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PROFITABILITY AND INVESTMENT POTENTIAL
OF THE PART-TIME BEEF COW-CALF ENTERPRISE

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PROFITABILITY AND INVESTMENT POTENTIAL
OF THE PART-TIME BEEF COW-CALF ENTERPRISE

The beef cow-calf industry in the Northeastern United States is characterized by small geographically dispersed farms. New York State's 82,841 beef brood cows are found on 10,014 farms (United States Department of Commerce) resulting in an average of eight cows per farm. As the income generated by a herd of this size is not sufficient to warrant a full-time labor input, most of these herds are supplemental to another farm enterprise or to off-farm employment. To illustrate this, 18 of 25 beef producers surveyed in the 1977 and 1978 Beef Farm Summaries considered the beef farm a "part-time" business (Smith, 1978, 1979). A beef cow-calf operation is attractive to part-time farmers compared to other farm activities due to the relatively low labor requirements. As reported in the 1977 and 1978 Beef Farm Summaries, average labor input; including hired labor, paid and unpaid family and operator labor was less than one full-time worker equivalent each year. In a six state survey, Northeast beef producers contributed their selection of a beef enterprise to a desire to utilize existing land and buildings, increase income, keep the land open, use family labor, and take advantage of tax management opportunities (Schwab and Gerst, 1976).

Rural land in the Northeast is increasingly being purchased by nonfarm families who wish to live in the country and/or who wish to purchase real estate as a hedge against inflation. Typically, this land was previously farmed but has been out of production for several years due to soil characteristics which limit crop production. Since this land is usually suitable for forage production, opportunities exist for increased production of roughage-fed beef. These families are increasingly considering supplementing their nonfarm income by investing in a cow-calf enterprise.

Little is known about the economic viability of part-time cow-calf production which would assist these families. Knoblauch, et al. (1981) compared profitability of milk production, finishing dairy steers and a beef cow-calf operation on a representative farm with a limited production land base. Milking cows or finishing dairy steers were more profitable than cow-calf enterprises. However, the conclusions stated that a cow-calf enterprise was a likely income supplement as a part-time business since it required one half the labor inputs of the small dairy on the same resource base. Christensen and Stinson (1980) developed cow-calf budgets for 10 and 32 brood cow herds. Profit (return to land, family and operator labor and management) was determined at six feeder calf prices. The break-even price was \$107 per hundredweight and \$69 per hundredweight for the 10 cow and the 32 cow herds respectively (1978 base year). Burdette and Waters (1978) compared (agronomically) intensive and extensive management systems for beef production. They found the extensive system was favored if annual land costs were less than \$20 per acre per year. The estimated feeder-calf breakeven prices for a 25-cow herd were between \$91 and \$98 per hundredweight (1978 base, \$20 per acre land charge).

These studies indicate small cow-calf enterprises, when measured by their "return to operator labor and management", are unprofitable in most years and profitable only when feeder calf prices are unusually high. In the case of the part-time cow-calf producer, however, an income statement does not necessarily provide all the information necessary to measure economic viability. Additional important measures of performance are after tax income and change in net worth. A cash flow analysis is also of critical importance to the cow-calf operator who must finance capital expenditures with low initial annual returns from limited cash and credit reserves.

This paper expands the research cited above by determining change in

net worth, change in after-tax income, and cash flow in addition to return to operator labor and management. This paper also differs from the others mentioned as it explicitly incorporates inflation into the analysis.

Objectives

The objectives of this study are:

1. To select beef cow-calf management systems consisting of varying levels of agronomic inputs and intensity of use, which are suitable for representative land resources typically available to small beef farms in the Northeast;
2. to access the economic viability of alternative beef cow-calf management systems;
3. to determine the sensitivity of after-tax income and cash flow to off-farm income level; and
4. to assess the long-term profit potential of the cow-calf enterprise considering current income and future capital gain income.

Method of Study

A representative farm with four alternative management systems is modeled using the economic engineering approach. The representative farm embodies the physical characteristics of the analysis: soil, typography, and buildings. The representative farm was specified as being out of production for several years. This is reflected in the \$75,000 purchase price and the required improvements to return to operation as a farm. A beginning family equity of \$35,000, presumably from the sale of a previous home, is used. The remainder of the necessary capital is borrowed.

The four management systems compared incorporate increasingly intensive land use. The internal farm characteristics such as machinery complement, crop acres, and number of cows are specified for each of the management systems. External farm characteristics incorporated through the use of

input costs and output prices are constant between management systems.

Costs and prices during 1980 were judged to represent relative levels expected over the 10 year planning horizon used. For calculation of annual profitability, prices are considered real prices and therefore a real interest rate is used. The nominal cost of capital used is 13 percent. The annual inflation rate used in the cash-based analyses is 10 percent. In the calculation of Return to Operator Labor and Management, a real interest rate of three percent is charged on operating and equity capital. For the calculation of the remainder of the measures of economic viability, inflation is explicitly included. The tax provisions of the Economic Recovery Act of 1981 are used in the analysis.

Six measures of profitability are used to evaluate economic viability and financial feasibility of a part-time cow-calf enterprise: Annual Net Cash Farm Income, Annual Return to Operator Labor and Management, Net Present Value of Change in After-Tax Income, Change in Net Worth, Annual Cash Flow, and Net Present Value of Investment Cash Flow.

An income statement, in real dollars, is prepared for each management system to determine the net cash farm income and return to operator's labor and management. Net cash farm income is cash farm receipts less all cash farm expenses except interest. As this measure indicates representative year incomes, interest expenses, which would be determined by the structure of the farm debt load, are not considered. Two producer opportunity costs, interest on operating capital and interest on investment are deducted when calculating return to operator labor and management. The return to operator's labor and management is the net cash farm income less depreciation, interest on operating expenses, interest on total assets and the opportunity cost of unpaid family labor.

Part-time cow-calf operators usually benefit from the tax shield

effects of farm deductions and tax credits offsetting off-farm income. The "change in after-tax income" is the difference between after-tax income of off-farm employment and the after-tax income of the off-farm employment with the beef enterprise. The analysis incorporates 1981 tax reforms including the adjustment of the tax brackets to the consumer price index. The present value of the change in after-tax income is determined for three off-farm taxable income levels, \$25,000, \$45,000, and \$65,000, to determine the sensitivity of investment potential to size of off-farm income. The net present value of the change in after tax income, calculated for each off-farm income level, is the value today of future tax dollars not paid.

An important benefit of investing in a farm business is the potential gain in owner's equity. This is especially important during times of inflation as capital investments, such as land and livestock, tend to appreciate with general price inflation. A given proportion of the investment in buildings and land improvements is considered "lost capital" as it does not add to the market value of the farm. Change in net worth is measured as the difference between beginning equity and ending equity after year 10 of the investment. In this analysis, all assets appreciate at 10 percent compounded annually. Land is valued at its purchase price plus 50 percent of improvement cash costs and the value of unpaid labor (remainder is lost capital). Buildings and fencing are depreciating and inflating simultaneously with 40 and 60 percent lost capital respectively (Conneman, 1980). Machinery is valued at the salvage value (10 percent of investment). Cows and bulls are valued at the cull price and heifer calves are valued at feeder calf market value.

Net present value of investment cash flow is the discounted operating after-tax cash flows for years one through 10 and the after-tax cash income from the liquidation of all assets in year 11. A 10 percent combined realty

fee and selling costs are deducted from the sale income. This component of investment analysis is important as it measures the potential cash yield of the long-term investment. One benefit of investment in a farm business is the conversion of ordinary income to capital gain income. Forty percent of capital gain income is federally taxable while 50 percent is taxed by New York State.¹

Financial feasibility, as measured by cash flow, is critical to the cow-calf enterprise. An annual cash flow for each of the first four investment years and years five to 10 is calculated for each off-farm income level. Tax savings is considered a cash input. The average cash flow in the start-up years (investment years one through four) indicates the magnitude of cash that can be expected to flow out of, or into, nonfarm family income and savings in (presumably) the worst years.

Representative Farm Characteristics

The representative farm has 150 acres of land with significant crop production limitations. Data from two studies at the Animal Science Teaching and Research Center in Harford, New York were used extensively in defining the land base (Abdulla, 1982; Seaney, 1981). The soil on the representative farm is assumed to be primarily Mardin with some Langford and Valusia. The land is primarily 16 to 25 percent slope.

