

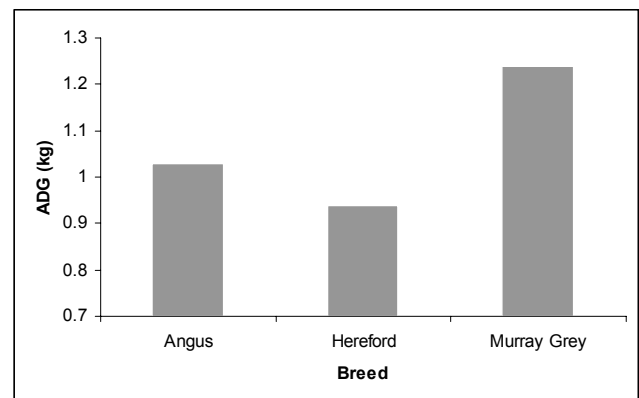
## THE EFFECT OF HEAT STRESS ON PERFORMANCE AND BODY SURFACE TEMPERATURE OF ANGUS, HEREFORD AND MURRAY GREY FEEDLOT CATTLE

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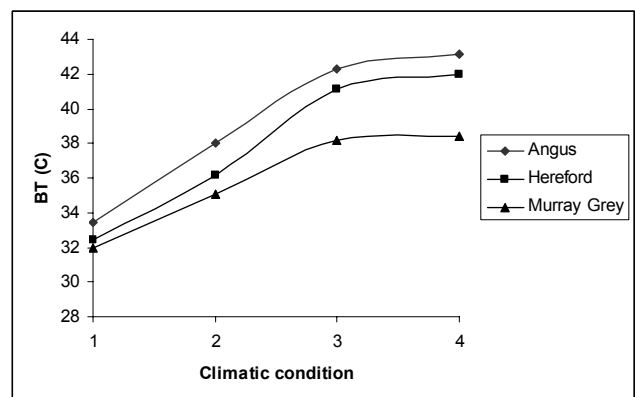
The principle aims of feedlot management are to optimise weight gain per kilogram of feed, ensure that the health and welfare needs are met and that the carcass produced meets market specifications. However, the majority of feedlots are located in sub-tropical regions. Furthermore, heat stress alters performance and carcass characteristics of feedlot cattle. The aim of my study was to examine feedlot performance of Angus, Hereford and Murray Grey steers exposed to heat stress during the early stage of finishing periods and measurement of body surface temperature of these cattle under different climatic conditions.

This study was undertaken at a medium scale commercial feedlot in south-east Queensland between December 2002 and June 2003. One hundred and seventy eight steers (69 Hereford, 63 Angus and 46 Murray Grey) were used in this trial and were placed in the same pen at the feedlot. The feedlot is located in an area with hot summers and mild winters and therefore, all feedlot cattle in this study were exposed to high heat load environments during the first 60 days of finishing periods. Average daily gain (ADG) differed between the genotypes (Figure 1). Murray Greys had greater ADG (1.24 kg/day) than either Hereford (0.94kg/day) or Angus (1.03kg/day). Body surface temperature of Angus, Hereford and Murray Grey cattle under a range of climatic conditions are presented in Figure 2. Regardless of coat colour, body surface temperature of all breeds rose as climatic conditions changed from moderate (thermoneutral) to extremely hot. Under the conditions experienced in this study, Angus steers had the highest body surface temperature and Murray Greys the lowest.

Non-evaporative heat loss contributes to regulation of body temperature. In the present study, ADG of cattle was significantly different between cattle genotypes and Murray Grey cattle had greater ADG than Angus cattle. Also Murray Grey cattle had consistently lower body surface temperature than Angus cattle during the trial. It seems reasonable to say that coat colour and coat characteristics of cattle play an important role in summer. Under hot climatic conditions, dark coated animals absorb more heat than light coated animals and it alters the metabolic heat production of the animal. Consequently, dark coated animals showed more seasonal differences in growth performance compared to light coated animals.



**Figure 1. Average daily gain of summer induced Angus, Hereford and Murray Grey feedlot cattle.**



**Figure 2. Body surface temperature of Angus, Hereford and Murray grey feedlot cattle under different climatic conditions.**