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Beef Calves From Your Own Cow Herd Will it Pay to Feed Them Out?

Four Systems Compared

by Ed Carson and Joseph H. Harrah, Department of Agricultural Economics, Purdue University

As a cow herd owner prepares to sell his calf crop, he can't help but wonder, "If someone else thinks he can profit from buying and feeding these calves, shouldn't I consider that? After all, I'd have less cost in them at the start, so if anyone is going to make a profit, I should."

OBJECTIVES

The purpose of this study is to look at the question, "Does it pay a beef cow herd owner to retain and feed out the calves from his own herd"? A secondary question is, "How does this compare to feeding purchased animals"? The specific objectives of this study are:

1. To develop budgets for three different sizes of (a) beef cow herds of 100, 200 and 300 cows; and (b) cattle feedlots of 65, 130 and 195-head capacity.
2. To develop budgets for four different feedlot systems at each size.
3. To examine the comparative advantages and disadvantages of feeding out calves on the same farm on which they were born vs. an independent feedlot of the same size.

PROCEDURE

The decision to feed out the calves from the beef cow herd involves a complex set of interactions between both the livestock operations and the crop operations. For this reason it seemed appropriate to look at this situation from the point of view of the total farm unit. Therefore, the total farm computer budget model, "Farm Business and Financial Management Long Range Average Plan, Model C-4," was selected as the tool for this analysis.

The Purdue Farm Business and Financial Management Model (C-4), a 5-year planning budget, compares the continuation of the present plan of operations with up to four alternative plans. It presumes an "average" year for the next 5-year period for the present plan and each alternative. The results depend upon assumptions made about various yields, feed requirements, prices and costs. They include (1) a profit and loss statement, (2) a profitability analysis, (3) a debt serving projection and (4) a balance sheet and analysis.

The Farm Planning Model is used in the following manner. First, for the present operation, the average expectations over the next 5 years are entered for:

- Crops: acres, yields, prices and direct costs.
- Livestock: numbers, production, prices and direct costs.
- Overhead expenses: building repairs, property taxes, insurance, hired labor, cash rent, depreciation and miscellaneous.
- A balance sheet of present assets and liabilities.
- Changes in investment: any major investments required just to continue the present operation.

These steps (crops, livestock, changes in investment and overhead expenses) are repeated for each alternative plan.

A basic **Case Farm Description** farm unit, representative of the cow herd farms in Indiana was selected, and then the size of the farm was modified so as to be consistent with the various size herds analyzed (100, 200, and 300 cows).

The basic unit was assumed to contain 545 acres for the 100-cow herd. The 200- and 300-cow herd farms were assumed to be 840 and 1,130 acres respectively. These acreages were selected so as to provide adequate feed for both the cow herd and the feeding out of the calves.

The cropping patterns for the three sizes of case farms were as follows:

Crop	100 cows	200 cows	300 cows
	545 acres	840 acres	1,130 acres
Corn	250	250	250
Alfalfa-grass hay	80	160	240
Fertilized tallgrass and legume pasture	20	40	60
Unimproved tallgrass pasture	195	390	580

The case farm land values were \$1,500 an acre for the corn ground, \$1,200 an acre for the hay ground, \$1,100 an acre for the fertilized tallgrass and legume pastureland, and \$800 an acre for the unimproved tallgrass pastureland. The total land value of the case farms was calculated to be: 545 acres, \$649,000; 840 acres, \$923,000; 1,130 acres, \$1,193,000.

The case farms were assumed to have had a full line of equipment, which was valued at \$50,000. Also, the case farms had a machine shed, grain bins with 24,000-bushel capacity, and hay barns which doubled as cattle shelters. The buildings were valued at \$31,000.

The case farms had little debt. The case farms debt was assumed to be \$3,500 of current debt, \$5,000 of intermediate debt, and \$50,000 of long term debt.

A full-time farmer providing 3,000 hours of labor was assumed to be the case farm labor force.

The 100-cow case farm had a beef herd valued at \$72,500. The values for the larger herds were estimated at \$145,000 for the 200-cow herd, and \$215,500 for the 300-cow herd.

Development of Budgets¹

Crop Budgets

Assumptions regarding yields, prices, direct costs, and labor requirements for the crops produced on the case farm are shown in Table 1.

Beef Budgets

The prices used in any cost and return study are critical. This is particularly true of both the level and the relationship of calf prices to fat cattle prices and to each other. The primary emphasis of this study is the advisability of investment in cattle feeding facilities, which are of a longer term nature. Therefore, cattle prices have been selected which are believed to have a normal relationship to each other and to

Table 1. Yields, prices, direct costs and labor requirements for the crops produced on the case farms

Crop	Yield ^a	Price ^b	Direct costs ^c	Labor ^c
Corn	97 bushels	\$3.00	\$98.95	3.15 hours
Corn silage	15 tons	\$20.00	\$112.88	5.2 hours
Alfalfa grass hay	3 tons	\$65.00	\$61.75	6 hours
Fertilized tallgrass and legume pasture	3 tons	\$17.50	\$22.00	1 hour
Unimproved pasture	1.5 tons	\$14.00	\$2.50	.5 hour

a. Yields were 5-year averages (1973-77) calculated from the Annual Crop and Livestock Summary, Indiana Crop and Livestock Statistics.

b. Price assumptions used in computing longer run livestock enterprise costs and returns in ID-68, 1980 Revision.

c. Based on ID-68, adjusted in direct proportion to yield.

d. Corn silage direct costs included custom harvesting at \$3.50 per ton (\$52.50 per acre).

e. Labor required for growing crop. Silage was assumed custom harvested.

the other costs. In addition, the impact of both increasing and declining prices during the feeding period will be examined.

Prices for the various kinds of cattle were determined as follows: First it was assumed that 1981 level of costs would be used and that feed prices would be based on an average corn price of \$3.00 per bushel. Cattle prices for the past 10 years were analyzed. Average prices for cows and calves for the past 3 years were used as the basic prices for the cow herd.

It was assumed that the normal weaning of calves and placement in feedlots would take place in the October to December period and that the fattened cattle would be marketed the following June to August (see Tables 3 and 4 for length of feeding period assumptions). Gross margins (value of fat animal minus cost of feeder) were calculated and then compared to the changes in prices paid by farmers for production items.² From this a "normal" gross margin for 1981 was determined, and thus the price for fat cattle necessary to provide that margin was derived. (See Table 6 for the prices used, and Appendix D for details of the calculations and prices.)

For purposes of this analysis it was assumed that the quality of the calves produced by the cow herd was the same as those that would be purchased. While this is often not the case in the real world, this assumption should still result in useful answers to the questions being considered.

Cow Herd-Calf Sold Program

Production was based on a spring calving beef cow herd weaning an 86 percent calf crop. Heifer calves were weaned at 425 pounds and steer calves at 450 pounds. Calves were sold in the fall at a terminal market. The 100-mile haul to market resulted in a 4-percent transit shrink, thus the sale weight for heifer calves was 408 pounds and for steer calves was 432 pounds. Heifer calves brought \$65 per cwt and steer calves \$70 per cwt.

The cow replacement rate was 20 percent. Cows had a one percent death loss. Slaughter cows brought \$48 per cwt.

Direct costs for the cow herd-calf sold program are shown in Appendix Table A.1.

The labor requirement per beef cow unit for the calf sold program was 8 hours.

Integrated Program (Cow-Calf/Feedlot)

The integrated program was based on a spring calving beef cow herd weaning an 86 percent calf crop. Heifer calves weighed 425 pounds and steers weighed 450 pounds at weaning. Raised feeder cattle had a 1.5 percent death loss from weaning to slaughter. Thus, on a 100-cow basis, 42 steers and 23³ heifers would have been finished. Heifer calves were fed to 900 pounds, and steers were fed to 1,030 pounds. Fed cattle were sold at a terminal market.

The 100-mile haul to market resulted in a 3.5 percent shrink; thus, the sale weight for a heifer was 869 pounds and for a steer was 994 pounds. The fed cattle price received for steers was \$73 and for heifers was \$71 (the same prices as for purchased fed cattle.)

The cow replacement rate was 20 percent. Cows had a one percent death loss. The slaughter cow price was \$48 per cwt.

The direct costs for the calf fed program included the beef cow herd as well as the calf feeding program. The direct costs are shown in Appendix Tables A.2, A.3 and A.4.

The labor requirement was 10 to 11 hours per beef cow unit depending upon the feeding system (See Table 6).

Feeder Calf Purchased Program

Based on purchasing feeder steers weighing 450 pounds and heifers weighing 425 pounds, 4 percent shrink was assumed when delivered to the farm. Steer calves were purchased at \$70 and heifers at \$65. Purchased calves had a 2 percent death loss. Steer calves were assumed fed to 1,030 pounds and heifers to 900 pounds. Fed cattle were sold at a terminal market. The 100-mile haul to market resulted in a 3.5 percent transit shrink; thus, the sale weights were 994 pounds for steers and 869 pounds for heifers. The sale prices were \$73 for steers and \$71 for heifers.

The direct costs for the purchased feeders varied according to the feeding program (see below) and the sex of the cattle being fed. Direct costs for the various feedlots are shown in Appendix Table A.5 through A.10.

The labor requirements for the purchased feeders are shown in Table 5.

Feedlots

Feedlot sizes were developed based upon the size of the cow herd, calving percentage, replacement requirements and death loss.

Thus the feedlots were sized as follows per 100 cows:

Item	Steers	Heifers	Total
86% calf crop	43	43	86
Less replacements	--	20	20
To feedlot	43	23	=66
Death loss	.6	.3	.9
Finished	42.4	22.7	=65.1
(Rounded)	(42)	(23)	(65)

A 100-cow herd produced 66 feeder calves, a 200-cow herd produced 132 feeder calves, and a 300-cow herd produced 198 feeder calves. Feedlot capacities, allowing for a 1.5 percent death loss, were 65, 130 and 195 head.

Four types of feedlot situations were budgeted to evaluate the effects of varying facilities and rations.

Type of feedlot	Ration content
1. Already existing open feedlot, open shed, upright silo, feed bunk (existing feedlot)	Corn, corn silage
2. New open lot, open front shed, upright concrete silo, fenceline bunk, (upright silo)	Corn, corn silage
3. New open lot, open front shed, self-feeder (self feeder)	Corn, alfalfa-grass hay
4. New cold confinement barn, manure scrape, "fence line" bunk (confinement)	Corn, alfalfa-grass hay

For the 65-head capacity lots, steers and heifers were fed together in open lots but separately in the confinement lot. In the 130- and 195-head capacity lots, the steers and heifers were fed separately in all instances.

Feedlots and related rations considered in this study are shown in Tables 3 and 4.

