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Value of sprinklers to reduce heat stress of lactating sows

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Value of Sprinklers to Reduce Heat Stress
of Lactating Sows

D.A. Nichols, J.P. Murphy, D.S. Pollmann and D.R. Ames

Summary

Twenty-eight sows and gilts were used to evaluate the value of drip sprinkling to reduce heat stress during lactation. Sprinkled sows had significantly lower respiration rates ($P < .05$) and consumed significantly more feed during the 21-day lactation. Number of pigs born live, dead, and weaned were not affected by sprinkling. Sprinkled sows tended to wean heavier pigs and lose less weight during lactation but these differences were not significant. These results indicate that a drip cooling for lactating sows is a low cost, effective method to reduce heat stress.

Introduction

Heat stress in lactating sows can be a serious problem in the summer. High temperatures increase sow discomfort and respiration rates and often result in reduced feed intake. This reduced feed intake may increase weight loss during lactation.

During exposure to heat stress, there are increased energy demands for panting and other methods of heat loss. Lactation also places a high energy demand on the sow.

By increasing evaporative heat loss, heat stress and its resulting decline in appetite can be reduced. By increasing feed intake during lactation, more energy is available for milk production and to maintain body weight.

Procedure

Twenty-eight gilts and first litter sows were allotted by parity to one of two treatments in the farrowing house: 1) control, or 2) drip sprinkled.

Sows were wetted with a drip irrigation emitter system commonly used in horticulture applications. Emitters or nozzles were positioned at the front of the farrowing crate over the sow's head and shoulder area.

The system was thermostatically controlled to operate when temperatures exceeded 85°F. Each nozzle or emitter produced a steady drip of water at a flow rate of approximately .8 gallon/hr.

Sow feed intake, weight change, and respiration rate (breaths/minute) were measured weekly.

Results and Discussion

Results of the study are shown in Table 1. Sprinkled sows had lower respiration rates ($P < .05$) and appeared more comfortable than the unwetted controls. Respiration rate was highly correlated with weight loss and reduction of feed intake.

No differences were observed between treatment groups for number of pigs born alive, dead, or in their birth weight. Sprinkled sows tended to wean heavier pigs but since number weaned was less than controls, this difference was not significant.

Sow weight change was very similar for both groups. However, sprinkled sows consumed significantly more (13% more) feed during the 21-day lactation than non-wetted controls.

The incidence of scours was similar for both treatments. The sprinkling of the sow did not appear to increase scours or their severity.

Table 1. Effect of Sprinkling on Sow Performance

	<u>Sprinkled</u>	<u>Control</u>
Respiration rate (breaths/minute) ^a		
Week 1	16.8	30.9
Week 2	16.6	38.7
Week 3	16.0	34.7
No. born alive	9.1	9.7
No. born dead	.50	.30
Avg. birth wt. (lbs)	11.82	10.82
Sow wt. change after farrowing		
Week 1	+1.7	-5.1
Week 2	-15.9	-12.7
Week 3	-3.1	-2.1
Total	-17.3	-19.9
Daily sow feed intake (lbs)		
Week 1	10.6	8.8
Week 2 ^a	10.1	9.4
Week 3	11.5	10.3
Overall ^a	10.7	9.5

^aTreatment effect ($P < .05$)