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Effect of Location and Diet on Performance and Profitability of Finishing Mississippi Beef Steers After Winter Grazing

Finishing cattle to slaughter eight is rarely considered as an lternative by producers in Mississippi. However, changes in costs nd returns associated with changng feed costs and (or) cattle prices ould make cattle finishing a plausle alternative for Mississippi producers.

The two generally accepted finishng options that Mississippi producers can use are (1) build the necessary facilities and finish cattle on a grain or silage ration or (2) send the cattle to a feedlot in the Southwest for custom finishing.

Comparing the costs and returns associated with finishing cattle in Mississippi with those of custom finishing in the Southwest requires data for differences in performance due to environmental effects and diets fed at different locations and the effects of differences in costs of feed, transportation and other inputs associated with finishing cattle. The purpose of this study was to provide information about the effect of location and diet on the performance of finishing Mississippi steers after winter grazing and to present an economic analysis that relates costs and returns of finishing cattle to location and diet.

Description of Experiment

This experiment involved a cooperative effort of Mississippi State niversity, Texas A & M University nd Texas Tech University. Steers ere fed at three locations---two in lississippi and one in Texas.

The two Mississippi locations MAFES Brown Loam Branch at aymond and MAFES South Mississippi Branch at Poplarville) have ignificantly different feedlot facilies and represent different areas ithin the South Mississippi winter razing region. The Brown Loam eeding facility is an open lot with nsheltered concrete feeding bunks long one side. Trees within or djacent to the pens afford some hade. The South Mississippi feedlot acility has a concrete floor and is a ompletely covered facility. Pens re cleaned via a sloped floor-water ush arrangement.

The Texas Tech University Exeriment Station at Amarillo Texas as chosen to represent the Southest custom feedlot operation ecause its facilities are similar to any of the commercial feedlots in he region (open lots with unheltered fence-line feed troughs). Personnel from the Texas A&M Research and Extension Center helped coordinate the experiment, and personnel at the Texas Tech Research Center managed the steers fed in Texas and collected the feed, weight gain and carcass data.

In May 1980, 1981 and 1982, 120 steers (60 steers from the Brown Loam Branch and 60 from the South Mississippi Branch) were sorted by breed and weight and randomly assigned to one of five treatments. Steers from the Brown Loam Branch were Angus x Hereford crossbred calves that had been purchased in the fall and backgrounded on winter grazing systems. Steers from the South Mississippi Branch were born in late winter, weaned in October and backgrounded on wintergrazing systems. South Mississippi steers were produced from straight Hereford, Hereford x Barzona or Hereford x Beefmaster dams. Sires were Angus (1979); Angus, Brangus or Simmental (1980) and Brangus or Beefmaster (1981).

Steers were weighed individually, identified with ear tags, treated for internal parasites (TBZ paste®) and implanted with Ralgro® before confinement in the feedlots in Mississippi or shipment to Texas. Steers shipped to Texas were reweighed upon arrival at the feedlot.

A corn-cottonseed hull finishing diet was fed to three groups of steers, one group at each of the two Mississippi locations and one in Texas. A corn-silage finishing diet (considered by researchers to be the most economical Mississippi feedlot diet) was fed to one group of steers at the South Mississippi Branch. A milo-cottonseed hull finishing diet (considered by Texas researchers to be the most economical Texas feedlot diet) was fed to one group of steers at the Texas Tech Experiment Station.

Compositions of the three diets are presented in Table 1. Steers in each of the five groups were fed until they reached an average of about 1,100 pounds unshrunk weight. At the close of each feeding trial the steers were sold on a carcass yield and weight basis to local packers.

Data

Average weights of steers entering the feedlots ranged from 749 to 767 pounds. Assigned costs of steers at the beginning of feeding were based on market prices, as established from late May quotations on comparable animals each year. Interest at 15% (approximately the prevailing rate in each of the three years of the experiment) was charged on the initial cost assigned to the animals, and on feed cost. Five treatment groups were fed in each of three years in five "feeding periods" ranging in length from 11 to 36 days.[1] In 1981, steers were fed over only four feeding periods.

The prevailing bulk price of each feed ingredient at each location at the beginning of each feeding period was used to calculate diet cost/lb. The cost/lb times average daily consumption per head times the number of days in the feeding period yielded estimated diet cost per head for a specific lot over a specific feeding period.

Estimates of other costs per head for feeding cattle in Mississippi, as taken from a recent study (1), were utilities and fuel, $2.31; labor, $14.07 (4.2 hours @ $3.35); veterinary and medicine, $5.43; transportation and marketing, $7.50; and death loss, 1% of purchase price. Steers fed in Texas were charged transportation, averaging $31.62 per head; veterinary and medicine, $3.00; death loss, 2% of purchase price and service and facility cost, $15.00/ton of feed.

Table 1. Composition of finishing diets fed steers in Mississip and Texas, as-fed basis, 1980-1982

Item	Diet		
	Corn	Milo	Corn Silage[a]
	percent		
Corn, cracked	73.0	--	7.1
Milo, steamflaked	--	77.3	--
Corn silage	--	--	87.7
Cottonseed hulls	15.0	10.0	--
Cottonseed meal	6.0	.7	4.6
Molasses	--	6.0	--
Supplement			
Alfalfa, dehy	3.4	3.61	
Urea	.37	.37	
Polyphos	.17	.17	
Calcium carbonate	.60	.60	
Salt	.50	.50	
Ammonium sulfate	.36	.36	
Vitamin A	.0075	.0075	[b]
Trace mineral	.01	.01	
Sulfur	.02	.02	
Potassium chloride	.57	.57	
Rumensin	[c]	[c]	[d]
TM Salt			.2
Dicalcium phosphate			.1
Ground limestone			.3
Calculated Content:			
Dry matter (%)	89.5	88.4	45.0
Crude protein (% DM)	12.1	11.9	12.0
DE (Kcal/lb DM)	1428	1380	1440

[a] Based silage containing 8.02% CP (DM basis).