The longer feeding period for the purchased feeders is because of the need to replace shrink from in-shipment and because of their slower gains while becoming acclimated to their new environment.

Investments

Investments from the different types and sizes of feedlots are shown in Table 2. The costs used as the basis for determining the feedlot investments were based on a 1978 survey of equipment dealers and farm building companies, adjusted to 1981 levels.

These data were revised upward to estimated 1981 values by adjusting them in proportion to the USDA's changes from 1978 to 1981 in the indices of prices paid by farmers for (1) other machinery (up 35%) and (2) building and fencing (up 30%).² Details on the facilities required for the feedlots are shown in Appendix Tables B.2, B.3 and B.4. The detailed feedlot investment figures are listed in Appendix Tables B.5 through B.13.

The major investment difference between the upright silo and the self-feeder and confinement lot was the cost for the silo and unloader (see Appendix Tables B.5-B.13).

In addition to the facilities the investment also included the value of the feeder cattle involved (raised or purchased), and the average value of the feed inventory.

The Cattle Fed

The raised calves were assumed to be started on feed immediately after weaning in the fall.³ Calves produced on the case farm were the only cattle fed in the integrated system (cow herd/feedlot). In actual practice, additional feeders might be purchased, but the object of this study was to analyze only the impact of feeding out calves raised in the herd. As a basis for analyzing the cost savings due to integration, the integrated operation (cow herd/ feedlot) was compared to the separate stages (raised calves sold, followed by purchased feeders).

Feed Requirements⁴

The cow herd-calf sold program feed requirements per cow were:

- a. 3.3 bushels of corn
- b. 1.75 tons of alfalfa-grass hay
- c. 3.5 tons of pasture
- d. 1 ton of salvage roughage (cornstalks)
- e. 72 pounds of protein supplement
- f. 55 pounds of salt and minerals.

For the integrated programs the cow herd-calf sold feed requirements were added to the appropriate feeder cattle feed requirements to obtain the total feed budget.

Feed requirements for the four types of feedlots are shown in Table 3 for steer calves and in Table 4 for heifer calves.

Price, direct costs and labor data are presented in Table 5.

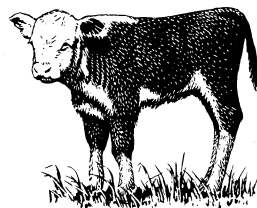


Table 2. Investments in facilities for feedlots, by size, at estimated 1981 costs ^{a/}

Size	Upright silo lot		Self-feeder lot		Confinement lot	
	Total	Per head	Total	Per head	Total	Per head
65 head	\$39,854	\$613	\$25,914	\$399	\$28,582	\$440
130 head	\$59,124	\$455	\$39,522	\$304	\$41,492	\$319
195 head	\$74,980	\$385	\$56,623	\$290	\$52,346	\$268

^{a/} See Appendix B tables for details.

Table 3. Feed required per head and the characteristics of feeding steer calves from 450 pounds to 1,030 pounds for the calf raised and purchased programs, by type of forage

Source of feeders Type of forage	Raised steer calves		Purchased steer calves	
	Corn silage ^{a/}	Alfalfa-grass hay ^{b/}	Corn silage ^{a/}	Alfalfa-grass hay ^{b/}
Shelled corn (bushels)	37.7	56.7	39.4	58.3
Corn silage (tons)	3.2	--	3.2	--
Alfalfa grass hay (tons)	.11	.94	.16	1.0
Supplement (pounds)	361	131	361	131
Salt and minerals (pounds)	26	26	28	28
Beginning weight (pounds)	450	450	432 ^c	432 ^c
Ending weight (pounds)	1030	1030	1030	1030
Total gain (pounds)	580	580	598	598
Estimated time on feed (days)	250	250	270	270
Estimated daily gain (pounds per day)	2.32	2.32	2.21	2.21

^{a/} The existing feedlot and the new upright silo feedlot both used the same corn silage ration.

^{b/} The self-feeder and confinement feedlots both used the same alfalfa-grass hay ration.

^{c/} Allows for 4 percent shrink from purchase weight.

Table 4. Feed required per head and characteristics of feeding heifer calves from 425 pounds to 900 pounds for the calf raised and purchased programs, by type of forage

Source of feeders Type of forage	Raised heifer calves		Purchased heifer calves	
	Corn silage ^{a/}	Alfalfa-grass hay ^{b/}	Corn silage ^{a/}	Alfalfa-grass hay ^{b/}
Shelled corn (bushels)	31.5	48.3	33	49.9
Corn silage (tons)	2.75	--	2.75	--
Alfalfa grass hay (tons)	.11	.81	.16	.87
Supplement (pounds)	273	80	273	80
Salt and minerals (pounds)	24	24	26	26
Beginning weight (pounds)	425	425	408 ^c	408 ^c
Ending weight (pounds)	900	900	900	900
Total gain	475	475	492	492
Estimated time on feed (days)	230	230	250	250
Estimated daily gain (pounds per day)	2.07	2.07	1.97	1.97

a/ The existing feedlot and the new upright silo feedlot both used the same corn silage ration.

b/ The self-feeder and confinement feedlots both used the same alfalfa-grass hay ration.

c/ Allows for 4 percent shrink from purchase weight.

Table 5. Summary of production, prices, direct costs, and labor requirements for the various beef production systems

System	Production	Price	Direct Costs	Labor
Calf sold (on a 100 cow-basis)			\$52.83	8 hours
- steers	43 @ 432#	\$70		
- heifers	23 @ 408#	\$65		
- cull cows	19 @ 960#	\$48		
Calf raised (on a 100-cow basis)				
- steers	43 @ 994#	\$73	\$111.31	11 hours ^a
- heifers	23 @ 869#	\$71	\$91.57	10 hours ^b
- cull cows	19 @ 960#	\$48	\$92.18	11 hours ^c
- steers	42 @ 994#	\$73	\$446.02 ^a \$413.82 ^b \$428.67 ^c	4 hours ^a 3 hours ^b 4 hours ^c
- heifers	23 @ 869#	\$71	\$384.77 ^a \$357.75 ^b \$371.50 ^c	3 hours ^a 2 hours ^b 3 hours ^c

a/ Existing feedlot and upright silo feedlot.

b/ Self-feeder feedlot.

c/ Confinement feedlot.

Results

This study examined whether a farmer in three different size case farm situations could increase his profits by feeding his raised calves rather than selling them at weaning. Also compared were the integrated system (cow calf/feedlot) vs. separate stages (raised calves sold, buy feeders) using four different feedlot situations.

Feeding Raised Calves vs. Selling at Weaning

At all three herd sizes, using an existing feedlot added to net returns compared to selling the calves from the cow herd at weaning. However, when new feedlots were considered, only the 300-cow herd with a self-feeder feedlot would have had a net profit after tax for feeding out raised calves over selling the calves at weaning. At both 100 and 200 cows, all new feedlots resulted in losses (Table 6). All of the above situations assumed that all labor in excess of the operator's labor (3,000 hours) received \$4.00 per hour.

The Impact of Higher and Lower Prices

In this study the primary emphasis is on the feeding phase of cattle production. Therefore, the important prices here are the price of (cost of) the feeder

calves and the price of the market animals. Further, the level of prices is not as critical as is the gross margin (difference in value of the calf and value of the market animal). The "normal" gross margin was selected to represent recent past conditions. Two additional price levels for market animals were tested — one \$10 per hundredweight higher than normal representing a rising market situation (wider gross margin) and one \$10 lower, representing a falling market situation (narrower gross margin) (See Appendix Section D for further discussion). It is obvious that since the feeding phase lost money in all cases (but one) at normal prices, large losses would result at \$10 lower prices. These data are none-the-less presented to illustrate the potential losses as well as the potential gains associated with higher prices. (Tables 7 and 8).

The cow herd owner's decision as to whether to invest in feedlot facilities to feed out his own calves rests largely on his vision as to prices (expected gross margins in the future). In the final analysis only he can make that judgment. Based on prices of the recent past, those prospects do not look encouraging. The cost disadvantages of small size are greater than the cost advantages of reduced market, feed and operating costs compared to the larger feeder who buys his cattle.

Table 6. Gains in net profit after tax for calf feedlot programs versus calf sold programs^{a/}

Herd size	Existing feedlot	New feedlots		
		Upright silo	Self-feeder	Confinement
100 cows	\$3,071	-\$1,498	-\$339	-\$795
200 cows	\$4,170	-\$1,175	-\$258	-\$811
300 cows	\$6,053	-\$201	\$96	-\$475

a/ Based on calf prices of \$70 and \$65, and fat cattle prices of \$73 and \$71, steers and heifers, respectively.

Table 7. Change in net profit after tax for calf feedlot programs versus calf sold programs, with fed cattle prices \$10 per hundredweight below normal prices, by type of feedlot ^{a/}

Herd size	Have feedlot	New feedlots		
		Upright silo	Self-feeder	Confinement
100 cows	-\$741	-\$5,242	-\$4,586	-\$5,028
200 cows	-\$2,822	-\$9,278	-\$11,631	-\$11,631
300 cows	-\$3,820	-\$12,004	-\$11,631	-\$12,229

a/ Calves purchased at \$70 and \$65 and sold fat at \$63 and \$61, steers and heifers respectively, or at gross margins of \$311.22 and \$253.84.

Table 8. Change in net profit after tax for calf feedlot programs versus calf sold programs, with fed cattle prices \$10 per hundredweight above normal prices, by type of feedlot^{a/}

Herd size	Have feedlot	Upright silo	New Feedlots Self-feeder	Confinement
100 cows	\$6,568	\$2,855	\$3,466	\$3,043
200 cows	\$10,173	\$5,668	\$6,432	\$5,931
300 cows	\$14,419	\$9,200	\$9,377	\$8,835

a/ Steer and heifer calves purchased at \$70 and \$65 and sold fat at \$83 and \$81, or at gross margins of \$510.02 and \$427.64, respectively.

Feeding Calves vs. Separate Stages of Raising and Feeding

To provide cow herd owners with some idea of the magnitude of the advantage they might have in feeding their own calves compared to a situation where the calves were transferred to a separate feedlot, these two alternatives were compared. The comparison is first made on a simple partial budget basis and second on a total operation basis. For the latter, in order to maintain comparable assumptions, it was assumed that a cow herd owner sold his own calves and bought a comparable (though presumably more uniform in size) group of calves to feed out.

The estimated savings of feeding out the calves from one's own cow herd are shown in Table 9. The major savings are in marketing cost, bedding and feed cost as a result of not having to gain back shrink which would normally result from the transfer of the calves. Several other costs would be lower simply because the raised calves would be on feed a shorter period of time, due also to not having a weight loss in transfer.

