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Summer Stress Management in Buffalo

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To combat sub-reproductive problems in buffaloes associated with summer stress, proper feeding, housing, and thermal ameliorative approaches are generally required. Because of inadequate intake, a shortage of high-quality greens, the diversion of better feeds to produce buffaloes at the expense of growing stock, overpopulation, and poor habitat, the growth rate of buffalo heifers declines during the worst months of the year. According to research findings on summer management, buffalo calves can achieve optimal growth by receiving enough food and thermal amelioration, which includes appropriate housing. Growing buffalo calves kept in loose housing fare better than those confined within a shed, especially during intense heat waves, because the former spend more time eating and reflecting. Buffaloes in a system of loose housing.

How to recognise heat stress

Alterations in consciousness, shallow breathing and a fast, weak pulse; elevated heart rate, breathing rate, and rectal temperature are examples of abnormal vital parameters; atypical salivation capillary replenishment occurs quickly. When a person has heat stroke, their body temperature might rise to 106-108°F. Since heat stroke poses a serious risk to life, it is imperative that the animal receive emergency veterinary care, which includes cooling the animal down, giving it a cold-water bath, covering it in damp linens, and using a fan. Signs of heat exhaustion include dull, possibly cold skin, and dizziness or unconsciousness.

Common terms associated with heat stress

- Muscular pain and spasms due to heavy exertion in a hot climate.
- Excessive loss of body fluids (usually through sweat) leading to fatigue.
- Breakdown in the thermoregulatory system of the body leading to increased internal temperature with no sweating and death, if not immediately treated.

Management of heat stress

Modification of the micro-environment / use of cooling system. Good management procedures include alteration of the surrounding environment to lessen the effects of the environment and, at the same time, increase heat loss from the animal. Combating heat stress in buffaloes can be achieved by numerous management measures such as the provision of shade, promoting air movement, and regularly soaking the animal with cold water for greater evaporative cooling.

Shade: Throughout the summer, animals can be protected from direct sunlight during the daytime hours by using simple shade. The trees and other vegetation provide the best shade. In addition to offering shade from the heat, they also produce a cooling effect from the moisture evaporating from their leaves.

Air movement: In hot, humid weather, air flow is very important for the animal's comfort and cooling. In addition to moving the animals to a cool, shaded area, you can add fans, dairy fans, and various kinds of coolers to the space to increase airflow. Only when the air temperature is lower than the animal's skin temperature can air movement accelerate the rate of heat loss from the animal's body surface.

Evaporative cooling: Several cooling techniques, including holding-pen, exit-lane, and free-stall cooling, have been developed. These remedies are appropriate for animals housed in covered pucca sheds. Using an evaporative system that uses a fan and water mist is more efficient and uses less water than giving the animals frequent baths. Water sprinklers produce a lot of wastewaters; some farmers prefer mists or sprinklers.

Feeding techniques in hot weather: There are many important facets of nutritional management that need to be considered in hot weather. These include special formulations to compensate for dietary heat spikes without causing nutritional excesses and to meet reduced dry matter intake with corresponding greater availability of essential elements. High temperatures also cause nursing buffalo's energy needs to increase, yet.

Water intake: Water is the most important nutrient for buffalo during hot climate. Water intake is closely related to dry matter intake and milk yield, but regardless of the rate of increase, it is important that abundant water must be available at all times under hot conditions. Hot weather, declining dry matter intake and high lactation demand require increased dietary mineral concentration. The primary cation in bovine sweat is potassium. Sharp increases in the secretion of potassium through sweat occur during hot climatic conditions. Alterations in mineral metabolism also affect the electrolyte status of buffalo during hot weather. So it is important to supplement minerals during hot climate.

Night grazing: Buffaloes kept in a shed maintain rapid heartbeat during the night. However, when the animals are allowed out into a pasture at night, these physiological responses decrease immediately. This is the result, both of a reduction in radiation heat from the surrounding buffaloes, as well as increased heat loss from the animal itself.

Feeding high-energy diets: Low-fibre, high fermentable carbohydrate diets lower dietary heat increment compared to high fiber diets. Although the metabolic energy of dairy buffaloes increases in a hot environment, heat stress depresses feed intake. For this reason, it is important to increase the energy content of the diet of dairy buffaloes, in order to maintain their energy intake under hot conditions. The heat increment, which is an internal heat stressor in hot environments, is lower in highly metabolizable diets. So it is imperative to use fatty feeds, or calcium salts of fatty acids, as the means of improving energy supply for buffaloes in summer. Buffaloes fed on such diets have higher milk yield, and a lower body temperature and respiration rate.

Feeding by-pass protein: Dietary protein degradability is also critical under heat stress conditions. It is well known that excessive protein intake increases heat production and decreases reproductive performance. However, the protein requirement of buffalo increases and dry matter intake decreases in a hot environment, consequently, the protein supplied to lactating buffaloes during summer is not always sufficient. By using fish meal, which is a by-pass protein, the milk yield and protein content of buffalo milk increase, but the ruminal ammonia production decreases.

Conclusion

In hot-humid climates, although buffalo attempts to acclimatize through physiological changes including cutting down on feed intake and heat production, this does not come without sacrificing part of its productivity. In order to prevent this economic loss to the farmer, there is need to understand and effectively combat heat stress by minimizing its impact on the animal body and its productivity.