

Impact of different THI levels on milk yield and composition of Holstein dairy cows ⁽¹⁾

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Abstract

This study aimed at assessing the impact of temperature-humidity index (THI) on milk yield and composition of Holstein dairy cows. Experiment animals were carried out inside the barn and in a dairy farm. Daily ambient temperature and relative humidity were recorded and used to calculate the daily THI from 2015 to 2017. A total of 1,368 sets of complete Dairy Herd Improvement data were obtained and grouped by THI levels (THI < 72, THI 72-78, and THI > 78). These data included daily milk yield (DMY), milk fat percentage (MFP), milk protein percentage (MPP), milk lactose percentage (MLP), milk solids-not-fat percentage (MSNFP), milk total solid percentage (MTSP), somatic cell counts (SCC), somatic cell score (SCS), and protein to fat ratio (PF). The results showed that THI were less than 72 from December to March between 72 and 78 in April and November, and greater than 78 from May to October for each year. DMY, MFP, MLP, MSNFP, and MTSP were decreased with the increase of THI, but SCC, SCS and PF tended to increase with the THI. In conclusions, the results of this study indicated the seriousness of the negative effects of hot conditions on milk yield and composition. Thus, when the THI is greater than 72, measures should be taken to alleviate negative consequences of heat stress in dairy cows and related economic losses.

Key words: Holstein dairy cows, Milk composition, Temperature-humidity index.

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