

# Effects of Interest Rates and Equity Levels on Survival of a Typical Southwest Missouri Dairy Farm

University of Missouri-Columbia Department of Agricultural Economics  
SR240

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EFFECTS OF INTEREST RATES AND EQUITY LEVELS  
ON SURVIVAL OF A TYPICAL SOUTHWEST  
MISSOURI DAIRY FARM

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INTRODUCTION

In recent years, inflation has resulted in increased costs for land, machinery, as well as other factors of agricultural production. As a result, many farmers are borrowing increasingly more capital in order to maintain a farming business that pays debts and provides adequate income for family-living expenses. For a number of farm operators, this has resulted in a relatively higher percentage of total capital in borrowed funds. This in turn increases the risk of not being able to meet principal and interest payments. While farmers increase their level of debt, their probability of becoming insolvent may also be increasing. Their business may be growing faster than that level which retained earnings will support. At the same time, fluctuations in production costs, primarily feed costs, have increased the variability of production costs for dairy farmers.

Depending upon the interest rates the level of equity, varying degrees of debt repayment problems may arise as a result of these fluctuations in returns above variable allocated costs. Principal and interest payments are cash expenses and thus often pose serious problems for a dairy farm cash flow. Rising interest rates simply compound the problem.

The focus of this research is on a typical southwest Missouri Dairy farm. Southwest Missouri was selected because two-thirds of Missouri's dairy farmers are located in the southwest quarter of the state.[1] Relative results of this study apply to dairy farms in general with the more direct results being applicable to southwest Missouri dairy farmers.

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<sup>1</sup>Whitted, S.F., Unpublished Data, Department of Agricultural Economics, U.M.C. Grade A-Market Administrator Reports, Certified Mfg.-Missouri Department of Agriculture.

## OBJECTIVES

The major objectives of this study are

1. To determine the effects of equity levels on the debt-servicing ability of a typical southwest Missouri dairy farm.
2. To determine the effects of interest rates on survival capabilities of a typical southwest Missouri dairy farm.[2]

## DESCRIPTION OF MODEL

A typical dairy farm in Southwest Missouri was selected for this study. Effects of interest rates and equity levels on debt-repayment ability and survival of the business were then simulated over the ten-year period from 1967 to 1976. For this study, all farm assets were assumed to be purchased new in 1967 at the beginning of the simulation period.

## DESCRIPTION OF ASSETS

In 1967, the typical southwest Missouri dairy farm had 60 cows in the milking herd, valued at \$300 each, and was operated by a family of four, who along with a hired seasonal worker, supplied all the labor. Average milk production was 11,000 pounds per cow annually, with 30 percent of the cows being replaced annually. Growth in herd size was based on annual herd-size average of the Missouri Mail-In-Record (MIR) dairy enterprises. Assets in the farming operation in 1967 were valued at \$147,750. A detailed asset breakdown is presented in Appendix Table 1.

There were 255 acres in the farm valued at \$47,430. The total value of machinery in 1967 was \$28,680. [3,4] Equipment available was adequate to carry out the cropping practices and livestock feeding needs, and was valued at \$9,825.

Dairy cow and replacement stock nutritional requirements were based on those suggested in the 1975 Missouri Farm Planning Handbook. [5] Acres devoted to silage, pasture, and hay were based on cow numbers and per-unit feed requirements and verified through comparison with the Missouri

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<sup>2</sup>For purposes of this study, survival will refer to the dairy farms' ability to pay total debts and expenses during the 1967 to 1976 time period.

<sup>3</sup>"Missouri Farm Facts," Missouri Crop and Livestock Reporting Service, MSDA, USDA Cooperating, April 1971.

<sup>4</sup>Bebermeyer, P.H., "Farm Business Planning Guide for Organization", FM 6500, University of Missouri-Columbia, College of Agriculture, October 1965.

<sup>5</sup>"Missouri Farm Planning Handbook", FM 7530, UMC, College of Agriculture Extension Division (June 1975).

Mail-In-Record program (MIR).[6] It was also assumed that all feed produced on the farm was consumed on the farm.

Since all crops grown on the farm were fed to the dairy herd, variable costs for the respective levels of crops produced were included as variable costs per dairy cow unit.[7] Annual variable costs per dairy cow unit were taken from the annual Farm Management Dairy Newsletters, 1969 through 1975. (Table 1) [8]. Annual milk prices as shown in Table 1 were annual averages of the Federal St. Louis-Ozarks order minimum class 1 blend prices for 3.5 percent butterfat milk as reported in the USDA Federal Milk Order Statistics.

## THE SIMULATION MODEL

Through the use of a computerized transition program, the dairy farm business was simulated over the ten-year period using eleven different equity levels, ranging from 100 percent to 0 percent equity in multiples of ten.[9] For each equity level, four different combinations of current, intermediate, and long-term interest rates were also used. These four respective current, intermediate, and long-term rate levels were 11, 10.5, and 10 percent; 9, 8.5, and 8 percent; 7, 6.5, and 6 percent; 5, 4.5, and 4 percent. Loan lengths for current, intermediate and long-term loans were one year or less, one to ten years, and ten or more years respectively.

Due to an absence of a clear internal structure of current, intermediate and long-term debt for southwest Missouri dairy farms an equal percentage distribution of debt was assumed. For example, with 80 percent debt, 80 percent of each of the asset values for each asset type was assumed to be borrowed. Table 2 presents the equity, liability, and principal payment data for the selected equity levels in 1967. Current debts are assumed to be paid off each year. If cash is not available to service these debts, they are refinanced in the form of current debt for the following year.

The transition plan was originally developed by Bogle and Workman as a tool to be used in analyzing how to best adjust a farming operation over time.[10] It is a computerized decision making aid that simulates expected outcomes for prespecified actions. Farm managers operate in an

<sup>6</sup>University of Missouri, Mail-In-Records Program, Dairy Enterprise Data.

<sup>7</sup>A dairy cow unit includes the cow and her replacements.

<sup>8</sup>Wiggins, E.R., Extension Farm Management Dairy Newsletter, UMC, College of Agriculture.

<sup>9</sup>Workman, H.E., Farm Business and Financial Management Transition Planning, UMC, Agricultural Economics Department, (1975, rev. 1977).

<sup>10</sup>Bogle, T. Roy, "Farm Investment Analysis--Hand Calculated Comparative Budgeting and Computerized Five-Year Transitional Budgeting" Unpublished Ph.D. dissertation, University of Missouri.

Table 1

PRODUCTION WEIGHTS AND PRICES OF CALVES, CULL COWS, MILK  
AND VARIABLE COSTS PER COW UNIT FOR A TYPICAL  
SOUTHWEST MISSOURI DAIRY FARM (1967-1976)

Year	Number Dairy Cows	<u>Calves</u>		<u>Cull Cows</u>		<u>Milk Prod.</u>		Variable Cost Per Cow Unit***	Returns Above Variable Costs/ Cow Unit	Gross Returns Per Cow Unit
		Prod. cwt.*	Price/ cwt.	Prod. cwt.*	Price/ cwt.	Prod. cwt.	Price/ cwt.**			
1967	60	.80	\$25.97	3.15	\$23.76	110.0	\$4.94	\$386.90	\$252.12	\$639.02
1968	60	.83	27.40	3.30	24.63	112.5	5.19	396.13	291.77	687.90
1969	60	.95	30.91	3.30	27.25	115.0	5.50	414.34	337.45	751.79
1970	60	.94	37.73	3.20	25.79	117.5	5.69	488.12	298.45	786.57
1971	60	1.20	35.45	3.39	23.03	120.0	5.80	502.45	314.19	816.61
1972	61	1.46	41.34	3.28	30.34	122.5	5.99	549.22	344.44	893.66
1973	66	1.10	55.10	4.22	36.97	125.0	6.96	677.80	408.82	1086.62
1974	67	1.04	37.43	3.34	31.79	127.5	8.10	858.96	318.90	1117.86
1975	71	1.44	26.81	3.11	26.42	130.0	8.40	854.87	357.90	1212.77
1976	71	1.24	29.89	3.14	26.57	132.5	9.58	957.79	432.05	1389.84

\*Production cwt. of calves and cull cows is given as the production per dairy cow. This is computed by multiplying the average selling weight by the average number sold and dividing by the number of dairy cows.

