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Natural Preference of Sheep for Saline Drinking Water in Relation to Ambient and Rumen Temperature

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Abstract

Bangladesh is one of the frontline victims of global climate change. Among the impacts of climate change, increased salinity intrusion, particularly, in the southern coastal belts of the country endangers flora and fauna. This is also enforcing the local livestock population to adapt with increased water and soil salinity. This study investigates the tolerance of sheep for sodium chloride in drinking water. We explored whether sheep differentiate between fresh and saltine water, and their taste preferences with ambient temperature. Twelve sheep (Deutsches Schwarzkopf) aged between 1 to 8 years with an average body weight of 74.3 ± 10.1 kg were kept in individual experimental pens under controlled stable conditions. A two choice preference test technique was designed as the principal method. Each individual pen was equipped with two buckets and the positions of the fluids were reversed randomly in order to avoid a bias due to side preference. Consumed test solution was expressed as a percentage of total fluid taken from both containers. In addition, drinking behaviour was recorded by video. Throughout the experiment the sheep had access to hay and a salt lick ad libitum. As indirect measure of core body temperature, rumen temperature was recorded with a temperature logger. Food intake, respiratory rate, fleece length and body weight were measured regularly. Data on ambient temperature and relative humidity were recorded. The data collected for 2 weeks during the control phase (two buckets with fresh water only) revealed a tendency for sidedness (sheep consumed 4.58 % more water from the left than from the right side). Data of the choice test period will be analysed for the relationship between ambient temperature and preference for saline water.

Keywords: Adaptability, drinking water, salt tolerance, sheep