Prior to any beef production, brush removal and clipping, and building renovation are required. The building renovation costs are based on conversion of a structurally sound dairy barn into a beef facility. The representative farm real estate characteristics and improvement costs necessary to convert the real estate purchased into a viable cow-calf facility are contained in Table 1. The brush removal and clipping cash costs are deducted

¹This analysis uses 1981 tax rules. New York State has subsequently changed the percentage of capital gains taxed to 40.

in each management system's income statement as machinery repair or gasoline, fuel and lubricant expense.

Livestock production is representative of above average management reflected by a 90 percent weaned calf crop and a 12 month calving interval. Winter rations are balanced for a spring calving herd. The weaned calves are supplemented with concentrates as needed to promote the growth necessary for a 24 month first freshening. Feed requirements and weaning weights are representative of British breed cattle. Feeder calves are sold at a weight of 450 pounds and 400 pounds for steers and heifers respectively. All calves are sold as feeders except heifers retained as replacements. Annual culling rate for the breeding herd is 15 percent. Bred cows are purchased in the first two investment years, after which time all replacements are heifers from the herd. A new herd sire is purchased every two years.

Used machinery prices are used as a base for equipment costs, as part-time cow-calf producers typically purchase used machinery. The machinery complements and investments for each system are specified in Appendix Table 1. Fencing costs are based on four strand barbed wire with a post every rod (16.5 feet) (Appendix Table 2). System I has an 130 acre perimeter fence. Systems II, III, and IV have the 130 acre perimeter fence divided into a 60 acre pasture and 70 acre hayfield/pasture.

The beginning equity available to the family is \$35,000. Tax liabilities are based on a couple filing jointly with four exemptions (i.e., themselves and two children) and claiming the standard deduction. "Taxable income" is the line 31 (Tax Form 1040) amount. Investment credit is carried forward only.

A 1980 base year is used to define external factors such as the product prices and input costs (Table 2). The 1980 cost/price relationships are considered to be reflective of the average year within the analysis time

Table 1. Representative Farm Real Estate Characteristics

INVESTMENT IN LAND AND BUILDINGS:

	<u>Total Purchase Price</u>	<u>Down payment</u>	<u>Mortgage Amount</u>
Farm Share	\$53,500	\$16,050	\$37,450
Home	<u>21,500</u>	<u>6,450</u>	<u>15,050</u>
Total	\$75,000	\$22,500	\$52,500

25 year 11% (FLB 5 year, 15% operating loan) Mortgage (farm)

	<u>Acres</u>	<u>\$/Acre</u>	<u>Investment</u>
Hayfield/Pasture	70	450	\$31,500
Pasture Only	60	250	15,000
Support Land	20	100	2,000
Farm Buildings	—	—	<u>5,000</u>
Total	150		\$53,500

IMPROVEMENT COSTS:

BRUSH REMOVAL AND CLIPPING

Cash Costs	\$1,980
Unpaid Labor ^a	<u>930</u>
Total	\$2,910

BUILDING RENOVATION

Gut Building	\$ 500
Concrete for Renovation	500
Handling Facilities	500
Water System	<u>300</u>
Total Cash Costs	\$1,800
Unpaid Labor	<u>440</u>
Total	\$2,240

Table 2. Product Prices and Input Costs, 1980.

Prices			Costs	
<u>Livestock</u>			<u>Purchased Feeds</u>	
	Live-weight \$/lb.	\$/hd.		\$
Feeder steer	.75	337.50	Hay (ton)	60.00
Feeder heifer	.65	260.00	Dry shell corn (ton)	125.00
Cull cow	.45	495.00	Soybean oil meal 48 (ton)	300.00
Cull bull	.55	990.00	Dical (cwt.)	25.00
			Limestone (cwt.)	5.00
			Trace mineral salt (cwt.)	7.50
<u>Crops Sold</u>			<u>Fertilizer and Lime</u>	
Hay (ton)		50.00	K ₂ O	\$.14/lb. 11.20/A
			P ₂ O ₅	.28/lb. 56/A
			Lime	\$28/ton 98/A
			<u>Seed</u>	
			Brome	\$1.33/lb. 7.65/A
			Birdsfoot trefoil	\$4.66/lb. 23.30/A
			<u>Fence</u>	
			80 rod roll barbed wire	30.00
			Locust post (ea.)	1.50
			<u>Labor</u>	
			Operator labor	6.00/hr.
			Hired labor	4.60/hr.
			Unpaid family labor	500/mo.

horizon.

Available capital and labor, rather than land, are typically limiting factors on part-time beef cow-calf farms. However, when there is a limited supply of land, agronomic improvements and management may impact the stocking rate and consequently gross revenue. Four alternative levels of capital inputs and land use intensity are considered in this analysis. The four management systems represent a range of land improvements and stocking rates, as follows:

<u>System</u>	<u>Description</u>
I	In System I there is no soil improvement. The 130 acres of open land is grazed with all hay and concentrate purchased. There is no rotational grazing in this system.
II	System II, like System I, has no soil improvement. However, 70 acres of native grass hay are mechanically harvested. Cattle are rotational grazed on permanent pasture and the hayfield regrowth after the hay is harvested.
III	In System III, the 70 acres of hay are limed and seeded in a seven year rotation. Fertilizer is applied as required by soil test every two years (Appendix Table 3). Soil is treated at recommended levels (Cornell Recommends, 1981). Species seeded is an equal mix of brome grass and birdsfoot trefoil. Fertilization rate is according to soil testing "low" in year one and "medium" in successive treatment years. All tillage, fertilization, and liming are custom hired. Pasture is unimproved. Pasture and hayfield are rotationally grazed as in System II.
IV	In System IV both the pasture and hayfield are improved to the same specifications as the hayfield in System III. Cattle are rotated between pasture and hayfield.

The Cow-Calf Unit Stocking Rates and Operating and Capital Expenditures

The number of cows, and therefore cow-calf units, is determined by calculating the number for which feed is available (carrying capacity). Carrying capacity of each system is determined by dividing total hay crop dry matter (DM) available by hay crop dry matter requirement per cow-calf unit.

Cow-calf hay crop requirements for a 1,100 pound cow are:

25# DM/day for 150 days - cow only

31# DM/day for 215 days - cow and calf

The dry matter quantity available in the pasture is 70 percent of harvested dry matter due to trampling and limited midsummer stand regrowth (Sceney, 1981). Dry hay is 90 percent dry matter with a 12 percent storage and feeding loss. Maximum number of days on pasture, considering Northeast climate, is 165 days (Table 3).

Table 3. Pasture and Harvested Hay Yields.

<u>Hay Crop</u>	<u>Yield¹</u>
Unimproved pasture (grazed)	1000 lbs. DM per acre
Improved pasture (grazed)	2500 lbs. DM per acre
Unimproved hayfield grazed after one cutting	420 lbs. DM per acre
Improved hayfield grazed after one cutting	845 lbs. DM per acre
Unimproved hayfield one cutting	1550 lbs. DM per acre
Improved hayfield one cutting	3100 lbs. DM per acre

¹Abdulla, 1982.

The carrying capacity of Management Systems I and II are calculated to be 19 and 20 cow-calf units respectively. Management System III carries 15 cow-calf units in the first year and 32 cow-calf units in subsequent years

following hayfield improvements. Management System IV does not stock any cows in the first year due to improvement of the entire land base. Forty cow-calf units are carried starting in year two of the investment (Table 4).

The carrying capacity of each management system is based only on the dry matter available from hay and pasture. The grain required depends upon the quality of the hay or pasture (Table 5). A microcomputer ration analyzer was utilized to determine concentrate requirements (Fox et al., 1981).

Corn, soybean oil meal and minerals are purchased in all management systems. Hay is purchased in Management System I only. Heifers in Systems I and II are supplemented with soybean oil meal as needed, because the native grass hay does not meet their protein requirement. Concentrate and mineral requirements for the two hay qualities are in Table 6. Feed costs include a storage and feeding loss of 12 percent for hay and five percent feeding loss for grain (Appendix Table 3).

