

**ECONOMIC VALUE OF SOMATIC CELL COUNT WITH
SPECIAL EMPHASIS TO POLISH CONDITIONS****Grazyna Sender, Marek Lukaszewich, L. Rosochowicz, Z. Dorynek**

Interest in genetic resistance to mastitis is expanding in many countries. Also in Poland we prepare strategy to select against mastitis. Direct selection against mastitis is unrealistic in Poland as there is no nationally organised recording of clinical mastitis (CM). Fortunately, some farms are already recorded for somatic cell count (SCC) and the number of tested farms increases every year in Poland.

The primary purpose of the research reported in this paper was to evaluate the economic value of SCC in Poland which is the first step in including selection against mastitis into the breeding program.

The samples of test-day milk yield, fat and protein percentages, and SCC were collected from 7 herds of the Polish dairy population, all together 897 cows. The regression of milk yield traits on logarithm of SCC (LSCC) on the test-day were analyzed using multivariate animal model, BLUP. The model also included lactation, herd-year- season of calving, and month of sampling. Day of lactation was expressed as a covariate to the milk traits. The variance components were calculated with the multivariate REML program of Misztal (1). The net economy weights of milk and milk components were calculated as a difference between the price of the kg milk at the farm and the energy cost needed for production. The average price of kg milk in Poland was 0.55 PLN in 1996. Feed costs for production of 1 kg milk on an average farm were calculated from the consumption of roughage and concentrates and other costs like labour, drugs, vet treatments, transport. Altogether the costs amounted to 0.42 PLN/kg of milk.

Milk test-day yield loss per unit increase of LSCC is - 0.54 kg. We can assume that the lactation loss is 305 times larger and amounts to 165 kg of milk. This result is close to the one of Salsberg *et al.* (3) who found that a unit increase in the log of the geometric mean of the SCC was associated with the decrease of 0.65 kg of test day milk production. Also Raubertas and Shook (2) found a linear relationship between the yield loss and log cell count; each unit

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increase of log cell count being associated with the decrease of 135 kg milk per lactation. However, Shook (4) regarded the loss of milk production capacity due to clinical or subclinical mastitis to be indirectly accounted for while selecting for the milk yield. While the milk losses may be associated with both subclinical and clinical mastitis the remaining costs like treatment of clinical mastitis, culling of cows, discarded milk and raising replacement heifers are only attributed to the clinical cases. This part of the costs is impossible to calculate in the Polish conditions at the moment, thus SCC is the only available tool for evaluation of economic value of mastitis in Poland. It does not cover all the costs but it is indicative of other costs. From this standpoint, relying only on the indirect effect of selection for milk yield without giving SCC any economic importance, could be insufficient. In our study the overall lactation net loss amounted to $(0.55 \text{ PLN} - 0.42 \text{ PLN}) * 165 \text{ kg} = 22 \text{ PLN}$

REFERENCES

1. Misztal I. (1994): Miltitrait REML estimation of variance components program
2. Raubertas R.F., G.E. Shook (1982): Relationship between lactation measures of somatic cell concentration and milk yield. *J. Dairy Sci.* 65, 419-425.
3. Salsberg E., et al. (1984): Somatic cell counts: Associated factors and relationship to production. *Can. J. Comp. Med.* 48, 251-257.
4. Shook G.E. (1993): Genetic improvement of mastitis through selection on somatic cell count. *The Veterinary Clinics of North America: Food Animal Practice* 9, 3, 563-581.

EKONOMSKA VRIJEDNOST BROJA SOMATSKIH STANICA S OSOBITIM NAGLASKOM NA UVJETE U POLJSKOJ

Sažetak

Zanimanje za genetičku otpornost na mastitis raste u mnogim zemljama. Direktna selekcija protiv mastitisa je nerealna u Poljskoj budući da ne postoji organizirano registriranje kliničkog mastitisa na razini države. Srećom neke farme već bilježe broj somatskih stanica (SCC) a broj testiranih farmi raste u Poljskoj svake godine.

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