

Effect of litter size and birth weight on growth performance, carcass characteristics, and meat quality in pigs

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Introduction: There is some evidence that, within litter, low birth weight pigs not only grow slower and have fatter carcasses but also meat quality traits like drip loss or shear force are impaired compared to their high birth weight siblings (1,2). Because the variability of BtW is greater in large compared to small litters, the aim of the present study was to test the hypothesis that effects of BtW on growth performance, carcass characteristic, and meat quality are different when pigs originate from small or large litters.

Material and Methods

Litter size (LS)

20 litters from multiparous Swiss Large White sows

- **Large litter size** : 10 litters with \geq than 14 piglets born/litter
- **Small litter size** : 10 litters with \leq than 10 piglets born/litter

Birth weight (BtW)

From within small and large litter, 60 barrows were selected with:

- Lightest birth weight (L-BtW)
- Nearest to the average birth weight (M-BtW)
- Heaviest birth weight (H-BtW)

Growth performance

- Body weight each week
- Feed intake daily

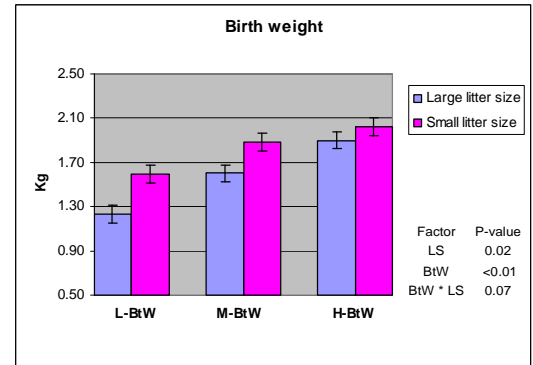
Carcass characteristic

- Hot carcass weight
- Carcass yield
- Percentage lean meat
- Percentage back fat
- Organ weight

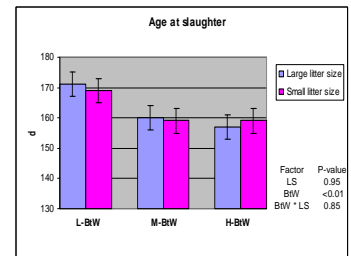
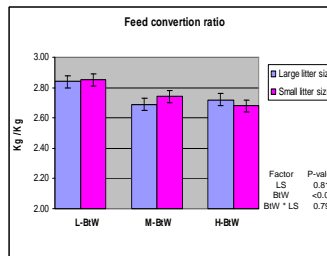
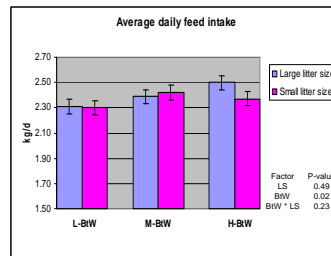
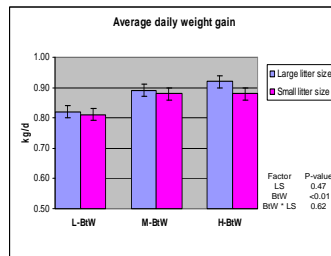
Meat quality traits

Determined in the longissimus (LM) and in the light portion of the semitendinosus (ST) muscle

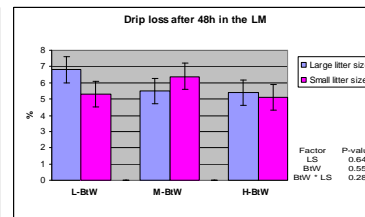
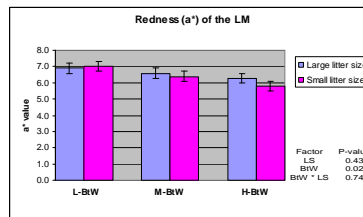
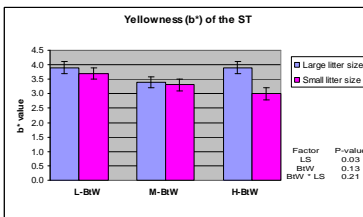
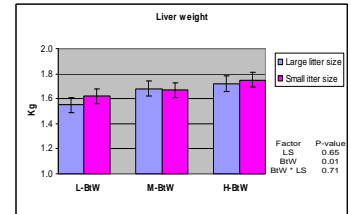
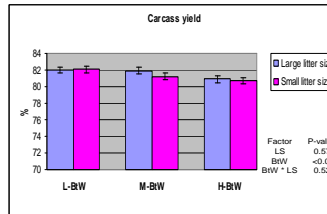
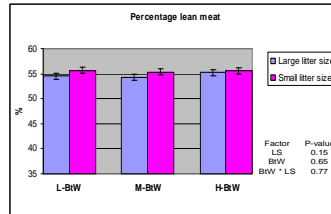
- Colour (L^* , a^* , b^* -values)
- Drip loss (after 48h)



Growth performance



Carcass characteristic



Meat quality

Conclusions: The present results confirm the marked effect of BtW on growth performance. However, the hypothesised impact on carcass characteristics and meat quality traits could not be demonstrated. Although the litter size affected average BtW of the lightest- and the medium-BtW barrows, its impact on growth performance, carcass, and meat quality was minor.

1) GONDRET, F., LEFAUCHEUR, L., LOUVEAU, I., LEBRET, B., PICHODO, X., & LE COZLER, Y. (2005) Livest. Prod. Sci., 93: 137-146.

2) REHFELDT, C. & KUHN, G. (2006) J. Anim. Sci., 84: E113-E123.

This study is partly financed by the State Secretariat for Education and Research SER (COST C05,0126).