\*\*Annual milk prices are January to December averages of the Federal-St. Louis-Ozarks Order minimum Class I blend prices received for milk with 3.5 percent butterfat. Prices were reported by the USDA Federal Milk Order Statistics.

\*\*\*A dairy cow unit includes the cow and her replacement.

Table 2

EQUITY, LIABILITY AND PRINCIPAL PAYMENTS FOR CURRENT, INTERMEDIATE,  
AND LONG TERM ASSETS FOR A TYPICAL SOUTHWEST MISSOURI  
DAIRY FARM UNDER SELECTED EQUITY SITUATIONS. (1967)

Percent Equity	Current Assets		Intermediate			Long Term			Percent Leverage
	Equity	Liabilities	Equity	Liabilities	Principal Payments	Equity	Liabilities	Principal Payments	
100%	\$36,060	\$ 0	\$38,505	\$ 0	\$ 0	\$69,185	\$ 0	\$ 0	0%
90%	32,454	3,606	34,654	3,850	428	62,267	6,918	346	10%
80%	28,848	7,212	30,804	7,701	855	55,348	13,837	692	20%
70%	25,242	10,081	26,953	11,551	1283	48,430	20,755	1037	30%
60%	21,636	14,424	23,103	15,402	1711	41,511	27,674	1383	40%
50%	18,000	18,030	19,252	19,252	2139	34,592	34,592	1729	50%
40%	14,242	21,636	15,402	23,103	2567	27,674	41,511	2075	60%
30%	10,081	25,424	11,551	26,953	2994	20,755	48,430	2421	70%
20%	7,212	28,848	7,701	30,804	3422	13,837	55,348	2767	80%
10%	3,606	32,454	3,850	34,654	3850	6,918	62,267	3113	90%
0%	0	36,060	0	38,505	4278	0	69,185	3459	100%

environment of uncertainty consisting of both biological and market forces. Therefore, a prudent farm manager would want to know expected outcomes under various assumptions. The farm manager in essence would be asking numerous "what if" questions when analyzing the feasibility of changes in the farm-firm operations. For the simulation to be successful, projections of year-by-year farm and financial changes are needed. These changes would include such items as new capital investments, changes in the cropping and/or livestock plans, or possibly bringing a partner (son or daughter) into the farming operation.[11]

Information needed for the model is quite similar to the information needed for most budgeting procedures and can best be obtained from sources such as farm records, enterprise budgets, extension specialists and area farmers. This information includes the beginning balance sheet, costs and return data for enterprises, family living expenses, and cash production costs not allocated to enterprise budgets such as cash rent and hired labor. Undistributed cost allocations are shown in Appendix Table 2. Capital investment information needed is asset cost, property tax rate, years of life, insurance rate, repairs, loan length and interest rate. Examples of the simulation input forms are presented in Appendix Tables 3-7.

Given the above input information, the transition model provides a year-by-year summary including a projected profit and loss statement, a profitability analysis, a debt-servicing ability analysis, a payback analysis, a balance sheet along with selected ratios and a flow of funds summary.[12] Examples of the output information are presented in Appendix Tables 8-12.

The profit and loss statement accounts for the expected receipt and expense items while estimating expected net farm profit before taxes. The tax calculations account for both non-farm and farm income in computing federal and state income and FICA taxes. Income taxes are paid the current business year and are based on earnings for the previous business year. With minor revisions in the computer subroutine, tax routines particular to specific states could be included.

The profitability analysis measures such factors as return on farm investment, return to labor and management and rate earned on investment and net worth. Debt-servicing ability information provides an annual cash flow summary along with comparative information such as net cash income, current debt commitments and cash available for alternative uses after servicing of present-year debts. The payback analysis calculates the expected number of years needed to repay intermediate and long-term debt under current profitability levels.

Balance sheet information is divided into the typical asset, liability and net worth categories. The flow of funds summary compares the annual source of dollars to the annual use of dollars.

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<sup>11</sup>The simulation model is presently being used by Extension in Missouri and Kansas for evaluating farm management decisions, such as expansion, major farm adjustments and other planning decisions.

<sup>12</sup>Workman, Herman E., "Computer Transition Planning Results" TR 75-6, Department of Agricultural Economics, University of Missouri, (1975).

To compare study results, the analysis was based on net farm profits, changes in net worth including land appreciation, and cash available for alternative uses after servicing of total farm debt.

## EMPIRICAL APPLICATION

To evaluate model results, a typical southwest Missouri dairy farm is used. The question evaluated in this analysis concerns the impacts of interest rates and equity levels on dairy-farm debt-repayment capacity. The analyses and comparisons are based on overall profitability, change in net worth, and debt-servicing ability of the farm over the ten-year period 1967-1976. For purposes of illustration, farm size is held constant over the ten-year period. Profitability is measured by net farm profits before taxes, while debt-servicing ability is analyzed by examining the annual cash available for alternative uses.<sup>[13]</sup> Net worth values inclusive of land value increases are used to measure the increase or decrease in value of debt-free capital over the ten-year period.

### NET FARM PROFIT BEFORE TAXES

The model can provide a quick and efficient view of impacts of varying interest rate levels and equity levels on annual net farm-profits before taxes as shown in Table 3. For the ten year period a year-by-year summary of these results appear in Appendix Tables 13-16. Discounted net profits before taxes are presented in Table 4. The overall impacts of interest rates on net profit before taxes can be seen by comparing the higher interest rates with the lower interest rates for selected equity levels. For impacts of varying equity levels (leverage level), comparisons of selected interest rate columns in Table 3 can be made.

As equity levels declined, profit levels before taxes became more sensitive to changing interest rates (Table 5). By increasing the leverage level in the dairy farm business, the annual net farm profits before taxes decreased at an increasing rate. For example, at the 6, 6.5, and 7 percent respective long, intermediate and short term interest rate levels, the difference in net profit before tax was \$4,719 between 100 and 90 percent equity (Table 5); \$12,763 between 60 and 50 percent equity; and \$12,987 between the 10 and 0 percent equity levels. It is important to note that this change did not occur at the constant linear rate. There were critical zones for each interest and equity level combinations. For equity levels above or below these zones changes did occur in a near linear and constant fashion. For financial decisions, it is important to know the proximity of that critical point. Cash flow problems can be expected at this point, if not before.

Thus, both equity levels and interest rates have substantial impacts on the level of net farm profits before taxes. However, Table 5 points out that interest levels have a larger influence than does the equity level.

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<sup>13</sup> Annual cash available for alternative uses indicates if adequate income is available to meet debt commitments. A positive value indicates funds are remaining after meeting debt payments and family living expenses. Assumed family living expenses are shown in Appendix Table 2.

