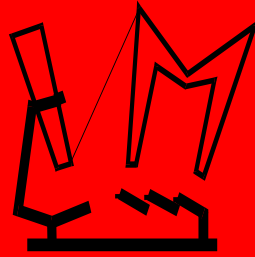


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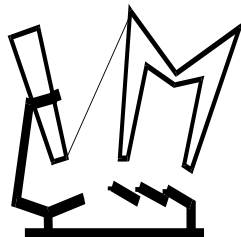
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57th MEAT INDUSTRY CONFERENCE

**MEAT AND MEAT PRODUCTS – PERSPECTIVES OF
SUSTAINABLE PRODUCTION**

Belgrade, June 10th-12th, 2013

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INSTITUTE OF MEAT HYGIENE AND TECHNOLOGY – BELGRADE



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INFLUENCE OF SEX AND CASTRATION ON CARCASS AND MEAT QUALITY PARAMETERS IN PIGS

Marija Dokmanović¹, Nataša Glamočlija¹, Vladimir Tomović², Milica Todorović¹, Radmila Marković¹, Srđan Pantić¹, Milan Ž. Baltić¹

¹ Faculty of Veterinary Medicine, University of Belgrade, Serbia

² Faculty of Tehnology, University of Novi Sad, Serbia

Abstract – The objective of this study was to determine the effect of sex and castration on carcass and meat quality parameters. The experiment was conducted on 100 commercial market pigs (53 barrows, 31 gilts and 16 boars) derived from crossing Naima sows with hybrids P-76 PenArLan boars. Within carcass quality parameters were measured hot carcass weight, fat carcass thickness at two points (on the back and at the sacrum) and meatiness (in percentages and kilograms). Meat quality measurements were carried out on muscle *Longissimus dorsi* (LD). Value of pH and temperature were measured 60 minutes (pH_{60min} and t_{60min}) and 24 hours *post mortem* (pH_{24h}). Marbling and sensory color were assessed after 24 hours *post mortem* using the scaling method. Results showed that lean meat content was significantly lower in barrows (43.14 %) compared to gilts (44.17 %) and boars (45.06 %). Fat carcass thickness was significantly the highest in barrows and significantly the lowest in boars. Values of pH (pH_{60min} and pH_{24h}), temperature, marbling and sensory color did not differ among compared groups. This suggests that boars had a slight advantage in carcass quality while differences in meat quality were not pronounced among compared groups.

Key words – barrow, gilt, boar, carcass quality, meat quality.

I. INTRODUCTION

Nowadays, production of high quality meat is an important issue and becomes a necessity as consumers become more selective in their consumption habits. Therefore, high carcass and meat quality are the primary goals of pig production, including aspects of fat tissue quality [1]. The quality of live and slaughtered pigs and

their carcass value as well as meat and fat characteristics are dependent on many factors. The most important are genetic, diet, weight, age of pigs at slaughter as well as sex and castration. Each of these factors individually affect the meat quality of slaughtered pigs, but also they have common effects [2].

The objective of this study was to compare various carcass and meat quality parameters in boars, barrows and gilts in order to evaluate the influence of sex and castration on those parameters.

II. MATERIALS AND METHODS

The experiment was conducted on 100 commercial market pigs (53 barrows, 31 gilts and 16 boars) derived from crossing Naima sows with hybrids P-76 PenArLan boars, with live weight between 115 and 130 kg. Hot carcass weight and fat carcass thickness at two points (on the back between the 13th and 15th dorsal vertebrae and at the sacrum where *M. gluteus medius* grows into bacon) were measured. Meatiness (in percentages and kilograms) was determined according to Regulation [3] on the basis of hot carcass weight and the sum of fat carcass thickness. Meat quality measurements were carried out on muscle *Longissimus dorsi* (LD), *pars lumbalis*. Value of pH and temperature were measured using a pH-meter "Testo 205" (Germany) 60 minutes (pH_{60min} and t_{60min}) and 24 hours *post mortem* (pH_{24h}). Analytical panel of 3 members assessed after 24 hours *post mortem* sensory colour and marbling by using the scaling method after an approximate 60 minutes of blooming time [4].

Differences between gilts, barrows and boars in carcass and meat quality parameters were

determined by ANOVA. Data were analyzed using the statistical package GraphPad Prism 5.00.