To examine the impact in a total farm situation, budgets were developed for the case farm in which the raised calves were sold and other calves were purchased. The differences in net returns that resulted from those budgets are shown in Table 10. They are consistent with the partial budgets, showing a clear advantage for feeding calves on the farm where the feed is available, if it is indeed profitable to feed cattle at all.

The results of this study indicate that a farmer with a beef cow herd of 100 to 300 cows and an already existing feedlot could increase his net returns by feeding out the calves from his herd compared to selling them at weaning. It appears likely that this is also true for herds either smaller or larger than those studied.

However, if a new feedlot must be built, only the 300-cow herd (195 feeders) self-feeder feedlot results in a gain to feeding out the calves from the cow herd compared to selling weaned calves. All other size and feedlot combinations studied showed losses at "normal" price relationships.

There are significant gains to society in having the cow-calf/feeding stages integrated on the same farm vs. being separated on different farms. The main gains are in marketing costs and in feed savings (resulting from eliminating shrink and minimal environmental change for the integrated procedure with gains also in lower veterinary and medicine cost, less death loss and reduced bedding cost because of the shorter time on feed of the integrated calves). Note that the assumption that the feeder calves from the owned cow herds were of the same quality as those that would be purchased could be significant. If they were not of the same quality, the results might be modified.

Footnotes

1. The data used in this study were based on the data in Farm Planning and Financial Management, ID-68, plus a survey of dealers regarding feedlot construction costs, plus consultation regarding rations with Kern Hendrix, Department of Animal Sciences, Purdue University. These data were updated to 1981 levels (see appendices).
2. "Agricultural Prices," ERS, USDA, February 1971-1981.
3. Nineteen of the 42 heifers were retained for replacements, with proportional numbers retained with 200- and 300-cow herds.
4. The feed requirements used in these budgets were based on the recommendations of Kern Hendrix, Department of Animal Sciences, Purdue University, with consideration given to the feed available on the case farm and for the various feeding systems.

Table 9. Summary of estimated gains to an integrated system over separate stages on a per beef cow unit basis, by type of feedlot

Item	Existing lot and upright silo lot	Self feeder lot	Confinement lot
Feed	\$4.98	\$5.92	\$5.92
Veterinary and Medicine	\$1.65	\$1.65	\$1.65
Death loss	\$1.07	\$1.09	\$1.09
Marketing	\$10.65	\$10.65	\$10.65
Power, fuel and equipment repair	.72	.72	.72
Miscellaneous (bedding and supplies)	\$6.13	\$6.13	\$7.78
Total per cow	\$25.22	\$26.16	\$27.81
Total difference per feeder animal (total/cow x .65)	\$16.39	\$17.00	\$18.08

Table 10. Gains in net profit after tax for integrated system versus separate stages, by type of feedlot ^{a/}

Herd size	Have feedlot	New feedlots		
		Upright silo	Self-feeder	Confinement
100 cows	\$1,921	\$1,883	\$1,838	\$2,528
200 cows	\$3,608	\$4,509	\$4,550	\$5,954
300 cows	\$4,999	\$6,343	\$6,468	\$8,167

a/ Allows for hired labor required in excess of 3,000 hours supplied by operator.

Appendix A

Beef Direct Costs Budgets

The feed requirements in the following budgets were based on the recommendations of Kern Hendrix, Department of Animal Sciences, Purdue University. Different combinations of similar feedstuffs that provided the same nutritional needs, while modifying the total costs, would lead to similar overall relative results.

The feed prices and other direct costs were taken from ID-68, Farm Planning and Financial Management, Cooperative Extension Service, Purdue University, Rev. 1980, except where otherwise noted.

Table A.2. Direct costs per beef cow unit for calf raised program using an existing or new silo

Item	Quantity	Cost
Feed		
Corn ^b	26.4 bu. @ \$3.00	= \$79.20
Corn silage ^c	2.0 tons @ \$20.00	= \$40.00
Grass hay	1.75 tons @ \$50.00	= \$87.50
Alfalfa-grass hay	.07 tons @ \$65.00	= \$4.55
Pasture	3.5 tons @ \$17.50	= \$61.25
Salvage roughage ^c	1.0 ton @ \$0.00	= \$0.00
Supplement ^d	286.4 pounds @ \$0.14	= \$40.10
Salt and minerals ^f	71.4 pounds @ \$0.10	= \$7.14
Total feed		\$319.74
Veterinary and medicine		\$11.25
Breeding		\$10.00
Marketing ^g		\$7.50
Power, fuel and equipment repair		\$16.00
Miscellaneous (bedding and supplies)		\$18.32
Total direct costs		\$383.81
Direct cost w/o homegrown feed		\$111.21

- a. A beef cow unit consists of 1 cow, .5 calf, .2 yearling heifer, .1 bred heifer, .04 bull, .42 feeder steer and .23 feeder heifer.
- b. Corn use includes 3.3 bushels per beef cow unit, 40 bushels per steer, and 35 bushels per heifer.
- c. Corn silage use was 2.5 tons per steer and 2.25 tons per heifer.
- d. Hay fed per beef cow unit included 1.75 tons per beef cow and .1 tons per calf fed.
- e. Beef cows graze cornstalks for 90 days (October 1 to January 1). First calf heifers grazed stalks for only 30 days (October 1 to November 1).
- f. Direct cost for supplement was obtained from Dr. Hendrix of the Purdue Animal Sciences Department. The silage ration supplement cost includes 72 pounds per beef cow, 80 pounds per steer, and 310 pounds per heifer.
- The direct cost for salt and minerals was also obtained from Dr. Hendrix. The salt and mineral use was 70.8 pounds per beef cow unit.
- g. The marketing cost includes transportation to market for fed cattle and slaughter cows and sale commission.
- h. The silage program assumes that daily bedding requirement is 4 pounds per head. The length of the feeding period is 230 days for heifers and 250 days for steers. Total straw use was .46 ton per heifer and .5 ton per steer. Straw costs \$55 per ton. Also, \$1 is added to the miscellaneous costs for other supplies.

Table A.1. Direct costs per beef cow unit for calf sold program^a

Item	Quantity	Cost
Feed		
Corn ^b	3.3 bu. @ \$3.00	= \$9.90
Grass hay	1.75 tons @ \$50.00	= \$87.50
Pasture	3.5 tons @ \$17.50	= \$61.25
Salvage roughage ^c	1.0 ton @ \$0.00	= \$0.00
Supplement	72 pounds @ \$0.14	= \$10.08
Salt and minerals ^d	55 pounds @ \$0.10	= \$5.50
Total feed		\$174.23
Veterinary and medicine		\$7.50
Breeding		\$10.00
Marketing ^e		\$6.25
Power, fuel and equipment repair		\$8.50
Miscellaneous (bedding and supplies)		\$5.50
Total direct costs		\$211.48
Direct cost w/o homegrown feed		\$52.83

- a. A beef cow unit consists of 1 cow, .5 calf, .2 yearling heifer, .1 bred heifer and .04 bull.
- b. Replacement heifers received 4 pounds of corn per head daily for 150 days (in addition to hay for winter feed). First calf heifers received 3 pounds of corn per head daily for 75 days (a period including time before and after calving). Bulls received 8 pounds of corn daily for 60 days prior to the breeding season. Cows did not receive any corn.
- c. Beef cows graze cornstalks for 90 days (October 1 to January 1). First calf heifers grazed stalks for only 30 days (October 1 to November 1).
- d. Supplement was fed to the cows grazing cornstalks at the rate of 1.5 pounds per head daily for 60 days (cows did not receive any supplement the first 30 days on stalks). Total supplement use on a per cow basis was 72 pounds.
- Salt and mineral use per beef cow unit was 55 pounds.
- e. Marketing cost includes calf and slaughter cow transportation and sale commissions.

Table A.3. Direct costs per beef cow unit for the calf raised program using a self-feeder feedlot

Item	Quantity	Cost
Feed		
Corn ^b	38.2 bu. @ \$3.00	= \$114.60
Grass hay	1.75 tons @ \$50.00	= \$87.50
Alfalfa-grass hay ^c	.58 tons @ \$65.00	= \$37.50
Pasture	3.5 tons @ \$17.50	= \$61.25
Salvage roughage ^d	1.0 ton @ \$0.00	= \$0.00
Supplement ^e	145.4 pounds @ \$0.14	= \$20.36
Salt and minerals ^f	71.4 pounds @ \$0.10	= \$7.14
Total feed		\$328.55
Veterinary and medicine		\$11.25
Breeding		\$10.00
Marketing ^f		\$7.50
Power, fuel and equipment repair		\$16.00
Miscellaneous (bedding and supplies) ^g		\$18.32
Total direct costs		\$392.62
Direct cost w/o homegrown feed		\$91.57

- a. A beef cow unit consists of 1 cow, .5 calf, .2 yearling heifer, .1 bred heifer, .04 bull, .42 feeder steer and .23 feeder heifer.
- b. Corn use includes 3.3 bushels per beef cow unit, 51 bushels per steer, and 42 bushels per heifer.
- c. Hay use was 1.75 tons per beef cow unit, .94 tons per steer, and .79 tons per heifer.
- d. Beef cows grazed cornstalks for 90 days (October 1 to January 1). First calf heifers grazed stalks for only 30 days (October 1 to November 1).
- e. The self-feeder supplement use includes 72 pounds per beef cow, 105 pounds per steer, and 100 pounds per heifer.
- f. The marketing cost program includes transportation to market for fed cattle and slaughter cow and sale commission.
- The salt and mineral use was 70.8 pounds per beef cow unit.
- g. The self-feeder program assumes that daily bedding requirements were 4 pounds per head. The length of the feeding period is 230 days for heifers and 250 days for steers. Total straw use was .46 ton per heifer and .5 ton per steer. Straw costs \$55 per ton. Also \$1 was added to the miscellaneous costs for other supplies.

Table A.4. Direct costs per beef cow unit for the calf raised program using a confinement feedlot^a

Item	Quantity	Cost
Feed		
Corn ^b	38.2 bu. @ \$3.00	= \$114.60
Grass hay	1.75 tons @ \$50.00	= \$87.50
Alfalfa-grass hay ^c	.58 tons @ \$65.00	= \$37.70
Pasture	3.5 tons @ \$17.50	= \$61.25
Salvage roughage ^d	1.0 ton @ \$0.00	= \$0.00
Supplement	145.4 pounds @ \$0.14	= \$20.36
Salt and minerals ^e	71.4 pounds @ \$0.10	= \$7.14
Total feed		\$328.55
Veterinary and medicine		\$11.25
Breeding		\$10.00
Marketing ^f		\$7.50
Power, fuel and equipment repair		\$16.00
Miscellaneous (bedding and supplies) ^g		\$26.07
Total direct costs		\$400.37
Direct cost w/o homegrown feed		\$92.18

a. A beef cow unit consists of 1 cow, .5 calf, .2 yearling heifer, .1 bred heifer, .04 bull, .42 feeder steer and .23 feeder heifer.

b. Corn use includes 3.3 bushels per beef cow unit, 51 bushels per steer, and 42 bushels per heifer.

c. Hay use was 1.75 tons per beef cow unit, 1,880 pounds per steer, and 1,575 pounds per heifer.

d. Beef cows grazed cornstalks for 90 days (October 1 to January 1). First calf heifers grazed stalks for only 30 days (October 1 to November 1).

e. The confinement (40 percent) supplement use includes 72 pounds per beef cow, 105 pounds per steer, and 100 pounds per heifer.