Table 3

NET FARM PROFIT BEFORE TAXES FOR A TYPICAL SOUTHWEST  
MISSOURI DAIRY FARM UNDER VARIOUS EQUITY LEVELS  
AND INTEREST RATES (1967 TO 1976)\*

Percent Equity	Interest Rates (Percent)			
	High 10, 10.5, 11 <sup>a/</sup>	8, 8.5, 9 <sup>a/</sup>	6, 6.5, 7 <sup>a/</sup>	Low 4, 4.5, 5 <sup>a/</sup>
100	\$ 83,771	\$ 90,090	\$96,409	\$102,727
90	75,993	83,341	91,690	99,537
80	66,937	77,440	86,905	96,339
70	53,776	70,136	91,759	92,958
60	27,226	52,010	72,484	88,598
50	1,921	33,431	59,721	81,441
40	-26,384	14,794	47,834	73,386
30	-48,691	-3,952	33,850	65,289
20	-73,993	-22,476	20,866	56,141
10	-99,310	-41,112	7,879	48,959
0	-124,607	-43,776	-5,107	40,751

\* Net farm profit before taxes, is cash farm income minus cash expenses and depreciation plus or minus inventory change.

<sup>a/</sup> Interest rates are long term, intermediate and current respectively.



Table 4

DISCOUNTED TOTAL NET FARM PROFITS FOR A TYPICAL  
SOUTHWEST MISSOURI DAIRY FARM UNDER VARIOUS  
EQUITY LEVELS AND INTEREST RATES (1967-1976)\*

Percent Equity	Interest Rates			
	10, 10.5, 11%	8, 8.5, 9%	6, 6.5, 7%	4, 4.5, 5%
100	\$50,056	\$58,751	\$68,375	\$81,747
90	44,783	58,329	65,478	78,963
80	39,281	49,530	61,724	76,379
70	30,464	44,161	57,660	73,506
60	15,437	32,480	50,679	69,738
50	1,128	20,692	41,585	63,941
40	9,585	8,873	32,510	57,510
30	-27,491	-3,038	23,182	45,923
20	-42,380	-14,761	13,951	39,994
10	-56,109	-26,579	4,718	38,029
0	-70,419	-28,924	-4,493	31,488

\* Discount rates of 4%, 6%, 8%, and 10% are used with respective current, intermediate and long term interest rate levels of 4, 4.5, and 5%; 6, 6.5, and 7%; 8, 8.5, and 9%; 10, 10.5 and 11%.

Table 5

DECREASES IN ANNUAL NET FARM PROFIT BEFORE TAXES FOR A  
TYPICAL SOUTHWEST MISSOURI DAIRY FARM DO TO CHANGING  
EQUITY LEVELS AND/OR INTEREST RATES (1967-1976)..

Percent Equity		Interest Rate Level (Percent)			
From	To	10, 10.5, 11 <sup>a/</sup>	8, 8.5, 9 <sup>a/</sup>	6, 6.5, 7 <sup>a/</sup>	4, 4.5, 5 <sup>a/</sup>
90	100	\$ 7,778	\$ 6,246	\$ 4,719	\$ 3,190
80	90	8,056	6,401	4,785	3,198
70	80	14,161	7,304	5,146	3,381
60	70	26,550	18,126	9,275	4,360
50	60	25,305	18,579	12,763	7,157
40	50	24,305	18,637	12,887	8,055
30	40	26,307	18,746	12,984	8,097
20	30	25,302	18,524	12,984	8,102
10	20	25,308	18,636	12,987	8,104
0	10	25,306	18,636	12,986	8,108

<sup>a/</sup> Interest rates are long term, intermediate and current, respectively.

## NET WORTH

Net worth was used to measure growth of debt-free capital assets over the ten-year period. Growth in capital assets included inflationary increases in land value. Annual and total increases in net worth due to land appreciation are as follows:

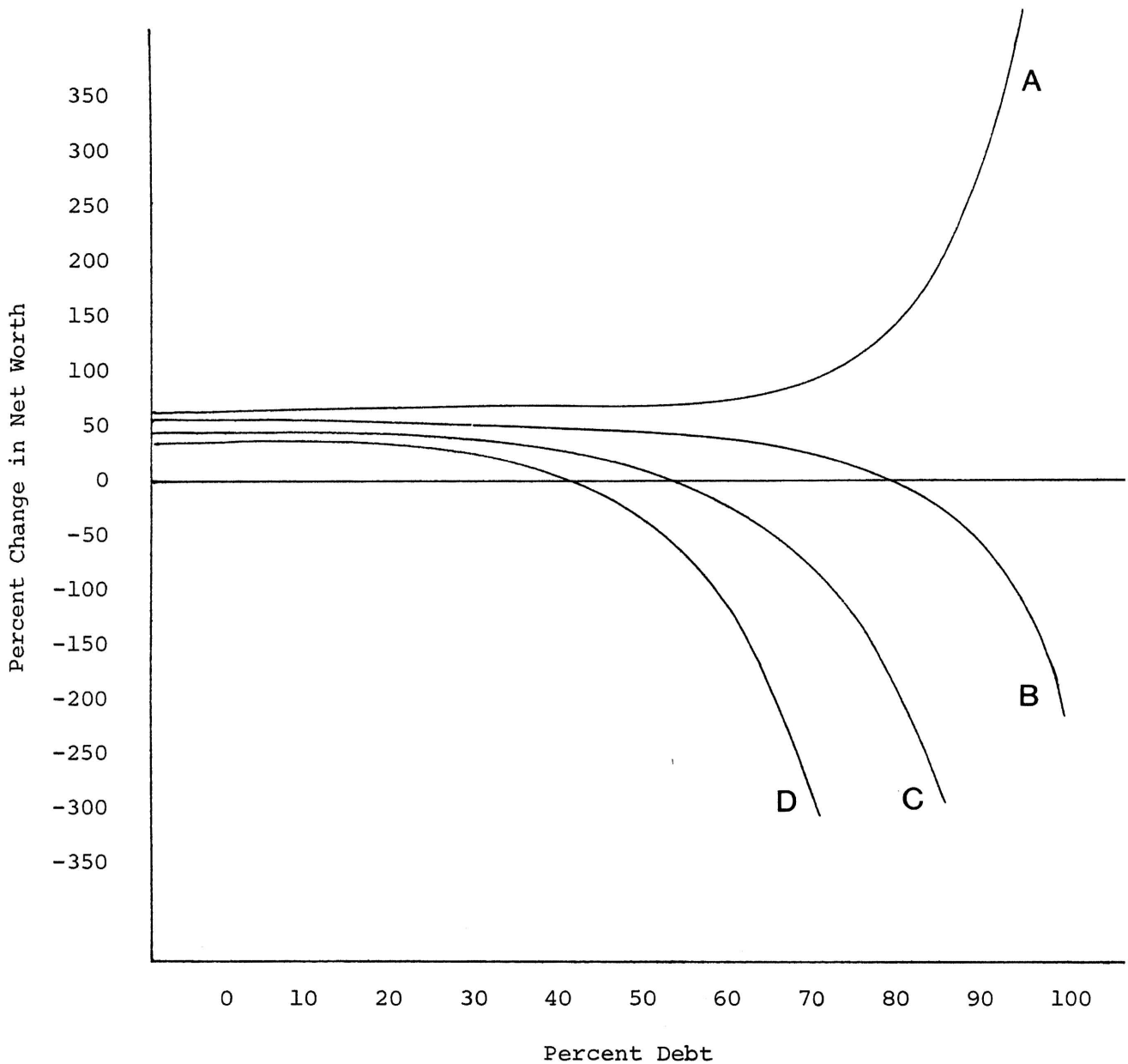
\$ 3,570 in 1968	
4,355 in 1969	
1,785 in 1970	
3,060 in 1971	
5,865 in 1972	
7,650 in 1973	
21,675 in 1974	
5,100 in 1975	
9,945 in 1976	
<hr/>	
\$62,935 in Total	