[b] 200,000 IU/hd/day.

[c] 500 grams/ton.

[d] 200 mg/hd/day.

Results

Differences in size and quality of steers entering a feedlot or in the feeding program at that lot over the three-year life of the project were only minor, and results are reported on a three-year average basis. (Annual data on feeding programs are available in appendices to this report).

Three-year average performance rates for steers at all locations are presented in Table 2. Inspection of average daily gain data---fro initial full weight to final shrun weight---reveals significantly high rates of gain in both Texas feedlo than in either of the two Missi sippi feedlots. In Mississippi, stee

[1] *Length of a feeding period was generally about 28 days but varied in the initial or last periods depending on changes in diet composition or animal size and remaining time in the feedlot.*

id at the Brown Loam Branch had significantly higher rate of gain an did those fed at the South Mississippi Branch. Feed conversion ratios did not differ appreciably except for steers fed the corn silage et at the South Mississippi ranch, which reflected the higher ater content of silage. More detailed data appear in appendix A.

Most of the significant differences carcass characteristics were in arcass weight and dressing percentage, with steers fed at the South Mississippi Branch producing significantly lower dressing percentages han those finished at the Texas tation or the Brown Loam Branch Table 3). There were no significant ifferences among marbling scores r USDA quality grades of steers d the different diets, or at different locations. Carcass yield grade of animals fed milo (in Texas) was slightly but not significantly better than from any other feeding.

Returns were calculated from cost, performance and sale data. A summary of performance, sale prices and carcass values is presented in Table 4. Feed costs per pound of gain ranged from $.388 for steers fed corn silage in South Mississippi to $.621 for steers fed corn there (Table 5). Costs of gain were almost identical for steers fed corn at the Brown Loam Branch and those fed milo in Texas. Steers fed corn in Texas had feed costs per pound of gain that were slightly less than those for steers fed corn at the South Mississippi Branch.

Total cost per pound of gain (Table 5) includes all costs (i.e., interest, transportation, facility charges, etc.). The corn-silage diet at the South Mississippi Branch afforded the lowest overall cost per pound of gain ($.697), and the corn diet at that station was the highest ($.871).

A summary of income and expenses (Table 6) compiled from three-year average budgets (Appendix B) reveals not only that all trials were not profitable but also that none even recovered direct (operating) expenses. If only direct costs are considered, per head losses were least ($17.79) in the corn silage feeding trial at the South Mississippi Branch and largest ($84.43) in the corn-feeding option at that station. When all costs are considered, the two programs at the South Mississippi Branch maintain their

Table 2. Performance data, by diet, for steers finished in Mississippi and Texas, three-year averages, 1980-1982

Item	Unit	Diet and Location: Corn, Brown Loam	Corn, South MS	Corn, Texas	Milo, Texas	Corn Silage, South MS
Initial full wt.	Lb	767.8[a/]	753.0[b/]	762.6[a/]	767.5[a/]	749.7[b/]
Initial shrink	Lb	40.5	37.6	73.4	76.0	35.7
Final shrunk wt.	Lb	1081.7[a/]	1055.1[b/]	1084.6[a/]	1089.4[a/]	1062.0[b/]
Final shrink	Lb	44.5	30.5	41.9	36.1	32.1
Gain	Lb	313.9	302.1	322.0	323.9	312.3
Feeding period	Days	123	132	116	116	139
Feed consumption per head	Lb	2906.2	3034.8	2895.9	2944.3	6845.6
Average daily gain (Initial full wt. to final shrunk wt.)	Lb	2.55[b/]	2.31[c/]	2.78[a/]	2.78[a/]	2.25[c/]
Feed conversion (lb. feed/Lb gain)	Ratio	9.26	10.04	8.99	9.09	21.92

[abc/] Any two means on same line which do not share a letter in common differ significantly at the 5% level of probability as judged by Fisher's protected LSD.

Table 3. Carcass data, by diet, for steers finished in Mississippi and Texas, three-year averages, 1980-1982

Item	Unit	Diet and Location: Corn Brown Loam	Corn South MS	Corn Texas	Milo Texas	Corn Silage South M
Carcass wt.	Lb.	656.5[e]	644.8[f]	674.3[d]	669.0[d]	638.1[1]
Dressing	%	61.2[dg]	60.3[e]	62.0[df]	61.4[d]	60.1[e]
Fat thickness	In.[1/]	.56[d]	.51[ef]	.47[f]	.41[g]	.55
KHP Fat	%	2.5[d]	2.2[e]	2.0[f]	1.8[f]	2.4[d]
Loin eye area	Sq. In.	11.76[eg]	11.39[fg]	11.79[e]	12.24[d]	11.37
Yield grade	--	3.1[d]	3.0[d]	3.0[d]	2.7[e]	3.1[d]
Marble score	[2/]	6.7[d]	6.6[d]	6.3[d]	6.4[d]	6.7[d]
USDA quality grade	[3/]	11.2[d]	11.0[d]	11.0[d]	11.1[d]	11.2[d]

[1/] Measured at 12th rib.

[2/] 6 = slight; 7 = small; etc.

[3/] 11 = high good; 12 = low choice, etc.

