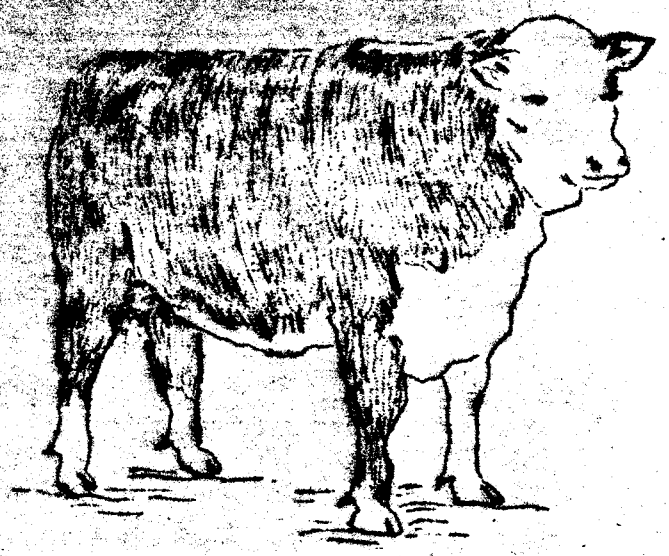
Miscellaneous Series Paper 236

Steer Feeding Experiment
Akron, Colorado, 1943-1944



WINTERING, GRAZING AND FATTENING STEERS IN EASTERN COLORADO

Colorado Agricultural Experiment Station
Colorado State College
Fort Collins, Colorado

Homer J. Henney, Director

Miscellaneous Series #236 May 236 April 1944

AKRON STEER FEEDING EXPERIMENT

WINTERING PHASE - WEIGHT AT AKRON FEEDLOTS

Colorado Agricultural Experiment Station, Fort Collins, Colorado
Wintered 113 days - Feb. 5, 1943 to May 29, 1943
(Table based on one average steer)

Lot Number	1	2	3
Number of Steers	12	12	12
Feeds Fed: Mineral mixture and salt fed in all lots	C/S Cake C/C Fodder	C/C Fodder	C/S Cake Cane Silage
Initial Weights	439.8	440.4	439.6
Final Feedlot Weight	601.7	494.6	578.8
Total Gain	161.9	54.2	139.2
Daily Gain	1.43	.48	1.23
Average Daily Ration			
Cottonseed Cake	.98		.98
Cut Cane Fodder	17.00	12.35	
Cane Fodder			.39
Cane Silage			29.83
Mineral Mixture	.03	.07	.05
Salt	.05	.15	.08
Feed Required per Cwt. Gain			
Cottonseed Cake	68.4		79.6
Cut Cane Fodder	1186.6	2576.2	
Cane Fodder			32.0
Cane Silage			2422.2
Mineral Mixture	2.0	15.4	4.2
Salt	3.4	30.3	6.7
Feed Cost per Cwt. Gain	6.37	10.31	7.25
Shipping Shrink*	41.2	29.4	33.3
Percent Shrink	6.85	5.94	5.75

Feed Costs Used for Wintering Phase:

Cottonseed Cake	$54.00 per ton
Cut Cane Fodder	7.50 per ton
Cane Fodder	6.50 per ton
Cane Silage	4.00 per ton
Mineral Mixture	45.00 per ton
Salt	20.00 per ton

*Steers Shipped by Truck to Central Plains Experimental Range, Nunn, Colorado - distance approximately 100 miles.

Cooperators:
U. S. Dryland Field Station, Akron, Colorado.
Colorado State College Extension Service

(2191-44)

AKRON STEER FEEDING EXPERIMENT

WINTERING PHASE - WEIGHT DELIVERED AT RANGE

Colorado Agricultural Experiment Station, Fort Collins, Colorado
Wintered 113 days - Feb. 5, 1943 to May 29, 1943
(Table based on one average steer)