As shown in Figure 1, changes in net worth under each equity level and interest rate can be mapped out. A tabular presentation of the results are presented in Tables 6 and 7. Annual net worth summaries are presented in Appendix Tables 17-20. Figure 1 points out vividly that if the rate of return on borrowed funds (marginal value product) is less than the cost of borrowed funds (marginal factor cost), the change in net worth is increasingly negative as leverage increases (lines B, C, D in Figure 1). Likewise, the reverse is true if the rate of return on borrowed funds is greater than the cost of those funds (line A). In addition, observations for beginning farm size and growth overtime, under specified equity levels, can be obtained from Figure 1. Most farmers are operating under a fixed supply of equity dollars and have a number of choices on how much to leverage that equity. Figure 1 can provide some beginning equity level boundaries and then additional plans within those boundaries can be evaluated. Farmers can then decide which plan best meets their goals.

The difference in net worth growth due to increasing interest rate increased as equity levels decreased. For example, with the 100 percent equity level, the percentage growth in net worth over the ten-year period was 47.6 percent and 59.4 percent respectively for the highest and lowest interest rates (Table 6). This represents an absolute increase of 11.8 percent in net worth growth due to lowering the interest rates. At the 80 and 60 percent equity levels, these differences in net worth growth due to lowering interest rates from the high to low levels were 23.7 percent and 63.9 percent respectively. Table 6 also shows the impact of interest rates on percentage growth in net worth. When interest rates were relatively low percent growth in net worth increased at an increasing rate. However, the 6, 6.5, and 7 percent interest rate column shows that as interest rates increased it became vital to watch the leverage levels.

By examining the change column in Table 7, it can be determined if the increase in net worth was due solely to inflationary gains (appreciation)

Figure 1 - PERCENTAGE CHANGE IN NET WORTH UNDER VARYING INTEREST RATE AND EQUITY LEVELS FOR A TYPICAL SOUTHWEST MISSOURI DAIRY FARM (1967-1976)



- A Respective current, intermediate and long term interest rates are 5, 4.5 and 4 percent.
- B Respective current, intermediate and long term interest rates are 7, 6.5 and 6 percent.
- C Respective current, intermediate and long term interest rates are 9, 8.5 and 8 percent.
- D Respective current, intermediate and long term interest rates are 11, 10.5 and 10 percent.

Table 6

PERCENTAGE CHANGES IN NET WORTH GROWTH FOR A TYPICAL  
SOUTHWEST MISSOURI DAIRY FARM UNDER VARYING  
EQUITY LEVELS AND INTEREST RATES (1967-1976)

Percent Equity	Interest Rates*			
	10, 10.5, 11%	8, 8.5, 9%	6, 6.5, 7%	4, 4.5, 5%
100	47.6%	51.5%	55.4%	59.4%
90	44.2%	50.0%	55.6%	61.0%
80	39.5%	47.6%	55.7%	63.2%
70	31.6%	46.1%	56.1%	66.0%
60	7.7%	35.0%	56.2%	71.6%
50	-24.2%	17.3%	51.4%	77.3%
40	-71.0%	-8.9%	43.1%	83.8%
30	-146.4%	-51.2%	28.8%	93.8%
20	-287.9%	-130.1%	1.8%	111.6%
10	-650.8%	-334.1%	-6.7%	115.7%
0	-3622.1%	-1601.4%	-634.7%	511.8%

\* Interest rates are long-term, intermediate and current respectively for each of the four levels.

in land value or from farm productivity. The land appreciation was \$62,985. Any increases in Table 7 of this amount or less was due entirely to land value appreciation.

### CASH AVAILABLE FOR ALTERNATIVE USES <sup>[14]</sup>

The ultimate test for survival of a farm is if scheduled principal and interest payments on debt can be made in addition to paying cash expenses, family living expenses, federal and state income taxes and FICA taxes. This is a cash-flow concept and compares annual cash availability against annual cash demands. Net farm profit before taxes or changes in net worth may be misleading indicators of success unless a measure for annual debt-servicing ability is also evaluated. Annual cash available for alternative uses for 1976 are presented in Table 8. In this table, all financial obligations and family living expenses have been met for the ten-year period if the value is positive. In essence, the farm has met the prior established survival criteria. Thus, a farm decision-maker can use this table to determine what equity level is needed for survival under selected interest rates. The basis for this conclusion is that by the tenth year, the dairy farm has had ample time to recover from poor cash flows that may have hampered it during the initial years.<sup>[15]</sup> A year-by-year picture of cash available for alternative uses is presented in Appendix Tables 21-24.

Upon analyzing the results from the dairy farm transition plan, annual cash available for alternative uses proved to be the limiting factor to farm survival. Under the low interest rates, the dairy farm was able to meet the established survival criteria at the 60 percent equity level or above. At this interest rate level, cash available for alternative use was \$7,585, while for the 50 percent equity level, it was -\$3,289. For the example farm, necessary beginning equity level for survival was approximately 60 percent, 70 percent and 80 percent under the three higher interest rate levels of 6, 6.5, and 7 percent; 8, 8.5, and 9 percent and 10, 10.5 and 11 percent interest rate combinations respectively.

When analyzing the results in Table 8, evaluating impacts of adjustments such as reduced family living expenses, non-farm income on farm survival can be quickly made. For example, if family living expenses are reduced by \$1,000 per year, it would increase the level of cash available by \$10,000--a \$1,000 annual increase would reduce cash available by \$10,000. Additions of non-farm income and other income and expenses can be treated in the same manner.

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<sup>14</sup> Cash available for alternative uses is used to cover new investments in machinery and equipment, land improvements, and family savings. All other expenses including family living have been met.

<sup>15</sup> It should be noted that this selected measure for survival may not always coincide with measures chosen by selected financial institutions. For example, cash available for alternative uses may have been positive for years six through ten. However, if the first five years were loss years, suppliers of credit to the farmer may not have provided refinancing. However, this selected measure should provide information on the equity level and interest rates at which nonsurvival is highly probable.

Table 7

BEGINNING (1967) AND ENDING (1976) LEVELS OF NET WORTH  
FOR A TYPICAL SOUTHWEST MISSOURI DAIRY FARM UNDER  
SELECTED INTEREST RATES AND EQUITY LEVELS

Percent Equity	Beginning Equity	Interest Rate Combination (Percent)							
		10, 10.5, 11 <sup>a/</sup>		8, 8.5, 9 <sup>a/</sup>		6, 6.5, 7 <sup>a/</sup>		4, 4.5, 6 <sup>a/</sup>	
		Ending Equity	Change	Ending Equity	Change	Ending Equity	Change	Ending Equity	Change
100	\$147,750	\$217,999	\$70,249	\$223,249	\$76,076	\$229,559	\$81,809	\$235,295	\$87,545
90	133,376	192,281	59,905	200,020	66,644	207,467	74,091	214,672	81,296
80	119,000	165,974	46,974	175,687	56,687	185,250	66,250	194,220	75,220
70	105,363	138,644	33,281	164,407	59,044	164,407	59,044	172,824	69,461
60	90,250	97,195	6,945	121,825	31,575	140,958	50,708	154,840	64,590
50	75,867	57,518	-18,349	89,028	13,161	114,893	39,026	134,489	58,622
40	61,500	17,825	-43,655	56,015	-5,485	88,019	26,519	113,023	51,523
30	47,125	-21,845	-68,970	23,005	-24,120	60,696	13,571	91,314	44,189
20	32,750	-61,525	-94,275	-10,005	-42,755	33,335	585	69,306	36,556
10	18,375	-101,204	-119,579	-43,015	-61,390	5,974	-12,401	46,982	28,607
0	4,000	-140,844	-144,844	-60,057	-64,057	-21,387	-25,387	24,471	20,471

Interest rates are long term, intermediate and current respectively.