[defg] Any two means on the same line which do not share a letter in common differ significantly at the 5% level of probability as judged by Fisher's protected LSD.

Table 4. Performance, sale prices and carcass values for steers finished in Mississippi and Texas, three-year averages, 1980-1982

Item	Unit	Diet and Location: Corn Brown Loam	Corn South MS	Corn Texas	Milo Texas	Corn Silage South M
Initial full wt.	Lb	767.8	753.0	762.6	767.5	749.7
Final shrunk wt.	Lb	1081.7	1055.1	1084.6	1089.6	1060.0
Gain	Lb	313.9	302.1	322.0	322.1	310.3
Live wt. sale Price (calculated)	Dol/Cwt	62.00	60.60	62.00	61.40	59.70
Carcass sale price (actual)	Dol/Cwt	98.42	99.22	99.77	100.06	99.78
Carcass value	Dol	670.65	639.39	672.45	669.01	633.82

Table 5. Summary costs/lb of gain from initial full weight to final shrunk weight for steers finished in Mississippi and Texas, three-year averages, 1980-1982

Item	Unit	Diet and Location: Corn Brown Loam	Corn South MS	Corn Texas	Milo Texas	Corn Silage South MS
Feed cost/head	Dol	174.82	187.64	191.88 [1/]	177.72 [1/]	120.42
Feed cost/lb gain	Dol	.557	.621	.596	.552	.388
Other direct cost/lb Gain	Dol	.198	.205	.235	.234	.189
Facility cost/lb gain	Dol	.075	.109	0	0	.120
Total cost/lb gain	Dol	.830	.871	.856	.830	.697

[1/] Includes a $15/ton management charge.

Table 6. Summary of income and expenses per head, by diet and location, for steers finished Mississippi and Texas, three-year averages, 1980-1982

	Diet and Location: Corn Brown Loam	Corn South MS	Corn Texas	Milo Texas	Corn Silage South MS
Income	670.65	639.39	672.45	669.01	633.82
Direct expenses	720.67	723.82	744.57	736.33	651.61
Net returns over direct expenses	-50.02	-84.43	-72.12	-67.32	-17.79
Facility	23.51	32.80	[1/]	[1/]	37.31
Net returns over all expenses	-73.53	-117.23	-72.12	-67.32	-55.10

[1/] Includes in a $15 per ton of feed charge for "service and facility costs" and listed among other direct expenses.

relative loss positions among all trials---least ($55.10) in the silage-feeding trial and largest ($117.23) in the corn-feeding program.

Breakeven prices; i.e., prices at which steers finished at specified costs must sell if finishers are to recover all costs, were lowest ($64.99/cwt) for steers fed corn silage at the South Mississippi Branch, highest ($71.71/cwt) for those fed corn at that station (Table 7). These breakeven prices are based on the established purchase prices and other costs as listed in the budget tables (Appendix B).

Appendix C contains an estimate of the construction and ownership costs of a dirt feedlot similar to the Brown Loam Branch facility and a slatted floor facility that should produce results similar to those at the South Mississippi Branch facility. These tables are included to indicate the general complexity of the feedlot equipment involved and the likely magnitude of investment should commercial feeding be under-taken in Mississippi.

Table 7. Breakeven sale prices per hundredweight for steers finished in Mississippi and Texas, by diet and location, three-year averages, 1980-1982

Item	Diet and Location				
	Corn			Milo	Corn Silage
	Brown Loam	South MS	Texas	Texas	South MS
	dol/cwt				
Calculated live weight sale price	62.00	60.60	62.00	61.40	59.70
Breakeven sale price [a] above direct expenses	66.62	68.60	68.64	67.58	61.47
Breakeven sale price [a] above all expenses	68.79	71.71	68.64	67.58	64.99

[a] Purchase price of feeder steers averaged $63/cwt. Sensitivity analysis indicates that each $1/cwt increase (decrease) in feeder purchase price adds (subtracts) $.75/cwt in breakeven sale price.

Summary

The objective of this study was to investigate differences between finishing wintergrazed steers in Mississippi and the High Plains of Texas. Three locations were involved in the study, two in Mississippi and one in Texas. The three diets fed were a corn-based diet at each location, a milo-based diet in Texas and a corn silage diet at one Mississippi location. Three feeding trials were conducted at each location in 1980, 1981, and 1982.

Steers fed in Texas gained slightly faster than those fed in Mississippi, as evidenced by average daily gain. Characteristics that determine USDA quality grades and yield grades showed little or no difference among carcasses of steers fed in Texas or Mississippi.

Economic comparison of the five groups indicated substantially lower costs per pound of gain for the cattle fed corn silage in Mississippi than for those in the other trials. Substantial negative net returns above all costs for the three-year period were shown for all five groups. Steers fed corn silage in South Mississippi had the lowest negative net return above all costs with $-55.10. The two groups of steers fed in Texas followed with net returns of $-67.32 and $-72.12. Steers fed corn at the Brown Loam Branch showed net returns of $73.53 and those fed corn at the South Mississippi Branch had a net return of $-117.23.

None of the net returns appear appealing to potential cattle feeders. Of course, these returns are based on a particular set of steer prices, feed costs and prices of other inputs. As these prices and costs change, the net returns necessarily will change. Hence, new estimates of net returns must be made in every situation, and the information herein should provide a general guide to the elements that must be considered in making those estimates. Price levels of finished steers were not sufficiently high to offset the costs encountered during the three-month feeding periods in each of the three years of this study.