Other cash expenses for the cow-calf enterprise include crop expenses, veterinarian care and medicine, marketing, machinery repair, fuel, oil and lube, hired labor, property taxes, insurance, and utilities. Soil improvement expenses include costs for seed, fertilizer, lime and custom machinery hired for application (Appendix Table 4). Veterinary expenses for a well managed herd under normal circumstances are on a per cow-calf unit basis (Appendix Table 5) (Davidson, 1981).

Marketing costs are composed of commercial transportation charges and commission fees. Marketing feeder calves costs \$11.80 per head and \$15.00 per head for cull cows and bulls. Costs are based on calf sale through a state feeder calf sale with a \$10.00 per head commission fee and a \$1.80 per head trucking charge (Green, 1980). The cull cattle are sold at the nearest market. Average marketing (1980) costs, as reported by Empire markets, was

Table 4. Characteristics of the Four Beef Cow-Calf Management Systems

Item	System I	System II	System III	System IV
Number of Cow-Calf Units	20	19	32	40
Hay Improvement	Hay purchased	Unimproved	Improved	Improved
Acres	0	70	70	70
Pasture Improvement	Unimproved	Unimproved	Unimproved	Improved
Acres	130	60	60	60
Harvested Hay Yield (tons/acre)	—	1.0	2.0	2.0
Protein Content Hay (%)	12	8	12	12
Purchased Hay (\$)	2,973	0	0	0
Purchased Concentrate (\$)	434	542	610	763
Investment in Machinery (\$)	6,000	12,800	18,800	18,800
Investment in Building Renovation and Fence (\$)	4,385	5,004	5,004	5,004
Hours of Hired Labor	0	122	244	244
Months of Unpaid Family Labor	5	7	10	12
Loans for Cattle & Equipment				
Year 1 (\$)	16,000	21,000	9,000	40,000
Year 2 (\$)	3,000	2,000	12,700	24,000

Table 5. Nutritional Value and Purchase Price of Available Feeds

	Purchase Price	Dry Matter %	NE _m 1/ Mcal/lb.	NE _g 2/ Mcal/lb.	Crude Protein %
Birdsfoot Trefoil/Brome Hay	\$60/ton	90	.45	.15	12
Native Grass Hay	—	90	.45	.13	8
Dry Shell Corn	\$125/ton	89	1.02	.67	10
Soybean Oil Meal (48% CP)	\$300/ton	90	.91	.60	54.8

1/Net energy available for maintenance.

2/Net energy available for gain.

Table 6. Beef Cattle Winter Feed Requirement.

Winter Feed Requirement (as fed)				
Animal	Days	Hay Lbs./Head Per Day	Corn Lbs./Head Per Day	SBOM Lbs./Head Per Day
(native grass hay)				
Pregnant Mature Cow	130	19	—	—
Lactating Mature Cow	70	27	—	—
Pregnant Two Year Old	130	19	—	1
Lactating Two Year Old	70	27	—	1
Open Heifer	200	10	5	1
Herdsire	200	30	—	—
Birdsfoot Trefoil/Brome Hay				
Pregnant Mature Cow	130	19	—	—
Lactating Mature Cow	70	27	—	—
Pregnant Two Year Old	130	19	—	—
Lactating Two Year Old	70	27	—	—
Open Heifer	200	10	5	—
Herdsire	200	30	—	—

Mineral Requirement

Breeding Season 33% Trace Mineral Salt
 67% Dical

Other 50% Trace Mineral Salt
 50% Dical

55 pounds minerals per cow and bull per year
 Total Cost \$9.20 per cow per year

\$7.00 per head for transportation and \$8.00 per head commission fees (Lesser, 1981).

Machinery repair, gasoline, fuel and lubrication expenses are calculated for each management system. Hours of use for each piece of machinery are estimated given the machine's field efficiency, speed and width. Annual repair costs are then calculated from the machinery hours logged and purchase price using ASEA standard repair curves (Campbell, 1978).

Cash outlays for hired labor for capital improvements are considered part of the cost associated with the improvement and are depreciated as such. Labor hired to harvest hay is an operating expense. System II hired \$560 of seasonal labor. Systems III and IV, harvesting twice as much hay, hired \$1,120 of seasonal labor.

Insurance, utilities and property taxes vary substantially from farm to farm. Insurance is 2.5 percent of the total value of the buildings. Cattle are not considered insured due to low collectable loss rate. Utilities are estimated at \$5.50 per cow-calf unit (Fox, 1981b). Property taxes, including town, county, fire and school taxes, are 1.85/thousand of assessed value (Tompkins County Appraisers Office, 1981). The 70 acres of hayfield are classified as soil group #6 and assessed at \$130 per acre¹. The remaining 80 acres are considered soil group #7 and assessed at \$110 per acre (Knoblauch and Milligan 1981a). Buildings and fence are assessed at current market value.

Capital expenditures for real estate purchase, land clearing and building improvement given in Table 1 are identical for each system. Livestock purchases, machinery complement and fencing expenditures are specified

¹Based on New York State Agricultural Use Value productivity class and 1980 use value.

for each system (Appendix Table 6).

Results

The four management systems are evaluated using six measures of the investment's economic viability and potential earnings: net cash farm income, return to labor and management, net present value of the change in after-tax income, change in net worth, the net present value of investment cash flow, and cash flow in the start-up years. The relative advantages and disadvantages of each system are compared using these measures.

The return to labor and management (ROLM) is negative for every year of the 10 year time horizon for each management system (Table 7 and Appendix Tables 7-10) and varies widely, from negative \$580 to negative \$30,000. All management systems have greater net cash farm and labor and management incomes in years 5-10 than in the first four years. The 10 year average return to labor and management is lowest in the system with the most intensive land use, System IV, primarily due to the high cost of the land improvement resulting in a much larger investment and a greater debt load.

Net present value of the change in after-tax income is the discounted difference in after tax income for the family with and without the cow-calf operation. Not unexpectedly, the net present value of the change in after-tax income is greater at higher off-farm income levels for each of the systems (Table 8). If the investor does not want to liquidate the farm's assets to recapture his or her investment, but wants to determine the investment potential based on the current value of after tax income, the after-tax NPV is the most meaningful measure. Using a positive return to indicate investment acceptability, System II is the only acceptable investment at the \$25,000 off-farm income level. Management Systems II and III are acceptable at the \$45,000 off-farm income level, with System II yielding the greatest payback. All management systems have a positive return at the \$65,000

Table 7. Summary of Income Statement for Four Beef Cow-Calf Management Systems^a

	Management System			
	I	II	III	IV
<u>Year 1</u>				
Net cash farm income	\$-2,212	\$ 194	\$-12,538	\$-24,366
Labor & mgmt. income	-5,160	-4,580	-18,132	-29,756
<u>Year 2</u>				
Net cash farm income	-10	1,573	2,744	3,855
Labor & mgmt. income	-4,118	-3,356	-3,394	-2,722
<u>Year 3</u>				
Net cash farm income	965	2,458	5,049	6,121
Labor & mgmt. income	-3,098	-2,930	-1,035	-584
<u>Year 4</u>				
Net cash farm income	-10	1,483	2,744	4,436
Labor & mgmt. income	-4,028	-3,362	-3,288	-2,183
<u>Years 5-10 Average</u>				
Receipts				
Feeder calves	\$4,598	\$4,368	\$ 7,356	\$ 9,195
Cull cattle	1,980	1,906	2,871	3,465
Total Farm Receipts	\$6,578	\$6,274	\$10,227	\$12,660
Expenses				
Purchased feed	\$ 3,611	\$ 542	\$ 610	\$ 763
Other operating	2,488	3,760	7,684	10,547
Net Cash Farm Income	478	1,971	1,932	1,350
Fixed Noncash Expenses ^b	3,891	4,715	5,847	6,169
Labor & mgmt. income	-3,413	-2,754	-3,915	-4,809

^a1980 price levels and a three percent real interest rate.

^bDepreciation (cost recovery) on building and fence, machinery and cattle, interest on investment and unpaid family labor.

