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# A comparative study on the fattening ability, slaughter traits and meat quality of the Danube White Breed and its crosses

Badania porównawcze nad użytkowością tuczną, rzeźną i jakością mięsa świń rasy dunajskiej białej oraz mieszańców z jej udziałem

**Summary.** The Danube White is a genuine, contemporary breed of pigs in Bulgaria. It came into being in the basin of the Danube but research related to its appearance and improvement was conducted at the Agricultural Institute in Shumen. The breed was obtained as a result of many crossing variants of the Bulgarian White, Large White, Landrace, Hampshire and Pietrain pigs, as well as one synthetic line. The obtained population of animals was exposed to high selection and careful assortment of the parental couple. A scientific experiment comprising 21 pigs, divided into two groups, was carried out. The groups had the following origin: I$^{st}$ group – pure-bred pigs from the Danube White breed (DW), II$^{nd}$ group – crosses [♀ DW × ♂(LW × L)] of the Danube White sows mated by boars crosses of the breeds Large White (LW) × Landrace (L) of English origin. The slaughter characteristics of carcass established higher meat content in the crosses' carcass compared to the pure-bred pigs. The measurements of the right half found that this superiority was connected with a higher percentage of meat 4.36% ($P \leq 0.05$) and less backfat 799 g ($P \leq 0.01$). The same trend was established with regard to the separate parts of the half carcass, where the meat content of the chest part is higher by 84 g and the backfat is less by 462 g ($P \leq 0.01$). The measurements in the waist part show a significantly lower fat content in the crosses 363 g ($P \leq 0.01$). The meat quality of the animals of both origins has a high content of intramuscular fat and optimal processing opportunity.

**Key words:** pigs, fattening ability, slaughter traits, meat quality.

## INTRODUCTION

Selection in pig-breeding as well as the different hybridization schemes are directed to increasing the quantity of lean meat in carcass and improving of its palatability respectively. On the other hand a number of authors have established that selection directed to increasing the percentage of meat in carcass negatively influences the intramuscular fat content, juiciness and tenderness of meat [Cameron *et al*. 1999; Lonergan *et al*. 2001].

The meat quantity as well as the type of muscular fibers depend on the choice of animals for mating i.e. on the individual's genotype [Ruusunen and Puolanne 1997, Brocks *et al*. 1998, Falkowski *et al*. 2006, Krasnowska and Salejda 2008], on environmental influence [Andersen and Henriksson 1977, Petersen *et al*. 1997], on feeding [Esse´n-Gustavsson and Jensen-Waern 1993, Karlsson *et al*. 1994], and on movement [Petersen *et al*. 1998].

Pigs from the Danube White breed are characterized by comparatively good meat quality, but with high fat content in carcass [Szostak *et al.* 2004, Nakev *et al.* 2009] which necessitated the implementation of this investigation.

The objective of the investigation was to establish the fattening ability, slaughter traits, and meat quality of the Danube white breed and its crosses.

## MATERIAL AND METHODS

A scientific experiment comprising 21 pigs – total, divided into two groups, was carried out. The pigs from each group came from four unrelated litters. Pigs was born in the same ferm. The groups had the following origin: $I^{st}$ group (n = 10) – pure-bred pigs from the Danube White breed (DW), $II^{nd}$ group (n = 11) – crosses [♀ DW × ♂(LW × L)] of Danube White sows mated by boars crosses of the breeds Large White (LW) × Landrace (L) of English origin.

The investigation was carried out at the Experimental Base of the Agricultural Institute during the period 2007–2008. The pigs from both groups were equalized by sex, age and live weight. The trial began at 30.4–30.5 kg and finished at 100 kg. The trial was divided into two sub-periods as follows: sub-period $I^{st}$ up to 60 kg and sub-period $II^{nd}$ from 60 kg to 100 kg. The animals were raised in individual pens and were fed dry meals for the respective category. During sub-period $I^{-st}$ the animals were fed standard compound feed according to BDS 642–96 containing 17.27% crude protein, 0.93% lysine, 0.77% calcium and 0.59% phosphorus. During sub-period $II^{nd}$ compound feed was used which chemical composition is shown in Table 1.

After reaching 100 kg live weight the pigs were slaughtered and cooled for 24 hours. Slaughter analysis was conducted by a test procedure described in the Rules for breeding value estimation, production and classification of pigs for breeding purposes [1996]. Meat quality was examined by physical-chemical analysis of *Musculus Longisimus Dorsi (MLD)* samples.

