

THE EFFECT OF 0%, 10% AND 20% LEVELS OF TASCO MEAL, DELIVERED IN A COMPLETE MINERAL MIXTURE, ON HORN FLY NUMBERS, BODY TEMPERATURE, RESPIRATION RATE, HAIR SCORE AND CALF IMMUNOGLOBULIN LEVELS IN CROSSBRED BEEF COWS

T. F. Best¹, C. L. Taylor-Huston², J. E. Huston¹ and R. R. Evans¹

¹Prairie Research Unit, Mississippi State University, Prairie, MS 39756

²College of Veterinary Medicine, Mississippi State University, Mississippi State, MS 39762

ABSTRACT: Previous studies using the brown seaweed meal, TASCO, at the 10% level have reported that the body temperature of both cows and calves were reduced and also respiration rate and horn fly numbers were reduced. The study initiated in 2002 was undertaken to determine if increasing the level of TASCO to 20% would have any additional benefit to beef cattle. The 20% level was directly compared to the 0% and 10% levels as in previous studies. The results from the 2002 study were not statistically different, between treatments.

CITATION: Best, T. F., C. L. Taylor-Huston, J. E. Huston and R. R. Evans. 2002. The Effect of 0%, 10% and 20% Levels of TASCO Meal, Delivered in a Complete Mineral Mixture, on Horn Fly Numbers, Body Temperature, Respiration Rate, Hair Score and Calf Immunoglobulin Levels in Crossbred Beef Cows. Annual Report 2002 of the North Mississippi Research & Extension Center. Mississippi Agricultural & Forestry Experiment Station Information Bulletin 398:200-203.

KEYWORDS: Seaweed Meal; TASCO; Beef Cows.

MATERIALS AND METHODS: Ninety pregnant crossbred cows were divided into six equal groups of fifteen (15) by age and breed make-up and then assigned to either a 0%, 10% or 20% TASCO mineral treatment group. There were two replications of each treatment. Minerals were fed in a covered feeder and consumption was monitored and recorded weekly. Cows consumed their mineral mixture for a minimum of thirty days prior to calving. Cows were weighed and body condition scored (BCS) in January at trial initiation and in July, September and October. Additionally, body temperature (BT) and hair scores (HS) were recorded in July, September and October. Calves were weighed at birth and in July, September, and October plus hair scores and body temperatures in July and thereafter.

Fly counts were determined by driving within approximately 50 feet of the cows, and then using binoculars to make a visual estimate of horn flies/side. Each cow was then given an estimated fly number value of **1** = 0 to 50 flies/side; **2** = 50 to 200 flies/side or **3** = >200 flies/side. Respiration rates were determined at the time fly counts were taken by observing inhalations and exhalations of cows for 15 seconds and then multiplying this number by a factor of 4 to determine breaths/minute. Respiration rates and fly counts were taken for 10 days in late August

and early September on days that were predicted to be 90° F or above as to provide heat stress to beef cattle. Counts were taken at 0800, 1100 and 1500, (Military time) each day, to ascertain the effects of different levels of heat stress, caused by heat and/or heat and humidity, on respiration rate and fly counts. Fly and respiration counts were recorded for five cows from each group at each time period. Counting was done so that all animals were counted the same numbers of times during the study to remove individual bias.

At birth, calves were weighed, bull calves castrated, and all calves permanently identified by placing a tattoo in both ears. Additionally, each calf had a numbered tag placed in its left ear that corresponded to its tattoo number. Steer calves have blue tags and heifers, yellow tags. A 5-ml blood sample was drawn from the jugular vein from calves born in the second half of the calving season and serum from this sample was frozen and retained for determination of immunoglobulin levels.

Data from this study was subjected to an ANOVA utilizing the SAS system.