Table 8. Impact of Four Beef Cow-Calf Management Systems on Family Financial Status

	Management System			
	I	II	III	IV
Net Present Value of Change In After Tax Income ^a				
\$25,000 ^b	\$-8,051	\$1,389	\$-10,189	\$-19,038
\$45,000 ^b	-16	8,354	5,668	-8,289
\$65,000 ^b	44,045	51,889	57,713	46,513
Change in Net Worth	86,080	86,759	105,590	116,389
Net Present Value of Investment Cash Flow ^c				
\$25,000 ^b	10,554	16,477	7,265	-1,935
\$45,000 ^b	12,350	18,419	17,569	8,998
\$65,000 ^b	77,839	83,899	85,955	84,601
Average Cash Flow, Years 1-4				
\$25,000 ^b	-3,946	-3,653	-9,675	-11,900
\$45,000 ^b	-3,115	-2,781	-5,287	-8,020
\$65,000 ^b	7,007	7,370	5,577	4,740

^aNet present value of change in after-tax income is the discounted differences between after-tax income with and without the cow-calf investment.

^bOff-farm taxable income.

^cNet present value of investment cash flow is the discounted cash flows from the farm business and the discounted after tax liquidation gain.

off-farm income level with System III having the greatest net present value of change in after-tax income.

As indicated by the results in Table 8, the change in net worth is one of the greatest benefits associated with the beef cow-calf investment. The increase in net worth, on the representative farm, varied from \$86,000 for System I, to \$116,000 for System IV. The increase in equity is greater for the management system with the greater level of capital investment. The increase in equity is attributable to two factors: 1) forced savings in the form of farm capital inputs and land improvements, and 2) inflation of farm capital assets. When assets inflate at 10 percent, compounded annually, the proportion of the increase in equity due to inflation varies from 75 to 81 percent (Table 9). A beginning and ending balance sheet for each of the management systems is in Appendix Tables 11-14.

Table 9. Change in Net Worth With and Without Inflation During 10 Year Planning Horizon

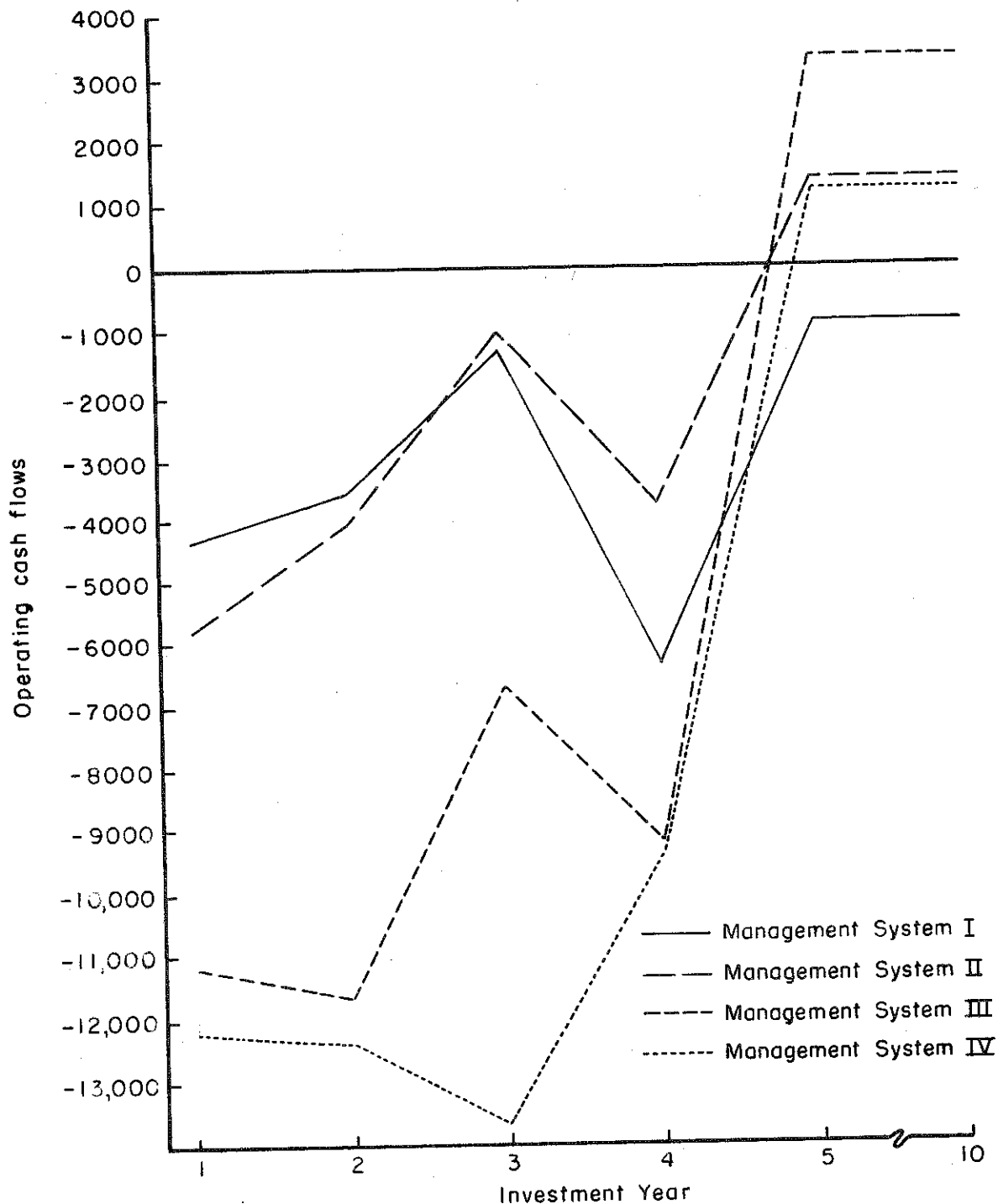
	Management System			
	I	II	III	IV
Change in Net Worth Without Inflation	\$16,350	\$16,638	\$24,624	\$29,204
Change in Net Worth With Inflation	\$86,080	\$86,759	\$105,590	\$116,389
Proportion of Change in Net Worth due to Inflation	81%	81%	77%	75%

A cash flow statement is prepared for each of the first four years of the investment to indicate financial feasibility during the start-up period. Tax savings from off-farm income are considered a cash input to the beef operation. At the \$25,000 and \$45,000 off-farm income levels, the beef operation must be supplemented \$3,000 to \$12,000 per year for the first four

years with cash from savings or from off-farm income (Table 8). The average start-up cash flow is positive for each of the management systems for the operator with a \$65,000 off-farm taxable income, due to tax savings which offset the beef operation's initial operating losses. Average cash flows in the investment years 5-10 were positive for all management systems if the off-farm income was \$65,000, and for Systems II, III, and IV if off-farm income was \$25,000 or \$45,000. The cash flows vary widely over the investment period, as indicated by Figures 1-3. Generally, the cash flow is negative in the first year, improves in the second year, drops during the third and fourth years, and improves during years 5-10. The reason for the third year drop in the cash flow is that investment credits for investments made in the first year have been depleted.

