Journal of Elementology ISSN 1644-2296

Dobiesz, K., Borsuk-Stanulewicz, M., Kozera, W., Dąbrowski, M., Kaliniewicz, J., Purwin, C., Findura, P., Prístavka, M., Szyndler-Nędza, M., Kaliniewicz, Z. and Karpiesiuk, K. (2026) 'Influence of sex on the fattening and slaughter parameters, chemical composition and fatty acid profile of the *longissimus dorsi* muscle in hybrid pigs', *Journal of Elementology*, 31(1), , available: https://doi.org/10.5601/jelem.2025.30.4.3707

RECEIVED: 26 November 2025
ACCEPTED: 11 January 2026

ORIGINAL PAPER

Influence of sex on the fattening and slaughter parameters, chemical composition and fatty acid profile of the *longissimus dorsi muscle* in hybrid pigs*

Karolina Dobiesz[1], Marta Borsuk-Stanulewicz[2], Wojciech Kozera[1], Michał Dąbrowski[4], Joanna Kaliniewicz[2], Cezary Purwin[2], Pavol Findura[5,6], Miroslav Pristavka[7], Magdalena Szyndler-Nędza[8], Zdzisław Kaliniewicz[3], Krzysztof Karpiesiuk[1]

[1] **Department of Pig Breeding**
[2] **Department of Animal Nutrition, Feed Science, and Cattle Breeding**
[3] **Faculty of Technical Sciences; University of Warmia and Mazury in Olsztyn, Poland**
[4] **Department of Veterinary Prevention and Feed Hygiene**
[5] **Department of Machines and Production Biosystems, Faculty of Engineering, Slovak University of Agriculture in Nitra, Slovakia**
[6] **Faculty of Agriculture and Technology, University of South Bohemia in České Budějovice, Czech Republic**
[7] **Department of Quality and Engineering Technology**
[8] **Department of Pig Breeding, National Research Institute of Animal Production, Kraków, Poland**

Abstract

The aim of this study was to determine the effect of sex on meat quality, chemical composition, and fatty acid (FA) profile of the longissimus dorsi muscle (LD) in DanBred crossbreds. The experiment was performed on a total of 201 598 DanBred hybrid pigs. A total of four groups were analyzed: 42 178 gilts, 47 515 entire males, 87 045 surgically castrated males, and 47 515 immunologically castrated (IM) males. Fattening began at a body weight of 31 kg. The animals were housed in groups and fed a complete diet in a four-phase system. The fattened pigs were slaughtered after 94 days of fattening. Lean meat content, fat thickness, and thickness of the *longissimus lumborum muscle* were measured on the warm right side of the carcass. After cooling, 12 muscle samples were collected from each group between the 3rd and 4th lumbar vertebrae. pH24 values, color parameters, chemical composition, and fatty acid profile were measured. Lean meat content in the carcass was highest in entire males (59.61%) and gilts (60.13%), and lowest in castrated (IM) males (58.41%). Gender significantly influenced meat color saturation. Crude fat content was significantly lower in entire males and gilts than in castrated fatteners. Entire males had significantly lower saturated fatty acid (SFA) content and higher polyunsaturated fatty acid (PUFA) content. Gender had no effect on the chemical composition of *longissimus dorsi muscle*, except for dry matter content, crude fat content, and acidity. Further studies of larger sample sizes are needed to confirm or refute the current findings.

Keywords: fatty acid and meat quality, *musculus longissimus dorsi*, sex, DanBred, fattening and slaughter parameters

Karolina Dobiesz, MSc., Department of Pig Breeding, Faculty of Animal Bioengineering, University of Warmia and Mazury in Olsztyn, Poland, e-mail: Karolina.Dobiesz@agriplus.pl
* Research funded by the Minister of Science under The Regional Initiative of Excellence Program.