sows). ***Żywność. Nauka. Technologia. Jakość***. 3 (44), 206-211.
29. WAJDA S., WINARSKI R., BURCZYK E., 2007 – Tissue composition of elements obtained from fattener carcasses of different weight. Proceedings for International Conference: "Quality and safety in meat for consumers: from stable to table" Kaunas, Lithuania 06-07 June, 146-147.
30. WINARSKI R., WAJDA S., BORZUTA K., 2004a – The use of *longissimus dorsi* muscle measurements in assessing meat content of pig carcasses. ***Animal Science Papers and Reports*** 22 (4), 577-585.
31. WINARSKI R., WAJDA S., BORZUTA K., 2004b – Szacowanie składu tkankowego tusz wieprzowych dzielonych na elementy według zasad stosowanych w Unii Europejskiej (Assessment of the tissue composition of pig carcasses dissected according to methods as indicated by the EU regulations). ***Żywność. Nauka. Technologia. Jakość***. 3 (40), 24-31.
32. ZYBERT A., KOĆWIN-PODSIADŁA M., KRZĘCIO E., SIECZKOWSKA H., ANTOSIK K., 2005 – Uzysk oraz procentowy udział części zasadniczych z rozbioru tusz wieprzowych zróżnicowanych masą oraz klasą mięsności według systemu EUROP (The gain and per cent content of prima cuts from the cutting of carcasses differentiated by hot carcass weight and leanness class according to the EUROP carcass grading system). ***Żywność. Nauka. Technologia. Jakość***. 3 (44), 232-244.

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Wpływ masy tusz loch ubijanych po pierwszym oproszeniu na wartość rzeźną i jakość mięsa

S t r e s z c z e n i e

Materiał stanowiły tusze 70 loch pierwiastek ubitych w 31 dniu od pierwszego oproszenia. Wydzielono 24 tusze o masie do 115 kg, 21 tusz o masie od 115 do 125 kg i 25 tusz o masie przekraczającej 125 kg. Rosnąca masa tusz wiązała się ze wzrostem grubości słoniny i powierzchni oka polędwicy, co jednak statystycznie potwierdzono tylko w przypadku różnicy między tuszami najlżejszymi a tuszami pozostałych dwóch grup. Wraz ze wzrostem masy tusz rósł w nich udział (%) boczku i słoniny. Rosła przy tym zawartość tłuszczu zewnętrznego w szynce właściwej, a malał udział karkówki w tuszach oraz kości i mięsa w szynce. Stwierdzono istotnie najmniejszą zawartość suchej masy i tłuszczu w mięsie tusz najlżejszych (do 115 kg), podczas gdy w pozostałych dwóch grupach udział tych składników w tuszach był wyższy i na zbliżonym poziomie. Pozostałe składniki chemiczne oraz właściwości fizykochemiczne mięsa tusz loch pierwiastek przyjmowały wartości zbliżone, nie odbiegające od siebie. W ocenie sensorycznej stwierdzono tendencję do lepszej kruchości i soczystości mięsa pozyskanego z tusz najcięższych.