Value of Sprinkling Feedlot Cattle During Heat

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Summary

Four lots of growing-finishing cattle were sprinkled when dry bulb temperature exceeded 80 F the summer of 1976 and compared with lots not sprinkled. Sprinkled lots gained significantly ($P<.01$) more (1.20 kg per day compared with 1.04) (2.64 vs. 2.29 lbs.) than controls. Sprinkling also improved feed efficiency (F/G).

Introduction

Performance of feedlot cattle is diminished during heat stress because they eat less and their maintenance requirement is higher. Both factors increase in importance as heat stress increases. The non-proportional decline in performance with increased temperature suggests than eliminating severe heat stress can improve performance. Sprinklers are an inexpensive method of reducing heat stress used successfully in the Southwest. Sprinkling increases evaporative heat loss from the animal and, to some extent, reduces ground temperature, which reduces radiant heat gain. For sprinkling to be effective the water must evaporate, so low humidity and air movement are desirable. In addition, it is necessary to allow animals to dry between sprinkling periods. (Note: Foggers or mist applied to livestock continuously cause high humidity and poor drying. They are, therefore, not recommended.)

Procedure

We used eight outside dirt lots averaging 27 head of finishing cattle each in the sprinkling study. Sprinklers were timed to operate 2 min. then remain off 28 min. when temperature exceeded 80 F. When temperature fell below 80 F, the sprinkling system did not function. Each lot had a 706 sq. ft. area wetted. The trial began June 3 and ended August 23, 1976.

Results and Discussion

Average daily gain (ADG) was significantly ($P<.01$) improved by sprinkling (1.20 vs. 1.04 kg per day) Table 28.1. The gain is similar to that reported by California workers (.1 to .3 kg per day more for sprinklers). Feed per gain also was inproved by sprinkling. High temperature and low humidity associated with the California studies improve the value of sprinklers more than where humidity is higher.

Although mud in sprinkled area has been a concern of feedlot managers, mud was not a problem during this study. Lots had wet but no muddy areas and mud was absent from the cattle in sprinkled lots. Likely, moisture evaporated from the soil surface lowered soil surface temperature, thus reducing radiant heat gain. Feed to gain ratio did not differ significantly.

Although results from this trial indicate that feedlot sprinkling can be valuable in reducing heat stress of feedlot cattle in Kansas, more work involving area sprinkled per animal, ratio of sprinkling time to drying time, amount of water per unit area, and other variables is needed to describe the best way to use feedlot sprinklers.

Table 28.1. Performance of sprinkled versus nonsprinkled feedlot cattle.

Treatment	F/G	ADG	
		kg	lb
Sprinkled	9.2	1.20	2.65**
Non-sprinkled	11.2	1.04	2.29

[1] Unit of feed per unit of gain.

**(P<.01)