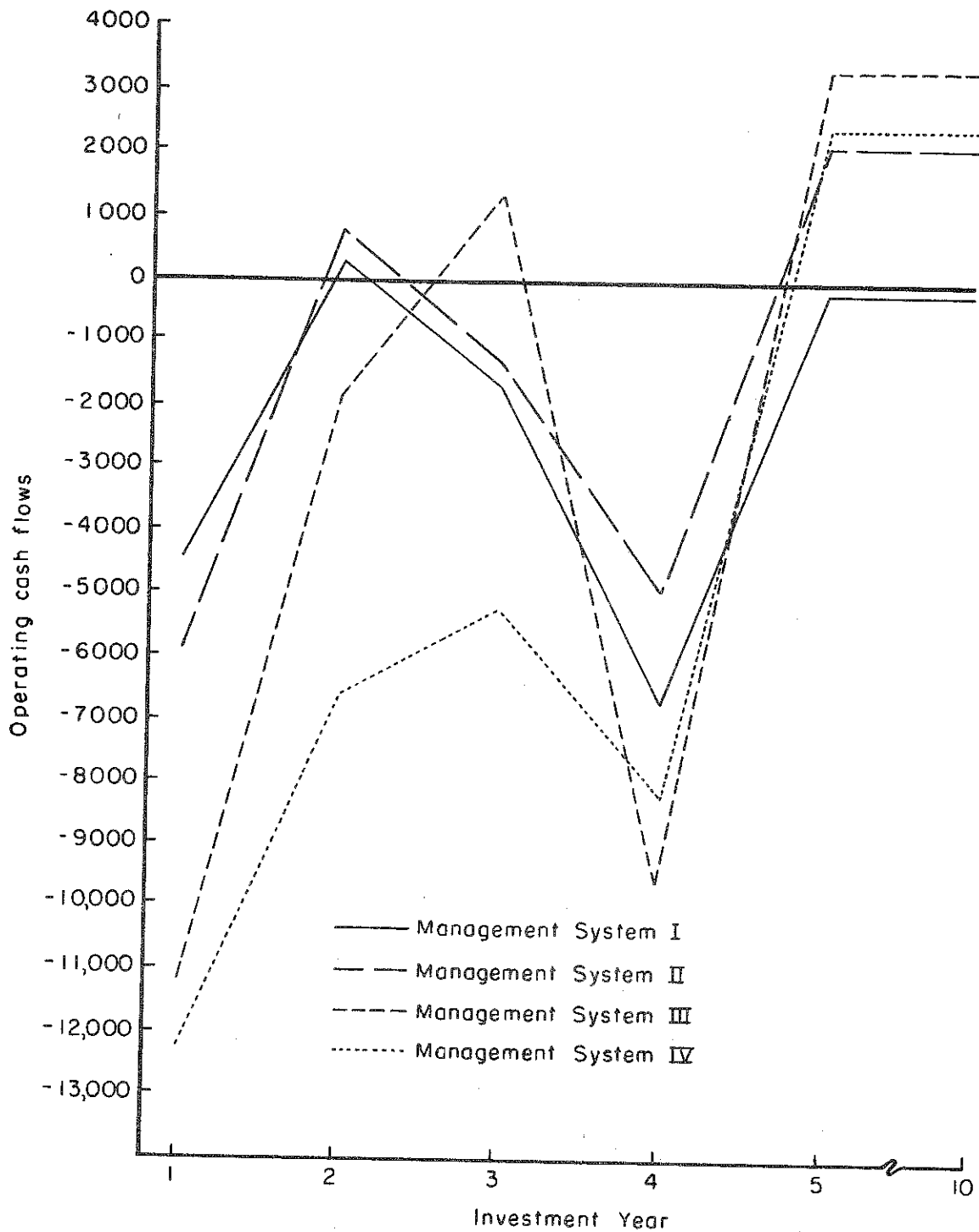
The use of change in net worth as a measure of investment potential does not consider an important benefit to the cow-calf investor: the conversion of ordinary income to capital gain income. The net present value of investment cash flow (Table 8) is the sum of discounted cash flows from the farm business years 1-10 and after-tax cash income from the liquidation of all assets in year 11. This analysis measures the potential cash yield of the long-term investment. Using a positive NPV investment cash yield as a criterion for acceptance or rejection of the investment, all systems are acceptable except System IV at the \$25,000 off-farm taxable income level. Since the NPV of all other management systems is positive, the after-tax income of the investment is profitable, as it will yield a return of more than the 13 percent discount rate. At the \$25,000 and \$45,000 off-farm taxable income levels, System II has the best payoff. At the \$65,000 off-farm income base, System III has the best payoff. These results indicate that a part-time cow-calf investment can provide a reasonable return when income tax and capital accumulations are included in the analysis.

FIGURE 1. ANNUAL CASH FLOWS OF FOUR COW-CALF MANAGEMENT SYSTEMS, INVESTMENT YEARS 1,2,3,4 AND 5 THROUGH 10 ^{a/}



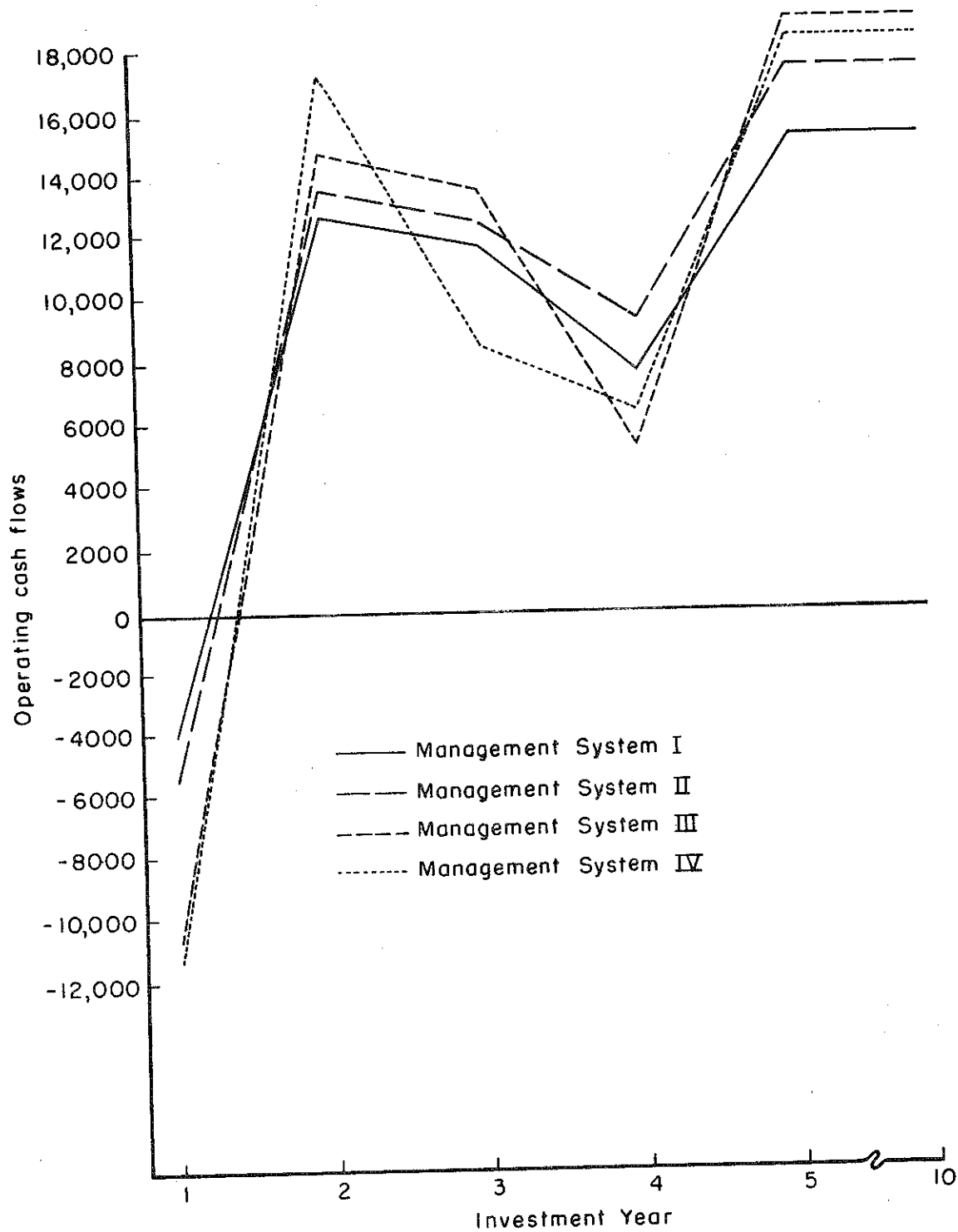
^{a/} 25,000 Off-farm taxable income

FIGURE 2. ANNUAL CASH FLOWS OF FOUR COW-CALF MANAGEMENT SYSTEMS, INVESTMENT YEARS 1, 2, 3, 4 AND 5 THROUGH 10 \mathcal{Q}



