ABSTRACT

Friesian cattle are considered the most sensitive to climate change-induced thermal stress and remain the major dairy breed in Kenya. This study applied the climate analogue concept to predict probable physiological and haematological responses of Friesian cattle in the 2050s to understand their adaptability to a changing and variable climate. Njoro in the Kenya Rift Valley Highlands was used as the reference site and its 2050s climate analogue site was identified in Shawa, based on criteria of a similarity index of 0.8-0.9. Results suggest that Njoro in the 2050s will likely experience increasing temperatures, but changes in rainfall are uncertain. The increasing temperatures will probably be accompanied by mild thermal stress for Friesian cattle during the dry seasons or drought. The thermal humidity index differed between times of day, but not between the analogue sites. Except for rectal temperatures, the physiological and haematological responses differed between the analogue sites, but were within the normal ranges. It is concluded that Friesian cattle in Njoro in the 2050s will probably experience mild thermal stress in the afternoons during the dry seasons, expressed by slight increases in physiological and haematological responses, but will probably remain within the normal margins.