Table 8

ANNUAL CASH AVAILABLE FOR ALTERNATIVE USES AFTER SERVICING OF  
DEBTS FOR A TYPICAL SOUTHWEST MISSOURI DAIRY FARM UNDER  
VARIOUS EQUITY AND INTEREST RATE LEVELS (1976)

Percent Equity	Interest Rates (Percent)			
	10, 10.5, 11 <sup>a/</sup>	8, 8.5, 9 <sup>a/</sup>	6. 6.5, 7 <sup>a/</sup>	4, 4.5, 5 <sup>a/</sup>
100	\$ 8,671	\$ 9,794	\$ 10,803	\$ 11,835
90	7,207	8,814	9,597	10,713
80	5,630	6,995	8,330	9,593
70	-6,051	5,985	7,117	8,536
60	-44,041	-19,411	-278	7,585
50	-80,260	-48,751	-22,885	-3,289
40	-116,484	-116,484	-46,300	-21,296
30	-152,705	-107,855	-70,164	-39,546
20	-188,927	-137,407	-94,067	-58,096
10	-225,147	-166,958	-117,969	-76,961
0	-261,369	-180,542	-141,872	-96,014

<sup>a/</sup>

Interest rates are long term, intermediate and current respectively.



## SUMMARY AND CONCLUSIONS

Over the ten years in the study, 1967-1976, average interest rates for short, intermediate and long-term loans were 8.01, 7.66, and 6.81 percent respectively. With these interest rates and the assumptions of this study, necessary equity level for survival was about 60 percent. This level of equity needed for survival may be lowered or raised substantially if conditions are different from those assumed in the model. For example, by spreading debt over a longer time period, cash flow would be improved. This could also allow the dairy farmer to more effectively handle a higher relative level of debt. The addition of non-farm income could substantially improve the operations cash flow during the early years. Operating with leased or used machinery may to some extent help with the cash flow problem during the entry years. Many beginning dairy farmers often spread asset purchases over a period of years rather than purchase all the gear when they start farming. For others, they may enter farming as a parent-child partnership and gradually grow into the equity. If land or building prices, or family living expenses were less than those assumed in this study, the dairy farm could survive under a higher leverage rate. Another option is to rent the real estate first and delay purchasing land until after some equity has been accumulated. In addition, with an average milk production level which differs from the level assumed in this study, a dairy farmer could face different net farm profits and survival probabilities. Changes similar to these suggested can be effectively handled within the transition plan.

Reliable credit sources are quite important to beginning and expanding farmers. Interest rates were important and became relatively more important as equity levels declined. Credit sources must be dependable with abilities to provide adequate amounts for today's dairy farmer. There will be time periods when income is not sufficient to repay all debt commitments. It is important that lenders stick with farmers through these times of insufficient income.

The computerized simulation model presented is a tool that can be used to aid farm managers in their farm and financial decision-making process. With data that is available from most farm record systems and/or enterprise budgets, expected annual impacts of future farm adjustments can be projected. These year-by-year projections include profit and loss statements, debt-servicing, payback analysis, balance sheet data, cash flow summary, and selected financial ratios.

Using this management tool can provide the farm manager with projections of expected financial consequences after farm adjustments. Having this information enables farm managers and lenders alike to evaluate proposed plans before incurring large investments.

Most farm managers can obtain similar information regarding farm plans they are considering. County extension offices in Missouri can help managers and agricultural lenders in using the transition plan for evaluating farm plans including investment decisions. Most states have similar decision-making aids available through their extension centers.

A similar transition plan as discussed in this report can be prepared for most types of farming systems. With information provided it aids the manager in making better decisions. It is a management tool that can mean the difference between business success or failure.

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APPENDIX

Appendix Table 1  
 Balance Sheet - Typical Southwest Missouri  
 Dairy Farm, January 1, 1967

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Farm Assets:	
Cash on Hand . . . . .	\$ 4,000
Grain, Feed, etc. . . . .	16,200
Livestock. . . . .	19,860
Machinery. . . . .	28,260
Equipment. . . . .	9,825
Buildings and Improvements . . . . .	21,755
Land (255 acres) . . . . .	47,430
Non-Farm Assets: . . . . .	<u>0</u>
Total Assets	\$147,750

---

## APPENDIX

TABLE 2

Undistributed Costs (Fixed and Variable) and Miscellaneous Information--Typical  
Southwest Missouri Dairy Farm (1967-1976)

Item	Year									
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Undistributed Costs:										
Hired Labor	\$ 700	\$ 750	\$ 800	\$ 850	\$ 900	\$ 950	\$1150	\$1200	\$1475	\$1500
Building repairs <sup>a/</sup>	652	652	652	652	652	652	652	652	652	652
Property tax <sup>b/</sup>	495	495	495	495	495	495	495	495	495	495
Insurance	300	300	300	300	300	300	300	300	300	300
Miscellaneous <sup>c/</sup>										
Deprec. - Mach.	3850	4235	4620	5005	5390	5775	6160	6545	6930	7315
Deprec. - Bldg.	1085	1085	1085	1085	1085	1085	1085	1085	1085	1085
Miscellaneous Info:										
Operators Labor	5000	5250	5500	5750	6000	6250	6500	6750	7000	7250
Family Living Exp.	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500
Inc. tax \$ Soc. Sec. <sup>d/</sup>										

<sup>a/</sup> Estimated as 3% of the full original building value.

<sup>b/</sup> Estimated as \$.80 per \$100 full value for land and buildings.

<sup>c/</sup> 2 percent of the income exceeding variable costs.

<sup>d/</sup> Income tax and social payments are based on income for each year.

APPENDIX TABLE 3  
TRANSITION PLAN FORM 1. CROP BUDGET AND NON-FARM BUSINESS INFORMATION

Crop <sup>1</sup>	Crop code <sup>2</sup>	Acres Each Year <sup>3</sup>				Yield Per Acre <sup>3,4</sup>				Price Per Unit <sup>3,5</sup>				Variable Costs Per Acre				Hours labor per acre
		1st yr 19	2nd yr 19	3rd yr 19	4th yr 19	1st yr 19	2nd yr 19	3rd yr 19	4th yr 19	1st yr 19	2nd yr 19	3rd yr 19	4th yr 19	1st yr 19	2nd yr 19	3rd yr 19	4th yr 19	
	(1)	(6)	(11)	(16)	(21)	(36)	(41)	(46)	(51)	(1)	(7)	(13)	(19)	(37)	(43)	(49)	(55)	(73)
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Crop Codes: Corn--42; milo--49; wheat--51; soybeans--53; oats, rye, barley--56; cotton--66; set-aside--68; silage, haylage--48; pasture--70; hay--61; other cash crops--66.