Reference

Tyner, Fred H. and Thomas D. Scroggins, "Investment, Operating Costs and Estimated Returns for 500 and 1000 Head Beef Cattle Feedlots, Mississippi, 1979." Mississippi Agricultural and Forestry Experiment Station Bulletin 888, February 1981.

Appendix A:

Feed and Feeding Information

Appendix A, Table 1. Prices for feed ingredients, composition of finishing diets and cost per ton for finishing diets for five feeding periods, 1980

Ingredients	May 28			July 1			July 30			August 27			October 1		
	S. M.[a] Exp. Sta.	B. L.[b] Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX
	Ingredient Prices														
	dol/ton														
Corn	106.07	106.07	104.00	111.61	111.61	113.28	125.71	125.71	123.28	131.78	131.78	126.14	126.16	126.16	127.93
Cottonseed Hulls	40	40	40.40	40	40	41.00	40	40	47	40	40	51	40	40	51
Cottonseed Meal	121.25	125	145	142.50	150.00	147	169.25	180.00	177	205.00	205.00	195	202.50	205.00	195
Supplement	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
Milo			95.80			102.61			113.80			116.20			120.80
Molasses			115			115			115			115			115
Corn Silage	18			18			18			18			18		

CORN FINISHING DIRT	Percent of Ration	Cost of Diet													
		dol/ton													
Corn	73	77.43	77.43	75.92	81.48	81.48	82.69	91.77	91.77	89.99	96.20	96.20	92.08	92.10	92.10	93.39
Cottonseed Hulls	15	6.00	6.00	6.06	6.00	6.00	6.15	6.00	6.00	7.05	6.00	6.00	7.65	6.00	6.00	7.65
Cottonseed Meal	6	7.28	7.50	8.70	8.55	9.00	8.82	10.16	10.80	10.62	12.30	12.30	11.70	12.15	12.30	11.70
Supplement	6	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.64
Total		99.35	99.57	99.32	104.67	105.12	106.30	116.57	117.21	116.30	123.14	123.14	120.07	118.89	118.74	121.38
+ $15 yardage feed				15			15			15			15			15
Total for Texas				114.31			121.30			131.30			135.07			136.38

(continued)

Appendix A, Table 1. (Continued)

Ingredients		May 28			July 1			July 30			August 27			October 1		
		S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX
		Cost of Diet														
		(dol/ton)														
CORN SILAGE FINISHING DIET	Percent of Ration															
Corn	7.1	7.53			7.92			8.93			9.36			8.96		
Cottonseed Meal	4.6	5.58			6.56			7.78			9.43			9.32		
Corn Silage	87.7	15.79			15.79			15.79			15.79			15.79		
TM Salt ($20/ton)	.2	.24			.24			.24			.24			.24		
Dicalcium Phosphate ($340/ton)	.1	.34			.34			.34			.34			.34		
Ground Limestone ($60/ton)	.3	.18			.18			.18			.18			.18		
Total		29.66			31.03			33.26			35.34			34.83		
MILO FINISHING DIET	Percent of Ration															
Milo	71.4		68.40			73.26			81.25			82.97			86.25	
Cottonseed Hulls	15		6.06			6.15			7.05			7.65			7.65	
Cottonseed Meal	6		8.70			8.82			10.62			11.70			11.70	
Molasses	1.6		1.84			1.84			1.84			1.84			1.84	
Supplement	6		8.64			8.64			8.64			8.64			8.64	
Total			93.64			98.71			109.40			112.80			116.08	
+ $15 yardage fee			15			15			15			15			15	
Total for Texas			108.64			113.71			124.40			127.80			131.08	

a/ MAFES South Mississippi Branch

b/ MAFES Brown Loam Branch

Appendix A. Table 2. Number of days in feeding period, average daily feed consumption, pounds of feed fed and feed cost, by diet and location, 1980

Diet	Location	Number of Days in Feeding Period	Average Daily Feed Consumption	Pounds of Feed Fed	Feed Cost	Total Cost
		days	pounds/head/day	pounds	dol/ton	dol/head
Corn Diet	MAFES South Mississippi Branch	28	21.37	598.36	99.35	29.72
		28	22.66	634.48	104.67	33.21
		28	25.11	703.08	116.57	40.98
		28	27.38	766.64	123.14	47.20
		12	25.00	300.00	118.89	17.83
						168.94
Corn Diet	MAFES Brown Loam Branch	29	25.60	742.40	99.57	36.96
		34	24.74	841.16	105.12	44.21
		23	25.10	577.30	117.21	33.83
		28	25.44	712.32	123.14	43.86
		11	25.96	285.56	118.74	16.95
						175.81
Corn Diet	Amarillo, Texas	28	21.95	614.6	114.32	35.13
		28	21.42	599.76	121.30	36.38
		36	26.62	958.32	131.30	62.92
		20	22.92	445.8	135.07	30.11
		13	18.57	241.41	136.38	16.46
						181.00
Corn Silage Diet	MAFES South Mississippi Branch	28	44.94	1255.52	29.66	18.62
		28	53.44	1496.32	31.03	23.22
		28	53.86	1508.08	33.26	25.08
		28	56.37	1578.36	35.34	27.89
		33	52.90	1745.70	34.83	30.40
						125.21
					Rumensin Vitamin ADE	+ 7.43
						134.18
Milo Diet	Amarillo, Texas	28	25.85	723.80	108.64	39.32
		28	27.39	766.92	113.71	43.60
		36	26.46	952.56	124.40	59.25
		20	23.07	461.40	127.80	29.48
		13	19.89	258.57	131.08	16.95
						188.60