Lot Number	1	2	3
Number of Steers	12	12	12
Feeds Fed: Mineral mixture and salt fed in all lots	C/S Cake C/C Fodder	C/C Fodder	C/S Cake Cane Silage
Initial Weight	439.8	440.4	439.6
Weight Delivered at Range	560.5	465.2	545.5
Total Gain	120.7	24.8	105.9
Daily Gain	1.07	.22	.94
Average Daily Ration			
Cottonseed Cake	.98		.98
Cut Cane Fodder	17.00	12.35	
Cane Fodder			.39
Cane Silage			29.83
Mineral Mixture	.03	.07	.05
Salt	.05	.15	.08
Feed Required per Cwt. Gain			
Cottonseed Cake	91.7		104.5
Cut Cane Fodder	1591.3	5638.1	
Cane Fodder			42.1
Cane Silage			3182.6
Mineral Mixture	2.6	33.7	5.5
Salt	4.5	66.3	8.8
Feed Cost per Cwt. Gain	8.55	22.56	9.53
Cost per Steer @ $17.25 per cwt.	75.86	75.97	75.83
Feed Cost per Steer	10.32	5.58	10.09
Est. fixed cost including int., labor & equipment	4.55	4.56	4.55
Shipping Cost to Range	1.35	1.12	1.31
Total Est. Cost per Steer	92.08	87.23	91.78
Total Est. Operating Costs	16.22	11.26	15.95
Est. Return per Steer to cover operating costs	8.22	-3.87	5.99
Appraised Value per Cwt. (Denver basis)	15.00	15.50	15.00
Est. Return per Steer	84.08	72.10	81.82
Necessary Selling Price per Cwt. to break even	16.43	18.75	16.82

Cooperators:
U. S. Dryland Field Station, Akron, Colorado.
Colorado State College Extension Service

(2191-44)

AKRON STEER FEEDING EXPERIMENT

GRAZING PHASE — WEIGHT AT RANGE

Colorado Agricultural Experiment Station, Fort Collins, Colorado
Grazed 166 days - May 29, 1943 to Nov. 11, 1943
Central Plains Experimental Range, Nunn, Colo.
(Table based on one average steer)

Lot Number	1	2	3
Number of Steers	12	12	12
Initial Weight	560.5	465.2	545.5
Final Weight	751.0	694.0	743.0
Total Gain	190.5	228.8	197.5
Daily Gain	1.15	1.38	1.19
Weight Delivered at Akron*	708.9	655.1	701.4
Shipping Shrink	42.1	38.9	41.6
Percent Shrink	5.61	5.61	5.60
Cost per Steer Delivered to Range	92.08	87.23	91.78
Grazing Cost per Steer	2.65	2.65	2.65
Est. fixed cost including int., labor & equipment	3.40	3.22	3.39
Shipping Cost to Akron	2.48	2.29	2.45
Total Est. Cost per Steer	100.61	95.39	100.27
Total Est. Operating Costs	8.53	8.16	8.49
Est. Return per Steer to cover operating costs	-7.72	-9.27	-8.31
Appraised Value per Cwt.	11.90	11.90	11.90
Est. Return per Steer at Akron	84.36	77.96	83.47
Necessary Selling Price per Cwt. to break even	14.19	14.56	14.30

*Steers shipped by truck to Akron - distance approximately 100 miles.

Cooperator:
Rocky Mountain Forest and Range Experiment Station, Fort Collins,

AKRON STEER FEEDING EXPERIMENT
FATTENING
Colorado Agricultural Experiment Station, Ft. Collins, Colo.
Fed 170 days - Nov. 19, 1943 to May 7, 1944
(Table based on one average steer)

Lot Number	1	2	3	4
Number of Steers	9	9	9	8
Feeds Fed: Mineral mixture and salt self fed in all lots	Gr. Corn Gr. Wheat Gr. Coes Soybean C. Cane Silage	Gr. Corn Gr. Wheat Gr. Coes Soybean C. Cane Silage C/C Fodder	Gr. Wheat Gr. Coes Soybean C. Cane Silage	Gr. Coes Soybean C. Cane Silage
Initial Weight	713.3	710.6	712.5	702.2
Final Weight	1044.4	1027.5	1056.7	985.6
Total Gain	331.1	316.9	344.2	283.4
Daily Gain	1.95	1.86	2.02	1.67
Average Daily Ration				
Ground Corn	4.45	4.42		
Ground Wheat	4.45	4.42	6.68	
Ground Coes	4.45	4.42	6.68	13.58
Soybean Cake	.98	.98	.99	.99
Cane Silage	17.25	8.58	16.83	17.35
Chopped Cane Fodder		4.27		
Mineral Mixture	.092	.059	.090	.088
Salt	.077	.073	.103	.094
Feed Required per Cwt. Gain				
Ground Corn	228.3	237.0		
Ground Wheat	228.3	237.0	329.8	
Ground Coes	228.3	237.0	329.8	814.7
Soybean Cake	50.5	52.7	48.7	59.2
Cane Silage	885.6	460.4	831.2	1040.4
Chopped Cane Fodder		228.9		
Mineral Mixture	4.7	3.2	4.4	5.3
Salt	3.9	3.9	5.1	5.6
Feed Cost per Cwt. Gain	19.60	20.06	18.53	23.90