III. RESULTS AND DISCUSSION

The results of this study are shown in Table 1.

Table 1. The carcass and meat quality parameters in gilts, barrows and boars

Parameters	Gilts (n=31)	Barrows (n=53)	Boars (n=16)
	$\bar{X} \pm Sd$	$\bar{X} \pm Sd$	$\bar{X} \pm Sd$
HCW	90.78±10.75	96.24±11.73	90.09±8.18
M (kg)	40.12±4.90	41.69±4.34	40.48±3.03
M (%)	44.17 ^a ±1.44	43.14 ^{AB} ±1.81	45.06 ^A ±0.55
FTB (cm)	20.39 ^A ±4.80	24.22 ^{AB} ±6.01	17.69 ^B ±4.11
FTS (cm)	13.45 ^{Aa} ±4.19	16.63 ^{AB} ±5.22	10.00 ^{AB} ±3.41
FTB + FTS (cm)	33.84 ^A ±8.17	40.38 ^{AB} ±10.68	27.69 ^B ±6.58
pH _{60min}	6.26±0.24	6.35±0.18	6.39±0.20
pH _{24h}	5.55±0.14	5.53±0.14	5.57±0.12
t _{60min}	38.59±0.79	38.50±0.69	38.71±0.71
Mar	1.26±0.34	1.37±0.39	1.14±0.29
SC	2.49±0.46	2.45±0.50	2.31±0.70

HCW - Hot carcass weight; M (kg) - Meatiness in kilograms; M (%) - Meatiness in percentages; FTB - fat carcass thickness on the back; FTS - fat carcass thickness at the sacrum; FTB+FTS - Sum of fat carcass thickness; Mar - Marbling; SC - Sensory colour.

Within columns, letters a, b, or c, where the same, show significant difference ($p < 0.05$); letters A, B, or C, where the same, show significant difference ($p < 0.01$).

3.1. Carcass quality parameters

Although there were no significant differences, barrows produced heavier hot carcass weight (96.24 kg) than gilts (90.78 kg) and boars (90.09 kg), which is in agreement with results of Latorre et al. [5]. Meatiness in kilograms did not significantly differ among compared groups, while meatiness in percentages was significantly lower for barrows (43.14 %) compared to gilts (44.17 %) and boars (45.06 %). To these conclusions came also Ellis et al. [6], Leach et al. [7], Hamilton et al. [8], Latorre et al. [5] and Jaturasitha et al. [9]. Rearing pigs to heavier slaughter weights results in a lower percentage of lean meat in carcasses. The effect of slaughter weight on lean percentage is, however, not the same in barrows, gilts, and boars. Lean percentage in barrows and gilts is more influenced by weight at slaughter, while in

boars slaughter weight is less of a factor in lean percentage [10]. The magnitude of the difference between boars and barrows increased as slaughter weight increased. With a higher lean meat content in boar carcasses, the content of fat in boars is lower than that in barrows [10]. To those conclusions came also Dokmanovic et al. [11] who found that meatiness and back fat thickness were highly negative correlated, particularly in barrows more than in boars. For all traits, gilts were intermediate between barrows and boars [12] which was confirmed also in this study. Namely, fat carcass thicknesses at the back and sacrum as well as their sum significantly differed among compared groups and were highest in barrows (24.22, 16.63 and 40.38 cm, respectively) and lowest in boars (17.69, 10.00 and 27.69 cm, respectively). To same conclusions came also Jaturasitha et al. [9] confirming that testosterone promote muscle growth, so when it is lacking as in barrows, energy is transferred to fat tissue at a higher rate.

3.2. Meat quality parameters

In this study no significant differences were found between the initial and ultimate pH values among compared groups, which was similar to the findings of Ellis et al. [6], Cisneros et al. [13], Henry et al. [14], Nold et al. [15], and Jaturasitha et al. [9], although the highest pH value after 60 minutes and 24 hours was found in boars (6.39 and 5.57, respectively). Boars have been reported to have higher ultimate pH values than barrows [16]. In boars held overnight in a lairage pH values and DFD frequencies were higher compared to barrows [17]. During preslaughter holding physical activity is associated mainly with aggressive behavior and entire males tend to be more aggressive than barrows. However, Jaturasitha et al. [9] found that the initial pH value of boar meat tended to be lower than that of gilt and barrow meat. This would be expected from the more aggressive behavior of boars, which contributes to stress susceptibility. This enhances the post mortem glycolysis process leading to high lactic acid accumulation and hence a low early postmortem pH value of meat. Although significant differences were not determined in this study, higher meat temperature in boars (38.71 °C) compared to gilts (38.59 °C) and barrows (38.50 °C) indicated accelerated metabolic processes. It

