

The necessity of milk and microclimate recordings on dairy cattle farms on Balkan region in the light of climate change

Vesna Gantner, Krešimir Kuterovac & Muhamed Brka

Faculty of Agriculture, J. J. Strossmayer University of Osijek, Kralja Petra Svačića 1d, 31000 Osijek, Croatia. 2 Inagra Ltd, J.J. Strossmayera 341, 31 000 Osijek, Croatia. 3 University of Sarajevo, Faculty of Agriculture and Food Sciences, Sarajevo, Bosnia and Hercegovina

vgantner@pfos.hr

Having in mind indisputable climate change worldwide that significantly affect dairy cattle farming, the necessity of implementation of breeding values for heat resistance in breeding strategies, aiming the financial losses reduction and enabling the sustainable farming, have become indisputable. The basic precondition of genetic evaluation are accurate data measured on population under control. Also, determination of THI threshold value, is the basis for setting up the genetic evaluation model. In most of the studies of the heat stress, climate parameters (temperature and relative humidity) were taken from meteorological stations resulting in possibly biased evaluation. In this research, ambient temperature and relative humidity were measured in the barns during the milk recording of dairy cattle population in Croatia in the period from January 2005 to December 2012. Daily temperature-humidity index was calculated accordingly to the Kibler's (1964) equation:

$THI = 1.8 \times Ta - (1 - RH) \times (Ta - 14.3) + 32$ (Ta is average temperature in degrees of Celsius and RH is relative humidity as a fraction of the unit). After logical control performed in SAS/STAT (SAS Institute Inc., 2000), data provided by the Croatian Agricultural Agency, consisted of 1,070,554 test-day records from 70,135 Holsteins reared on 5,679 farms and 1,300,683 test-day records from 86,013 Simmentals reared on 8,827 farms in Croatia. Determination of THI threshold value for daily milk traits of Holsteins and dairy Simmentals in Croatian farm showed high variability in determined value due to parity, production level and breed. Also, results showed higher resistance to the heat stress of dairy Simmentals than Holsteins. Following researches need to answer are Simmentals genetically more appropriate for the dairy farming in the climatic condition on the Balkan region? With that purpose, accurate milk and microclimate parameters recording need to be introduced in all countries in this region on regular basis.

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