

Results

No differences were found between treatment groups for metritis risk or severity. Multiparous cows receiving antibiotics in the immediate post-parturient period were approximately five times

less likely to be diagnosed with metritis compared to non-antibiotic treated cows. Treatment of high-risk cows with 4 mg of ECP alone was not beneficial in decreasing metritis risk. The full report of this study will be published in the *Journal of the American Veterinary Medical Association* in 2003.

Effects of Sprinkler, Shade and Fan Cooling of Preparturient Holstein cows on Post-parturient Milk Performance during Summer Heat Stress

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Introduction

Heat stress has important consequences for animal welfare and production performance, and has been implicated as the most important reason for decreased milk production during summer time. Due to lower milk production, most research has targeted prevention of heat stress in lactating cows. Few investigations, however, have focused on cooling preparturient dairy cows during the non-lactating period, and no research has reported the effects of cooling during the last three weeks of gestation. The purpose of this study was to examine the effects of shades, fans, and sprinklers on the last three weeks of gestation of Holstein cows during summer heat stress. Outcome variables included post-parturient milk production, rectal temperature, body condition score (BCS) and incidence of post-parturient disorders.

Materials and Methods

A total of 430 prepartum multiparous cows 250-257 days pregnant were randomly allocated to two identically structured pens.

Treatments consisted of sprinklers over the feed bunk (CONTROL, n=209); and sprinklers, fans, and shades over the feed bunk (COOLED, n=221). To be eligible for analysis, cows were required to spend a minimum of 14 days in their assigned pen before parturition. Computerized data recorders in each pen recorded environmental temperature every half hour. Rectal temperatures were measured twice weekly for three weeks before calving. Body condition scores were taken at

study enrollment, parturition, 60 days in milk (DIM) and 150 DIM. Following calving, the presence of parturient paresis, retained placenta, and metritis were recorded for the first 10 DIM. Milk production was measured using twice-monthly Dairy Herd Improvement Association (DHIA) tests for the first 150 DIM. Descriptive statistics were used for environmental temperatures. Data on rectal temperature, BCS, and milk production were analyzed by the MIXED procedure of the SAS (2001) program. Chi-square analysis was used for post-parturient disease outcomes.

Results

Average daily environmental temperature in the control group was 79.6° F ± 19.1 (26.4° C) vs. 77.2° F ± 16.5 (24.9° C) in the cooled group during the length of the trial. There was no significant difference in rectal temperatures (P= 0.62), BCS (P= 0.57), incidence of parturient paresis (P= 0.99), or retained placenta (P=0.69). A treatment by test date interaction was detected for milk production (P= 0.03) and cows in the cooled group produced more milk than controls in the first 15 days in lactation (79.6 lb [36.2 kg] vs. 75.0 lb [34.1 kg]/d; P<0.05).

Conclusions

Cooling pre-parturient cows with shade, fans and sprinklers may increase milk production immediately after parturition. Further analyses are needed to assess the economic feasibility of adding cooling systems to preparturient cows.