Feed Costs Used:			
Ground Corn	$45.00 per ton	Cane Silage	$6.50 per ton
Ground Wheat	40.00 " "	Chopped Cane Fodder	11.00 " "
Ground Coes	45.00 " "	Mineral Mixture	45.00 " "
Soybean Cake	68.00 " "	Salt	20.00 " "

Cooperators:

U. S. Dryland Field Station, Akron, Colorado
Colo. State College Extension Service

AKRON STEER FEEDING EXPERIMENT
FATTENING - FINANCIAL STATEMENT
Colorado Agricultural Experiment Station, Ft. Collins, Colorado
Fed 170 days - Nov. 19, 1943 to May 7, 1944
(Table based on one average steer)

Lot Number	1	2	3	4
Number of Steers	9	9	9	8
Feeds Fed: Mineral mixture and salt self-fed in all lots	Gr. Corn Gr. Wheat Gr. Oats Soybean C. Cane Silage	Gr. Corn Gr. Wheat Gr. Oats Soybean C. Cane Silage C/C Fodder	Gr. Wheat Gr. Oats Soybean C. Cane Silage	Gr. Oats Soybean C. Cane Silage
Initial Weight	713.3	710.6	712.5	702.2
Shipping Weight	1044.4	1027.5	1056.7	985.6
Market Wt. (Denver)	1038.9	1022.8	1010.6	963.8
Total Mkt. Gain	325.6	312.2	298.1	261.6
Daily Mkt. Gain	1.92	1.84	1.75	1.54
Shrink to Market	5.6	4.7	46.1	21.9
Percent shrink to market	.53	.46	4.36	2.22
Cost per steer in feedlot	100.08	99.69	99.96	98.52
Feed cost per steer	64.90	63.58	63.77	67.74
Est. fixed costs including int., labor & equipt.	7.84	7.80	7.81	7.88
Shipping & selling expense	4.16	4.09	4.04	3.86
Total cost at mkt. (Denver)	176.98	175.16	175.58	178.00
Total est. operating costs	76.90	75.47	75.62	79.48
Return per steer to cover operating costs	60.43	58.33	56.17	46.04
Price per cwt. flat (Denver)	15.45	15.45	15.45	15.00
Return per steer	160.51	158.02	156.13	144.56
Necessary selling price per cwt. to break even	17.04	17.13	17.37	18.47
Margin over purchase price needed to break even	3.01	3.10	3.34	4.44