has to be kept in mind, though, that length of fasting period (high or low glycogen stores) and slaughter conditions (enhancing or preventing fights among boars, etc.) will determine whether boars tend more towards PSE or DFD meat compared to barrows and gilts [9]. Also, in this study the initial pH value was lower in gilts (6.26) compared to barrows (6.35), but with no significant difference, which is in accordance with results of Lattore et al. [5]. Conditions imposed during transportation and lairage at the slaughterhouse are the main factors influencing pH of the carcass and stress might affect barrows and gilts differently [18].

Meat of barrows had higher intramuscular fat content (1.37) than gilts (1.26) and boars (1.14), but among compared groups significant differences were not found. Also, Friesen et al. [19], Lattore et al. [5] and Jaturasitha et al. [9] found that meat of barrows had the highest intramuscular fat content. Any difference in the nutrient content of the meat could be ascribed to the different hormone profiles in the different genders. Especially, testosterone enhances protein synthesis, while reducing fat accumulation [19].

Score for sensory color was similar for all groups, although meat of boars tended to be lighter (2.31) than meat of barrows (2.45) and gilts (2.49) which was in contrast with results of Jaturasitha et al. [9]. Most research indicates that meat color as determined by visual scores [6, 20], objective parameters [21, 22] or myoglobin content [23] is independent of gender, although Lattore et al. [24] found that meat from castrates was redder and had a more intense color than meat from females.

IV. CONCLUSION

In respect of lean meat content boars significantly performed better than gilts and barrows. However, differences in meat quality were not pronounced, although boar meat tended to have higher pH value after 60 minutes and 24 hours, higher temperature and lighter color compared to meat of barrows and gilts. Overall, this suggests that boar meat has a slight advantage in carcass quality but it could be inferior in meat quality compared to barrows and gilts even in the absence of noticeable boar taint.

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REFERENCES

1. Jaturasitha, S., Wudthithumkanaporn, Y., Rurksasen, P., Kreuzer, M. (2002). Enrichment of pork in omega-3 fatty acids by tuna oil supplements: effects on performance as well as sensory, nutritional and technological properties of pork. *Asian-Aust J Anim Sci* 15: 1622-1633.
2. Volčević, B. (2002). *Svinjarstvo*, TERA NOVA, Novi Sad.
3. Anon, 1985. *Pravilnik o kvalitetu zaklanih svinja i kategorizaciji svinjskog mesa* (Sl. list SFRJ, 2/85, 12/85, 24/86).
4. NPPC (National Pork Producers Council), 2000. *Pork composition and quality assessment procedures*. E. Berg (Ed.), pp. 1 – 38, National Pork Producers Council, Des Moines, Iowa, USA.
5. Latorre, M. A., Lázaro, R., Valencia, D. G., Medel, P., Mateos, G. G. (2004). The effects of gender and slaughter weight on the growth performance, carcass traits, and meat quality characteristics of heavy pigs. *J Anim Sci* 82:526-533.
6. Ellis, M., A. J. Webb, P. J. Avery, and I. Brown. 1996. The influence of terminal sire genotype, sex, slaughter weight, feeding regime and slaughterhouse on growth performance and carcass and meat quality in pigs and on the organoleptic properties of fresh pork. *Anim. Sci.* 62:521–530.
7. Leach, L. M., M. Ellis, D. S. Sutton, F. K. McKeith, and E. R. Wilson. 1996. The growth performance, carcass characteristics, and meat quality of Halothane carrier and negative pigs. *J. Anim. Sci.* 74:934–943.
8. Hamilton, D. N., M. Ellis, K. D. Miller, F. K. McKeith, and D. F. Parret. 2000. The effect of the Halothane and Rendement Napole genes on carcass and meat quality characteristics of pigs. *J. Anim. Sci.* 78:2862–2867.
9. Jaturasitha, S., Kamopas, S., Suppadit, T., Khiaosard, R., Kreuzer M. (2006). The Effect of Gender of Finishing Pigs Slaughtered at 110 Kilograms on Performance, and Carcass and Meat Quality. *Science Asia* 32: 297-305.
10. Hansson, I. (1974). Effect of sex and weight on growth, feed efficiency and carcass characteristics