**NON-FARM BUSINESS INFORMATION:**

To the extent to which you wish to include in this analysis, enter such items as: rental income, interest on savings, dividends, etc. These will also be included in assets on TR FORM 3.

Type of Asset or Property	Code	Number of Units Each Year				Net Income Per Unit				Hours labor per unit
		1st yr 19	2nd yr 19	3rd yr 19	4th yr 19	1st yr 19	2nd yr 19	3rd yr 19	4th yr 19	
	(1)	(6)	(11)	(16)	(21)	(1)	(7)	(13)	(19)	(73)
	90.	.	.	.	.	.	.	.	.	.
	90.	.	.	.	.	.	.	.	.	.
	90.	.	.	.	.	.	.	.	.	.
	-1.	Plus one blank card here.								

<sup>1</sup>For share rented acres, enter only the operator's share of yields, variable costs, and labor.

<sup>2</sup>Double crops or crops with more than one product yield are entered with different code numbers and same acres.

<sup>3</sup>If no change in acres, yield, price, or variable costs from previous entry, leave blank.

<sup>4</sup>Yield per acre is expressed as bu., tons, bales, dollars, AUM's, etc., according to crop code used.

<sup>5</sup>Prices for a particular product (same code no.) should be the same on each line that the crop appears. Leave price of pasture AUM blank.

APPENDIX TABLE 4

Year<sup>1</sup> \_\_\_\_\_

TRANSITION PLAN FORM 2. LIVESTOCK BUDGETS

Kind	Code <sup>2</sup>	No. Units	Sales per Unit						Var. Cost per Unit	Feed Requirements per Unit				Hours Direct Labor/Unit
			Market Animals		Breeding Animals		Animal Products			Corn Bu.	Silage Tons	Hay Tons	Past. AUM's	
			Prod. cwt. <sup>3</sup>	Price/cwt.	Prod. cwt. <sup>3</sup>	Price/cwt.	Prod. cwt. <sup>3</sup>	Price/cwt.						
	(1)	(6)	(11)	(16)	(21)	(26)	(31)	(36)	(41)	(51)	(57)	(63)	(69)	(75-79)
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Last card	-1.													

Year<sup>1</sup> \_\_\_\_\_

Kind	Code <sup>2</sup>	No. Units	Sales per Unit						Var. Cost per Unit	Feed Requirements per Unit				Hours Direct Labor/Unit
			Market Animals		Breeding Animals		Animal Products			Corn Bu.	Silage Tons	Hay Tons	Past. AUM's	
			Prod. cwt. <sup>3</sup>	Price/cwt.	Prod. cwt. <sup>3</sup>	Price/cwt.	Prod. cwt. <sup>3</sup>	Price/cwt.						
	(1)	(6)	(11)	(16)	(21)	(26)	(31)	(36)	(41)	(51)	(57)	(63)	(69)	(75-79)
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Last Card	-1.													

<sup>1</sup> Use one section for each transition year.

<sup>2</sup> Livestock Codes:

Dairy cows	10. to 11.	Fed cattle	20. to 22.
Litters or sows	4. to 7.	Other dairy	12. to 14.
Other hogs	8.	Steers fed	23.
Feeder pigs	9.	Beef cows	15. to 16.
		Other beef	17. to 19.
		Sheep	25. to 29.
		Poultry	30. to 34.
		Other lvstk.	35. to 38.

<sup>3</sup> Average selling weight per unit of livestock.

NOTE: All livestock codes within a section must be different codes. Example: For three different fed cattle budgets, use Codes 20, 21, and 22.

NOTE: List livestock codes for each year. If no change in units, returns, costs, or requirements, LEAVE BLANK.



APPENDIX TABLE 5

TRANSITION PLAN FORM 3. BALANCE SHEET INFORMATION--Beginning First Year , 19 \_\_\_\_

BALANCE SHEET INFORMATION

A. Assets:

Farm Assets:

1. Cash on Hand	\$ _____	.( 1)
2. Grain, Feed, etc.	_____	.(11)
3. Livestock	_____	.(21)
4. Machinery and Equipment <sup>1</sup>	_____	.(31)
5. Buildings and Improvements <sup>1</sup>	_____	.(41)
6. Land <sup>2</sup>	_____	.(51)

Non-Farm Assets<sup>3</sup>

7. Current	_____	.(61)
8. Intermediate	_____	.(71)
9. Long Term	_____	.( 1)

B. Liabilities: (Farm and Non-Farm)

	<u>Amount</u>	<u>Interest Rate</u> <sup>4</sup>	<u>Annual Principal Payment</u>
10. Current, Outstanding	_____	_____	_____
11. Intermediate (1 to 10 yrs.)	_____	_____	_____
12. Long Term (10 yrs. or more)	_____	_____	_____

The Present Plan Balance Sheet represents the beginning of the first year. Changes in the Balance Sheet will automatically occur as changes in investments for the first and later years are made on TR FORM 4.

KEYPUNCH INSTRUCTIONS:  
Three cards needed for this form. Insert blank cards if needed.

<sup>1</sup>It is suggested that you use the remaining unrecovered cost from your depreciation schedule for values of machinery, buildings, etc.

<sup>2</sup>Land Value = total farm value less Item 5 and the operator's dwelling.

<sup>3</sup>To the extent you wish to use in this analysis, include: stocks, bonds, savings, cash value of insurance, household goods, operator's dwelling, and any other assets for which the earnings and expenses are shown in TR FORM 1, Non-Farm Business Information.

<sup>4</sup>Combine and average interest rates when you have more than one loan of a particular type.

APPENDIX TABLE 6  
TRANSITION PLAN FORM 4 CHANGES IN INVESTMENT

CHANGES IN INVESTMENTS: Additions or deletions of capital assets--cash, feed, etc., livestock machinery, buildings, land and non-farm business.

Investment Changes	Code for Year In- vestment is to be made <sup>1</sup>	Invest- ment Code <sup>2</sup>	Value (for sales and trade-ins use a "minus" value) <sup>3</sup>	Years of Life Depr.	Property tax rate per \$100 assessed value <sup>3</sup>	Insurance rate per \$100 Original Value	Building Repair, % per \$100 Original Value	New Loan Information <sup>4</sup>		
								Cur. 1. Int. 2. L.T. 3. Code 4. & 5.	Interest Rate (%)	Years to Repay
	(1)	(6)	(11)	(21)	(26)	(31)	(36)	(41)	(46)	(51)
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Last Card	5.	-1.								

<sup>1</sup>Year Codes: First = 1; Second year = 2, etc.  
<sup>2</sup>Codes for investment changes:  
 Cash ..... 1. Bldgs. and Facilities .. 6.  
 Feed Grains ..... 2. Land ..... 7.  
 Market Livestock . 3. Cur.non-farm assets .... 8.  
 Breeding L.S. .... 4. Int.non-farm assets .... 9.  
<sup>3</sup>Mach. and Equip. . 5. L.T. non-farm assets ... 10.  
<sup>4</sup>Assumes assessed at one-third value shown.  
<sup>5</sup>Current loans (1) are assumed to be "rolled" each year and should not have any "years to repay". Intermediate loans (2) are from 1 to 9 years; long-term loans (3) are for 10 years or more.

