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**Czech Journal of Animal Science**

**Genetic evaluation of daily gains of dual-purpose bulls using a random regression model**

Krejčová H., Příbyl J., Příbylová J., Štípková M., Mielenz N.:

**Czech J. Anim. Sci., 53 (2008): 227-237**

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Daily gains of 8 243 dual-purpose bulls from 100 to 400 days of age during the years 1971 to 2007 were analyzed by random regression models. Orthogonal Legendre polynomials (LP) of degree 4

30-day intervals over the test period. Fixed curves were estimated within the station-year-season of birth. The models also included a fixed station-year-season of weighing, animal additive genetic effects and animal permanent environmental effects. The peak daily gain was attained between 230 and 280 days of age, which corresponded to the period of the lowest variance in daily gains. Heritability estimates of daily gain were in the range of 0.014 to 0.043. The reliability of composite trait – cumulative gains over the entire period was 0.87. Genetic correlations between gains at different ages were high for adjacent ages and decreased with increasing difference in ages. Correlations of permanent environmental effects were high for adjacent ages, but became negative for ages that were far apart, indicating the possibility of compensatory growth. The phenotypic correlations were close to zero. The correlations for cumulative daily gains were higher than those for individual daily gains.

**Keywords:**

daily gains; curve; random regression; heritability; correlation; bulls

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