RESULTS AND DISCUSSION: In 2002, the presence of TASC0 in the mineral mixture did not appear to reduce respiration rate, horn fly numbers or body temperature, as had been observed in 2000 and 2001, when the 0% and 10% levels of TASC0 were tested. Mineral consumption was 6.28, 6.12 and 5.78 oz/head/day for 0%, 10% and 20%, respectively. These are higher levels than the 4 oz recommended but it must be remembered that calves are also eating mineral. The rectal body temperatures taken in July, September and October were not different at ($P < 0.05$). Temperatures, in degrees Fahrenheit, recorded for cows and calves are shown in Table 1. As expected, the temperatures were higher in July than in the September and October for both cows and calves due to the higher ambient temperatures and humidity of mid-summer. Although not significantly different at ($P < 0.05$), there were numerical differences in respiration rate at 0800 and 1100 and 1500 but these differences were not in favor of the TASC0 groups, as had been observed in the previous study. In 2002, the animals consuming the control mineral had lower respiration rates at all recording periods. The average respiration rates, recorded in breaths/minute, of all cows for the ten-day recording period are presented in Table 2. The 10% and 20% TASC0 groups had respiration rates that were numerically similar. Horn fly numbers followed the same trend, as did respiration rate. The animals consuming the control mineral harbored fewer horn flies than did the TASC0 animals (Table 3). These data are also in contradiction to those in the previous study. Hair scores were not different between treatments (Table 4). Calf weaning weights were not statistically different ($P < 0.05$) between treatments (512.37; 490.39; 504.52 lb) for 0%, 10% and 20% TASC0, respectively. Pregnancy rates were again not statistically different ($P < 0.05$) but higher pregnancy rates were recorded for the TASC0 groups than the control (63.3%; 76.7% and 66.7%) for 0%, 10% and 20%, respectively.

The feeding of treatment mineral to cows was delayed at the beginning of the study and all cows were not on their assigned minerals for 30 days, therefore serum was collected from only approximately one-third of the calves. The immunoglobulin levels of these calves will be determined and pooled with the serum collected in 2003.

As consistent as the results were in the 2000 and 2001 studies, in which TASC0 reduced body temperature, respiration rate and fly numbers, the 2002 results are almost contradictory. A second year of data will be collected in 2003 and possibly additional data will “clarify” the effect of TASC0.

COOPERATORS: Dr. Roy Hall, Land O Lakes.

TABLE 1. Average Body Temperature in °f of Cows and Calves Consuming TASC0 Mineral in 2002.

Date		0%	10%	20%
7/9/2002	Cow	104.45	104.65	104.30
	Calf	104.48	105.11	104.55
9/11/2002	Cow	103.63	103.39	104.00
	Calf	104.46	104.70	104.37
10/11/2002	Cow	103.45	103.45	103.80
	Calf	104.30	104.10	104.85

TABLE 2. Average Respiration Rates, in Breaths/Minute, Recorded for 10 Days in August and September for Cows Consuming TASC0 Mineral in 2002.

TIME OF DAY	0%	10%	20%
0800	50.68	55.04	55.86
0110	53.16	64.20	65.02
1500	61.10	69.44	65.60

TABLE 3. Average Horn Fly Numbers Recorded for 10 Days in August and September for Cows Consuming TASC0 Mineral in 2002.

TIME OF DAY	0%	10%	20%
0800	1.73	1.96	1.97
0110	1.42	1.86	1.96
1500	1.53	1.78	1.86

TABLE 4. Average Hair Scores Recorded in July and September for Cows and Calves Consuming TASC0 Mineral in 2002.

Date		0%	10%	20%
7/9/2002	Cow	1.27	1.77	1.63
	Calf	1.19	1.47	1.5
9/11/2002	Cow	1.07	1.15	1.17
	Calf	1.18	1.17	1.35

Hair score is determined by a visual estimation at chute side. 1 = a slick, bloomy hair coat; 2 = patchy, unshed winter hair retained on a primarily slick hair coat; 3 = a hair coat that would be expected on an animal in the winter; 4 = a rough, shaggy hair coat with no bloom. A coat most often seen on unthrifty animals; 5 = the hair coat described in 4, but with mud indicating that the animal had been lying or standing in mud or water in an attempt to cool itself.