

## ANIMAL RESPONSE TO THE INGESTION OF TASCO SEAWEED MEAL

Richard R. Evans<sup>1</sup>, Vivian G. Allen<sup>2</sup>, Roscoe L. Ivy<sup>1</sup>, Timothy G. Best<sup>1</sup>, and John E. Huston<sup>1</sup>

<sup>1</sup>Prairie Research Unit, Prairie, MS 39756

<sup>2</sup>Texas Tech University, Lubbock, TX 79409

**ABSTRACT:** Trials were conducted in the summers of 2000 and 2001 to determine if ingestion of TASCO, a meal made from the brown seaweed *Ascophyllum nodosum*, influences the performance of cow/calf pairs grazing fungus infected fescue. The replicates of 15 cow/calf pairs were assigned to treatments of a complete mineral mixture with TASCO and three replicates without TASCO. Mineral consumption was monitored weekly. Cow/calf pairs were weighed (BW), hair scored (HS), body condition scored (BCS) and rectal body temperatures (RBT) taken in July. Respiration rates (RR) and horn fly (HF) estimates were recorded for 10 days in August for 5 cows per replicate at 0800, 1100 and 1500. The numbers of cows resting or grazing in the sun were recorded at these times. The order for recording RR and HF was randomized to equalize heat effect. Cows were exposed for 65 days to bulls that had undergone and passed a breeding soundness exam. Calves were weaned in late October and cows examined for pregnancy (PR). There was no treatment by year interaction. The RR and HF were lower ( $P<0.05$ ) for TASCO cows in both years. No treatment effect was seen for the numbers of cows resting or grazing in the sun. The RBT temperature, taken in July (T1), was higher ( $P<0.05$ ) for control cows and calves in both years. Treatment differences for RBT in August 2001 (T2) approached significance ( $P<0.06$ ). There was no treatment effect in 2000 but there was a significant effect in 2001 ( $P<0.05$ ). In 2000 the treatment on RBT was significant, the trend for controls to have higher body temperatures was maintained. There were no differences in HS, BCS, BW or PR. Lowered RBT may be responsible for the HF reduction in the TASCO cows, since biting insects appear to locate potential prey through infrared heat detection and(or) CO<sub>2</sub> levels. The results of this trial suggest that TASCO is able to modify some of the effects of fescue by reducing RBT and RR but this reduction was not reflected in animal performance.

**CITATION:** Evans, R.R., V.G. Allen, R.L. Ivy, T.G. Best and J.E. Huston. 2002. Animal response to the ingestion of TASCO seaweed meal. Annual Report of the North Mississippi Research and Extension Center, Miss. Agric. & For. Expt. Sta. Info. Bull. 386 pp. 188-189.

**MATERIALS AND METHODS:** In 2000, ninety (90) pairs of beef cows were divided by weight and sex of calf and assigned to one of six treatment groups. In each treatment group of 15 cows there were nine (9) steers and six (6) heifers. The groups were maintained for 2001 except, that open cows were culled in the fall of 2000 and replaced with two-year old heifers bred for their first calf. Three groups of cows consumed a mineral mixture in which TASCO®14 Meal had been mixed so that for every 4 oz of mineral that was consumed, 0.04 oz of seaweed meal would be ingested. An identical mineral, without the seaweed, was provided for the control group. Consumption was monitored weekly to determine mineral ingestion rates. In May of both years, weights, body condition scores and hair scores were taken. Cows were weighed, hair and body condition scores recorded and rectal body temperatures taken July, September and October of 2000 and July, August and October of 2001. Pregnancy diagnosis was done in September of 2000 by rectal palpation and in August 2001 with ultrasound. Calves were also weighed, hair scored and rectal temperatures taken at these same times. Fly numbers, respiration rates and hair scores were determined at 0800, 1100 and 1500 on ten (10) days in August. These times were chosen because the stress levels, caused by the heat and humidity in the South, appear to be greater at this time of year. Ambient temperature and humidity were also recorded at each of these three time periods. Cow's respiration rates and horn fly numbers were monitored from a truck for 15-second intervals using binoculars. These 15-second counts were multiplied by a factor of four (4) to determine breaths per minute. Fly counts were also estimated, 0-50=1; 50-200=2; greater than 200 per side=3, at the same time that respiration rates were determined. Five (5) cows from each group were recorded at each time period.

The steer calves will be finished in a western feedlot and average daily gain (ADG), shrink, health and effect on carcass merit will be determined.

**RESULTS AND DISCUSSION:** TASC0 significantly reduced the cow's body temperature ( $P<0.05$ ) in July of both years by  $0.5^{\circ}\text{F}$  in 2000 and  $0.7^{\circ}\text{F}$  in 2001 and  $0.7^{\circ}\text{F}$  for calves in both years. The September and October 2000 temperatures were not significantly different but the trend for the controls to have higher body temperatures was maintained. The August 2001 temperatures of  $0.4^{\circ}\text{F}$  approached significance at ( $P<0.06$ ). However, the difference of  $0.5^{\circ}\text{F}$  for cows in the October 2001, was significant ( $P<0.05$ ). The  $0.3^{\circ}\text{F}$  difference for calves was not significant but the established trend continued. The mechanism for this reduction in body temperature in the TASC0 cows is not known at this time. The thing that stands out is the consistency of the RBT within groups and between groups within years and even between years. Addition of the seaweed meal to the mineral mixture certainly seems to be causing a reduction in the elevated body temperature associated with the fungus in the infected fescue and by doing so is reducing the stress level in the animals. We have also noticed that cows and calves consuming the TASC0 diets are noticeably calmer in the working chute. It is uncertain whether this calmer disposition is due to the reduction in body temperature or from some other factor associated with ingestion of TASC0, but it certainly makes working the cattle easier for both the animals and the producer. A reduction in body temperature during the spring breeding season also has the potential to increase pregnancy rate by providing a more favorable environment for fertilization and implantation. Thusfar, these increases have not been observed. Likewise, the potential for increases in calf weaning weight exist but there has been no difference in either year.

In both years of the study there was a significant reduction in respiration rate and the numbers of horn flies on the cows consuming the TASC0 mineral. The implication of this is exciting, since it has the potential to provide an "organic" means for external parasite reduction. Under the present study design, it is not possible to confirm this theory. Since the control and TASC0 groups are in adjoining pastures, more flies could be present on the control cows because they have higher body temperatures or because more  $\text{CO}_2$  is present around the control cows, since they have a higher respiration rate. These flies locate potential prey using both infrared heat detection and  $\text{CO}_2$  concentrations. Another possibility exists. Ingestion of the seaweed may cause the cows to impart an "odor" that is unpleasant to the flies. Further studies are being planned to try to ascertain the exact cause(s).

The steer calves were fed in Texas and harvested. The shelf life data is being gathered and compiled and is not available for publication at this time.

**COOPERATORS:** Mr. Dan Colling, Land O' Lakes Farmland LLC, Kansas City, MO 64116.

**PUBLICATIONS:** Tall Fescue Toxicosis Workshop. Southern Extension and Research Activity Information Exchange Group-8. Nov. 4-6, 2001.