PHYSIOLOGICAL AND HAEMATOLOGICAL PROFILE OF MALE PURNATHADI BUFFALO CALVES DURING SUMMER

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ABSTRACT

The present study was carried out to determine growth, physiological and haematological profiles of growing male Purnathadi buffalo calves during summer. The determined profile values were within the normal range for buffalo except increased respiration rate and growth profile values were lower in summer and as compared with the previous reports**,** growth of male Purnathadi buffalo calves was impaired very severely.

KEYWORDS: Buffalo, male calves, summer, profile.

INTRODUCTION

Purnathadi strain of Nagpuri breed of buffalo is a prominent milch breed, survived in hot climate in summer season in Akola and Amravati Districts (belt of river Purna) of Vidarbha region of Maharashtra State (Thokal *et al.,*2004). The Purnathadi buffalo is medium size, long horned, copper colour body coat and average milk yield is 900 to 1200 litters. It is well adapted buffalo breed in rainfed, hot climate . The growth**,** physiological and haematological profiles can provide valuable information regarding health aspect and disease diagnosis of growing Purnathadi male buffalo calves in summer season. Therefore, the present study was planned to determine the growth, physiological and haematological profile of growing male Purnathadi buffalo calves in summer.

MATERIALS AND METHODS

The present study was conducted at Purnathadi buffalo Research Farm, Post Graduate Institute of Veterinary and Animal Sciences, Akola (Maharashtra State) in the summer months of March to May, 2013. Six apparently healthy growing male Purnathadi buffalo calves of age 3 to 4 months were selected and the calves were kept in shade and routine managemental practices were followed during the whole study period of three months . Growth parameters such as initial body weight (kg) , final body weight (kg) and daily weight gain (kg) and physiological parameters like rectal temperature (^{0}C), respiration rate (breaths/minute), pulse rate (beats/minute) and heart rate (beats/minute) were recorded fortnightly. 2 ml blood samples were collected from jugular vein in collection tubes containing EDTA aseptically and haemoglobin (gm/dl) and packed cell volume (%) were estimated immediately at fortnight intervals during the study. The obtained data was analyzed statistically Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

The determined values of initial body weight (kg), final body weight (kg) and daily weight gain (kg) of growing male Purnathadi buffalo calves in summer season are lower in comparison with noted reports of ICAR (2002) and Afzal *et al.* (2009) for medium sized buffalo breeds. In the hot climatic condition the combined effect of high ambient temperature and wind velocity may be more substantial due to the negative effect of elevated temperature on feed intake that ends with slowing growth of growing animals.

Table : Mean ± S.E. values of growth and physiological parameters , haemoglobin and PCV of growing male Purnathadi buffalo calves during summer season.

Sr. No	Parameter	Mean ±S.E.
1	Initial Weight (kg)	55.02±7.00
2	Final Weight (kg)	68.47±7.51
3	Daily Weight Gain (kg)	0.15±0.03
4	Rectal Temperature (^{0}C)	38.58±0.03
5	Respiration Rate (breaths/minute)	43.28±1.55
6	Pulse Rate (pulse/ minute)	56.39±0.97
7	Heart Rate (beats/ minute)	54.81±0.96
8	Haemoglobin (gm/dl)	11.17±0.16
9	Packed Cell Volume (%)	34.39±0.91

In the present study the rectal temperature and pulse rate were observed within normal range whereas the respiration rate was found to be increased. Dass et al.(1999) reported that Murrah male buffalo calves were not able to maintain the normal rectal temperature and respiration rate, similarly Hooda and Singh (2010) observed increased pulse rate in the buffaloes. Rectal temperature and respiration rate are the most sensitive indices of heat tolerance among the physiological reactions studied (Verma *et al,* 2000). The consistency in pulse rate and heart rate of growing male Purnathadi buffalo calves in summer season in the present study may be due to physiological adaptation to hot environment.

The estimated values of haemoglobin and packed cell volume of growing Purnathadi male buffalo calves in summer season in the present study are within the normal range for bovines. Similar values were reported by Jabbar *et al.* (2012) in growing buffalo heifers and the season had non-significant effect on haemoglobin, however, packed cell volume decreased ($P<0.01$) significantly and higher concentration was observed during auntum while lowest during summer season.

AKNOLEDGEMENT

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