Appendix A, Table 3. Prices for feed ingredients, composition of finishing diets and cost per ton for finishing diets for five feeding periods, 1981

Ingredients	May 29 S. M. Exp. Sta. [a]	May 29 B. L. Exp. Sta. [b]	May 29 TX	July 2 S. M. Exp. Sta.	July 2 B. L. Exp. Sta.	July 2 TX	July 31 S. M. Exp. Sta.	July 31 B. L. Exp. Sta.	July 31 TX	August 28 S. M. Exp. Sta.	August 28 B. L. Exp. Sta.	August 28 TX	September 25 S. M. Exp. Sta.	September 25 B. L. Exp. Sta.	September 25 TX
	dol/ton														
Corn	140.07	140.07	130.07	129.71	129.71	128.28	135.45	135.45	129.54	119.36	119.36	112.04	114.00	114.00	--
Cottonseed Hulls	151.00	151.00	113.50	102.00	102.00	108.50	118.00	118.00	103.50	121.00	121.00	98.50	113.00	113.00	--
Cottonseed Meal	200.75	209.75	196.00	201.00	201.00	186.00	202.00	202.00	183.50	196.00	196.00	166.00	181.00	181.00	--
Supplement	197.58	197.58	189.80	197.58	197.58	189.80	197.58	197.58	189.80	197.58	197.58	189.80	197.58	197.58	--
Milo			110.00			115.70			114.80			97.30			--
Molasses			112.18			112.18			96.13			96.13			--
Corn Silage	18.00			18.00			18.00			18.00			18.00		
CORN FINISHING DIET — Percent of Ration	cost (dol)														
Corn 73	102.25	102.25	94.95	94.68	94.68	93.64	98.88	98.88	94.55	87.13	87.13	81.79	83.22	83.22	--
Cottonseed Hulls 15	22.65	22.65	17.02	15.30	15.30	16.27	17.70	17.70	15.52	18.15	18.15	14.78	16.95	16.95	--
Cottonseed Meal 6	12.04	12.04	11.76	12.06	12.06	11.16	12.12	12.12	11.81	11.76	11.76	9.96	10.86	10.86	--
Supplement 6	11.85	11.85	11.39	11.85	11.85	11.39	11.85	11.85	11.39	11.85	11.85	11.39	11.85	11.85	--
Total	148.79	148.79	135.12	137.89	137.89	132.46	140.55	140.55	132.48	128.89	128.89	117.92	122.88	122.88	--
+ $15 yardage feed			15.00			15.00			15.00			15.00			--
Total for Texas			150.12			147.46			147.48			132.92			--

(continued)

Appendix A, Table 3. (Continued)

Ingredients		May 29			July 2			July 31			August 28			September 25		
		S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX
CORN SILAGE FINISHING DIET	Percent of Ration	cost (dol)														
Corn	7.1	9.94			9.21			9.62			8.47			8.09		
Cottonseed Meal	4.6	9.23			9.25			9.29			9.02			8.32		
Corn Silage	87.7	15.78			15.78			15.78			15.78			15.78		
TM Salt ($31/ton)	.2	.06			.06			.06			.06			.06		
Dicalcium Phosphate ($305/ton)	.1	.30			.30			.30			.30			.30		
Ground Limestone ($47/ton)	.3	.14			.14			.14			.14			.14		
Total		35.45			34.74			35.19			33.77			32.69		
MILO FINISHING DIET	Percent of Ration															
Milo	77.3		85.03			89.43			88.74			75.21			--	
Cottonseed Hulls	10		11.35			10.85			10.35			9.85			--	
Cottonseed Meal	.7		1.37			1.30			1.28			1.16			--	
Molasses	6.0		6.73			6.73			5.77			5.77			--	
Supplement	6.0		11.34			11.38			11.38			11.38			--	
Total			115.86			119.69			117.52			103.37			--	
+ $15 yardage feed			15.00			15.00			15.00			15.00			--	
Total for Texas			130.86			134.69			132.52			118.37			--	

a/ MAFES South Mississippi Branch

b/ MAFES Brown Loam Branch

Appendix A, Table 4. Number of days in feeding period, average daily feed consumption, pounds of feed fed and feed cost, by diet and location, 1981

Diet	Location	Number of Days in Feeding Period	Average Daily Feed Consumption	Pounds of Feed Fed	Feed Cost	Total Cost
		days	pounds/head/day	pounds	dol/ton	dol/head
Corn	MAFES South Mississippi Branch	28	24.15	676.25	148.79	50.31
		28	21.55	603.38	137.89	46.60
		28	23.44	656.25	140.55	46.11
		28	21.95	614.63	128.89	39.61
		13	19.23	250.00	122.88	15.36
						197.99
Corn	MAFES Brown Loam Branch	31	21.27	659.37	148.79	47.56
		28	22.58	632.2	137.89	43.58
		30	23.18	695.4	140.55	48.87
		3	26.25	78.75	128.89	5.07
						145.08
Corn	Amarillo, Texas	33	21.33	704.17	150.12	52.85
		26	25.96	675.00	147.46	49.77
		28	25.35	709.67	147.48	52.33
		14	25.31	354.35	132.92	23.55
						178.45
Corn	MAFES South Mississippi Branch	28	42.27	1183.38	35.45	20.97
		28	46.19	1293.38	34.74	22.46
		28	48.51	1358.13	35.19	23.89
		28	50.85	1423.75	33.77	24.04
		13	52.33	680.38	32.69	11.12
						102.48
					Rumensin Vitamin ADE	+ 7.43
						109.91
Milo	Amarillo, Texas	33	21.33	704.17	130.86	46.07
		26	23.37	607.92	134.69	40.94
		28	25.95	726.62	132.52	48.14
		14	23.64	331.00	118.37	19.59
						154.74

