

# HEAT STROKE IN A CROSS BRED DAIRY CATTLE - A CASE REPORT

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## ABSTRACT

Summer hyperthermia or heat stroke is one of the commonly encountered clinical conditions of crossbred dairy cows. High environmental temperature coupled with high relative humidity and low wind speed are the major contributing factors. Heat stroke is the elevation of the body core temperature and is a life threatening condition requiring immediate treatment. Dairy farmers suffer from considerable economic losses through reduced productivity and conception rates due to heat stress. Clinical signs associated with heat stress are increased breathing followed by panting, salivation and incoordination. Early intervention is the key to survival. Successful medical management of heat stroke in a cross bred dairy cattle is reported in this paper.

**Keywords:** Hyperthermia, cow, heat stress

## INTRODUCTION

Summer hyperthermia or heat stroke is one of the commonly encountered clinical conditions of crossbred dairy cows during summer months. High environmental temperature coupled with high relative humidity and low wind speed can precipitate the condition (Nonaka et al., 2012). In extreme cases, heat stroke can

result in death of animals. Heat stroke is the elevation of the body core temperature and is a life threatening condition requiring immediate treatment. Cattle exposed to extreme heat while grazing due to lack of adequate shade or being transported in hot weather can lead to heat stroke.

Clinical signs associated with heat stress are increased breathing followed by panting (open mouth breathing), salivation and incoordination. Early intervention is the key to survival. So, it is very important to adopt control measures at early stage of heat stress. In cases where early intervention is not attempted, there can be paralysis of respiratory centre which results in laboured respiration, dyspnoea, coma and death due to respiratory failure. This paper deals with successful medical management of heat stroke in a cross bred dairy cattle.

## CASE HISTORY AND OBSERVATIONS

A Holstein Friesian cross bred cow aged two and half years was presented to Ambulatory Clinic, Cherumkuzhy with the history of anorexia, open mouth breathing, excessive salivation and incoordination. The animal was six months pregnant. The temperature and pulse were 106.1°F and 90/minute, respectively on the day of presentation. The mucous membranes were congested. Clinical examination revealed

increased heart and respiratory rates. Blood smear examination revealed absence of haemoparasites and the haematological parameters were within normal range. Serum biochemistry revealed a low blood glucose level of 40 mg/dl and the serum calcium (9.2 g/dl) and phosphorus (4.6 mg/dl) levels were within normal limits. Per rectal examination was done to check foetal viability and was found to be normal. The case was diagnosed as a case of heat stroke based on history and clinical examination findings.

### TREATMENT AND DISCUSSION

The animal was treated with fluids (Normal Saline and Dextrose - 25%) @10ml/kg body weight and anti-pyretic drugs (Phenyl butazone - 10ml) intravenously for seven days. Supportive therapy with B-Complex vitamins was done on alternate days. Oral administration of Phytocool @10ml/day was advised as a follow up therapy for ten days. Along with medical management, advised managerial aspects like intermittent showering, providing ceiling fans in cattle shed etc. Salivation and panting began to reduce from third day of treatment itself. The values of rectal temperature on day one to day seven were 106.1, 105.4, 104.7, 104.1, 103.6, 102.9 and 102 (°F). The animal showed a drastic recovery after seven days of treatment.

During heat stress, in order to dissipate heat from the animal body certain physiological mechanisms work. One such mechanism is peripheral vasodilatation, which results in decreased blood pressure and cardiac activity (increased heart rate) will be increased to compensate for decreased blood pressure. Another

mechanism is by promoting evaporative heat loss by increasing rate and depth of respiration (Kibler, 1964). Hyperthermia can increase metabolic rate by 40-50 per cent and as a result liver glycogen gets depleted, it in-turn results in hypoglycemia. In this case, hypoglycemia was aggravated due to pregnancy. In extreme cases of heat stroke, the temperature can reach up to 107-110°F.

As far as heat stroke is concerned, summer management of cattle is as important as treatment. It includes avoiding transportation of animals in hot weather, providing good shelter, plenty of cool water for drinking, intermittent shower, adequate ventilation by installing fans etc. Regarding ration, feed a larger portion of ration during cooler hours of the day. Cold applications can be done to lower body temperature.

### SUMMARY

An uneventful recovery of heat stroke in a cross bred cattle is discussed.

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