

# Poster Competition

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## Carcass composition of boars compared to gilts and barrows

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### Conclusion

Our study quantifies gender related differences in carcass composition between boars, gilts and barrows for the present slaughter pig population in Germany. This database forms the reference for the analysis of images from X-ray computed tomography at the MRI.

**Keywords** – Body composition, boars, barrows, gilts, lean meat, main cuts

### Introduction

The forthcoming 2018 ban of surgical castration of male piglets without anaesthesia triggered many projects on the fattening of boars as an alternative. It is established that boars have a different shape and carcass tissue composition compared to gilts and barrows. In particular, boars have a higher percentage of lean meat at the expense of fat. But some aspects are unclear in detail, e.g. the quantitative ratio between lean meat and fat which is important for carcass value. Therefore, we compared the carcass composition of boars, gilts and barrows.

### Results

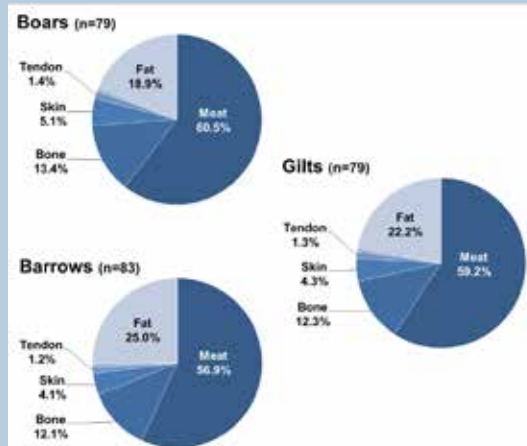


Figure 1: Average tissue composition of carcasses for boars (Bauer and Judas, 2014), and for gilts and barrows (Judas et al., 2012), as a result from full manual dissection (0.7% other tissue unlabelled).

Table 1: Mean weight percentage of carcass main cuts by gender (standard deviation in brackets, differences tested with generalized linear models, SAS 9.3).

	Shoulder	Neck with neck fat	LoIn with back fat	Belly	Tenderloin	Ham	Total
Boars n=79	14.2 <sup>a</sup> (0.5)	9.2 <sup>a</sup> (0.7)	16.6 <sup>b</sup> (1.0)	9.9 <sup>ab</sup> (0.8)	1.7 <sup>a</sup> (0.1)	24.6 <sup>b</sup> (1.3)	76.2 <sup>b</sup> (1.1)
Gilts n=79	13.8 <sup>b</sup> (0.5)	9.1 <sup>a</sup> (0.5)	16.9 <sup>ab</sup> (0.9)	9.7 <sup>b</sup> (0.8)	1.7 <sup>a</sup> (0.1)	25.4 <sup>a</sup> (1.0)	76.6 <sup>a</sup> (1.0)
Barrows n=83	13.9 <sup>b</sup> (0.6)	9.1 <sup>a</sup> (0.5)	17.0 <sup>a</sup> (0.7)	10.1 <sup>a</sup> (0.7)	1.6 <sup>b</sup> (0.1)	25.2 <sup>a</sup> (1.0)	76.9 <sup>a</sup> (1.0)

<sup>a, b, c</sup> Different indices within columns denote significant differences between genders ( $p < 0.05$ )

- As expected, highest amount of lean meat (61%) and lowest amount of fat tissue (19%) for boar carcasses (Fig. 1)
- In contrast, lowest lean meat (57%) and highest fat percentage (25%) for barrow carcasses
- Carcass composition of gilts ranged in between (lean meat 59%, fat 22%)
- Relatively larger shoulders and smaller hams in boar carcasses compared to gilts and barrows (Table 1)
- Same trend in tissue composition for main cuts as for the whole carcass, e.g. highest lean meat and lowest fat percentages in cuts from boars (for details, see Bauer and Judas, 2014)
- Boar carcasses also with highest percentages of bone, skin and (except tenderloin) tendon (for details, see Bauer and Judas, 2014)

### Material and Methods

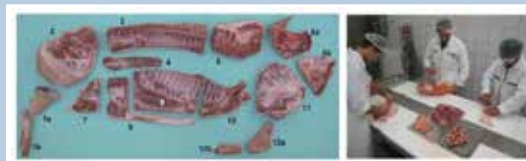


Figure 2: Cuts of a left half pig carcass according to the DLG method (left) and example of manual full dissection (right). 1a hind shank, 1b hind foot, 2 ham, 3 loin with back fat, 4 tenderloin, 5 neck with neck fat, 6a head, 6b cheek, 7 to ventral part of the belly, 8 ventral part of the belly, 9 belly, 10 jawl, 11 shoulder, 12a front shank, 12b front foot (from Judas et al., 2012).

- Dissection into main cuts and manual full dissection of tissues for overall 241 carcasses of boars (in 2012/2013, n=79), and of gilts and barrows (in 2009/2010, n=79 and n=83, resp.) (Fig. 2)

Table 2: Samples analysed by full manual dissection (n=241), stratified by gender, weight and morphological type.

	Du*DK	Pl*FR	Pl*Nord	Pl*Süd	Yk*NL
< 90 kg <sup>1</sup>	5:6:6	4:6:6	4:5:5	4:5:6	5:5:5
90<100 kg <sup>1</sup>	6:5:5	7:4:6	6:5:5	6:6:5	6:6:5
≥ 100 kg <sup>1</sup>	5:5:6	5:5:5	6:6:5	5:5:6	5:6:6
Boars:Gilts:Barrows	16:16:17	16:15:17	16:16:15	15:17:16	16:16:17

<sup>1</sup> Warm carcass weight, incl. 250 g correction for eye and ear cutouts for gilts and barrows

- Stratification by 5 morphological types in 3 weight groups representative for German slaughter pigs (Table 2)
- Differentiation of tissues: meat, fat, bone, skin, tendon, other tissue

Bauer A., Judas M., 2014. Schlachtkörperqualität von Mastebarn im Vergleich zu Sauen und Börgen. Züchtungskunde 86 (5/6), 374-389.  
Judas M., Branscheid W., Höreth R., 2012. Neue Ergebnisse zur Variabilität der Gewebeanteile beim Schwein. Mitteilungsblatt Fleischforschung Kulmbach 51 (195), 1-16.