Appendix A, Table 5. Prices for feed ingredients, composition of finishing diets and cost per ton for finishing diets for five feeding periods, 1982

Ingredients	June 2 S. M.[a] Exp. Sta.	June 2 B. L.[b] Exp. Sta.	June 2 TX	June 30 S. M. Exp. Sta.	June 30 B. L. Exp. Sta.	June 30 TX	July 28 S. M. Exp. Sta.	July 28 B. L. Exp. Sta.	July 28 TX	August 25 S. M. Exp. Sta.	August 25 B. L. Exp. Sta.	August 25 TX	September 22 S. M. Exp. Sta.	September 22 B. L. Exp. Sta.	September 22 TX
	dol/ton														
Corn	125.35	140.07	119.64	119.64	119.64	120.35	115.00	115.00	117.67	111.43	111.43	106.42	104.29	104.29	100.18
Cottonseed Hulls	70.00	70.00	19.00	70.00	70.00	31.00	70.00	70.00	33.60	70.00	20.00	31.40	70.00	70.00	33.60
Cottonseed Meal	157.50	157.50	133.40	175.00	175.00	146.00	182.50	182.50	157.00	180.00	180.00	146.00	175.00	175.00	158.60
Supplement	181.20	181.20	158.20	181.20	181.20	158.20	181.20	181.20	158.20	181.20	181.20	158.20	181.20	181.20	158.20
Milo			106.20			105.50			103.90			94.20			91.00
Molasses			78.20			78.20			76.20			76.20			76.20
Corn Silage	18.00			18.00			18.00			18.00			18.00		
CORN FINISHING DIET — Percent of Ration	cost (dol)														
Corn — 73	91.62	91.62	87.34	87.34	87.34	87.88	83.95	83.95	85.90	81.34	81.34	77.69	76.13	74.67	73.58
Cottonseed Hulls — 15	10.50	10.50	2.85	10.50	10.50	4.65	10.50	10.50	5.04	10.50	10.50	4.71	10.50	10.50	5.04
Cottonseed Meal — 6	9.45	9.45	8.02	10.50	10.50	8.76	10.95	10.95	9.42	10.80	10.80	8.76	10.50	10.50	9.52
Supplement — 6	10.87		9.49	10.87		9.49	10.89		9.49	10.87		9.49	10.87	10.98	9.49
Total	122.44	122.44	107.70	119.21	119.21	110.78	116.27	116.27	109.85	112.71	112.71	100.65	108.00	108.00	97.63
+ $15 yardage feed			15.00			15.00			15.00			15.00			15.00
Total for Texas			122.70			125.78			124.85			115.65			112.63

(ontinued)

Appendix A, Table 5. (Continued)

Ingredients		May 29			July 2			July 31			August 28			September 25		
		S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX	S. M. Exp. Sta.	B. L. Exp. Sta.	TX
CORN SILAGE FINISHING DIET	Percent of Ration	cost (dol)														
Corn	7.1	8.90			8.49			8.17			7.91			7.40		
Cottonseed Meal	4.6	7.25			8.05			8.39			8.28			8.05		
Corn Silage	87.7	15.78			15.78			15.78			15.78			15.78		
TM Salt ($40/ton)	.2	.08			.08			.08			.08			.08		
Dicalcium Phosphate ($418/ton)	.1	.42			.42			.42			.42			.42		
Ground Limestone ($89.60/ton)	.3	.27			.27			.27			.27			.21		
Rumensin + Vitade		.07			.07			.07			.07			.07		
Total		32.77			33.16			33.18			32.81			32.01		
MILO FINISHING DIET	Percent of Ration															
Milo	77.3		82.09			81.55			80.31			72.82			70.34	
Cottonseed Hulls	10		1.90			3.1			3.36			3.14			3.36	
Cottonseed Meal	.7		.94			1.02			1.10			1.02			1.11	
Molasses	6.0		4.96			4.96			4.96			4.96			4.96	
Supplement	6.0		9.49			9.49			9.49			9.49			9.49	
Total			99.38			100.12			99.22			91.43			89.26	
+ $15 yardage feed			15.00			15.00			15.00			15.00			15.00	
Total for Texas			114.38			115.12			114.22			106.43			104.26	

a/ MAFES South Mississippi Branch

b/ MAFES Brown Loam Branch

Appendix A, Table 6. Number of days in feeding period, average daily feed consumption, pounds of feed fed and feed cost, by diet and location, 1982

Diet	Location	Number of Days in Feeding Period	Average Daily Feed Consumption	Pounds of Feed Fed	Feed Cost	Total Cost
		days	pounds/head/day	pounds	dol/ton	dol/head
Corn	MAFES South Mississippi Branch	28	18.22	510.1	122.44	31.23
		29	22.51	652.8	119.21	38.91
		27	25.63	692.0	116.27	40.23
		28	25.15	704.2	112.71	39.69
		34	24.48	832.3	108.00	44.93
						195.99
Corn	MAFES Brown Loam Branch	28	26.65	746.2	122.44	45.68
		28	27.86	780.1	119.21	46.50
		28	28.17	788.8	116.27	45.86
		28	28.18	789.0	112.71	44.40
		14	27.85	390.0	108.00	21.06
						203.56
Corn	Amarillo, Texas	28	23.42	655.8	122.70 [1/]	40.23
		28	29.17	816.7	125.78	51.36
		28	27.39	767.1	124.85	47.89
		28	29.10	814.9	115.65	47.12
		12	27.50	330.0	112.63	18.58
						205.18
Corn	MAFES South Mississippi Branch	28	42.06	1177.7	35.77	19.89
		29	52.36	1518.4	33.16	25.18
		27	53.17	1435.6	33.18	23.82
		28	49.43	1384.0	32.81	22.70
		34	47.00	1598.0	32.01	25.58
						117.17
Milo	Amarillo, Texas	28	24.34	681.7	114.38 [1/]	38.99
		28	29.12	815.4	115.12	46.93
		28	27.51	776.4	114.22	43.99
		28	29.34	821.6	106.43	43.72
		12	25.9	310.8	104.26	16.20
						189.83

[1/] Includes $15/ton for management services.