Table 1. Composition and nutrient content in 1 kg compound feed for pigs over 60 kg live weight
Tabela 1. Skład mieszanki i wartość pokarmowa 1 kg mieszanki przeznaczonej dla świń o masie ciała około 60 kg

| Ingredients – Składniki | Content – Zawartość |
|---|---|
| Wheat, kg<br>Pszenica, kg | 49.30 |
| Barley, kg<br>Jęczmień, kg | 37.20 |
| Sunflower meal, kg<br>Poekstrakcyjna śruta słonecznikowa, kg | 11.20 |
| Synthetic lysine, kg<br>Lizyna, kg | 0.30 |
| Premix, kg<br>Premiks, kg | 0.50 |
| Chalk,kg<br>Kreda, kg | 1.20 |
| Salt, kg<br>Sól kuchenna, kg | 0.30 |
| Total, kg<br>Razem, kg | 100.00 |
| 1 kg compound feed contains: – 1 kg mieszanki zawiera: | |
| Metabolizable energy, kcal/MJ<br>Energia metaboliczna, kcal/MJ | 12.81 |
| Crude protein, g<br>Białko ogólne, g | 132.0 |
| Crude fat, g<br>Tłuszcz surowy, g | 17.5 |
| Crude fiber, g<br>Włókno surowe, g | 55.4 |
| Lysine, g<br>Lizina, g | 7.1 |
| Methionine + cystine, g<br>Metionina + cystyna, g | 4.8 |
| Tryptophane, g<br>Tryptofan, g | 1.7 |
| Threonine, g<br>Treonina, g | 4.2 |
| Calcium, g<br>Wapń, g | 5.2 |
| Phosphorus, g<br>Fosfor, g | 6.5 |

## RESULTS

The results characterizing the fattening abilities showed values at short range for the traits studied (Tab. 2). There was a trend towards insignificantly higher gain and lower feed conversion ratio in the pure-bred pigs compared to the crosses and the feed intake was a little bit higher respectively.

Table 2. Characteristic of the fattening ability of pure-bred pigs and crosses
Tabela 2. Charakterystyka użytkowości tucznej świń czystorasowych i mieszańców

| Traits<br>Cechy | Danube White<br>Dunajska biała (DW)<br>n = 10 | | | Crossem<br>Mieszańce ♀DW ♂( LW × L )<br>n = 11 | | |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | E | C | $\bar{x}$ | E | C |
| Feed intake per day-I sub-period, kg<br>Dzienne zużycie paszy w I okresie, kg | 2.015 | 1.5 | 4.83 | 1.907 | 2.6 | 8.84 |
| Feed conversion per 1 kg gain- I sub-period, kg<br>Zużycie paszy na 1 kg przyrostu w I okresie | 3.119 | 2.2 | 7.29 | 3.048 | 2.6 | 8.94 |
| Average daily gain- I sub-period, kg<br>Średni przyrost dobowy w I okresie, kg | 0.649 | 2.6 | 8.73 | 0.630 | 3.4 | 11.90 |
| Feed intake per day-II sub-period, kg<br>Dzienne zużycie paszy w II okresie, kg | 3.074 | 0.8 | 2.79 | 3.054 | 1.0 | 3.35 |
| Feed conversion per 1 kg gain- II sub-period, kg<br>Zużycie paszy na 1 kg przyrostu w II okresie, kg | 4.171 | 2.6 | 8.57 | 4.251 | 3.6 | 12.31 |
| Average daily gain- II sub-period, kg<br>Średni przyrost dobowy w II okresie, kg | 0.742 | 2.6 | 8.48 | 0.727 | 3.3 | 11.40 |
| Feed intake per day for the whole trial period, kg<br>Dzienne zużycie paszy za cały okres tuczu, kg | 2.517 | 1.2 | 3.94 | 2.471 | 1.4 | 4.89 |
| Feed conversion per 1 kg gain for the whole trial period, kg<br>Zużycie paszy na 1 kg przyrostu za cały okres, kg | 3.641 | 1.6 | 5.40 | 3.678 | 2.9 | 9.92 |
| Average daily gain for the whole trial period, kg<br>Średni przyrost dobowy za cały okres, kg | 0.693 | 1.5 | 4.83 | 0.677 | 2.7 | 9.42 |

The slaughter carcass traits established higher meat content in the crosses' carcass compared to the pure-bred pigs (Tab. 3). It became clear from the results that the measurements of right half of the crosses compared to the pure-bred pigs were characterized by higher percentage of meat 4.36% ($P \leq 0.05$) and lower fat content 799 g ($P \leq 0.01$). The same trend was established with regard to the separate parts of the half as to the

chest part the meat content was higher by 84 g, and fat content was lower by 462 g ($P \leq 0.01$). The measurements of the chest part showed significantly lower fat content in the crosses by 363 g ($P \leq 0.01$).

