CZECH ACADEMY OF AGRICULTURAL SCIENCES

Open Access CAAS Agricultural Journals

Czech Journal of Animal Sc

Genetic parameters of test-day somatic cell scores for the first three lactations of Polish Holstein-Friesian cattle

K. Rzewuska, J. Jamrozik, A. Żarnecki, T. Strabel

https://doi.org/10.17221/1288-CJAS

Citation: Rzewuska K., Jamrozik J., Żarnecki A., Strabel T. (2011): Genetic parameters of test-day somatic cell scores for the first three lactations of Polish Holstein-Friesian cattle. Czech J. Anim. Sci., 56: 381-389.

download PDF

Genetic parameters for somatic cell score in the first three lactations of Polish Holstein-Friesian cattle were estimated. A multiple-lactation model was applied with random herd-test-day effect, fixed regressions for herd-year and age-season of calving, and random regressions for the additive genetic and permanent environmental effects. The large data set was used that included over one million test-day records and more than 58 000 cows. Estimates of covariance components and genetic parameters were obtained by Bayesian methods using the Gibbs sampler. Average daily heritabilities of somatic cell score (SCS) in the first three lactations were 0.11, 0.12 and 0.14 for the first, second and third lactation, respectively. Estimates of daily heritabilities were rather independent of days in milk (DIM), with no serious abnormalities at the beginning or the end of lactation. Average genetic correlations between SCS on the same DIM were 0.68, 0.62 and 0.70 for first and second, first and third, and second and third parities, respectively, and did not exceed 0.77. The low level of heritability estimates and relatively low genetic correlations between lactations would suggest that selection based on the first lactation only could limit a response in mastitis resistance for later lactations.

Keywords:

heritability; genetic correlation; somatic cell count; dairy cattle

download PDF

IF (Web of Science)
2017: 0.955
5-Year Impact Factor: 1.06
Q3 (33/60) – Agriculture, L
Animal Science
SJR (SCOPUS)
2017: 0.443 – Q2 (Animal S
and Zoology)

Abstracted / Indexed in
Agrindex of AGRIS/FAO o
Animal Breeding Abstrac
CAB Abstracts
CNKI
Current Contents®/Agric
Biology and Environmen
Sciences
Czech Agricultural and Fo
Bibliography
DOAJ (Directory of Open
Journals)
Food Science and Techno
Abstracts
Google Scholar
ISI Web of Knowledge®
J-Gate
Science Citation Index Ex
SCOPUS
TOXLINE PLUS
Web of Science®

Contact
Ing. Gabriela Vladyková
Executive Editor (Editoria
publication)
e-mail: cjas@cazv.cz
Ing. Kateřina Kheilová
Executive Editor (submis
editorial system)
e-mail: cjas@af.czu.cz
Address
Czech Journal of Animal
Czech Academy of Agricu
Sciences
Slezská 7
120 00 Praha 2
Czech Republic