



Feeding Tasco® to Heat-stressed Lactating Dairy Cows

A trial was conducted at a commercial dairy in central Arkansas from July 2005 to May 2006 to evaluate the effects of feeding **Tasco**® meal (*Ascophyllum nodosum*) to high-producing dairy cows during hot and humid weather.

High heat and humidity depress dairy cow performance. In an effort to cool herself, a heat-stressed dairy cow will decrease dry matter intake and increase respiration rate. The decrease in nutrient intake along with the increased metabolic rate results in decreased milk production, reproduction and overall animal performance.

Previous research indicated that **Tasco**® meal added to the diet of beef cattle decreased body temperature. Adding **Tasco**® to the diet of high producing dairy cows could potentially decrease body temperatures during heat stress.

The objectives of this study were to quantify the impact of feeding **Tasco**® on milk production, milk components, respiration rate and reproduction.

Treatments:

Control: Control diet (total mixed ration diet fed ad libitum twice daily)
Treatments: Control diet plus **Tasco**® at 0.25% of diet dry matter in July, August and September 2005

Groups: 525 cows in 4 free-stall barns allocated to either control or **Tasco**®

Cows were blocked by frame size and June milk production to achieve 2 similar production groups of large-framed (**H**) or small framed (**J**) cows. All cows were housed in free-stall barns with thermostatically controlled fans. Cows were moved to the holding area and were cleaned (and cooled) by water sprinklers before being milked three times daily. Milk yield was measured and recorded automatically for each milking. Additionally, the milk was sampled 1 day each month for components [milk fat and protein percentage and somatic cell count (SCC) analyses]. Production of milk and milk components during June was used as a preliminary period for covariant statistical analysis.

Results:

Least squares means of milk yields during summer months of 2005.

	n	DIM d	June ¹	July	August	September
			lb			
Control (Con)	233	149	63.4	59.4 ± 0.4	52.4 ± 0.5	47.8 ± 0.8
Tasco [®]	235	146	63.4	61.1 ± 0.4 **	55.2 ± 0.5 **	50.8 ± 0.8 **
Con H	117	156	70.0	60.0 ± 0.6	51.3 ± 0.8c	47.2 ± 1.2b
Tasco [®] H	108	149	70.0	62.7 ± 0.7	56.3 ± 0.8a	52.5 ± 1.3a
Con J	116	137	57.0	58.8 ± 0.8	53.4 ± 0.7b	48.4 ± 1.0b
Tasco [®] J	127	142	56.9	59.5 ± 0.6 n.s.	54.0 ± 0.7b **	49.1 ± 1.0b *

¹Days in milk (DIM) and milk yield during June were the preliminary data used as a covariant.

*($P < 0.05$) **($P < 0.01$)

Cows fed **Tasco**[®] produced more ($P < 0.01$) milk during July, August, and September; however, there was a significant interaction with size of cows during August ($P < 0.01$) and September ($P < 0.05$) caused by 5.1-lb/day more milk for the larger cows fed **Tasco**[®] compared to similar yield for smaller cows. Milk fat tended to be higher in **Tasco**[®] fed cows while milk protein was not affected by treatment. Cows receiving **Tasco**[®] tended to have lower somatic cell scores in all months with August significantly lower ($P < 0.05$).

Breeding efficiency means during 2005/2006 breeding season

	Cows Open	Pregnant Nov 15, 2005 ¹	Pregnant May 2, 2006
Control H	50	3 (6.0%)	32 (64.0%)
Tasco [®] H	55	21 (38.2%)	43 (78.2%)
Control J	59	27 (45.6%)	48 (81.4%)
Tasco [®] J	60	31 (51.2%)	57 (95.0%)

¹Number of cows diagnosed pregnant after 45 days

An increase in the number of pregnant cows after 45 days and a decrease in the duration of the calving season result when high-producing cows are fed **Tasco**[®] during hot and humid weather. The May 2, 2006, pregnancy numbers confirm **Tasco**[®] has lasting effect across breeds.

Respirations were counted on 60 cows weekly. Cows fed **Tasco**[®] had fewer respirations per minute August 3rd (77.3 vs. 88.5; $P < 0.05$), August 10th (80.0 vs. to 91.4; $P < 0.01$), August 31st (66.6 vs. 71.5; $P < 0.05$), and September 7th (60.6 vs. 68.1; $P < 0.01$).

Conclusion:

Feeding **Tasco**[®] lessened the effects of heat stress in lactating dairy cows.