\mathcal{Q} /45,000 Off-farm taxable income

FIGURE 3. ANNUAL CASH FLOWS OF FOUR COW-CALF MANAGEMENT SYSTEMS, INVESTMENT YEARS 1,2,3,4 AND 5 THROUGH 10^{a/}



^{a/}65,000 Off-farm taxable income

Summary and Conclusions

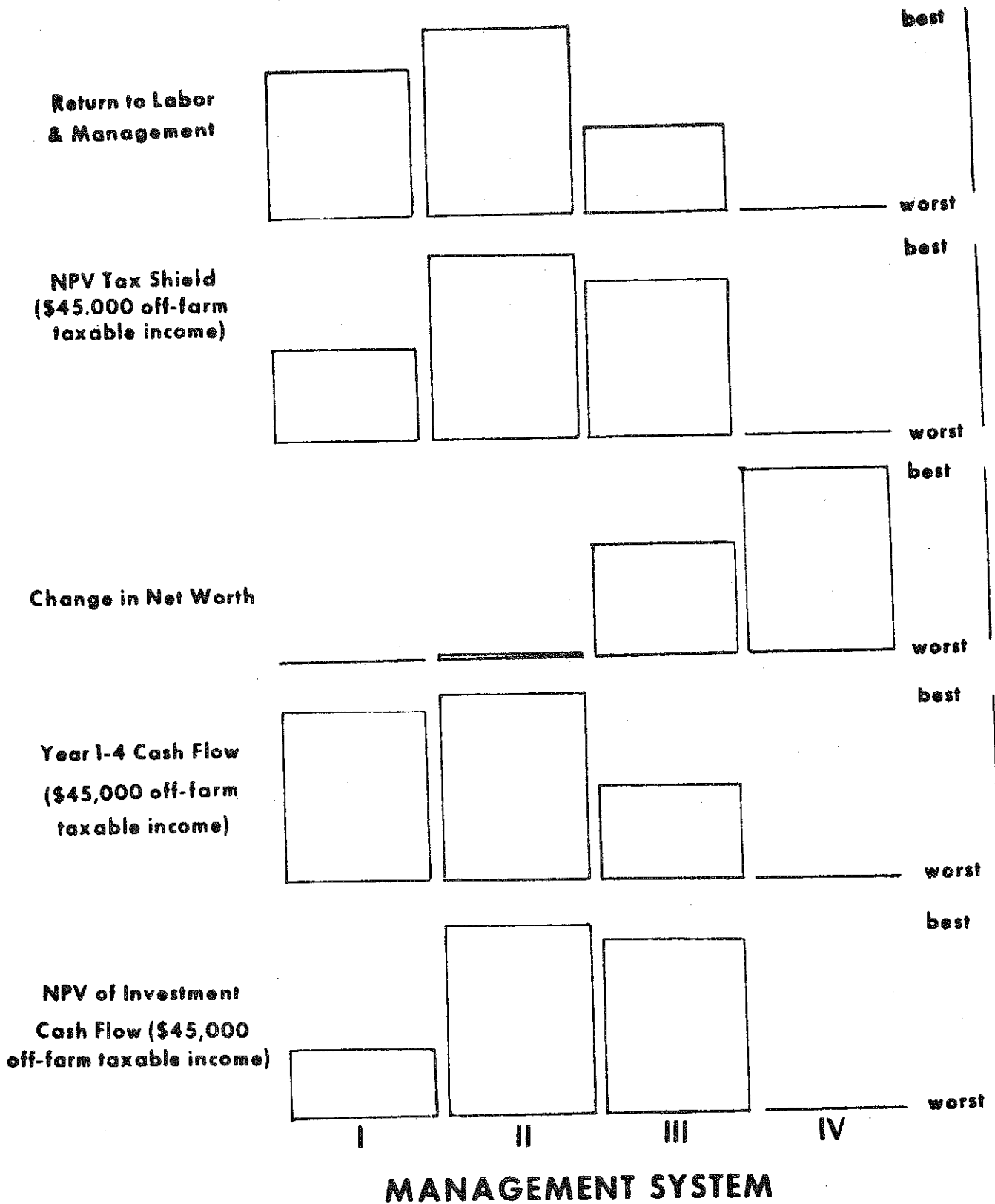
The least intensive management system, System I, is inferior to System II for the four measures of profitability used, at the three off-farm taxable income levels considered. Without a minimal investment in cropping equipment and other inputs, the utilization of the land resource is limited. Therefore, the level of agronomic, managerial and capital input, represented by System I, will not be considered further.

The most intensive management system, System IV, is inferior to Systems II or III for every measure of economic viability except change in net worth. The change in net worth is directly related to the amount of capital investment made to the farm. At lower off-farm income levels, System IV is impractical because of its relatively small return for the size of the investment. Unless off-farm taxable income is very large or increase in net worth is extremely important, System IV should not be selected.

At \$25,000 and \$45,000 off-farm taxable incomes, Management System II is superior to all other systems by all criteria except change in net worth (Figure 4). System II balances sufficient capital investments to take advantage of tax shields and avoid purchasing forage, with minimization of cash outlays for agronomic improvements. This is indicated by the relatively high NPV of the change in after tax income and the relatively low startup cash flow. Even with System II, additional preinvestment savings or short term capital may be required to cover negative cash flows in early investment years.

System III is more desirable at higher off-farm taxable income levels. If the investor has \$65,000 or more in off-farm income, System III offers the greatest net present value of change in after tax income and investment cash flow. However, an off-farm income of at least \$65,000 is needed to offset the negative cash flows in early years of the investment.

FIGURE 4. Relative Ranking of Four Management Systems with Alternative Measures of Economic Viability, \$45,000 Off-Farm Income.



The part-time beef cow-calf operation cannot be evaluated adequately using return to labor and management as the only measure of economic viability. Long-run after tax benefits and increase in net worth must also be analyzed to assess the investment potential of the part-time cow-calf business. Farm expense deductions, fuel and investment credits, and capital income may decrease the off-farm income tax liability.

The benefit of an off-farm tax shield may contribute to a cow-calf operation's economic viability but cannot overcome severe cash flow problems. The difference between the operator's after tax income with and without the farm, was favorable to the farm when the management system with the greatest net cash income was considered. The producer relying on the tax shield effects of the cow-calf enterprise must plan for later investment years when tax credits have been exhausted and some assets are fully depreciated.

A gain in net worth is one of the primary investment benefits of a farm business investment. Naturally the larger the capital investment, the greater the gain in net worth. However, desire for gain in equity must be tempered by attention to financial feasibility. As the capital input requirement increases, the start-up cash output also increases. Start-up cash flow is especially important at the lower off-farm income levels. Beginning cash flows (output) may be devastating to the producer investing beyond his or her means. Managing debt load is also important. The heavy debt load required by the more capital intensive systems cause a relatively large cash outflow. Further, the cow-calf investor must realize that the increase in net worth is not realized until the sale of the farm and other assets. Specialized facilities may contain a large amount of lost capital costs which will not be recovered upon sale.

As indicated by the investment cash flow NPV, when considering after-

tax cash flows, a part-time cow-calf operation can be an acceptable long term investment. However, the start-up cash flows and return to operator labor and management analyses suggest that capital inputs must be held to levels reasonable for the owner's off-farm income.

The degree of capital input into a cow-calf enterprise system depends on the resources and needs of the individual investor. This report presents some realistic methods to use when evaluating a part-time farm operation. Careful planning and good management are crucial to the success of the part-time farm operation. The investor must carefully balance capital improvements and cash available. Careful tax management must be practiced when establishing the investment and throughout the investment period. Facilities causing a minimal amount of lost capital will allow an increase in net worth to be realized.

The level of off-farm taxable income and the investment goals of the farm business cannot be adequately evaluated using traditional farm income measures. Measures that assess income tax effects on cash flows and profitability and balance sheet changes over time are more relevant to the part-time investor.

Appendix Table 1. Machinery Complement, Specified for Each Management System

Machinery ^a	Management System			
	I	II	III	IV
	----- 1980 dollars -----			
Used pick-up truck	2,000	2,000		
Used manure spreader		1,620	1,620	1,620
Used 40 hp tractor with front end scoop	4,000	4,000	4,000	4,000
Used mower-conditioner		1,980	1,980	1,980
Used baler		1,800	1,800	1,800
(2) used hay wagons		1,000	1,000	1,000
Used side delivery rake		400	400	400
Used 60 hp tractor			6,000	6,000
Total	\$6,000	\$12,800	\$18,800	\$18,800

^a Note tillage in Systems III and IV is custom hired.