**Keypunch Instructions:** Punch four (4) year code cards--each card with 1., 2., 3., 4. in Col. 1, respectively. Place the year code card at the end of each year's investments cards (1. after 1, 2. after year 2, etc.). If no investments are made during the year, place the year code card before next investment cards.

<sup>4</sup>Code 4 (Col. 41) is used to increase capital assets without incurring liabilities (ex., value of heifers raised). Code 5 (Col. 41) is used to adjust gross sales due to accumulation or reduction of inventories (market livestock, crops for sale, feed, etc.). If codes 4 or 5 are used, leave "Interest Rate" (Col. 46) and "Years To Repay" (Col. 51) blank.

APPENDIX TABLE 7

TRANSITION PLAN FORM 5. UNDISTRIBUTED COSTS (FIXED AND VARIABLE) AND MISCELLANEOUS INFORMATION

	1st Year <sup>1</sup> 19____	2nd Year 19____	3rd Year 19____	4th Year 19____
<b>Undistributed Costs:</b>				
1. Cash rent -----	____.( 1)	____.( 1)	____.( 1)	____.( 1)
2. Hired labor -----	____.(11)	____.(11)	____.(11)	____.(11)
3. Building repairs -----	____.(21)			
4. Property tax -----	____.(31)			
5. Insurance -----	____.(41)			
6. Miscellaneous <sup>2</sup> -----	____.(51)			
7. Depreciation--machinery -----	____.(61)			
8. Depreciation--buildings -----	____.(71)			

Items 3, 4, 5, 6, 7, and 8 are automatically calculated after first year.

**KEYPUNCH INSTRUCTIONS:**

Two cards needed for each year.  
Insert blank cards as needed.

**Miscellaneous Information:**

9. Number of families for income tax filing <sup>3</sup> -	____.( 1)	____.( 1)	____.( 1)	____.( 1)
10. Total no. exemptions for income tax filing <sup>3</sup>	____.(11)	____.(11)	____.(11)	____.(11)
11. Value of operator's labor per year -----	____.(21)	____.(21)	____.(21)	____.(21)
12. Estimated annual family living expense ----	____.(31)	____.(31)	____.(31)	____.(31)
13. First year est. income tax and Social Security payment <sup>4</sup> -----	____.(41)			

<sup>1</sup>Complete for the first year. If no change from previous year, leave items blank.

<sup>2</sup>You may leave miscellaneous expense blank if you prefer. The larger of your figure here or 2% of the income exceeding variable costs is used in the results.

<sup>3</sup>For corporations, enter "0." For multiple operators, total number of exemptions should be the total of all families.

<sup>4</sup>Optional: Total estimated federal and state income taxes and Social Security payment may be entered. This is the total payment estimated from the previous year, but to be paid in the first transition year. If Item 13 is not entered, the calculated taxes and Social Security for the first year will be shown as paid in both the first and second years of the transition period.

APPENDIX TABLE 8

```

*****
*
*           FARM BUSINESS AND FINANCIAL MANAGEMENT
*           TRANSITION PLANNING
*           VERSION 005D
*
*   FARM: 06/27/77 SIFFERMAN
*   DESCRIPTION - 90% EQ. 7.6.5,6% IR
*
*           UNIVERSITY OF MISSOURI
*           DEPARTMENT OF AGRICULTURAL ECONOMICS
*
*****
    
```

SUMMARY OF 10 YEAR PLAN BEGINNING 1967

	YEAR 1 1967	YEAR 2 1968	YEAR 3 1969	YEAR 4 1970	YEAR 5 1971	YEAR 6 1972	YEAR 7 1973	YEAR 8 1974	YEAR 9 1975	YEAR 10 1976
<b>CROPLAND ACRES:</b>										
<b>LIVESTOCK NUMBERS:</b>										
DAIRY COWS	60.	60.	60.	60.	60.	61.	66.	67.	71.	71.
<b>PRODUCTION SURPLUS OR DEFICIT:</b>										
LABOR HOURS REQUIRED (1)	3300.	3300.	3300.	3300.	3300.	3355.	3630.	3685.	3905.	3905.
<b>FARM PROFIT SUMMARY:</b>										
1. NET FARM PROFIT & TAXES	5927.	8081.	10069.	5943.	7255.	8706.	13459.	6915.	9350.	14985.
2. FARM INVESTMENT (2)	145457.	145425.	150366.	153666.	154969.	156616.	160498.	162545.	162099.	163314.
3. RATE EARNED ON INVESTMENT	1.9%	3.0%	4.2%	2.2%	2.3%	3.2%	6.2%	2.3%	3.7%	7.2%
4. LABOR & MGMT RETURN (3)	-2070.	43.	1911.	-1257.	-913.	534.	5123.	-1501.	979.	6430.

(1) DIRECT LABOR (EXCLUDES INDIRECT LABOR--FENCE BLDG, ETC)  
 (2) AVERAGE INVESTMENT--(BEGINNING + ENDING)/2  
 (3) LABOR & MGMT RETURN = NET FARM PROFIT LESS (.06 X AVG NET WORTH)

APPENDIX TABLE 9

## PROJECTED PROFIT OR LOSS STATEMENT FROM TRANSITION PLAN

	YEAR 1 1967	YEAR 2 1968	YEAR 3 1969	YEAR 4 1970	YEAR 5 1971	YEAR 6 1972	YEAR 7 1973	YEAR 8 1974	YEAR 9 1975	YEAR 10 1976
<b>CASH INCOME:</b>										
DAIRY	38341.	41274.	45107.	47194.	48997.	54513.	71717.	78957.	86107.	98679.
ADJ FOR MKT INV CHANGE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1. TOT ADJ FARM CASH INCOME	38341.	41274.	45107.	47194.	48997.	54513.	71717.	78957.	86107.	98579.
<b>CASH EXPENSES:</b>										
<b>VARIABLE CASH EXPENSES:</b>										
DAIRY	23214.	23769.	24860.	29287.	30145.	33502.	44735.	57550.	61406.	63003.
2. SUBTOTAL VAR CASH EXPENSES	23214.	23768.	24860.	29287.	30145.	33502.	44735.	57550.	61406.	68003.
<b>OTHER UNDISTRIBUTED CASH EXPENSES:</b>										
3. BUILDING REPAIRS	652.	652.	652.	652.	652.	652.	652.	652.	652.	652.
4. TAXES	495.	495.	495.	495.	495.	495.	495.	495.	495.	495.
5. INSURANCE	300.	319.	339.	358.	377.	396.	416.	435.	454.	454.
6. CASH RENT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7. HIRED LABOR	700.	750.	800.	850.	900.	950.	1150.	1200.	1475.	1500.
8. INTEREST ON DEBT (1)	1816.	1538.	1783.	2114.	2292.	2531.	3027.	3540.	3720.	3962.
9. MISCELLANEOUS (2)	303.	350.	405.	405.	405.	420.	540.	540.	540.	614.
10. SUBTOTAL OTH CASH EXPENSE	4266.	4105.	4473.	4874.	5121.	5445.	6279.	6862.	7336.	7676.
11. TOTAL FARM CASH EXPENSES	27480.	27873.	29334.	34161.	35267.	38947.	51014.	64412.	68742.	75679.
12. NET CASH OPR INCOME (ADJ)	10862.	13401.	15774.	13033.	13730.	15566.	20704.	14545.	17365.	23000.
13. LESS DEPREC	4935.	5320.	5705.	6090.	5475.	6360.	7245.	7630.	8015.	8015.
13A. PLUS INV ADJUST	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
14. NET FARM PROFIT B TAXES	5927.	8081.	10069.	6943.	7255.	8706.	13459.	6915.	9350.	14985.
15. +NET NON-FARM INCOME (3)	0.	0.	184.	553.	717.	909.	1153.	1533.	1718.	1966.
16. NET PROFIT BEFORE TAX	5927.	9081.	10253.	7496.	7972.	9615.	14612.	8548.	11068.	16951.
17. -INCOME TAX & SOC SEC	133.	133.	543.	974.	403.	548.	717.	1295.	305.	1100.
18. NET PROFIT AFTER TAX	5793.	7948.	9709.	6522.	7570.	9067.	13895.	7252.	10763.	15851.

