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[home](#) [page](#) [about us](#) [contact](#)



**us**

**Table of  
Contents**

**IN PRESS**

**CJAS 2015**

**CJAS 2014**

**CJAS 2013**

**CJAS 2012**

**CJAS 2011**

**CJAS 2010**

**CJAS 2009**

**CJAS 2008**

**CJAS 2007**

**CJAS 2006**

**CJAS 2005**

- **Authors Declaration**
  - **Instruction to Authors**
  - **Guide for Authors**
  - **Fees**
  - **Submission**
- 

**Czech Journal of Animal Science**

**Simultaneous estimation of genetic parameters for production and litter size traits in Czech Large White and Czech Landrace pigs**

Krupa E., Wolf J.:

**Czech J. Anim. Sci., 58 (2013): 429-436**

[ [fulltext](#) ]

Genetic parameters for total number of piglets born per litter, number of piglets weaned per litter, lean meat content, and average daily gain from birth till the end of the field test were estimated for Czech

Large White (445 589 records) and Czech Landrace (149 057 records) pigs using a four-trait animal model. The following heritabilities were estimated (first number: Large White, second number: Landrace):  $0.10 \pm 0.004$  and  $0.09 \pm 0.007$  for total number born;  $0.09 \pm 0.005$  and  $0.07 \pm 0.008$  for number weaned;  $0.39 \pm 0.004$  and  $0.36 \pm 0.009$  for lean meat content;  $0.21 \pm 0.004$  and  $0.18 \pm 0.006$  for daily gain. The highest genetic correlation (approximately 0.85 in both breeds) was estimated between both litter size traits. In Czech Landrace, all remaining genetic correlations were  $< 0.20$  in their absolute value. Negative correlations of approximately -0.25 were estimated in Czech Large White between daily gain and both reproduction traits. All remaining correlations in Czech Large White were also  $< 0.20$  in their absolute value. The estimated non-zero correlations between production and reproduction traits are, besides of other arguments, one reason to recommend a joint genetic evaluation of production and reproduction traits. If more than one litter trait is included in the genetic evaluation, repeatability models should be used instead of separate treating the first and

the second and subsequent litters; this is because of the high correlations among litter size traits which are expected to cause numerical problems if multi-parity models are used.

## **Keywords:**

total number of piglets born; number of piglets weaned; lean meat content; average daily gain; heritability; genetic correlation; REML

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