Table 3. Slaughter characteristic of carcass
Tabela 3. Charakterystyka rzeźna tuszy

| Traits<br>Cechy | Danube White<br>Dunajska biała (DW)<br>n = 10 | | | Crosses<br>Mieszańce<br>DW × ( LW × L)<br>n = 11 | | | Significance of differences<br>Różnice statystyczne |
|---|---|---|---|---|---|---|---|
| | $\bar{x}$ | E | C | $\bar{x}$ | E | C | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Carcass weight, kg<br>Masa tuszy, kg | 69.251 | 0.8 | 2.62 | 67.559 | 1.2 | 4.11 | 1.742 |
| Carcass weight, %<br>Masa tuszy, % | 70.011 | 0.7 | 2.39 | 68.227 | 0.9 | 3.12 | 2.243* |
| Slaughter length, cm<br>Długość tuszy, cm | 79.909 | 1.0 | 3.44 | 80.542 | 0.4 | 1.44 | -0.709 |
| Right half, kg<br>Prawa półtusza, kg | 34.722 | 0.8 | 2.73 | 33.842 | 1.2 | 4.01 | 1.812 |
| Right half – meat kg<br>Prawa półtusza – mięso, kg | 22.860 | 1.7 | 5.75 | 23.780 | 2.3 | 7.82 | -1.378 |
| Right half – meat, %<br>Prawa półtusza – mięso, % | 65.856 | 1.7 | 5.63 | 70.213 | 1.6 | 5.43 | -2.778* |
| Right half – fat, kg<br>Prawa półtusza – słonina, kg | 11.861 | 3.5 | 11.66 | 10.062 | 3.3 | 11.59 | 3.358** |
| Right half – fat, %<br>Prawa półtusza – słonina, % | 34.144 | 3.3 | 10.86 | 29.787 | 3.7 | 12.79 | 2.778* |
| Chest part, kg<br>Część piersiowa, kg | 4.875 | 3.4 | 11.39 | 4.497 | 3.2 | 11.20 | 1.700 |
| Chest part meat, kg<br>Część piersiowa – mięso, kg | 2.986 | 3.2 | 10.51 | 3.070 | 4.0 | 13.98 | -0.539 |
| Chest part fat, kg<br>Część piersiowa – słonina, kg | 1.889 | 5.0 | 16.54 | 1.427 | 6.4 | 22.18 | 3.514** |
| Waist part, kg<br>Część lędźwiowa, kg | 3.895 | 2.4 | 7.86 | 3.545 | 3.2 | 11.24 | 2.379* |
| Waist part meat, kg<br>Część lędźwiowa – mięso, kg | 2.485 | 3.7 | 12.14 | 2.498 | 4.0 | 14.01 | -0.091 |
| Waist part fat, kg<br>Cześć lędźwiowa – słonina, kg | 1.410 | 5.4 | 18.03 | 1.047 | 6.3 | 21.90 | 3.586** |
| Fat depth in point C, mm<br>Grubość słoniny w punkcie C, mm | 16.545 | 7.5 | 24.83 | 14.167 | 8.1 | 27.89 | 1.413 |
| Fat depth in point K, mm<br>Grubośc słoniny w punkcie K, mm | 16.545 | 8.2 | 27.35 | 13.500 | 11.2 | 38.75 | 1.497 |
| Fat depth in point $L_1$, mm<br>Grubość słoniny w punkcie $L_1$, mm | 23.182 | 6.2 | 20.58 | 20.250 | 4.6 | 15.78 | 1.716 |