Appendix Table 2. Fencing Components and Costs for Four Management Systems

System I - 130 acre Perimeter Fence

	<u>Cost</u>
	1980 Dollars
Materials	
(29) 80 rod rolls barbed wire	870.00
(577) locust posts	865.50
Gate, concrete	50.00
Hired labor	<u>889.00</u>
Cash Costs	2,674.50
Unpaid labor	<u>1,160.00</u>
Total	3,834.50

Systems II, III, and IV - 130 acre Perimeter Fence Divided into 60 and 70 Acre Plots

Materials	
(36) 80 rod rolls barbed wire	1,080
(720) locust posts	1,080
Gate, concrete	50
Hired labor	<u>1,104</u>
Cash Costs	3,314
Unpaid labor	<u>1,440</u>
Total	4,754

Appendix Table 3. Annual Feed Purchases for Each Year for the Four Management Systems

	Hay	SBOM	Corn	Minerals	Total
----- 1980 dollars -----					
<u>System I</u>					
Investment Year 1	2,972.75			184.00	3,156.75
Investment Years 2-10 (annually)	3,177.30		250.00	184.00	3,611.30

<u>System II</u>					
Investment Year 1				174.80	174.80
Investment Year 2		90	187.50	174.80	452.30
Investment Years 3-10		180	187.50	174.80	542.30

<u>System III</u>					
Investment Year 1				138.00	138.00
Investment Years 2-10 (annually)			315.80	294.40	610.20

<u>System IV</u>					
Investment Year 2				368.00	368.00
Investment Years 3-10 (annually)			394.75	368.00	762.75

Appendix Table 4. Seed, Fertilizer, and Custom Hire Required for Management Systems III and IV.

Inputs/Acre Systems III & IV	Year				
	1	2	3	4	5-10
Application Rate					
Seed - Brome (lbs.)	5				5 ^a
Birdsfoot Trefoil (lbs.)	5				5 ^a
Lime (tons)	2.8				2.8
P ₂ O ₅ (lbs.)	75	20		20	20 ^b
K ₂ O (lbs.)	60	60		60	60 ^b
----- 1980 dollars -----					
<u>Cost System III</u> <u>(70 acres treated)</u>	1	2	3	4	5-10 ^c
Seed	2,097				348
Lime	5,488				915
P ₂ O ₅	1,470	392		392	196
K ₂ O	588	588		588	294
Custom Hire	<u>1,750</u>	<u>350</u>		<u>350</u>	<u>875</u>
Total	11,393	1,330		1,330	2,629
Total per Acre	162.75	19.00		19.00	37.56
----- 1980 dollars -----					
<u>Cost System IV</u> <u>(140 acres treated)</u>	1	2	3	4	5-10
Seed	4,193				698.84
Lime	10,976				1,829.34
P ₂ O ₅	2,940	784		784	392.00
K ₂ O	1,176	1,176		1,176	588.00
Custom Hire	<u>3,500</u>	<u>700</u>		<u>700</u>	<u>1,750.00</u>
Total	22,785	2,660		2,660	5,258.18
Total per Acre	162.75	19.00		19.00	37.56

^a Seed and lime applied year 1 and 7.

^b Fertilizer applied years 1, 2, 4, 6, 8, and 10.

^c Years 5-10 average cost per year.

Appendix Table 5. Veterinary Expense per Cow-Calf Unit

Treatment	Annual Cost per Cow-Calf Unit
<u>Cow-Calf Veterinary Costs</u>	1980 dollars
Vitamin A & D	\$.25
Worming	3.50
Grubs and Lice	.40
PI ₃ and IBR	.30
Brucellosis	.68
Vibrosperosis	.75
Leptosperosis	.75
Drug Cost and Other	4.00
Pregnancy Check	<u>2.00</u>
Total	<u>\$12.63</u>

Appendix Table 6. Initial Cost, Useful Life, and Salvage Value for Capital Investment Items

System	Item	Useful Life ^a	Salvage Value %	1980 dollars					Years 5-10
				Year 1	Year 2	Year 3	Year 4		
I	Cows	7	82	12,000	1,800				
	Bull	2	82		1,200		1,200		600
	Machinery	10	10	4,000					
	Light Truck	5	10	2,000					333
	Buildings ^b	15	0	6,800					
	Fence	15	0	2,674					
II	Cows	7	82	11,400	1,710				
	Bull	2	82		1,200		1,200		600
	Machinery	10	10	10,800					
	Light Truck	5	10	2,000					333
	Buildings	15	0	6,800					
	Fence	15	0	3,314					
III	Cows	7	82	9,000	11,550				
	Bull	2	82		1,200		1,200		600
	Machinery	10	10	16,800					
	Light Truck	5	10	2,000					333
	Buildings	15	0	6,800					
	Fence	15	0	3,314					
IV	Cows	7	82		24,000	3,600			
	Bull	2	82			1,200			600
	Machinery	10	10	16,800					
	Light Truck	5	10	2,000					333
	Buildings	15	0	6,800					
	Fence	15	0	3,314					

^a Years of useful life and salvage value used for investment analysis.

^b Building cost includes purchase cost and improvement cash costs.

Appendix Table 7. Income Statement for Management System I for Years 1-10

	Year 1	Year 2	Year 3	Year 4	Years 5-10
----- 1980 dollars -----					
<u>RECEIPTS</u>					
Feeder calves	4,597.50	4,597.50	4,597.50	4,597.50	4,597.50
Cull cattle	<u>1,485.00</u>	<u>1,485.00</u>	<u>2,475.00</u>	<u>1,485.00</u>	<u>1,980.00</u>
Total Farm Receipts	6,082.50	6,082.50	7,072.50	6,082.50	6,577.50
<u>CASH EXPENSES</u>					
Feed purchases	3,156.75	3,611.30	3,611.30	3,611.30	3,611.30
Machinery repairs	923.00	223.00	223.00	223.00	223.00
Gasoline, fuel, lube (nonhighway)	1,240.40	40.40	40.40	40.40	40.40
Gasoline, fuel, lube (truck)	705.60	705.60	705.60	705.60	705.60
Veterinary	252.60	252.60	252.60	252.60	252.60
Marketing & trans.	222.00	222.00	237.00	222.00	229.50
Supplies & utilities	198.00	198.00	198.00	198.00	198.00
Building & fence repair		242.85	242.85	242.85	242.85
Insurance	170.00	170.00	170.00	170.00	170.00
Property taxes	426.40	426.40	426.40	426.40	426.40
Hired labor	0.00	0.00	0.00	0.00	0.00
Net Cash Farm Income	-1,212.25	-9.65	965.35	-9.65	477.85
Interest on Operating Capital	109.40	91.40	91.60	91.40	91.60
Depreciation					
Building & fence	631.65	631.65	631.65	631.65	631.65
Machinery	720.00	720.00	720.00	720.00	720.00
Cattle	300.00	405.00	360.00	315.00	187.50
Unpaid Family Labor	200.00	200.00	200.00	200.00	200.00
Interest on Assets	1,986.25	2,060.50	2,060.50	2,060.50	2,060.50
Return to Operator Labor & Management	-5,159.55	-4,118.20	-3,998.40	-4,028.20	-3,413.30

Appendix Table 8. Income Statement for Management System II for Years 1-10

	Year 1	Year 2	Year 3	Year 4	Years 5-10
----- 1980 dollars -----					
<u>RECEIPTS</u>					
Feeder calves	4,367.60	4,367.60	4,367.60	4,367.60	4,367.60
Cull cattle	<u>1,410.75</u>	<u>1,410.75</u>	<u>2,400.75</u>	<u>1,410.75</u>	<u>1,905.75</u>
Total Farm Receipts	5,778.35	5,778.35	6,768.35	5,778.35	6,273.35
<u>CASH EXPENSES</u>					
Feed purchases	174.80	452.30	542.30	542.30	542.30
Machinery repairs	1,424.00	724.00	724.00	724.00	724.00
Gasoline, fuel, lube (nonhighway)	1,563.60	363.60	363.60	363.60	363.60
Gasoline, fuel, lube (truck)	705.60	705.60	705.60	705.60	705.60
Veterinary	240.00	240.00	240.00	240.00	240.00
Marketing & trans.	210.90	210.90	225.90	210.90	218.40
Supplies & utilities	104.50	104.50	104.50	104.50	104.50
Building & fence repair		242.85	242.85	242.85	242.85
Insurance	170.00	170.00	170.00	170.00	170.00
Property taxes	431.15	431.15	431.15	431.15	431.15
Hired labor	560.00	560.00	560.00	560.00	560.00
Net Cash Farm Income	193.80	1,573.45	2,458.45	1,483.45	1,970.95
Interest on Operating Capital	83.80	63.10	64.65	64.40	64.55
Depreciation					
Building & fence	674.25	674.25	674.25	674.25	674.25
Machinery	1,332.00	1,332.00	1,332.00	1,332.00	1,332.00
Cattle	285.00	390.00	347.25	304.50	183.30
Unpaid Family Labor	300.00	300.00	300.00	300.00	300.00
Interest on Assets	2,098.45	2,170.45	2,170.45	2,170.45	2,170.45
Return to Operator Labor & Management	-4,579.70	-3,356.35	-2,430.15	-3,362.25	-2,753.60

