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Climate Change's Effect on Animal Health and Welfare

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Description

Climate change is one of several elements that have the ability to modify disease states, and it is projected to have a significant detrimental impact on human and animal health. Furthermore, some studies have shown that raising the temperature might reduce mortality and/or enhance health and wellbeing in humans and cattle living in cold-weather settings [1,2]. Climate change may have a direct or indirect influence on animal health, owing to changes in environmental factors such as air temperature, relative humidity, precipitation, and the frequency and amplitude of severe events.

Although this article focuses on environmental factors, it should be noted that the factors that lead to the effects of climate change on health are extremely complex, involving not only environmental forces but also ecological and social aspects, economic interests, and individual and community behaviour. Temperature-related sickness and mortality are direct repercussions of climate change on health. Indirect effects follow more complicated paths, such as those caused by climate change on microbial density and distribution, vector-borne disease spread, food and water scarcity, or foodborne infections.

The purpose of this article is to describe what is now known about the impact of climate and climate change on the health of food-producing animals. Increased temperatures and the frequency and intensity of heat waves may be the primary direct consequences of climate change on health. Induction of heat stress conditions mediates these effects. Heat stress can harm cattle health by inducing metabolic changes, oxidative stress, immunological suppression, and mortality, depending on its severity and duration. In order to minimise an increase in body temperature, homeothermic animals increase heat loss and reduce heat production in response to high temperatures. Increased respiratory and sweating rates, as well as a reduction in feed intake, are examples of such reactions [3].

The emergence of metabolic problems in heat-stressed animals might be explained in part by these physiological phenomena. The prevalence of lameness in dairy and beef cows might be exacerbated by heat stress. Lameness in cattle is described as any foot anomaly that causes the animal's lipomobilization to alter and the accumulation of ketone bodies, which are the result of inadequate fat catabolism. The high mobilisation of fat from adipose tissue also causes liver lipidosis. Reduced albumin secretion and liver enzyme activity in heat-stressed cattle indicate impaired liver function. The manner in which it moves, lameness is one of the most serious health, welfare, and economic issues. It can be caused by a variety of foot and limb disorders, which are itself caused by illness, management, or environmental factors, and is one of the most major health, welfare, and economic issues [4].

Heat-stressed cattle eat less often during the cooler hours of the day, but they consume more at each meal. Acidosis, which is a main cause of laminitis, can be caused by reducing feed intake during the hottest portion of the day and then increasing feed intake when the ambient temperature cools down. When the temperature outside rises, the respiratory rate rises as well, with panting giving way to open-mouth breathing. As a result of the fast loss of carbon dioxide, respiratory alkalosis develops. Cattle compensate by increasing their bicarbonate production in the urine. A reduction in the salivary bicarbonate pool affects rumen buffering. After heat stress, lameness with sole ulcers and white line disease will occur in a few weeks to months [5].

Conflict of Interest

None.

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