cd. tab. 3

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Fat depth in point $L_{1,}$ mm<br>Grubość słoniny w punkcie $L_1$, mm | 23.182 | 6.2 | 20.58 | 20.250 | 4.6 | 15.78 | 1.716 |
| Fat depth in point $L_2$, mm<br>Grubość słoniny w punkcie $L_2$, mm | 18.636 | 7.3 | 24.15 | 17.333 | 6.2 | 21.35 | 0.755 |
| Fat depth in point $L_3$, mm<br>Grubość słoniny w punkcie $L_3$, mm | 25.091 | 6.5 | 21.50 | 21.833 | 4.5 | 15.73 | 1.711 |
| Average fat depth from 3 measurements, mm<br>Średnia z 3 pomiarów, mm | 24.364 | 5.1 | 16.82 | 22.777 | 5.2 | 17.97 | 0.928 |
| Average fat depth from 5 measurements, mm<br>Średnia z 5 pomiarów | 25.586 | 4.9 | 16.34 | 23.602 | 4.8 | 16.70 | 1.168 |
| Fat depth Σ $CKL_2$, mm<br>Grubość słoniny z $CKL_2$, mm | 51.727 | 6.7 | 22.31 | 45.000 | 7.5 | 26.05 | 1.386 |
| Area of *longisimus dorsi*, $cm^2$<br>Powierzchnia *m. longisimus dorsi,* $cm^2$ | 40.018 | 2.8 | 9.24 | 39.375 | 4.5 | 15.60 | 0.307 |
| Front ham, kg<br>Łopatka, kg | 4.555 | 2.6 | 8.76 | 4.859 | 2.6 | 9.13 | -1.731 |
| Front ham – meat, kg<br>Łopatka – mięso, kg | 3.659 | 3.1 | 10.39 | 3.964 | 3.2 | 11.18 | -1.775 |
| Front ham – fat, kg<br>Łopatka – slonina, kg | 0.896 | 3.8 | 12.59 | 0.896 | 3.8 | 13.30 | 0.146 |
| Real ham, kg<br>Szynka, kg | 7.590 | 2.2 | 7.21 | 7.479 | 2.0 | 7.08 | 0.493 |
| Meat in ham, kg<br>Mięso w szynce, kg | 5.585 | 2.2 | 7.14 | 5.657 | 2.9 | 10.10 | -0.354 |
| Fat in ham, kg<br>Słonina w szynce, kg | 2.005 | 6.1 | 20.37 | 1.821 | 4.2 | 14.39 | 1.267 |

*P ≤ 0.05,**P ≤ 0.01, ***P ≤ 0.001

The traits of economic importance such as longissimus dorsi area, meat content of loin, neck part and real ham, did not significantly differentiate for both groups. With regard to the fat thickness there was a trend to thinner backfat in the crosses of all measurements and the most important difference was for the backfat thickness ∑ $CKL_2$ (6.7 mm).

The crosses surpassed the pure-bred pigs in the inferior carcass parts too: flare fat was lighter by 385 g (P ≤ 0.05), abdomen meat was higher by 310g (P ≤ 0.05) and weight of shin and its meat content were higher by 172 and 152 g (P ≤ 0.01) respectively.

The physical-chemical analysis of animals' meat of both origins had excellent palatability (high content of intramuscular fat) and optimal possibilities of processing (Tab. 4). However, there is a trend towards worsening of the palatability of meat and its juiciness respectively in pigs subject to crossing. This trend is expressed by lower intramuscular fat content by 0.4%. For the same category of animals the traits characterizing meat processing were lowered: losses at boiling (2%), losses at roasting (1%) as well as water holding capacity (0.45%).

Table 4. Physical-chemical analysis of *Musculus Longisimus Dorsi*
Tabela 4. Wyniki analizy fizykochemicznej *Musculus Longisimus Dorsi*

| Traits<br>Cechy | Danube White<br>Dunajska biała (DW)<br>n = 10 | | | Crosses<br>Mieszańce DW × ( LW × L )<br>n = 11 | | |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | E | C | $\bar{x}$ | E | C |
| Water, %<br>Woda, % | 73.501 | 0.3 | 0.99 | 74.141 | 0.4 | 1.31 |
| Fat, %<br>Tłuszcz, % | 4.281 | 4.4 | 14.49 | 3.889 | 7.3 | 25.24 |
| Mineral traces, %<br>Składniki mineralne, % | 1.162 | 1.7 | 5.55 | 1.126 | 1.6 | 5.71 |
| Protein, %<br>Białko, % | 21.056 | 1.3 | 4.32 | 20.844 | 1.4 | 4.70 |
| Water holding capacity (WHC),%<br>Woda swobodna, % | 31.497 | 1.4 | 4.64 | 31.139 | 1.1 | 3.89 |
| $_pH_1$ | 6.177 | 0.7 | 2.40 | 6.259 | 0.4 | 1.44 |
| $_pH_2$ | 5.928 | 0.4 | 1.26 | 5.957 | 0.7 | 2.36 |
| Colour, nm<br>Kolor, nm | 22.973 | 3.0 | 10.00 | 24.452 | 2.8 | 9.74 |
| Loss at boiling, %<br>Straty przy gotowaniu, % | 42.273 | 2.4 | 7.92 | 44.167 | 2.2 | 7.47 |
| Loss at roasting, %<br>Straty przy pieczeniu, % | 47.545 | 2.1 | 7.06 | 46.583 | 1.5 | 5.30 |
| Muscular fiber thickness, mm<br>Grubość włókien mięśniowych, mm | 42.880 | 3.8 | 12.61 | 42.299 | 2.7 | 9.33 |

