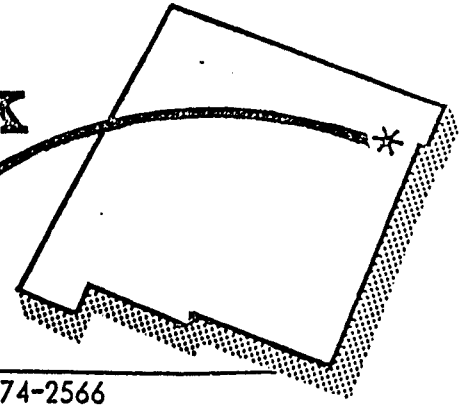




Clayton Livestock Research Center

PROGRESS REPORT



Route 1 Box 109 Clayton, New Mexico 88415 Tel. (505) 374-2566

Progress Report No. 25, September 1981

PROTEIN SUPPLEMENTATION FOR STRESSED CALVES

Mark E. Grigsby

Work at this station has shown that starting lightweight, stressed calves on a high concentrate ration results in faster gain and quicker recovery of purchase weight, compared to feeding higher roughage levels. However, little is known about the protein requirements of these calves. A receiving trial was conducted in which soybean meal (SBM), a protein that is highly degraded in the rumen, was compared with two levels of corn gluten meal (CGM) as the supplemental protein in a high concentrate ration. CGM, a by-product of the corn wet-milling industry, has a higher protein content and is less soluble in the rumen than SBM; therefore, it has a much higher 'metabolizable

protein' value than SBM. Metabolizable protein (MP) is an estimate of the amount of protein actually utilized by the animal.

One-hundred-thirty-two Okie and crossbred calves from Florida with an average purchase weight of 353 lb were used. Calves were in transit 40 hr, rested overnight with access to alfalfa hay and water and then processed and allotted to one of 9 pens. Processing included vaccination, worming, dehorning and castration as necessary, Vits. A-D, LA 200® and Albon SR®, ear tagging, branding and implanting with Ralgro®. These calves arrived in good condition with only 3 calves having elevated rectal temperatures at time of pro-

Table 1. Composition of receiving rations (as-fed).

	8% SBM	6% CGM	11% CGM
Steam flaked corn	54.0	54.0	51.0
Alfalfa hay, grnd	19.0	20.0	19.0
Cottonseed hulls	6.0	7.0	6.0
Molasses	10.0	10.0	10.0
Soybean meal	8.0	-	-
Corn gluten meal	-	6.0	11.0
Premix ¹	1.0	1.0	1.0
Dicalcium phosphate	1.6	1.6	1.6
Trace mineral salt	0.4	0.4	0.4
Crude protein, % ²	14.2	14.3	17.1
MP, g/kg ²	88.7	97.8	112.0
NE _m , Mcal/kg ²	1.90	1.89	1.90
NE _g , Mcal/kg ²	1.18	1.17	1.19

¹Premix contained Bacitracin, Tylan and Vit. A carried in hominy feed.

²Calculated values on a dry-matter basis.

cessing. Three pens of calves were assigned to each of the rations. The milled rations were fed ad libitum plus all calves received free-choice grass hay the first week only. The rations were balanced using the Iowa State 'metabolizable protein' system. Table gives the composition of the rations.

ADG and feed intake were similar among treatments during the first week. It took 7 days to recover purchase weight. There was no death loss and only 7 steers were treated for sickness. Over the 31-day trial, performance of calves on the 8% SBM and 6% CGM was similar (Table 2). There was an obvious palatability problem with 11% CGM in the ra-

tion, resulting in reduced intake and ADG, although the differences were not statistically significant. These performance trends remained for an additional 21 days during which the calves were kept on the same rations. The only advantage of feeding 6% CGM relative to SBM was a reduction in the cost of supplemental protein (Table 2).

Actual gains from purchase weight were higher than predicted for the 8% SBM and 6% CGM rations, based on MP intake. Therefore, it is possible that protein requirements are lower than anticipated. Perhaps future trials will help determine the protein requirements of stressed calves.

Table 2. Performance data

	8% SBM	6% CGM	11% CGM
Number of steers	43	44	45
Av. purchase wt. lb	362	348	349
Av. arrival wt. lb	317	304	305
Final wt.	437	424	417
ADG from arrival, lb	3.89	3.85	3.60
ADG from purchase wt., lb	2.44	2.45	2.18
Daily feed intake, lb	12.6	12.3	11.1
Feed/gain, lb	5.16	5.02	5.09
Av. daily MP intake, grams	432	465	480
Cost of protein supplement, \$/hd ¹	3.71	2.88	4.75

¹Total 31-day cost based on SBM @ \$245/T and CGM @ \$260/T.

A. B. Nelson

A. B. Nelson, Head
Department of Animal and Range Sciences

Agricultural Experiment Station
NEW MEXICO STATE UNIVERSITY
Las Cruces, New Mexico 88003

L. S. Pope, Director

REE-ANNUAL REPORT OR BULLETIN
OR REPORT OF PROGRESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE
AGR 101
THIRD-CLASS