- of pigs. 1. Growth rate and feed efficiency of boars, barrows and gilts. *Swed J Agric Res* 209–218.
11. Dokmanović, M., Todorović, M., Dragičević, V., Đurić, J., Marković, R., Lončina, J., Baltić, Ž. M., (2012). Uticaj pola i kastracije na mesnatost trupova svinja. 3. simpozijum „Bezbednost i kvalitet namirnica animalnog porekla“, Zbornik radova, Fakultet veterinarske medicine, Univerzitet u Beogradu, 22.-23. novembar, Beograd, 115-119.
 12. Xue, J., Dial, G. D., Pettigrew, J.E. (1997). Performance, carcass, and meat quality advantages of boars over barrows: A literature review. *Swine Health and Production— January and February*, 21-28.
 13. Cisneros, F., Ellis, M., McKeith, F.K., McCaw, J. Fernando, R.L. (1996). Influence of slaughter weight on growth and carcass characteristics, commercial cutting and curing yield, and meat quality of barrows and gilts from two genotypes. *J Anim Sci* 74: 925-933.
 14. Henry, Y., Seve, B., Mounier, A., Ganier, P. (1996). Growth performance and brain neurotransmitters in pigs as affected by tryptophan, protein and sex. *J Anim Sci* 74: 2700.
 15. Nold, R.A., Romans, J.R., Costello, W.J., Itenson, J.A. Libal, G.W. (1997). Sensory characteristics and carcass traits of boar, barrows, and gilt fed high- or adequate-protein diets and slaughtered at 100 or 110 kilograms. *J Anim Sci* 75: 2641-2651.
 16. Tarrant, P.V., Gallwey, W.J., McGloughlin, P. (1979). Carcass pH values in Irish Landrace and Large White pigs. *Ir J Agric Res* 18:167–172.
 17. Ellis, M., Smith, W.C., Clark, J.B.K., Innes, N. (1983). A comparison of boars, gilts and castrates for bacon manufacture. 1. On farm performance, carcass and meat quality characteristics and weight loss in the preparation of sides for curing. *Anim Prod* 37:1-9.
 18. Pineiro, C., Lorenzo, E., Pineiro, A., Mateos, G.G. (2001). Effects of induced stresses on productive performance and serum concentration of acute phase proteins in growing-finishing pigs. *J. Anim. Sci.* 79:211.
 19. Friesen, K.G., Nelssen, J.L., Unruh, J.A., Goodband, R.D., Tokach, M.D. (1994). Effect of the interrelationship between genotype, sex, and dietary lysine on growth performance and carcass composition in finishing pigs fed to either 104 or 127 kilograms. *J Anim Sci* 72: 946-954.
 20. Unruh, J. A., Friesen, K. G., Stuewe, S. R., Dunn, B. L., Nelssen, J. L., Goodband, R. D., Tokach, M. D. (1996). The influence of genotype, sex, and dietary on pork subprimal cut yields and carcass quality of pigs fed to either 104 or 127 kilograms. *Journal of Animal Science* 74: 1274–1283.
 21. Leach, L.M., Ellis, M., Sutton, D. S., McKeith, F. K., Wilson, E. R. (1996). The growth performance, carcass characteristics, and meat quality of Halothane carrier and negative pigs. *Journal of Animal Science* 74: 934–943.
 22. Weatherup, R. N., Veattie, V. E., Moss, B. W., Kilpatrick, D. J., Walker, N. (1998). The effect of increasing slaughter weight on the production performance and meat quality of finishing pigs. *Animal Science* 67: 591–600.
 23. Lindahl, G., Lundstrom, K., Tornberg, E. (2001). Contribution of pigment content, myoglobin forms and internal reflectance to the colour of pork loin and ham from pure breed pigs. *Meat Science* 59: 141–151.
 24. Latorre, M.A., Lazaro, R., Gracia, I., Nieto, M., Mateos, G.G. (2003). Effect of sex and terminal sire genotype on performance, carcass characteristics, and meat quality of pigs slaughtered at 117 kg body weight. *Meat Science* 65: 1369–1377.

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