Meat color of MLD sample as well as its acidity were in optimal limits for the animals of both groups.

The trait variation for both origins was in low limits. The values characterizing the backfat measurements and the fat content with regard to the meat quality traits were with high variation. The accuracy index was also in low limits, which showed a representative sample following the trend of variation coefficients.

## DISCUSSION

The fattening ability of pigs from both origins did not show significant differences. However, we should emphasize that the objective of the exact trial that we carried out was to investigate mainly the slaughter qualities, while regarding the fattening ability, regardless of the representative results (E), the differences between both origins have not been significant. In one of our previous studies [Apostolov 2010] comprising a larger sample of animals n = 960, we established that the growth rate of crosses was higher with determination coefficient R = 0.620. According to Kulisiewicz *et al*. [1995] the crosses having 50% blood from the Duroc breed are characterized by worsened traits compared to the pure-bred pigs from the Pietrain breed.

With regard to some slaughter traits we established significantly better results for the crosses, while the meat quality traits were in favour of the pure-bred animals. In a study with alive animals of the same origins, measured by Piglog 105 at 90 kg live weight, we established similar results and significantly higher meat percentage in the crosses compared to the pure-bred pigs with high values of the determination coefficient R = 0.822 [Apostolov 2010]. In a similar study Daszkiewicz *et a*l. [2005] reported that the higher fat content in meat increased its marbling, crude protein and ash content. The same authors emphasize that when the intramuscular fat content of meat is higher by 3%, palatability, juiciness, and tenderness are improved. A number of authors have established in their studies that the increase in intramuscular fat content really improves palatability, but also increases the total fat content in carcass [Castell *et al*. 1994, Goerl *et al*. 1995, Blanchard *et al*. 1999].

## CONCLUSIONS

The animals' origin in this study did not significantly influence the growth rate and feed conversion.

The weight measurements of right half as well as the measurements in its separate parts (chest and waist) show that the pigs [♀ DW × ♂(LW × L)] significantly exceed the pure-bred pigs (DW).

The animals' meat of both origins has high intramuscular fat content and optimal possibilities of processing.

## REFERENCES

Andersen P., Henriksson J., 1977. Training induced changes in subgroups of human type II skeletal muscle fibers. Acta Physiol., Scand. Anim. Sci. 99, 123–125.

Apostolov A., 2010. Influence of some genetic and environmental factors on the productivity of Danube White pigs. I. Study on the effect of blood introduction in boars with similar genotypes. Slovak J. Anim. Sci., 43 (1), 13–16.

Blanchard P., Ellis M., Warkup C., Hardy B., J. Chadwick, Deans G., 1999. The influence of rate of lean and fat tissue development on pork eating quality. Anim. Sci. 68, 477–485.

Brocks, L., Hulsegge B., G. Merkus G., 1998. Histochemical characteristics in relation to meat quality properties in the longissimus lumborum of fast and lean growing lines of Large White pigs. Meat Sci. 50, 411–420.

Cameron, N. D., Nute G. R., Brown S. N., Enser M., Wood J. D., 1999. Meat quality of Large White pig genotypes selected for components of efficient lean growth rate. Anim. Sci. 68, 115–127.

Castell A., Cliplef R., Poste-Flin L., Butler G., 1994. Performance, carcass and pork characteristics of castrates and gilts self–fed diets differing in protein content and lysine, energy ratio. Canadian J. Anim. Sci. 74, 519–528.

Daszkiewicz T., Bąk T., Denaburski J., 2005. Quality of pork with a different intramuscular fat (IMF) content. Pol. J. Food Nutr. Sci. 14, 31–36.

Esse´n-Gustavsson B., Jensen-Waern M., 1993. Muscle characteristics and metabolic response at slaughter in domestic pigs reared either outdoors or indoors. Page 67 in Proc. 39th Int. Cong. of Meat Sci. and Technol., Calgary, Canada.