The salt and mineral use was 70.8 pounds per beef cow unit (55 pounds per beef cow, 25 pounds per steer, and 23 pounds per heifer).

f. The marketing cost includes transportation to market for fed cattle and slaughter cow and sale commissions.

g. The confinement program assumes that daily bedding requirements were 6 pounds per head. The length of the feeding period is 230 days for heifers and 250 days for steers. Total straw use was .69 ton per heifer and .75 ton per steer. Straw costs \$55 per ton. Also \$1 was added to the miscellaneous costs for other supplies.

Table A.5. Direct costs for a purchased feeder steer in an existing or new upright silo^a

Item	Quantity	Cost
Feed		
Corn	39.4 bu. @ \$3.00	= \$118.20
Corn silage	3.2 tons @ \$20.00	= \$64.00
Alfalfa-grass hay	.16 ton @ \$65.00	= \$10.40
40 percent supplement	361 pounds @ \$0.14	= \$50.54
Salt and minerals	28 pounds @ \$0.10	= \$2.80
Total Feed		\$245.94
Purchased feeder	4.5 cwt. @ \$70.00	= 315.00
Veterinary and medicine		\$8.75
Death loss ^b		\$6.48
Marketing ^c		\$18.75
Power, fuel and equipment repair		\$13.00
Miscellaneous (bedding and supplies) ^d		\$30.70
Total direct cost		\$638.62
Direct cost w/o homegrown feed		\$446.02

a. Feeder steer purchased at 450 pounds, shrank 4 percent to 432 pounds, and fed to 1,030 pounds; 270 days on feed.

b. Death loss equals 2 percent of purchase price.

c. Marketing cost includes hauling feeder calf to the farm, fed animal to market, and sale commission of fed animal.

d. Steer calves require 4 pounds of straw per head daily. Steers are on feed for 270 days. Straw costs \$55 per ton. Also, \$1 is added to miscellaneous costs to cover other supplies.

Table A.6. Direct costs for a purchased feeder heifer in an existing or new upright silo^a

Item	Quantity	Cost
Feed		
Corn	33 bu. @ \$3.00	= \$99.00
Corn Silage	2.75 tons @ \$20.00	= \$55.00
Alfalfa-grass hay	.16 ton @ \$65.00	= \$10.40
40 percent supplement	273 pounds @ \$0.14	= \$38.22
Salt and minerals	26 pounds @ \$0.10	= \$2.60
Total Feed		\$205.22
Purchased feeder	4.25 cwt. @ \$65.00	= 276.25
Veterinary and medicine		\$7.50
Death loss ^b		\$5.70
Marketing ^c		\$17.50
Power, fuel and equipment repair		\$11.50
Miscellaneous (bedding and supplies) ^d		\$28.50
Total direct cost		\$549.17
Direct cost w/o homegrown feed		\$384.77

a. Feeder heifer purchased at 425 pounds, shrank 4 percent to 408 pounds, and fed to 900 pounds; 250 days on feed.

b. Death loss equals 2 percent of purchase price.

c. Marketing cost includes hauling feeder calf to the farm, fed animal to market, and sale commission of fed animal.

d. Heifer calves require 4 pounds of straw per head daily. Heifers are on feed for 250 days. Straw costs \$55 per ton. Also, \$1 is added to miscellaneous costs to cover other supplies.

Table A.7. Direct costs for a purchased feeder steer in a self-feeder feedlot^a

Item	Quantity	Cost
Feed		
Corn	58.3 bu. @ \$3.00	= \$174.90
Alfalfa-grass hay	1 ton @ \$65.00	= \$65.00
40 percent supplement	131 pounds @ \$0.14	= \$18.34
Salt and minerals	28 pounds @ \$0.10	= \$2.80
Total feed		\$261.04
Purchased feeder	4.5 cwt. @ \$70.00	= 315.00
Veterinary and medicine		\$8.75
Death loss ^b		\$6.48
Marketing ^c		\$18.75
Power, fuel and equipment repair		\$13.00
Miscellaneous (bedding and supplies) ^d		\$30.70
Total direct cost		\$653.72
Direct cost w/o homegrown feed		\$413.82

a. Feeder steer purchased at 450 pounds, shrank 4 percent (to 432 pounds), and fed to 1,030 pounds; 270 days on feed.

b. Death loss equals 2 percent of purchase price.

c. Marketing cost includes hauling feeder calf to the farm, fed animal to market, and sale commission of fed animal.

d. Steer calves require 4 pounds of straw per head daily. Steers are on feed for 270 days. Straw costs \$55 per ton. Also, \$1 is added to miscellaneous costs to cover other supplies.

Table A₈. Direct costs for a purchased feeder heifer in a self-feeder feedlot^a

Item	Quantity	Cost
Feed		
Corn	49.9 bu. @ \$3.00	= \$149.70
Alfalfa-grass hay	.87 ton @ \$65.00	= \$56.55
40 percent supplement	80 pounds @ \$0.14	= \$11.20
Salt and minerals	26 pounds @ \$0.10	= \$2.60
Total Feed		\$220.05
Purchased feeder	4.25 cwt. @ \$65.00	= 276.25
Veterinary and medicine		\$7.50
Death loss ^b		\$5.70
Marketing ^c		\$17.50
Power, fuel and equipment repair		\$11.50
Miscellaneous (bedding and supplies) ^d		\$28.50
Total direct cost		\$564.00
Direct cost w/o homegrown feed		\$357.75

a. Feeder heifer purchased at 425 pounds, shrank 4 percent to 408 pounds, and fed to 900 pounds; 250 days on feed.

b. Death loss equals 2 percent of purchase price.

c. Marketing cost includes hauling feeder calf to the farm, fed animal to market, and sale commission of fed animal.

d. Heifer calves require 4 pounds of straw per head daily. Heifers are on feed for 250 days. Straw costs \$55 per ton. Also, \$1 is added to miscellaneous costs to cover other supplies.

Table A₉. Direct costs for a purchased feeder steer in a confinement feedlot

Item	Quantity	Cost
Feed		
Corn	58.3 bu. @ \$3.00	= \$174.90
Alfalfa-grass hay	1 ton @ \$65.00	= \$65.00
40 percent supplement	131 pounds @ \$0.14	= \$18.34
Salt and minerals	28 pounds @ \$0.10	= \$2.80
Total Feed		\$261.04
Purchased feeder	4.25 cwt. @ \$72.00	= 315.00
Veterinary and medicine		\$8.75
Death loss ^b		\$6.48
Marketing ^c		\$18.75
Power, fuel and equipment repair		\$13.00
Miscellaneous (bedding and supplies) ^d		\$45.55
Total direct cost		\$668.57
Direct cost w/o homegrown feed		\$428.67

a. Feeder steer purchased at 450 pounds, shrank 4 percent (to 432 pounds), and fed to 1,030 pounds; 270 days on feed.

b. Death loss equals 2 percent of purchase price.

c. Marketing cost includes hauling feeder calf to the farm, fed animal to market, and sale commission of fed animal.

d. Steer calves require 6 pounds of straw per head daily. Steers are on feed for 270 days. Straw costs \$55 per ton. Also, \$1 is added to miscellaneous costs to cover other supplies.

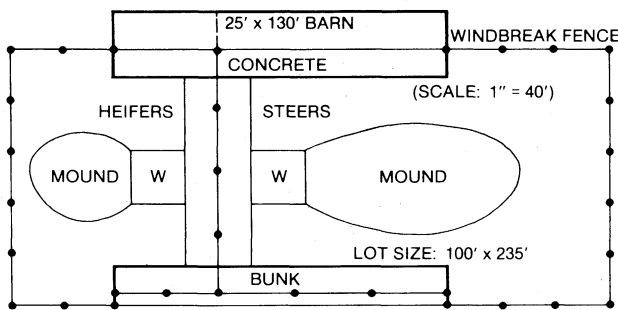


Figure 1. Assumed layout for silage feedlot for 130 head (84 steers, 46 heifers).

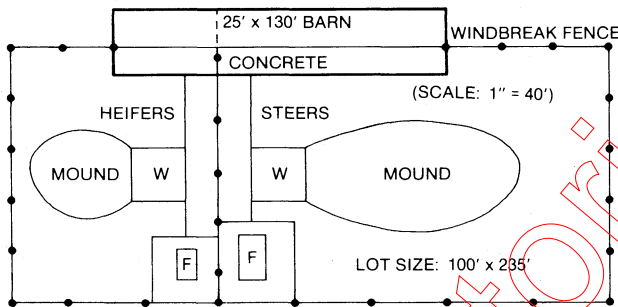


Figure 2. Assumed layout for self feeder feedlot for 130 head (84 steers, 46 heifers).

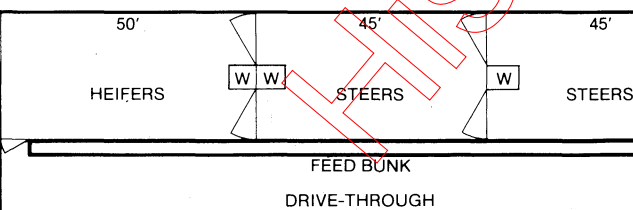


Figure 3. Assumed layout for confinement feedlot for 130 head (84 steers, 46 heifers).

The layouts for the smaller feedlots (65 head capacity) and the larger feedlots (195 head capacity) are similar to those shown.

