ABSTRACT

ADI RAKHMAN. Effect of feeding time on physiological response of Fries Holland heifer fed with three levels of TDN of concentrate containing coconut oil. Supervised by BAGUS P PURWANTO and IDAT G PERMANA.

One of the greatest challenges to production facing dairy farmers in Indonesia is heat stress. Climatic conditions in Indonesia are such that the warm (or hot) is all year, there is intense solar radiant for an extended period of time, and there is generally the presence of high relative humidity. Thus heat stress is chronic in nature, there is often little relief from the heat during the evening hours, and intense bursts of combined high ambient temperature and humidity further depress performance. Some researches have been done in Indonesia showed that physical modification of the environment (shading, cooling) and improved nutritional management practices are management strategies to minimize the effects of heat stress. However, the management strategies to minimizing of the heat stress have not been fully examined. The objective of the present study is to evaluate physiological responses of dairy heifer to feeding time when fed concentrate differences in TDN content. Six dairy heifers were randomly allocated to 1 of 6 treatments: two feeding times (5 am/6 pm or 8 am/4 pm) of concentrate with 70% or 75% of concentrate unsupplemented or supplemented with 3.5% coconut oil, in each of 6 periods of 14 d each in a 6 x 6 Latin square design. The environmental conditions (air temperature, relative humidity, temperature humidity index, radiation, and wind velocity) and animals responses (heart rate, respiration rate, body temperature, rectal temperature, and skin temperature, feed consumption rate, chewing rate, and average daily gain) were then measured. The environmental condition were measured daily at 1 h intervals from 5 am to 8 pm. The animals responses were measured at the 4th, 8th, 12th, 14th day of each period at 1 h intervals from 5 am to 8 pm. Tukey’s test, contras orthogonal analysis, and correlation analysis were used for statistical analysis among treatments. The results show that physiological responses were significantly lower on cattle which fed at 5 am & 6 pm than 8 am & 4 pm also for cattle which fed concentrates contained 3.5% coconut oil than not containing that with the same TDN (75%). Chewing velocity was higher on cattle fed concentrate containing 3.5% coconut oil than without coconut oil. Average daily gain were higher on cattle fed at 5 am & 6 pm than 8 am & 4 pm or fed with concentrate containing 3.5% coconut oil than without coconut oil. The conclusion is heat stress of dairy heifer could be reduced with managing feeding time and feeding with easily digestible nutrient.

Keyword: physiological responses, coconut oil, feeding time, TDN