Appendix A, Table 7. Summary of feed consumption by years, by diet and location, for steers finished in Mississippi and Texas, 1980-1982

Year	Diet and Location				
	Corn			Milo	Silage
	Brown Loam	South MS	Texas	Texas	South MS
	lbs.				
1980	3158.7	3002.6	2859.9	30633	7584.0
1981	2065.7	2800.5	2443.2	2369.7	5839.0
1982	3494.1	3301.4	3384.5	3399.9	7113.7
Total	8718.5	9104.5	8687.6	8832.9	20536.7
Average	2906.2	3034.8	2895.9	2944.3	6845.6

Appendix B:
Summary Feeding Budgets

Appendix B, Table 1. Summary budget (per head) for steers fed a corn finishing diet at the MAFES Brown Loam Branch, three-year averages, 1980-1982

Item	Unit	No.	Price	Total
Income:				
Steer Sale	lb	1,081.7	.62 a/	670.65
Direct Expenses:				
Feeder Purchase	lb	768	.63	483.84
Interest on Feeder	dol	482.76	.05 b/	24.14
Feed	ton	1.45	122.63	174.82
Interest on Feed	dol	174.82	.0125 c/	7.00
Utilities & Fuel	head	1	2.31 d/	2.31
Labor	hour	4.2	3.45 d/	14.49
Vet and Medicine	head	1	1.75 e/	1.75
Transportation and Marketing	head	1	7.50	7.50
Death Loss (1% of purchase)	dol	482.76	.01	4.82
Total Direct Expenses				720.67
Net Returns Over Direct Expenses				-50.02
Facility and Equipment	head	1	23.51 f/	23.51
Net Returns Over All Expenses				-73.53

a/Steers were actually sold on a yield and grade basis.

b/Reflects a 15% interest rate for 4 months of use.

c/Reflects a 15% interest rate on the feed cost. The interest was charged at the end of each feeding period for the accumulated feed and interest charges.

d/Reflects data from [1]. The $3.35 includes minimum wage, social security, etc.

e/Assumes worming ($1.00) and implant ($.75) at time steers are placed in the feedlot.

f/Approximated from an unpublished report by Laughlin, Ag. Economics Dept., MSU, 1981. Assuming 2 turns/yr (1000 head). See Appendix B, Table 1.

Appendix B, Table 2. Summary budget (per head) for steers fed a corn diet at the MAFES South Mississippi Branch, three-year averages, 1980-1982

Item	Unit	No.	Price	Total
Income:				
Steer Sale	lb	1,055.1	.606 [c]	639.39
Direct Expenses:				
Feeder Purchase	lb	753	.63	474.39
Interest on Feeder	dol	472.50	.05 [b]	23.62
Feed	ton	1.52	124.24	187.64
Interest on Feed	dol	187.64	.0125 [c]	7.39
Utilities & Fuel	head	1	2.31 [d]	2.31
Labor	hour	4.2	3.45 [d]	14.49
Vet and Medicine	head	1	1.75 [e]	1.75
Transportation and Marketing	head	1	7.50	7.50
Death Loss (1% of purchase)	head	472.50	.01	4.73
Total Expenses				723.82
Net Returns Over Direct Expenses				-84.43
Facility and Equipment	head	1	32.80 [f]	32.80
Net Returns Over All Expenses				-117.23

[a] Steers were actually sold on a yield and grade basis, with price converted to liveweight basis.

[b] Reflects 15% interest charged for 4 months of use.

[c] Reflects 15% interest charged on feed cost. Interest was charged at the beginning of each feeding period on accumulated feed and interest charges.

[d] Reflects data from [1]. The $3.35 includes minimum wage, social security, etc.

[e] Assumes worming ($1.00) and implant ($.75) at time steers are placed in the feedlot.

[f] Approximated from an unpublished report by Laughlin, Ag. Economics Dept., MSU, 1981. Assuming two turns/yr (1000 head). See Appendix B, Table 2.

Appendix B, Table 3. Summary budget (per head) for steers fed a corn diet at Amarillo, Texas, three-year averages, 1980-1982

Item	Unit	No.	Price	Total
Income:				
Steer Sale	lb	1,084.6	.62 [a/]	672.45
Direct Expenses:				
Feeder Purchase	lb	763	.63	480.69
Interest on Feeder	dol	480.00	.05 [b/]	24.00
Feed & Management	ton	1.43	131.41 [c/]	188.21
Interest on Feed	dol	188.21	.0125 [d/]	7.46
Vet and Medicine	head	1	3.00	3.00
Transportation	head	1	31.61	31.61
Death Loss (2% of feeder purchase)	dol	780.06	.02	9.60
Total Expenses				744.57
Net Returns Over All Expenses				-72.12

[a/] Steers were actually sold on a yield and grade basis, with price converted to liveweight basis.

