

## **Effect of milk protein level on its heritability and relationship to milk and protein production in Holstein dairy cows**

Adamski, M.<sup>1</sup>, Chládek, G.<sup>2</sup>

<sup>1</sup>Akademia Rolnicza, Wroclaw, Poland ; <sup>2</sup>MZLU Brno, Česká republika

### **Introduction and literary survey**

If we are to estimate the changes in the individual components of milk production of dairy cows caused by both external and internal factors it is important to know the correlations between them. That is why permanent attention is devoted to the quantification of these correlations in the respective cattle populations. It is also important to estimate the values of the heritability coefficients of the milk production characters in the lactations that is dependent on the genetic variability and is affected by the average values and variability of the studied characters. Many analyses, concerning this problems, have been worked out in Czech republic (Chládek et al. 1999) and Poland (Juszczak et al. 2001).

### **Key words**

Holstein, milk production, protein production, correlations, heritability

### **Material and Methods**

Evaluations included 6,920 Holstein dairy cows after completed first lactation, the progeny of 435 bulls. According to protein (P) content, the dairy cows were divided into 3 groups - L (less than 3.1% P), M (from 3.11 to 3.3% P) and H (more than 3.31% P). The relationships were studied on the basis of phenotypical correlations between content of protein and lactation milk or protein production. Heritability coefficients were calculated using the GLM method by unifactorial variance analysis where the sire was used as the factor.

### **Results and discussion**

The average efficiency of the collection cows was 4,918.1 kg of milk, 158.1 kg of protein and protein content 3.21%. The same indicators in separate groups were follows L (4,826.4 kg, 144.8 kg and 3.00%), M (4,944.7 kg, 160.5 kg and 3.25%) and H (5,032.2 kg, 176.3 kg and 3.51%). The selected phenotypic correlation coefficients between the milk production, resp. protein production were (0.073 resp. 0.210) at group L, (0.007 resp. 0.070) at group M and (0.005 resp. 0.153) at group H. The heritability coefficients calculated for milk production, protein production and protein content was 0.353, 0.519 and 0.399 for group L, 0.487, 0.613 and 0.457 for group M and 0.532, 0.571 and 0.513 for group H.

Our results generally correspond with literary data Chládek et al. 1999 and Juszczak et al (2001) mainly concerning heritability coefficients level. Slightly differences was found in case correlation coefficients which are not negative for protein content and milk production and not so high for protein content a protein production.

### References

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