40' x 140' BARN

Appendix B

Feedlot Construction Budgets

Table B.1. Prices used in determining feedlot investments, 1978

Feed storage	
Concrete upright silo	14' x 45' - \$6,600 18' x 55' - \$10,340 18' x 70' - \$13,000
Feedlot	
Open front shed	25' x 65' - \$6,175 25' x 130' - \$9,588 25' x 195' - \$13,163 40' x 70' - \$9,100 40' x 140' - \$15,120 40' x 210' - \$18,480
Grading (silage or self-feeder)	65 head lot - \$300 130 head lot - \$600 195 head lot - \$900
(confinement)	65 head lot - \$100 130 head lot - \$200 195 head lot - \$300
Concrete 4 inch thick 5 inch thick (confinement)	\$1.00 per square foot \$1.10 per square foot
Concrete ramps (confinement only)	\$200 per feedlot
Light pole (for open lots)	\$55 per pole
Wiring (confinement)	65 head - \$100 130 head - \$200 195 head - \$300
Fence 5 feet high, 4 - 2" x 6" oak boards, 9-foot long posts set 8 feet apart, cement for each post, materials only.	\$4.00 per linear foot
Bunk fence (above fence-line feeders)	\$1.00 per linear foot
Pen fence (confinement)	\$3.35 per linear foot
Windbreak fence (open lots)	\$5.75 per linear foot
Concrete fence-line feedbunk	\$10.00 per linear foot
Metal self-feeders	130 bushel - \$725 260 bushel - \$1,300
Wooden feedbunks	12 foot - \$80 14 foot - \$90
Wooden hayracks	10 foot - \$110 16 foot - \$170
Waterers	80 head capacity - \$150 160 head capacity - \$175
Oiler	\$100
Tubular gates	4 foot - \$50 6 foot - \$60 12 foot - \$90 16 foot - \$110
Mounds	\$1.35 per cubic yard
Gravel driveway	\$2.00 per linear foot
Equipment	
Grinder-mixers	100 bushel - \$5,200 135 bushel - \$6,650
Feed wagon	110 bushel - \$2,500
Silo unloaders	14 foot - \$3,150 18 foot - \$3,450 18-foot (heavy duty) - \$3,800

Table B.2. Facilities required for the 65 head capacity feedlots

	Upright silo	Self feeder	Confinement
Feed storage			
Concrete silo	14' x 45'	NA	NA
Feedlot			
Open front shed	25' x 65'	25' x 65'	40' x 70'
Grading	\$300	\$300	\$100
Concrete (square feet)	2,520	2,940	1,960
Ramps	NA	NA	\$200
Light pole	1	1	NA
Wiring	NA	NA	\$100
Fence (feet)	237	318	NA
Bunk fence (feet)	65	NA	65
Pen fence (feet)	NA	NA	17
Windbreak fence (feet)	85	85	NA
Concrete fence-line feedbunk (feet)	65	NA	65
Metal self-feeder	NA	1 - 260-bushel	NA
Wooden feedbunks	NA	4 - 14-foot	NA
Wooden hayracks	2 - 16-foot	2 - 16-foot	3 - 10-foot
Waterer (80 head capacity)	1	1	2
Oiler	1	1	2
Tubular gates (feet)	2 - 16	2 - 16	5 - 12, 1 - 4
Mounds (cubic yards)	309	309	NA
Gravel driveway (feet)	100	100	NA
Land (acre)	2/5	2/5	1/10
Grinder-mixer (bushels)	100	100	100
Feed wagon (bushels)	110	NA	110
Silo unloader (feet)	14	NA	NA

NA - Not applicable.

Table B.3. Facilities required for the 130 head capacity feedlots

	Upright silo	Self feeder	Confinement
<u>Feed storage</u>			
Concrete silo	18' x 55'	NA	NA
<u>Feedlot</u>			
Open front shed	25' x 130'	25' x 130'	40' x 140'
Grading	\$600	\$600	\$200
Concrete (square feet)	6,936	6,405	3,920
Ramps	NA	NA	\$200
Light poles	2	2	NA
Wiring	NA	NA	\$200
Fence (feet)	354	512	NA
Bunk fence (feet)	130	NA	130
Pen fence (feet)	NA	NA	32
Windbreak fence (feet)	105	105	NA
Concrete fence-line feedbunk (feet)	130	NA	130
Metal self-feeder	NA	1 - 130-bushel 1 - 260-bushel	NA
Wooden feedbunks	NA	3 - 12-foot 5 - 14-foot	NA
Wooden hayracks	6 - 10-foot	6 - 10-foot	6 - 10-foot
Waterers (80 head capacity)	2	2	3
Oiler	2	2	3
Tubular gates	4 - 16-foot	4 - 16-foot	1 - 4-foot 1 - 6-foot 6 - 12-foot
Mounds (cubic yards)	399	399	NA
Gravel driveway (feet)	235	235	NA
Land (acre)	3/5	3/5	1/5
<u>Equipment</u>			
Grinder-mixer (bushels)	100	100	100
Feed wagon (bushels)	110	NA	110
Silo unloader (feet)	18	NA	NA

NA - Not applicable.

Table B.4. Facilities required for the 195-head capacity feedlots

	Upright silo	Self feeder	Confinement
<u>Feed storage</u>			
Concrete silo	18' x 70'	NA	NA
<u>Feedlot</u>			
Open front shed	25' x 195'	25' x 195'	40' x 210'
Grading	\$900	\$900	\$300
Concrete (square feet)	10,356	10,440	5,880
Ramps	NA	NA	\$200
Light poles	3	3	NA
Wiring	NA	NA	\$300
Fence (feet)	474	637	NA
Bunk fence (feet)	195	NA	195
Pen fence (feet)	NA	NA	35
Windbreak fence (feet)	63	63	NA
Concrete fence-line feedbunk (feet)	195	NA	195
Metal self-feeder	NA	3 - 260-bushel	NA
Wooden feedbunks	NA	12 - 14-foot	NA
Wooden hayracks	6 - 16-foot	6 - 16-foot	6 - 16-foot
Waterers (80 head capacity)	NA	NA	3
(160 head capacity)	2	2	NA
Oiler	3	3	3
Tubular gates	4 - 16-foot	6 - 16-foot	2 - 6-foot 6 - 12 foot
Mounds (cubic yards)	599	599	NA
Gravel driveway (feet)	258	258	NA
Land (acre)	9/10	9/10	1/5
<u>Equipment</u>			
Grinder-mixer (bushels)	100	135	135
Feed wagon (bushels)	110	NA	110
Silo unloader (feet)	18	NA	NA

NA - Not applicable.

Table B.5. 65 head capacity upright silo feedlot with corn and corn silage ration. open lot, open front shed, fence-line feeding. Lot size 100 feet by 150 feet

Investment required:	1978	Est. 1981 ^a
<u>Feed storage</u>		
14' x 45' Concrete silo	\$6,600	\$8,580
<u>Feedlot</u>		
Building (25' x 65') 1,625 sq. ft. @ \$3.80/sq. ft.	6,175	8,028
Grading	300	390
Concrete 2,520 sq. ft. @ \$1.00/sq. ft.	2,520	3,276
Fence 237 feet @ \$4.00 per foot	948	1,232
Bunk fence 65 feet @ \$1.00 per foot	65	84
Windbreak fence 85 feet @ \$5.75 per foot	489	636
Concrete fence-line feedbunk 65 ft. @ \$10 per foot	650	878
Wooden hayracks 2 - 16-ft. racks @ \$170	340	459
Waterer 1 plus installation	250	338
Light pole 1 @ \$55	55	72
Oiler 1 @ \$100	100	135
Tubular gates 2 16-ft. gates @ \$110	220	299
Mounds 309 cu. yds. @ \$1.35/cu.yd.	417	542
Gravel driveway 100 ft. @ \$2.00 per foot	200	260
<u>Equipment</u>		
Grinder-mixer 100-bushel	5,200	7,020
Feed wagon 110-bushel	2,500	3,375
Silo unloader 14-foot	3,150	4,252
Total investment	\$30,179	\$39,854
Investment per head	\$464.29	\$613.14

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.6. 65 head capacity self-feeder feedlot with corn and alfalfa-grass hay ration, open lot, open front shed. Lot size is 100 feet by 150 feet.

Investment required:	1978	Est. 1981 ^a
<u>Feedlot</u>		
Building (25' x 65') 1,625 sq. ft. @ \$3.80/sq. ft.	\$6,175	\$8,028
Grading	300	390
Concrete 2940 sq. ft. @ \$1.00 sq. ft.	2,940	3,822
Light pole 1 @ \$55	55	72
Fence 318 ft. @ \$4.00 per ft.	1,272	1,654
Windbreak fence 85 ft. @ \$5.75 per ft.	489	656
Metal self-feeder 1 - 260-bushel @ \$1,300	1,300	1,755
Wooden feedbunks 4 - 14 ft. bunks @ \$90	360	486
Wooden hayracks 2 - 16 ft. racks @ \$170	340	459
Waterer 1 plus installation	250	338
Oiler 1 @ \$100	100	135
Tubular gates 2 - 16 ft. gates @ \$110	220	297
Mound 309 cu. yds. @ \$1.35/cu.yd.	417	542
Gravel driveway 100 ft. @ \$2 per ft.	200	260
<u>Equipment</u>		
Grinder-mixer 100 bushel	5,200	7,020
Total investment	\$19,618	\$25,914
Investment per head	\$301.82	\$398.68

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.7. 65 head capacity, cold confinement barn with corn and alfalfa-grass hay ration, manure scrap, fence-line feeding.

Investment required:	1978	Est. 1981 ^a
<u>Building</u>		
Building (40' x 70') 2,800 sq. ft. @ \$3.25 sq. ft.	\$9,100	\$11,830
Grading	100	130
Concrete 1960 sq. ft. @ \$1.10 sq. ft.	2,156	2,803
Ramps	200	260
Wiring	100	130
Bunk fence 65 ft. @ \$1.00 ft.	65	84
Pen fence 17 ft. @ \$3.35 ft.	57	74
Concrete fence-line feedbunk 65 ft. @ \$10 per ft.	650	878
Wooden hayracks 3 - 10 ft. racks @ \$110	330	446
Waterers 2 plus installation	450	608
Oilers 2 @ \$100	200	270
Tubular gates 5 - 12 ft. @ \$90 and 1 - 4 ft. @ \$50	500	675
<u>Equipment</u>		
Grinder-Mixer 100 bushel	5,200	7,020
Feed wagon 110 bushel	2,500	3,375
Total investment	\$21,608	\$28,583
Investment per head	\$332.43	\$439.74

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.8. 130 head capacity upright silo feedlot with corn and corn silage ration, open lot, open front shed, fence-line feeding. Lot size is 100 feet by 235 feet.

