

## Texas Cattle Feeders Association Research Report

February 26, 1974

PROTEIN WITHDRAWAL IN FEEDLOT RATIONS. L. B. Sherrod, R. L. Kellison, W. C. Koers, R. H. Klett and R. C. Albin. 1974. Texas Tech University Center at Amarillo, Pantex, Texas 79069.

Recent data indicate that protein levels in finishing rations can be reduced during the later phases of the finishing period without appreciably affecting overall feedlot performance. This reduction in protein levels provides the opportunity for reducing the cost per lb gain for the entire feeding period. This study was conducted to further evaluate and compare feedlot rations containing constant and variable levels of protein, and the reduction of protein levels at various weights during the finishing period.

### Procedure

One-hundred fifty steers averaging about 625 lb were randomly allotted to five main treatments with five replications of 6 steers each. Treatments involving protein levels at different weights are outlined in Table 1. Rations for the 136 day feeding period contained steam flaked sorghum grain, cottonseed meal, cottonseed hulls, and a supplement containing alfalfa dehy, minerals, vitamins, antibiotics and urea. Protein levels were adjusted by changing levels of supplemental protein (protein equivalent) which replaced equal portions of

Table 1. Experimental Design - Protein Levels and Changes in Levels at Different Weights for Finishing Steers.

Weight, lb	650	750	850	950	Finish
Treatment					
1	11.5	11.5	11.5	11.5	11.5
2	14.5	12.5	10.5	9.0	9.0
3	11.5	9.0	9.0	9.0	9.0
4	11.5	11.5	9.0	9.0	9.0
5	11.5	11.5	11.5	9.0	9.0

grain with the other additives contained in the supplement fed a constant levels throughout the trial. The rations contained approximately 50 megcal NEg/100 lb and about 8% fiber.

### Results

Feedlot performance and carcass data are given in Table 2. Daily gains were comparable for all treatments. Feed conversion was somewhat more efficient with treatments 3 and 4 which had protein levels reduced

Table 2. Feedlot Performance and Carcass Traits of Steers Fed Variable and Reduced Crude Protein Levels During the Finishing Period.

Treatment	1	2	3	4	5
No. head	29	30	30	30	30
Initial weight, lb	625.1	624.4	620.5	624.2	625.2
Final weight, lb	1014.2	1027.1	1009.4	1019.3	1025.8
A.D.G., lb	2.84	2.94	2.84	2.88	2.92
Avg. daily feed, lb	22.63	22.92	21.27	21.34	23.82
Feed conversion, lb	7.97	7.80	7.49	7.41	8.16
Warm carcass wt., lb	641.0	653.2	640.0	632.0	652.4
Dressing percent	63.2	63.6	63.4	62.0	63.6
Carcass grade <sup>1</sup>	11.9	12.3	11.9	12.7	12.5
Yield grade	2.8	2.9	2.9	2.9	2.9
No. liver abscesses	0	4	3	4	6

<sup>1</sup>Average good = 10; average choice = 13; average prime = 16.

from 11.5% to 9.0% at 750 and 850 lb, respectively. The least efficient feed conversion occurred with treatments 1 (continuous 11.5% C.P.) and 5 (reduction from 11.5% to 9.0% C.P. at 950 lb). Carcass traits were generally comparable among the different level of protein (and reduction) treatments.

### Summary

Finishing studies with steers indicate that feedlot performance and carcass traits were not appreciably affected by reduction of crude protein levels from 11.5 to 9.0% at 750, 850 or 950 lb compared with continuous 11.5% crude protein in the ration. Starting with higher levels (14.5%) with 2% reductions at 750, 850 and 950 lb gave no advantage for either performance or carcass traits. These results indicate that crude protein levels can be reduced during the finishing period without adverse effects on performance or carcass traits. However, type and age of cattle, time on feed, and length of feeding period should be considerations with feeding programs which involve gradations of crude protein levels in finishing rations.