Falkowski T., Pisula A., Słowiński M., Orzechowska B., 2006. Processing suitability of pork from different breeds reared in Poland. Acta Sci. Pol., *Technologia Alimentaria* 5(2), 55–64.

Goerl K., Eilert S., Mandigo R., Chen H., Miller P., 1995. Pork characteristics as affected by two populations of swine and six crude protein levels. J. Anim. Sci. 73, 3621–3626.

Karlsson A., Esse´n-Gustavsson B., Lundstro'm K., 1994. Muscle glycogen depletion pattern in halothane-gene-free pigs at slaughter and its relation to meat quality. Meat Sci. 38, 91–101.

Krasnowska G., Salejda A., 2008. The quality of pork from various pig genetic lines. III Baltic Conference on Food Science and Technology „Foodbalt 2008", 144–147.

Kulisiewicz J., Sokół J.L., Rekiel A., Iniarski R., Lenartowicz P., 1995. Growth rate and carcass value of three types of crossbred pigs fed ad libitum diets with different protein and energy contents. J. Anim. Feed Sci. 4,11–19.

Lonergan S.M., Huff-Lonergan E., Rowe L.J., Kuhlers D.L., Jungst S.B., 2001. Selection for lean growth efficiency in Duroc pigs influences pork quality. J. Anim. Sci. 79, 2075–2085.

Nakev Z., Apostolov A., Slanev S., 2009. A comparative study on the slaughter traits and quality of pork from the breed Landrace, Danube white, and their reciprocal crosses. J. Anim. Sci. (BG) 2, 14–18.

Petersen J. S., Henckel P., Maribo H., Oksbjerg N., Sorensen M. T., 1997. Muscle metabolism, post mortem pH-decline and meat quality in pigs subjected to regular physical training and spontaneous activity. Meat Sci. 46,259–275.

Petersen J.S., Henckel P., Oksbjerg N., Sorensen M.T., 1998. Adaptations in muscle fiber characteristics induced by physical activity in pigs. Anim. Sci. 66, 733–740.

Ruusunen M., Puolanne E., 1997. Comparison of histochemical properties of different pig breeds. Meat Sci. 45, 119–125.

Szostak B., Apostolov A., Slanev S., 2004. A note on the Bulgarian Danube White pig – reproduction, fattening and slaughter indicators. Anim. Sci. Pap. Rep. 22, 259–265.

Rules for breeding value estimation, production and classification of pigs for breeding purposes. Shumen (BG), 1996.

**Streszczenie.** Rasa dunajska biała jest rodzimą, współczesną rasą świń w Bułgarii. Powstała w dorzeczu Dunaju, ale prace badawcze związane z jej powstaniem i doskonaleniem prowadzono głównie w ośrodku badawczym Instytutu Rolnictwa w Szumen. Została uzyskana jako rezultat krzyżowania różnych ras: rasy bułgarskiej białej, wielkiej białej angielskiej, landrace, hampshire i pietrain oraz jednej linii syntetycznej. Uzyskano populację zwierząt, w której prowadzono ostrą selekcję i staranny dobór par rodzicielskich. Przeprowadzono badania na 21 szt. prosiąt podzielonych na dwie grupy w zależności od ich pochodzenia: I grupa – czystorasowe prosięta rasy dunajskiej białej, II grupa – mieszańce pochodzące z krzyżowania loch rasy dunajskiej białej z knurami mieszańcami wielka biała × landrace (angielska hodowla). Charakterystyka cech rzeźnych wykazała większą zawartość mięsa w tuszach mieszańców w porównaniu z tuszami zwierząt czystorasowych. W prawych półtuszach korzystniejsze wyniki dotyczyły większej zawartości mięsa: 4,36% ($P \leq 0,05$) i mniejszej zawartości słoniny: 799 g ($P \leq 0,001$). Podobną tendencję obserwowano w wyrębach podstawowych tuszy: w części piersiowej udział mięsa był większy o 84 g, a słoniny mniejszy o 462 g ($P \leq 0,01$). W części lędźwiowej tusz pochodzących od mieszańców stwierdzono istotnie mniejszą zawartość słoniny: 363 g ($P \leq 0,01$). Parametry charakteryzujące jakość mięsa wieprzowego wskazują, że świnie o badanym pochodzeniu, zarówno czystorasowe jak i mieszańce, charakteryzowały się bardzo dobrymi właściwościami technologicznymi.

**Słowa kluczowe:** świnie, cechy tuczne, rzeźne, jakość mięsa