Investment required:	1978	Est. 1981 ^a
<u>Feed storage</u>		
18' x 55' Concrete silo	\$10,340	\$13,442
<u>Feedlot</u>		
Building (25' x 130')		
3,250 sq. ft. @ \$2.95/sq. ft.	9,588	12,464
Grading	600	780
Concrete 6,936 sq. ft. @ \$1.00/sq. ft.	6,936	9,017
Fence 354 ft. @ \$4.00 per ft.	1,416	1,841
Bunk fence 130 ft. @ \$1.00 per ft.	130	169
Windbreak fence 105 ft. @ \$5.75 per ft.	604	785
Concrete fence-line feedbunk 130 ft. @ \$10 per ft.	1,300	1,755
Wooden hayracks 6 - 10 ft. racks @ \$110	660	891
Waterers 2 - plus installation	450	608
Light poles 2 @ \$55	110	144
Oilers 2 @ \$100	200	270
Tubular gates 4 - 16 ft. gates @ \$110	440	594
Mounds 399 cu yds. @ \$1.35/cu. yd.	539	701
Gravel driveway 235 ft. @ \$2.00 per foot	470	611
<u>Equipment</u>		
Grinder-mixer 100 bushel	5,200	7,020
Feed wagon 110 bushel	2,500	3,375
Silo unloader 18 ft.	3,450	4,658
Total Investment	\$44,933	\$59,124
Investment per head	\$345.64	\$454.80

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.9. 130 head capacity, self-feeder feedlot with corn and alfalfa-grass hay ration. Lot size is 100 feet by 235 feet.

Investment required:	1978	Est. 1981 ^a
<u>Feedlot</u>		
Building (25' x 130')		
3,250 sq. ft. @ \$2.95 sq. ft.	\$9,588	\$12,464
Grading	600	780
Concrete 6405 sq. ft. @ \$1.00/sq. ft.	6,405	8,326
Light poles 2 @ \$55	110	144
Fence 512 ft. @ \$4.00 per ft.	2,048	2,662
Windbreak fence 105 ft. @ \$5.75 per ft.	604	785
Metal self-feeders 1 @ \$1,300 and 1 @ \$725	2,025	2,734
Wooden feedbunks 3 - 12-ft @ \$80 and 5 - 14-ft. @ \$90	690	932
Wooden hayacks 6 - 10 ft. racks @ \$110	660	891
Waterers 2 plus installation	450	608
Oilers 2 @ \$100	200	270
Tubular gates 4 - 16-ft. gates @ \$110	440	594
Mounds 399 cu. yds. @ \$1.35/cu. yd.	539	701
Gravel driveway 235 ft. @ \$2/ft.	470	611
<u>Equipment</u>		
Grinder-mixer 100 bushel	5,200	7,020
Total investment	\$30,029	\$39,522
Investment per head	\$230.99	\$304.02

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.10. 130 head capacity, cold-confinement barn, manure scrape, fence-line feeding, corn and alfalfa-grass hay ration

Investment required:	1978	Est. 1981 ^a
<u>Building</u>		
Building (40' x 140')		
5,600 sq. ft. @ \$2.70/sq. ft.	\$15,120	\$19,656
Grading	200	260
Concrete 3,920 sq. ft. @ \$1.10 per sq. ft.	4,312	5,606
Ramps	200	260
Wiring	200	260
Bunk fence 130 ft. @ \$1.00 per ft.	130	168
Pen fence 32 ft. @ \$3.35 per ft.	107	148
Concrete fence-line feedbunk 130 ft. @ \$110	1,300	1,755
Wooden hayracks 6 - 10 ft. racks @ \$110	660	891
Waterers 3 plus installation	600	810
Oilers 3 @ \$100	300	405
Tubular gates 6 - 12' @ \$90, 1 - 6' @ \$60, and 1 - 4' @ \$50	650	878
<u>Equipment</u>		
Grinder-mixer 100 bushel	5,200	7,020
Feed wagon 110 bushel	2,500	3,375
Total investment	\$31,479	\$41,492
Investment per head	\$242.15	\$319.17

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.12. Description: 195 head capacity self-feeder feedlot with corn and alfalfa-grass hay ration

Investment required:	1978	Est. 1981 ^a
<u>Feedlot</u>		
Building (25' x 195') 4875 sq. ft. @ \$2.70 sq. ft.	\$13,163	\$17,112
Grading	900	1,170
Concrete 10,440 sq. ft. @ \$1.00 sq. ft.	10,440	13,572
Light poles 3 @ \$55	165	204
Fence 637 ft. @ \$4.00 per ft.	2,548	3,312
Windbreak fence 63 ft. @ \$5.75	362	471
Metal self-feeders 3 - 260-bushel feeders @ \$1,300	\$3,900	\$5,265
Wood feedbunks 12 - 14-ft. bunks @ \$90	1,080	1,458
Wooden hayrack 6 - 16-ft. racks @ \$170	1,020	1,377
Waterers 2 @ \$175 (160 head) plus installation	500	675
Oilers 3 @ \$100	300	405
Tubular gates 6 - 16-ft. gates @ \$110	660	891
Mound 599 cu. yds. @ \$1.35 cu. yd.	809	1,052
Gravel driveway 258 ft. @ \$2 per ft.	516	671
<u>Equipment</u>		
Grinder-mixer 135 bushel	6,650	8,978
Total investment	\$43,013	\$56,623
Investment per head	\$220.58	\$290.37

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.13. 195 head capacity cold confinement barn, manure scrape, fence-line feeding, corn and alfalfa-grass hay ration

Investment required:	1978	Est. 1981 ^a
<u>Building</u>		
Building (40' x 210') 8,400 sq. ft. @ \$2.20 sq. ft.	\$18,480	\$24,024
Grading	300	390
Concrete 5,880 sq. ft. @ \$1.10/sq. ft.	6,468	8,408
Ramps	200	260
Wiring	300	390
Bunk fence 195 ft. @ \$1.00 per ft.	195	254
Pen fence 35 ft. @ \$3.35 per ft.	117	152
Concrete fence-line feedbunk 195 ft. @ \$10 ft.	1,950	2,632
Wooden hayracks 6 - 16 ft. racks @ \$170	1,020	1,377
Waterers 3 plus installation	600	810
Oilers 3 @ \$100	300	405
Tubular gates 6 - 12-ft. @ \$90 and 2 - 6-ft. @ \$60	660	891
<u>Equipment</u>		
Grinder-mixer 135 bushel	\$6,650	8,978
Feed wagon 110 bushel	2,500	3,375
Total investment	\$39,740	\$52,346
Investment per head	\$203.79	\$268.44

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

Table B.11. 195 head capacity upright silo feedlot with corn and corn silage ration, open lot, open front shed, fence-line feeding. Lot size 150 by 258 feet

Investment required:	1978	Est. 1981 ^a
<u>Feed storage</u>		
18' x 70' concrete silo	\$13,000	\$16,900
<u>Feedlot</u>		
Building (25' x 195') 4,875 sq. ft. @ \$2.70 sq. ft.	13,163	17,112
Grading	900	1,134,630
Concrete 10,356 sq. ft. @ \$1.00 sq. ft.	10,356	13,463
Fence 474 ft. @ \$4.00 per ft.	1,896	2,465
Bunk fence 195 ft. @ \$1.00 per ft.	195	254
Windbreak fence 63 ft. @ \$5.75 per ft.	362	471
Concrete fence-line feedbunk 195 ft. @ \$10 per ft.	1,950	2,632
Wooden hayracks 6 - 16-ft. racks @ \$170	1,020	1,377
Waterers 2 @ \$175 (160 hd.) plus installation	500	675
Light poles 3 @ \$55	165	216
Oilers 3 @ \$100	300	405
Tubular gates 4 - 16-ft. gates @ \$110	440	594
Mounds 599 cu. yds. @ \$135 cu. yd.	809	1052
Gravel driveway 258 ft. @ \$2.00 per ft.	516	617
<u>Equipment</u>		
Grinder-mixer 100 bushel	5,200	7,020
Feed wagon 110 bushel	2,500	3,375
Silo unloader 18 foot	3,800	5,130
Total investment	\$57,072	\$74,980
Investment per head	\$292.68	\$384.51

^a Revised, based on changes in index of prices paid by farmers. Building cost increased 30 percent; equipment cost increased 35 percent from 1978.

The authors wish to thank the following dealers for their kind assistance in providing material specification and price data:

● Silos and Unloaders

Manwell Farm Supply
20 S. 1200 E.
Marion, IN 46952

A. C. Hansen
R. 1, Box 235
Markle, IN 46770

● Buildings

Huskee-Bilt Construction Co.
P. O. Box 648
North 6th St. Road
Monmouth, IL 61462

Indiana Farm Bureau Cooperative Association, Inc.
120 East Market Street
Indianapolis, IN 46204

Morton Buildings, Inc.
R. 1, Box 104
Cloverdale, IN 46120

● Concrete Fence-Line Feedbunks

Hoosier Precast, Inc.
Salem, IN 47167

● Wooden Fence

Fredericks, Inc.
P.O. Box 167
Markleville, IN 46056

● Beef Equipment
(self-feeders, waterers, gates, and oilers)

Star Agri Products
Goshen, IN 46526

Brower Manufacturing Co.
640 S. Fifth Street
P.O. Box 251
Quincy, IL 62301

Farnham Companies
P.O. Box 12068
Omaha, NE 68112

Ideal
P.O. Box 458
Jefferson, IA 50129

Moorman Manufacturing Co.
Quincy, IL 62301

● Wooden Hayracks and Feedbunks

Monte Gorman Portable Farm Buildings
Knightstown, IN 46148

● Feed Wagon

Gehl Company
West Bend, WI 53095

● Grinder - Mixers

Arts-Way Manufacturing Co., Inc.
Armstrong, IA 50514

John Deere
Robert F. Fields Co.
Lafayette, IN 47905

Gehl Company
West Bend, WI 53095

New Holland
Ralph R. Rodkey
Rossville, IN 46065

Appendix C

Summary of Direct Costs and Differences Between Separate and Integrated Systems

Table C.1. Summary of direct cost differences between separate stages (100 beef cows with sold calf, buy 42 steers and 23 heifers) and integrated system (calf raised) for upright silo feedlot on a beef cow unit basis

Item	Separate stages	Integrated system	Gain (or loss) to integrated system
Feed	\$324.72	\$319.74	\$4.98
Veterinary and medicine	12.90	11.25	1.65
Death loss ^a	4.03	2.94	1.09
Marketing	18.15	7.50	10.65
Power, fuel and equipment repair	16.72	16.00	.72
Miscellaneous (bedding & supplies)	24.45	18.32	6.13
Total	\$400.97	\$375.75	\$25.22

a. Death loss for integrated system was calculated as follows: \$196 (450-pound steer calf at \$0.70 x 42 head plus 425-pound heifer calf at \$0.65 x 23 head) x 1.5 percent death loss ÷ 100 (cows) = \$2.94/cow.