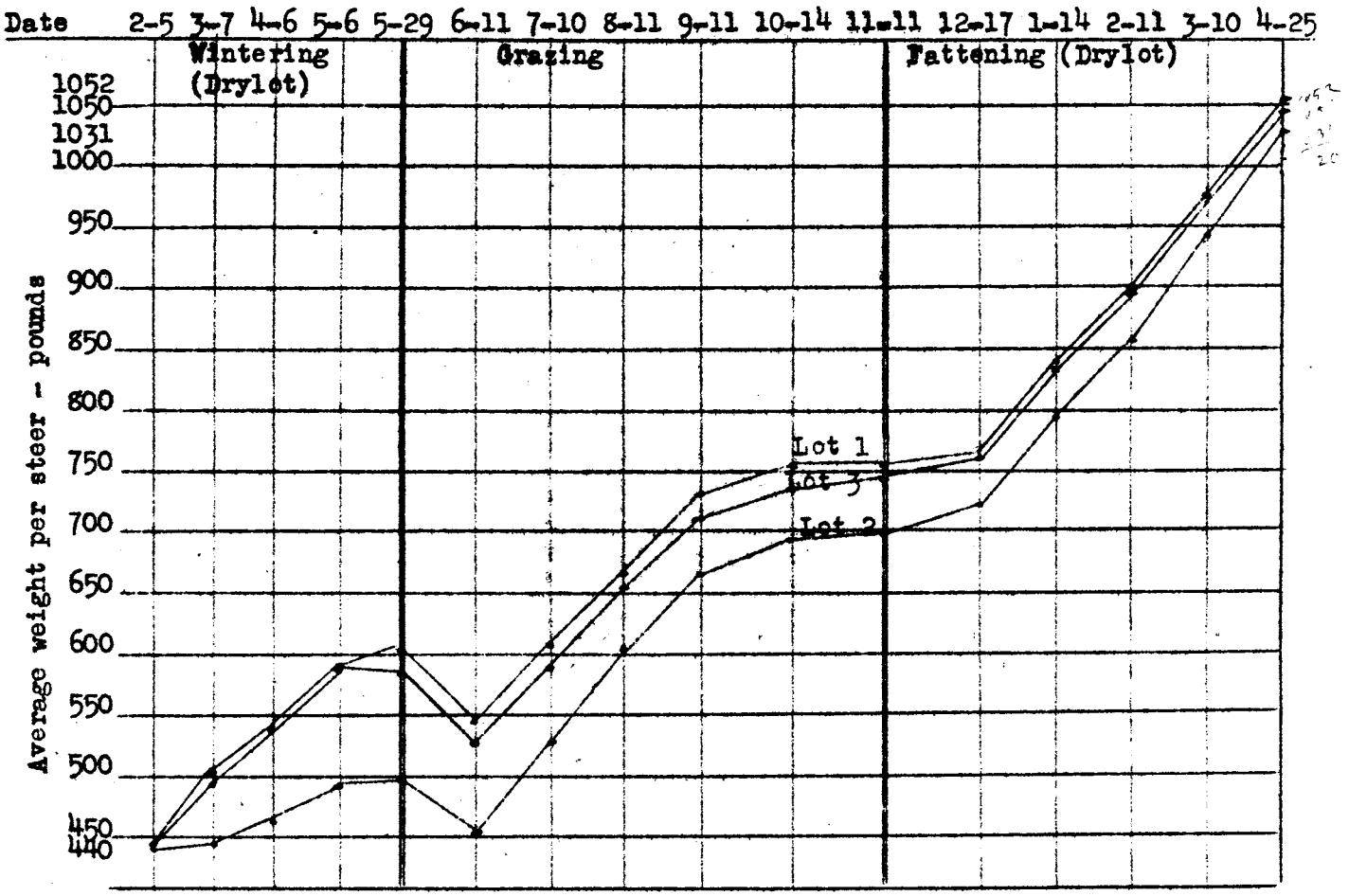
SLAUGHTER DATA

Live Weight	1038.9	1022.8	1010.6	963.8
Dressed Weight	626.6	618.0	636.6	599.3
Dressing Percent	60.31	60.42	62.99	62.18
Government Carcass Grades				
Choice	8	4	8	6
Good	1	5	1	2
Inspection of Livers				
Abscess	1	0	2	0
Sawdust	1	0	0	0
Telangiectasis	2	6	2	2
Livers Condemned				
Number	3	6	4	2
Percent	33.00	67.00	44.00	25.00
Inspection of Heads				
Actinobacillosis (condemned)	1	0	0	1

Cooperators:
U. S. Dryland Field Station, Akron, Colorado
Colo. State College Extension Service

(3660-44)

AKRON STEER FEEDING EXPERIMENT
WINTERING - GRAZING - FATTENING
Colorado Agricultural Experiment Station, Fort Collins, Colo.
Feb. 5, 1943 to April 25, 1944



1. Wintering - Feeds fed (mineral mixture and salt self-fed in all lots):
   - Lot 1 - Chopped cane fodder - cottonseed cake
   - Lot 2 - Chopped cane fodder
   - Lot 3 - Cane Silage - cottonseed cake

2. The addition of 1 pound of cottonseed cake per steer daily to a ration of chopped cane fodder, mineral mixture and salt stimulated feed consumption and increased the total cost of feed $4.74 per steer. The added gain produced per steer was worth $16.16 at the end of the wintering period, $6.85 at the end of the grazing period and $3.20 at the end of the fattening period.

3. These lots were handled alike during the grazing and fattening periods to determine the carry-over effect of the different wintering rations.