[b/] Reflects 15% interest charged for 4 months of use.

[c/] Reflects $15 ton for feeding services.

[d/] Reflects a 15% interest rate on the feed cost. The interest was charged at the end of each feeding period for the accumulated feed and interest charges.

Appendix B, Table 4. Summary budget (per head) for steers fed a milo diet at Amarillo, Texas, three-year averages, 1980-1982

Item	Unit	No.	Price	Total
Income:				
Steer Sale	lb	1,089.5	.614 [a/]	669.01
Direct Expenses:				
Feeder Purchase	lb	767	.63	483.21
Interest on Feeder	dol	482.14	.05 [b/]	24.10
Feed & Management	ton	1.49	120.68 [c/]	177.72
Interest on Feed	dol	177.72	.0125 [d/]	7.05
Vet and Medicine	head	1	3.00	3.00
Transportation	head	1	31.61	31.61
Death Loss (2% of feeder purchase)	dol.	482.14	.02	9.64
Total Expenses				736.33
Net Returns Over All Expenses				-67.32

[a/] Steers were actually sold on a yield and grade basis, with price converted to liveweight basis.

[b/] Reflects 15% interest charged for 4 months of use.

[c/] Includes $15/ton for feeding services.

[d/] Reflects 15% interest on the feed cost. The interest was charged at the end of each feeding period for the accumulated feed and interest charges.

Appendix B, Table 5. Summary budget (per head) for steers fed a silage diet at the MAFES South Mississippi Branch, three-year averages, 1980-1982

Item	Unit	No.	Price	Total
Income:				
Steer Sale	lb	1,060.0	.597 a/	633.82
Direct Expenses:				
Feeder Purchase	lb	750	.63	472.50
Interest on Feeder	dol	472.50	.05 b/	23.62
Feed	ton	3.44	35.15	120.42
Interest on feed	dol	120.42	.0125 b/	4.30
Utilities & Fuel	head	1	2.31 c/	2.31
Labor	hour	4.2	3.45 d/	14.49
Vet and Medicine	head	1	1.75 e/	1.75
Transportation and Marketing	head	1	7.50	7.50
Death Loss (1% of purchase)	dol.	472.50	.01	4.72
Total Expenses				651.61
Net Returns Over Direct Expenses				-17.79
Facility and Equipment	head	1	37.31 f/	37.31
Net Returns Over All Expenses				-55.10

a/Steers were actually sold on a yield and grade basis, with price converted to liveweight basis.

b/Reflects 15% interest charged for 4 months of use.

c/Reflects a 15% interest rate on the feed cost. The interest was charged at the beginning of each feeding period on accumulated feed and interest charges.

d/Reflects data from [1]. The $3.35 includes minimum wage, social security, etc.

e/Assumes worming ($1.00) and implant ($.75) at time steers are placed in the feedlot.

f/Approximated from an unpublished report by Laughlin, Ag. Economics Dept., MSU, 1981. Assuming two turns/yr (1000 head). See Appendix B, Table 3.

Appendix C:
Cost of Feedlots

Appendix C, Table 1. Construction and ownership costs of a dirt feedlot with concrete slab feeding area, 500 head capacity, 1980

Item	Amount	Expected life	Repair cost	Avg. an. repair cost	11% amortized fixed cost
	$	years	% new cost	$	%
Facility:					
(1) Lot fencing (1376/in. ft. @ $1.85)	2,551.00	20	50	63.78	320.34
(2) Concrete slab feeding apron (206' x 20' x two @ $1.64/sq. ft.)	13,536.00	20	--	--	1,699.79
(3) Pole-type shed w/metal roof (206' x 34' @ $1.45/sq. ft.)	10,191.00	20	25	127.38	1,279.72
Cleaning Equipment:					
(1) Tractor	9,974.00	10	75	748.05	1,693.60
(2) Scraper blade	792.00	10	40	31.68	134.48
(3) Frontend loader	2,347.00	10	40	93.88	398.52
(4) Manure spreader	4,928.00	10	40	197.12	836.78
Feeding Equipment:					
(1) Fenceline feed bunks 384 linear ft. @ 18.81/l. ft. 2/post & cable-installed	7,223.00	20	50	180.58	907.03
(2) Mixer truck--BJM 900 mixer (320 cu. ft.) with load cells, mounted on 1980 Ford F700 truck with heavy duty equip.	24,641.00	10	50	1,232.05	4,184.08
(3) Storage * feed mix building (25 x 50 metal)	14,081.00	20	25	1,760.01	1,768.23
(4) 18" hammer mill-5h.p. motor (100 ft. augers)	4,342.00	10	50	217.10	737.28
(5) 2 holding bins w/auger loaders, fan & heater--300 bu. capacity each	10,744.00	10	25	268.60	1,824.35
(6) Working, bins (2 bins-4 ton capacity-installed)	2,004.00	10	25	50.10	340.28
Working Barn:					
(1) Metal roof structure (38' x 38') @ 4.08 sq. ft.	5,896.00	20	25	73.70	740.39
(2) Pen fencing (210 linear ft.) @ 7.04/l. ft.	1,478.00	20	25	18.48	185.60
(3) Working chute (manual)	1,056.00	10	25	26.40	179.31
(4) Storage	1,173.00	20	25	14.66	147.30
Water:					
(1) Water well (4" well, 500 ft. deep)	4,694.00	10	50	234.70	797.05
Total	97,924.00	--	--	5,338.27	18,174.13
Amount/head[a/]					23.51

[a/] Assumes two turns/year (1,000 head).

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