Table C.2. Summary of direct cost differences between separate stages (100 beef cows with calf sold, buy 42 steers and 23 heifers) and integrated system (calf raised) for self-feeder feedlot on a beef cow unit basis

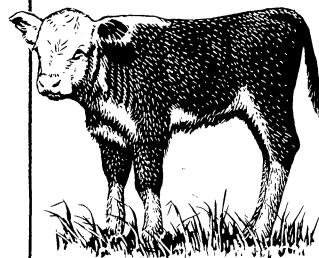
Item	Separate stages	Integrated system	Gain (or loss) to integrated system
Feed	\$334.47	\$328.55	\$5.92
Veterinary and medicine	12.90	11.25	1.65
Death loss ^a	4.03	2.94	1.09
Marketing	18.14	7.50	10.65
Power, fuel and equipment repair	16.72	16.00	.72
Miscellaneous (bedding & supplies)	24.45	18.56	6.13
Total	\$410.72	\$384.56	\$26.16

a. Death loss for integrated system was calculated as follows: \$196 (450-pound steer-calf at \$0.70 x 42 head plus 425-pound heifer calf at \$0.65 x 23 head) x 1.5 percent death loss ÷ 100 (cows) = \$2.94/cow.

Table C.3. Summary of direct cost differences between separate stages (100 beef cows with sold calf, buy 42 steers and 23 heifers) and integrated system (calf raised) for confinement feedlot on a beef cow unit basis

Item	Separate stages	Integrated system	Gain (or loss) to integrated system
Feed	\$334.97	\$326.55	\$5.92
Veterinary and medicine	12.90	11.25	1.65
Death loss ^a	4.03	2.94	1.09
Marketing	18.14	7.50	10.65
Power, fuel and equipment repair	16.72	16.00	.72
Miscellaneous (bedding & supplies)	33.85	26.07	7.78
Total	\$420.12	\$392.31	\$27.81

a. Death loss for integrated system was calculated as follows: \$196 (450-pound steer calf at \$0.70 x 42 head plus 425-pound heifer calf at \$0.65 x 23 head) x 1.5 percent death loss ÷ 100 (cows) = \$2.94/cow.



Appendix D

Basis for Cattle Prices Used in Budgets

1. Cull cow prices.

It was recognized that the level of cow prices was not critical in this study but still should be at a reasonable level in relation to costs, and consistent with calf and fat cattle prices.

Therefore, the average annual price for cows in Indiana, for 1976-80 was used as a base and adjusted for the change in the Index of Prices Paid by Farmers for production items, interest and wages¹, average for the same period to 1981 (estimated). The data are as follows:

Year	Cow prices	Prices paid index (67=100)
1976	\$24.80	198
1977	24.10	208
1978	35.50	227
1979	49.70	261
1980	46.90	293
Average	\$36.32	237

The increase in prices paid to 1981 (est. at 320) is up 33 percent. Adjusting the cow price accordingly results in \$48.30, which was rounded to \$48.

2. A similar procedure was used to determine the calf price.

Year	Calf price (Ind) Oct, Nov, Dec
1976	\$31.10
1977	38.07
1978	63.20
1979	77.00
1980	64.20
Avg.	\$54.71

However, since the main costs are incurred in the year following purchase, the adjustment was lagged one year 1977-81. That adjustment is up 24 percent, or \$67.84. The combination of steer calf and heifer calf prices (weighted)² that would come closest to that price was \$70 steer calves and \$65 heifer calves.

3. The procedure to determine the fat cattle price was based on the gross margin (value of fat animal minus cost of feeder animal).

It was assumed that over time competitive forces will keep the gross margin in close relationship to costs of production, not considering possible changes in technology.

First, prices for feeder calves sold in October, November and December from 1970 to 1979 were collected as were fat cattle (steers and heifers) prices for June, July and August from 1971 to 1980³. The three fall months were averaged for each year as were the three summer months. Then the gross margins for a weighted aggregate animal were calculated for each year. Example:

A. Weighted aggregate feeder animal:

Steer calf: 4.5 cwt. x .42 head = 1.89 cwt.
Heifer calf: 4.25 cwt. x .23 head = .98 cwt.
2.87 cwt.

B. Weighted aggregate fat animal (pay weight):

Fat steer : 9.94 cwt. x .42 head = 4.17 cwt
Fat heifer: 8.69 cwt. x .23 head = 2.00cwt.
6.17 cwt.

C. Gross margin calculation (for 1977)

Fall 1977 feeder price: \$38.07 x 2.87 = \$109.26

Summer 1978 fat price: \$52.53 x 6.17 = \$324.11

Gross margin = \$214.85

The gross margins by years were as follows:

1970-71	\$97.95
71-72	103.83
72-73	167.25
73-74	81.63
74-75	\$179.55
75-76	\$134.08
76-77	139.65
77-78	214.85
78-79	210.60
79-80	178.83
Average	\$150.40

The 10-year average gross margin was \$150.40. This was adjusted for the change in the prices paid index for 1971-80 to 1981 (est.), an increase of 66 percent. The normalized gross margin was \$248.

Based on normalized 1981 calf prices of \$70 and \$65 respectively, the "weighted aggregate" feeder animal would have a value of \$196.06. Adding the normalized gross margin of \$248 results in a normalized value for the aggregated fat animal of \$444.08, or, divided by 6.17 cwt., \$71.98 per cwt. Rounded to the closest whole dollar, the normalized prices are \$73 for fat steers and \$71 for fat heifers.

Thus the following normalized cattle prices were used:

Cow	\$48
Feeder steer calves	\$70
Feeder heifer calves	\$65
Fat steers	\$73
Fat heifers	\$71

¹As reported in Agricultural Prices, ERS, USDA, monthly, and annually in the February issue, 1977-1981.

²Weighting: .42 steer x 4.5 cwt. and .23 heifer x 4.25 cwt. At \$70 and \$65 respectively results in \$68.32/cwt.

³Agricultural Prices, op. cit., 1971-1980.

⁴Gross margins were also calculated for each set of months (October-June; November-July; and December-August) but the results were essentially the same (\$149.66, 151.48, and 150.09, respectively).

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DATE RUN 02/22/82

MODEL C-4 REV. 7/77

FINANCIAL MANAGEMENT
 LCNG RUN
 AVERAGE PLANS

FARM BEEF FARM
 DESCRIPTION - 100 COWS BASE PRICES, CCSTS

PURDUE UNIVERSITY
 DEPARTMENT OF AGRICULTURAL ECONOMICS

●TABLE 1. - - - KEY ANALYSIS FACTORS - - -

PLAN DESCRIPTION	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
	100COWS CALF SOLD	FED HAVE FEEDLOT	BUILD SILC FEEDLOT	SELF FEEDER	CCNFINE GRAIN
ACRES OWNED	650	650	650	650	650
ACRES RENTED	-0	-0	-0	-0	-0
ACRES OF CCRN	250	250	250	250	250
BEEF COWS	100	100	100	100	100
PROFIT					
1. TOTAL CASH FARM INCOME	85471	97446	97446	94289	94289
2. NET FARM+NON-F PROFIT	25457	29497	24775	25682	24415
3. AVERAGE FARM INVESTMENT	881350	898285	921781	914387	916475
4. RATE EARNED ON FARM INV.	1.8	2.4	2.0	2.0	1.9
5. RETURN TO LABOR+MGMT.	-13627	-8595	-12734	-11999	-13089
6. RATE EARNED ON NET WORTH	1.2	1.7	1.1	1.2	1.1
REPAYMENT					
7. BAL AVAIL FOR ALT USES	7131	9556	4214	5942	5358
8. YEARS TO REPAY TOT. DEBT	2.6	2.3	3.6	3.2	3.4
9. ADDED INVESTMENT	0	0	30179	19618	21608
10. YEARS TO REPAY ADD. INV.	0.0	0.0	13.7	10.8	21.7
SOLVENCY					
11. PERCENT DEBT	6.4	8.1	10.9	10.0	10.2

●TABLE 2. PROJECTED PROFIT OR LOSS

PLAN DESCRIPTION	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
	100COWS CALF SOLD	FED HAVE FEEDLOT	BUILD SILC FEEDLOT	SELF FEEDER	CONFIN GRAIN
ACRES OWNED	650	650	650	650	650
ACRES RENTED	-0	-0	-0	-0	-0
ACRES OF CORN	250	250	250	250	250
BEEF COWS	100	100	100	100	100
CASH INCOME					
CCRN	55016	47272	47272	46920	46920
FCRAGES	3575	3190	3190	385	385
BEEF HERD	26880	46984	46984	46984	46984
1. TOTAL CASH INCOME	85471	97446	97446	94289	94289
CASH EXPENSES					
DIRECT CASH EXPENSES					
CCRN	19500	18642	18642	19500	19500
FCRAGES	4925	6359	6359	4925	4925
BEEF HERD	4035	8564	8564	7164	7954
PURCH C+P.	0	613	613	0	0
2. SUBTOTAL DIR CASH EXP	28460	34177	34177	31589	32379
OTHER CASH EXPENSES					
3. BUILDING REPAIRS	1200	1200	1407	1407	1550
4. TAXES	9730	9899	10369	10215	10257
5. INSURANCE	850	935	1074	1029	1040
6. CASH RENT	-0	-0	-0	-0	-0
7. HIRED LABCR	-0	-0	-0	-0	-0
8. INT.ON DEBT (5 YR.AVE.)	4984	6822	8580	8038	8320
9. MISCELLANEOUS	1140	1265	1265	1254	1238
10. SUBTOTAL OTH CASH EXP	17904	20121	22695	21944	22405
11. TOTAL CASH EXPENSES	46364	54299	56872	53533	54784
12. NET CASH CPR INCOME	39107	43147	40574	40756	39505
13. DEPRECIATION	13650	13650	15799	15074	15090
14. NET FARM PROFIT B. TAX	25457	29497	24775	25682	24415
15. NET NON-FARM PROFIT	0	0	0	0	0
16. NET FARM+NON-F. PRFT B. TAX	25457	29497	24775	25682	24415
17. INCCME TAX + SOC.SEC.(1)	5879	7495	5147	5713	5283
18. NET FARM+NON-FARM PRFT AFTER TAX	19578	22002	19628	19969	19132
(1) INCLUDES 1/5 INV. CREDIT (5 YR. AVE.) FOR ALL NEW MACH.					

