

INTRODUCTION

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When European breeds of farm animals introduced to tropical and subtropical countries, they are faced with many problems relating to the hot climate, particularly conditions of heat stress. In tropical and subtropical countries, climatic heat is the major constraint on animal productivity. Growth, milk production and reproduction are impaired as a result to the drastic changes in biological functions caused by heat stress (Kamal, *et al.*, 1989; Habeeb, *et al.*, 1992 and Marai, *et al.*, 1995). The decreases in growth and milk yield of the European cattle may reach one-half when introduced to tropical or subtropical environment (Abdel-Ghani and Hathout, 1966).

Generally, good management should aim to well being, comfort and maintaining high productive and reproductive efficiency of the animals. When more favorable climatic changes occur, the performance is improved and a compensatory response occurs quite often, resulting in a return to productive levels above the normal ones (Ames and Ray, 1983).

The present study will deal with the alleviation of heat stress by using water, as a mean for high core temperature dissipation, through skin surface by water vaporization, when air velocity at least $\frac{1}{4}$ m/s is providing, under shaded area. In this study, using water was applied by two ways, as water spray and shower, which compared with using sheds only; to answer about what is the best mean management under hot-humid climate to get the best performance from the exotic breeds.