(2253-44)

AKRON STEER FEEDING EXPERIMENT
WINTERING - PROGRESS REPORT
Colorado Agricultural Experiment Station, Fort Collins, Colorado
Fed 81 days - Feb. 4, 1944 to Apr. 25, 1944
(Table based on one average steer)

Lot Number	5	6	7	8
Number of Steers	9	9	9	9
Feeds Fed: Mineral mixture and salt fed in all lots	Cane Silage Soybean C.	Cane Silage	C/C Fodder Soybean C.	C/C Fodder
Initial Weight	381.1	382.6	383.0	379.4
Final Weight	474.4	423.1	510.0	449.7
Total Gain	93.3	40.5	127.0	70.3
Daily Gain	1.15	.50	1.57	.87
Average Daily Ration				
Cane Silage	22.92	22.17		
Chopped Cane Fodder			14.20	12.70
Soybean Cake	.99		.99	
Mineral Mixture	.058	.065	.041	.062
Salt	.074	.102	.075	.075
Feed Required Per Cwt. Gain				
Cane Silage	1989.0	4438.0		
Chopped Cane Fodder			905.7	1464.1
Soybean Cake	85.7		62.9	
Mineral Mixture	5.1	13.0	2.6	7.1
Salt	6.4	20.3	4.8	8.7
Feed Cost per Cwt. Gain	9.54	14.91	7.23	8.30
Cost per Steer @ $13.50 cwt. plus freight	54.80	55.02	55.07	54.56
Feed cost per steer	8.90	6.03	9.18	5.83
Est. fixed costs including int., labor & equipment	2.66	2.62	2.67	2.62
Est. shipping and selling expense (Denver basis)	1.84	1.64	1.98	1.74
Total est. cost per steer	68.20	65.31	68.90	64.75
Total est. operating costs	13.40	10.29	13.83	10.19
Est. return per steer to cover operating costs	11.93	4.48	16.66	8.69
Est. Mkt. Wt. (3% Sh.)	460.2	410.4	494.7	436.2
Val. per cwt. flat (Denver basis)	14.50	14.50	14.50	14.50
Est. return per steer	66.73	59.50	71.73	63.25
Necessary selling price per cwt. to break even	14.82	15.92	13.93	14.84

Feed Costs used:

Cane Silage	$6.50 per ton
Chopped Cane Fodder	11.00 " "
Soybean Cake	68.00 " "
Mineral Mixture	45.00 " "
Salt	20.00 " "

Cooperators:

U. S. Dryland Field Station, Akron, Colo.
Colo. State College Extension Service

(2253-44)

AKRON STEER FEEDING EXPERIMENT
OBSERVATIONS - WINTERING, GRAZING AND FATTENING
Colorado Agricultural Experiment Station, Fort Collins, Colo.
Feb. 5, 1943 - May 7, 1944

1. The silage used in these experiments contained a little more than 1/3 as much dry matter as the fodder and therefore a feed replacement value of about 40% might be expected. When a protein supplement was fed, cane silage compared to chopped cane fodder pound for pound fed to wintering steer calves had a replacement value of 38% in 1943 and 43% in 1944. When no protein supplement was fed in 1944, cane silage had a replacement value of 32%.

2. Standard protein supplements when fed with cane roughage to steer calves in these wintering experiments had feed replacement values averaging about twice their cost. One ton of protein supplement replaced about 15 tons of cane fodder.

3. Adding one pound of cottonseed cake per steer daily to a wintering ration of chopped cane fodder, mineral and salt stimulated the appetite and the steers each gained nearly one pound more per day during the wintering period. By the end of the grazing period, this spread in gain had narrowed to about 1/3 pound more per steer daily and decreased to less than 1/10 pound more daily gain when spread out over all three periods, - wintering, grazing and fattening. The increased gains made through the wintering and grazing seasons returned more than the added feed cost, but returned less than the extra cost by the end of the fattening period.

4. On the basis of final market weights cane silage produced larger daily gains at a lower cost per cwt. of gain produced than when chopped cane fodder was fed with the silage to fattening steers in this experiment.

5. The steers on the fattening ration containing a grain mix of ground wheat and ground oats made the highest gains in the feedlot, but also had the greatest shrink to market. These steers, however, dressed out higher than those in any other lot.

6. The steers receiving ground corn in addition to ground wheat and ground oats had very little shrink to market, but dressed out lowest in the experiment.

7. The ration containing ground oats alone was the least efficient in this experiment from the standpoint of both gains and market returns.

Cooperators:

U. S. Dryland Field Station, Akron, Colorado.
Colorado State College Extension Service.
Rocky Mountain Forest and Range Experiment Station,
Fort Collins, Colorado.

(3660-44)