Appendix Table 9. Income Statement for Management System III for Years 1-10

	Year 1	Year 2	Year 3	Year 4	Years 5-10
----- 1980 dollars -----					
<u>RECEIPTS</u>					
Feeder calves	3,292.10	7,356.00	7,356.00	7,356.00	7,356.00
Cull cattle	<u>1,113.75</u>	<u>2,376.00</u>	<u>3,366.00</u>	<u>2,376.00</u>	<u>2,871.00</u>
Total Farm Receipts	4,405.85	9,732.00	10,722.00	9,732.00	10,227.00
<u>CASH EXPENSES</u>					
Feed purchases	138.00	610.20	610.20	610.20	610.20
Seed	2,096.50				349.40
Fertilizer & lime	7,546.00	980.00		980.00	1,404.65
Machinery hire	1,750.00	350.00		350.00	875.00
Machinery repairs	1,439.40	892.40	892.40	892.40	892.40
Building & fence repair		242.85	242.85	242.85	242.85
Veterinary	189.45	404.15	404.15	404.15	404.15
Marketing & trans.	136.40	355.20	370.20	355.20	362.70
Gasoline, fuel & lube (nonhighway)	1,674.70	550.45	550.45	550.45	550.45
Gasoline, fuel & lube (truck)	705.60	705.60	705.60	705.60	705.60
Supplies & utilities	82.50	176.00	176.00	176.00	176.00
Insurance	170.00	170.00	170.00	170.00	170.00
Property taxes	431.15	431.15	431.15	431.15	431.15
Hired labor	560.00	1,120.00	1,120.00	1,120.00	1,120.00
Net Cash Farm Income	-12,538.05	2,744.00	5,049.00	2,744.00	1,932.45
Interest on Operating Capital	256.45	104.85	85.10	104.85	124.40
Depreciation					
Building & fence	674.25	674.25	674.25	674.25	674.25
Machinery	1,872.00	1,872.00	1,872.00	1,872.00	1,872.00
Cattle	225.00	585.00	513.00	441.00	237.00
Unpaid Family Labor	400.00	400.00	400.00	400.00	400.00
Interest on Assets	2,166.35	2,501.80	2,539.65	2,539.65	2,539.65
Return to Operator Labor & Management	-18,132.10	-3,393.90	-1,035.00	-3,287.75	-3,824.85

Appendix Table 10. Income Statement for Management System IV for Years 1-10

	Year 1	Year 2	Year 3	Year 4	Years 5-10
----- 1980 dollars -----					
<u>RECEIPTS</u>					
Feeder calves		9,195.00	9,195.00	9,195.00	9,195.00
Cull cattle		2,970.00	2,970.00	3,960.00	3,465.00
Hay	3,500.00				
Total Farm Receipts	3,500.00	12,165.00	12,165.00	13,155.00	12,660.00
<u>CASH EXPENSES</u>					
Feed purchases		368.00	762.75	762.75	762.75
Seed	4,193.00				698.85
Fertilizer & lime	15,092.00	1,960.00		1,960.00	2,809.30
Machinery hire	3,500.00	700.00		700.00	1,750.00
Machinery repairs	1,439.40	892.40	892.40	892.40	892.40
Building & fence repair		242.85	242.85	242.85	242.85
Veterinary		505.20	505.20	505.20	505.20
Marketing & trans.		444.00	444.00	459.00	451.50
Gasoline, fuel & lube (nonhighway)	1,674.70	550.45	550.45	550.45	550.45
Gasoline, fuel & lube (truck)	705.60	705.60	705.60	705.60	705.60
Supplies & utilities	100.00	220.00	220.00	220.00	200.00
Insurance	170.00	170.00	170.00	170.00	170.00
Property taxes	431.15	431.15	431.15	431.15	431.15
Hired labor	560.00	1,120.00	1,120.00	1,120.00	1,120.00
Net Cash Farm Income	-24,365.85	3,855.35	6,120.60	4,435.60	1,349.95
Interest on Operating Capital	418.00	124.60	90.65	130.80	169.65
Depreciation					
Building & fence	674.25	674.25	674.25	674.25	674.25
Machinery	1,872.00	1,872.00	1,872.00	1,872.00	1,872.00
Cattle		840.00	882.00	756.00	257.05
Unpaid Family Labor	500.00	500.00	500.00	500.00	500.00
Interest on Assets	1,926.05	2,566.85	2,685.65	2,685.65	2,685.65
Return to Operator Labor & Management	-29,756.15	-2,722.35	-583.95	-2,183.10	-4,808.65

Appendix Table 11. Beginning and Ending Balance Sheet for Representative Farm with Management System I

Balance Sheet, Year Zero			
<u>Assets</u>		<u>Liabilities</u>	
Beginning Equity	\$35,000		
Net Worth			\$35,000
Balance Sheet, Year Ten			
<u>Assets</u>		<u>Liabilities</u>	
Livestock		Farm Mortgage	\$31,977
Heifers	\$ 3,676		
Cows	23,325		
Bulls	2,332		
Machinery	1,410		
Fence	1,204		
Buildings	3,411		
Land	117,699		
Net Worth			\$121,080
Change in Net Worth			\$86,080

Appendix Table 12. Beginning and Ending Balance Sheet for Representative Farm with Management System II

Balance Sheet, Year Zero		
<u>Assets</u>		<u>Liabilities</u>
Beginning Equity	\$35,000	
Net Worth		\$35,000
Balance Sheet, Year Ten		
<u>Assets</u>		<u>Liabilities</u>
Livestock ¹		Farm Mortgage \$31,977
Heifers	\$ 3,626	
Cows	22,159	
Bulls	2,332	
Machinery ²	3,016	
Buildings ³	3,411	
Fence ⁴	1,493	
Land ⁵	117,699	
Net Worth		\$121,759
Change in Net Worth		\$86,759

¹ Bulls and cows sold at cull price; heifers sold at market price.

² Machinery sold at salvage value (10% of purchase cost).

³ Building price includes 50% lost capital.

⁴ Fence price includes 60% lost capital.

⁵ Land improvement price includes 50% lost capital.

Appendix Table 13. Beginning and Ending Balance Sheet for Representative Farm with Management System III

Balance Sheet, Year Zero		
<u>Assets</u>		<u>Liabilities</u>
Beginning Equity	\$35,000	
Net Worth		\$35,000
Balance Sheet, Year Ten		
<u>Assets</u>		<u>Liabilities</u>
Livestock ¹		Farm Mortgage
Heifers	\$ 5,881	\$31,977
Cows	37,321	
Bulls	2,333	
Machinery ²	4,429	
Buildings ³	3,411	
Fence ⁴	1,493	
Land ⁵	117,699	
Net Worth		\$140,590
Change in Net Worth		\$105,590

¹ Bulls and cows sold at cull price; heifers sold at market price.

² Machinery sold at salvage value (10% of purchase cost).

³ Building price includes 50% lost capital.

⁴ Fence price includes 60% lost capital.

⁵ Land improvement price includes 50% lost capital.

Appendix Table 14. Beginning and Ending Balance Sheet for Representative Farm with Management System IV.

<u>Balance Sheet, Year Zero</u>		
<u>Assets</u>		<u>Liabilities</u>
Beginning Equity	\$35,000	
Net Worth		\$35,000
<u>Balance Sheet, Year Ten</u>		
<u>Assets</u>		<u>Liabilities</u>
Livestock ¹		Farm Mortgage \$31,977
Heifers	\$ 7,351	
Cows	46,651	
Bulls	2,332	
Machinery ²	4,429	
Buildings ³	3,411	
Fence ⁴	1,493	
Land ⁵	117,699	
Net Worth		\$151,389
Change in Net Worth		\$116,389

¹ Bulls and cows sold at cull price; heifers sold at market price.

² Machinery sold at salvage value (10% of purchase cost).

³ Building price includes 50% lost capital.

⁴ Fence price includes 60% lost capital.

⁵ Land improvement price includes 50% lost capital.

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