●TABLE 3. PROFITABILITY, DEBT SERVICING, AND PAYBACK

PLAN DESCRIPTION	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
	100COWS CALF SOLC	FED HAVE FEEDLOT	BUILD SILC FEEDLOT	SELF FEEDER	CONFIN GRAIN
ACRES OWNED	650	650	650	650	650
ACRES RENTED	-0	-0	-0	-0	-0
ACRES OF CORN	250	250	250	250	250
BEEF COWS	100	100	100	100	100
PROFITABILITY ANALYSIS					
1. NET FARM PROFIT BEFORE TAX	25457	29497	24775	25682	24415
2. + INT. PAID, CHNG. LAND VAL.	4984	6822	8580	8038	8320
3. - CPR LAOCR+MGMT CHR	15000	15000	15000	15000	15000
4. =RETURN TO FARM INVEST	15440	21319	18355	18721	17735
5. AVG FARM INVEST (5 YR AVG)	881350	898285	921781	914387	916475
6. RATE EARNED ON FARM INVEST	1.8	2.4	2.0	2.0	1.9
7. CHANGE IN AVG FARM INV	0	16935	40431	33037	35125
8. RETURN TO ADDED INVEST	0	5879	2915	3280	2294
9. RATE EARNED ON ADD INVEST	0.0	34.7	7.2	9.9	6.5
NET FARM+NCN-FARM PROFIT (EXCL. WAGES) BEFORE TAX, LESS OPR. LABOR+MGMT. CHARGE EQUALS-					
10. RETURN TO OPR NET WORTH	10457	14497	9775	10682	9415
11. RATE EARN CN OPR NET WRTH	1.2	1.7	1.1	1.2	1.1
12. AVG ANN NET WORTH CHNG(1)	7578	10002	7628	7969	7132
DEBT SERVICING CAPACITY - LIQUIDITY					
DEBT SERVICING					
13. NET FARM+NCN=CASH INC.	39107	43147	40574	40756	39505
14. - INC TAX + SOC SEC	5879	7495	5147	5713	5283
15. - EST FAMILY LIVING	12000	12000	12000	12000	12000
16. =CASH AVAIL TO SERV DEBT	21228	23652	23427	23043	22222
17. TOTAL SCHED PRIN PAYMT	1697	1697	6813	4701	4464
18. CASH NEEDED TO MAINT. PRES BLDG.+MACH. INVENT. (2)	12400	12400	12400	12400	12400
19. BAL AVAIL FOR ALT USES	7131	9556	4214	5942	5358
20. ADDL CASH AVAIL/ALT USES	0	2424	-2918	-1190	-1773
21. YEARS TO REPAY DEBT (3)	2.6	2.3	3.6	3.2	3.4
22. ADDITIONAL DEBT (4)	0	0	30179	19618	21608
23. ADDL CASH TO SERV DEBT	0	2424	2199	1815	994
24. PAYEACK ADDL DEBT (3)	0.0	0.0	13.7	10.8	21.7
INVESTMENT PAYBACK					
25. ADDED TCTAL INVEST (4)	0	0	30179	19618	21608
26. YEARS TO REPAY ADD INVEST W/ADDL.CASH AVAILABLE	0.0	0.0	13.7	10.8	21.7

- (1) NET PROFIT INCLUDING CHANGE IN LAND VALUE (IF ENTERED) AFTER TAX
LESS FAMILY LIVING EXPENSE
- (2) AVERAGE ANNUAL CASH OUTLAY NEEDED TO EQUAL DEPREC. ON PRESENT
MACH. + BLDG. DOES NOT INCLUDE DEPREC. ON NEW ITEMS.
NOTE - IF PAYMENTS ON MACHINERY ARE BEING MADE, THIS FIGURE
WILL BE DUPLICATIVE AND THUS BE OVERSTATED BY THAT AMOUNT.
- (3) IF ALL CASH AVAILABLE TO SERVICE DEBT IS APPLIED TO INTERM AND
LONG-TERM DEBT, DOES NOT ALLOW FOR DEPRECIATION.
- (4) APPLIES TO INTERMEDIATE AND LONG TERM ONLY.

●TABLE 4. BALANCE SHEET AND ANALYSIS - AT BEGINNING OF PLAN - SOLVENCY

PLAN DESCRIPTION	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
	100COWS CALF SOLD	FED HAVE FEEDLOT	BUILD SILC FEEDLOT	SELF FEEDER	CONFINE GRAIN
ACRES OWNED	650	650	650	650	650
ACRES RENTED	-0	-0	-0	-0	-0
ACRES OF CCRN	250	250	250	250	250
BEEF COWS	100	100	100	100	100
ASSETS					
1. CURRENT	154350	171285	171285	171812	171812
2. INTERMEDIATE	54000	54000	77287	66726	63952
3. LONG TERM	710000	710000	716892	716892	721656
4. TOTAL ASSETS	918350	935285	965464	955430	957420
LIABILITIES AND NET WORTH					
5. CURRENT	3500	20435	20435	20962	20962
6. INTERMEDIATE	5000	5000	28287	17726	14952
7. LONG TERM	50000	50000	56892	56892	61656
8. TOTAL LIABILITIES	58500	75435	105614	95580	97570
9. NET WORTH	859850	859850	859850	859850	859850
RATIO ANALYSIS					
10. PCT DEBT-LIAB/ASSET	6.4	8.1	10.9	10.0	10.2
11. CURRENT RATIO	44.10/1	8.38/1	8.38/1	8.20/1	8.20/1
12. NON-REAL ESTATE RATIO	24.51/1	8.86/1	5.10/1	6.17/1	6.56/1
13. ASSET/LIABILITIES	15.70/1	12.40/1	9.14/1	10.00/1	9.81/1
14. DEBT WORTH RATIO	.17/1	.09/1	.12/1	.11/1	.11/1
15. TOTAL HRS LABOR REQD	2146	2469	2469	2376	2446

●TABLE 5. PROJECTED BALANCE SHEET AFTER FIVE YEARS IN CURRENT PRICES

PLAN DESCRIPTION	PLAN 1	PLAN 2	PLAN 3	PLAN 4	PLAN 5
	100CCWS CALF SOLD	FED HAVE FEEDLOT	BUILD SILC FEEDLOT	SELF FEEDER	CCNFINE GRAIN
ASSETS					
1. CURRENT	183221	197673	171285	177891	174658
2. INTERMEDIATE	54000	54000	68046	61112	59084
3. LONG TERM	710000	710000	715388	715388	719325
4. TOTAL ASSETS	947221	961673	954719	954391	953067
LIABILITIES AND NET WORTH					
5. CURRENT	0	0	3659	0	0
6. INTERMEDIATE	0	0	0	0	0
7. LONG TERM	47757	47757	52352	52352	55528
8. TOTAL LIABILITIES	47757	47757	56011	52352	55528
9. NET WORTH	899463	913916	898708	902039	897539
RATIO ANALYSIS					
10. FCT DEBT-LIAB/ASSET	5.0	5.0	5.9	5.5	5.8
11. CURRENT RATIO	0.00/1	0.00/1	46.81/1	0.00/1	0.00/1
12. NON-REAL ESTATE RATIO	0.00/1	0.00/1	65.41/1	0.00/1	0.00/1
13. ASSET/LIABILITIES	19.83/1	20.14/1	17.05/1	18.23/1	17.16/1
14. DEBT WORTH RATIO	.05/1	.05/1	.06/1	.06/1	.06/1

NOTE-SURPLUS FUNDS ARE APPLIED IN THE FOLLOWING ORDER - FIRST TO CURRENT DEBT, SECOND TO INTERMEDIATE DEBT, AND THIRD TO ACCUMULATE AS SAVINGS. LONG TERM DEBT IS LEFT TO BE REPAYED AS SCHEDULED. FUND SHORTAGES RESULT IN INCREASED CURRENT DEBT.

●TABLE 5A. FEED BALANCE SHEET.

PLAN	OATS	CORN	WHEAT	CORN SIL	HAY	FASTURE
PLAN 1						
PRODUCED	0	24250	0	0	240	352
FEED NEEDED	0	330	0	0	175	350
NET BALANCE	0	23920	0	0	65	3
PLAN 2						
PRODUCED	0	23183	0	165	240	352
FEED NEEDED	0	2630	0	200	182	350
NET BALANCE	0	20553	0	-35	58	3
PLAN 3						
PRODUCED	0	23183	0	165	240	352
FEED NEEDED	0	2630	0	200	182	350
NET BALANCE	0	20553	0	-35	58	3
PLAN 4						
PRODUCED	0	24250	0	0	240	352
FEED NEEDED	0	3850	0	0	233	350
NET BALANCE	0	20400	0	0	7	3
PLAN 5						
PRODUCED	0	24250	0	0	240	352
FEED NEEDED	0	3850	0	0	233	350
NET BALANCE	0	20400	0	0	7	3

●TABLE 6. COMPLETE LISTING OF INPUT INFORMATION.

100 BEEF FARM		100COWSCALF		SOLD		100 COWS BASE PRICES, COSTS								
101	650.													
10342250.	97.	2.30	78.		3.15									
1046180.	3.	55.	51.		6.									
1057020.	3.	17.50	17.90		1.									
10670195.	1.5	0.	2.50		.3									
12215100.	2.80	70.	1.82	40.		40.35		3.3		1.75	3.5	8.		
1322000.	78850.	72500.	50000.	31000.	649000.	1000.		4000.		30000.				
1333500.	9.5	5000.	9.	1250.										
134			50000.	7.	3890.									
161		1200.	9730.	850.	1000.	11250.		2400.						
1621.	2.	15000.	12000.	2000.										
201	650.	FED	HAVE	FEEDLOT										
20221														
20342239.														
205	20.													
2074811.	15.	17.50	130.30	5.2										
2211														
22215100.	6.17	64.35	1.82	40.		85.64		26.3	2.	1.82	3.5	11.		
2411														
2420312981.		6.	.50	1.	10.									
243023954.		6.	.50	1.	10.									
301	650.	BUILD	SILO	FEEDLOT										
30222														
32122														
3411														
3420513462.	10.	6.	.45	2.	10.	5.								
34305650.	15.	6.	.45	2.	10.	5.								
344059175.	20.	6.	.45	2.	10.	5.								
34506417.	10.	6.	.50	3.	3.	10.	15.							
346066475.	25.	6.	.50	3.	3.	10.	15.							
3470312981.		6.	.50	1.	10.									
348023954.		6.	.50	1.	10.									
401	650.	SELF	FEEDER											
40221														
405	20.													
4211														
42215100.	6.17	64.35	1.82	40.		71.64		38.5		2.33	3.5	10.3		
4411														
442059731.	10.	6.	.45	2.	10.	5.								
443052995.	20.	6.	.45	2.	10.	5.								
44406417.	10.	6.	.50	3.	3.	10.	15.							
445066475.	25.	6.	.50	3.	3.	10.	15.							
4460312981.		6.	.50	1.	10.									
447024481.		6.	.50	1.	10.									
501	650.	CONFINE	GRAIN											
50221														
505	20.													
52124														
522						79.54								
5411														
542059302.	10.	6.	.45	2.	10.	5.								
54305650.	15.	6.	.45	2.	10.	5.								
5440611656.	25.	6.	.50	3.	3.	10.	15.							
5450312981.		6.	.50	1.	10.									
546024481.		6.	.50	1.	10.									

Historic Document

Historic Document



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