B-24: Effect of cooling methods on physiological responses of dairy cows

A R S B Athauda, T S Samarakone, R M R K Ratnayake, E R K Perera
(*Dept. of Animal Science, Faculty of Agriculture, Univ of Peradeniya*)

Nine Jersey and Friesian Cross-bred Cows at a mean age of 6 years and having a mean body weight of 320 kg (housed indoors) were used for the

experiment. The cows were divided into 3 groups (n=3/group) balanced by body weight and lactation milk yield (4.5 1/day).

Two groups of cows (n=3 each) were subjected either to sprinkling of water for 4 min (T1) or to covering by wet gunnies (T2), while the other groups of cows served as the control (To) (n=3).

Data on Rectal temperature (RT) and Respiration rate (RR) were obtained simultaneously from all the animals at -15, 0, +15, +30, +45 and +60 min after the application of cooling treatments. Treatments were repeated between 11.30 - 1.30 p.m. for 9 different days and data on ambient temperature was also recorded at the same time during the study period.

RT of cows reduced immediately after the application of both T1 and T2 cooling treatments, while RT of T2 animals continued to increase. After 15 min following cooling, RT of T2 animals increased in parallel with RT of control animals (To). In contrast, the RT of T1 animals remained significantly ($P<0.05$) lower around 101.2°F throughout the data collection period.

RR reduced in response to application of both Ti and T2 cooling methods until 15 min post treatment. RR of T2 animals began to increase thereafter, but RR of the T1 cows remained lower ($P<0.05$) around 29 breaths/min compared to the other groups (40 breaths/min) throughout the data collection period.

The results suggest that of the 2 tested cooling methods, the sprinkling of water for 4 min was more effective and suitable to be used for cooling dairy cows housed indoors.