(1) INCLUDES 1/2 YEAR INTEREST ON OPERATING EXPENSES

(2) MISCELLANEOUS = 2% OF CASH INCOME LESS VARIABLE CASH EXPENSES

(3) INCLUDES INTEREST ON ACCUMULATED CASH ASSETS IN EXCESS OF FAMILY LIVING @ 5.5%

APPENDIX TABLE 10

PROFITABILITY, DEBT-SERVICING, AND PAYBACK FROM TRANSITION PLAN

	YEAR 1 1967	YEAR 2 1968	YEAR 3 1969	YEAR 4 1970	YEAR 5 1971	YEAR 6 1972	YEAR 7 1973	YEAR 8 1974	YEAR 9 1975	YEAR 10 1976
<b>PROFITABILITY ANALYSIS:</b>										
1. NET FARM PROFIT BEFORE TAX	5927.	9081.	10069.	5943.	7255.	8706.	13459.	6915.	9350.	14985.
2. + INTEREST PAID	1816.	1538.	1783.	2114.	2292.	2531.	3027.	3540.	3720.	3962.
3. - OPR LABOR & MGMT CHRG	5000.	5250.	5500.	5750.	5000.	6250.	6500.	6750.	7000.	7250.
4. =RETURN TO FARM INVEST	2743.	4370.	6352.	3307.	3548.	4987.	9985.	3705.	6070.	11696.
5. AVG FARM INVESTMENT (1)	145457.	145425.	150366.	153666.	154969.	156616.	160498.	162545.	162099.	153314.
6. RATE EARNED ON FARM INVEST	1.9%	3.0%	4.2%	2.2%	2.3%	3.2%	6.2%	2.3%	3.7%	7.2%
7. CHANGE IN FARM INVESTMENT	-4587.	4524.	5358.	1243.	1362.	1932.	5832.	-1738.	847.	1582.
<b>NET FARM PROFIT BEFORE TAX LESS OPR LABOR &amp; MGMT CHARGE EQUALS:</b>										
8. RETURN TO OPR NET WORTH	927.	2831.	4569.	1193.	1255.	2456.	6959.	165.	2350.	7735.
9. RATE EARNED ON OPR NET WORTH	0.7%	2.1%	3.4%	0.9%	0.9%	1.8%	5.0%	0.1%	1.7%	5.4%
<b>DEBT SERVICING:</b>										
10. NET CASH INCOME (2)	10862.	13401.	15958.	13586.	14447.	16475.	21857.	16178.	19083.	24966.
11. - INC TAX & SOC SEC	133.	133.	543.	974.	403.	548.	717.	1295.	305.	1100.
12. - EST FAMILY LIVING	6000.	6500.	7000.	7500.	3000.	8500.	9000.	9500.	10000.	10500.
13. =CASH AVAIL: DEBT SERV, REPLACHTS & ALT USES	4728.	6768.	8414.	5112.	6045.	7427.	12140.	5382.	8778.	13366.
14. -CURRENT DEBT (3)	3606.	0.	0.	0.	0.	0.	0.	0.	0.	0.
15. -TOTAL SCHED PRIN PAYMT (4)	774.	774.	1202.	1630.	2057.	2485.	2913.	3341.	3766.	3758.
16. =CASH AVAIL FOR ALT USE (5)	348.	5994.	7213.	3483.	3987.	4942.	9227.	2042.	5012.	9597.
17. YEARS TO REPAY DEBT (6)	8.9	1.9	1.9	3.5	3.3	2.8	1.8	4.2	2.6	1.4
18. CHANGE IN DEBT (4)	-774.	3076.	2648.	2220.	1793.	1355.	937.	509.	84.	-3768.

- (1) AVG FARM INVEST = AVG OF BEGINNING & ENDING INVESTMENT
- (2) NET CASH INCOME = TOTAL NET CASH FARM + NET CASH NONFARM INCOME
- (3) CURRENT DEBT = OUTSTANDING CUR DEBT FROM PREVIOUS YEAR + CUP DEBT FOR NEW INVESTMENTS
- (4) APPLIES TO INTERMEDIATE AND LONG TERM ONLY
- (5) IF SURPLUS CASH RESULTS, CASH IS ACCUMULATED AS A CASH ASSET. IF DEFICIT CASH RESULTS, AN OUTSTANDING CURRENT DEBT IS CREATED FOR NEXT YEAR
- (6) IF ALL CASH AVAILABLE (AFTER CUP DEBT PAID) IS APPLIED TO I.T. AND L.T. DEBT.

APPENDIX TABLE 11

BALANCE SHEET AND ANALYSIS--AT END OF YEAR--SOLVENCY FROM TRANSITION PLAN

	BEGIN 1967	YEAR 1 1967	YEAR 2 1968	YEAR 3 1969	YEAR 4 1970	YEAR 5 1971	YEAR 6 1972	YEAR 7 1973	YEAR 8 1974	YEAR 9 1975	YEAR 10 1976
<b>ASSETS:</b>											
1. CASH (1)	4000.	4348.	10342.	17555.	21038.	25025.	29967.	39194.	41236.	46248.	55845.
2. CURRENT	36060.	36060.	36060.	35060.	36060.	36060.	36060.	36060.	36060.	36060.	36060.
3. INTERMEDIATE	38505.	34655.	34270.	33500.	32345.	30305.	28880.	26570.	23875.	20795.	13865.
4. LONG TERM	69185.	68100.	67015.	65930.	64845.	63760.	62675.	61590.	60505.	59420.	58335.
5. TOTAL ASSETS	147750.	143163.	147687.	153045.	154288.	155650.	157582.	163414.	161676.	162523.	164105.
<b>LIABILITIES AND NET WORTH: (2)</b>											
6. CURRENT (3)	3606.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7. INTERMEDIATE	3850.	3422.	6844.	9838.	12405.	14543.	16254.	17537.	18393.	18822.	15400.
8. LONG TERM	6918.	6572.	6226.	5880.	5534.	5188.	4842.	4495.	4150.	3804.	3458.
9. TOTAL LIABILITIES	14374.	9994.	13070.	15718.	17939.	19731.	21096.	22033.	22543.	22626.	18958.
10. NET WORTH	133376.	133169.	134617.	137327.	136349.	135919.	136486.	141381.	139133.	139897.	145247.
<b>RATIO ANALYSIS</b>											
<b>ADEQUACY OF CAPITAL:</b>											
11. DEBT:NET WORTH (4)	0.11/1	0.08/1	0.10/1	0.11/1	0.13/1	0.15/1	0.15/1	0.16/1	0.16/1	0.16/1	0.13/1
<b>OPERATING EFFICIENCY:</b>											
12. INCOME:EXPENSES (5)	N/A	1.40/1	1.48/1	1.54/1	1.38/1	1.39/1	1.40/1	1.41/1	1.23/1	1.25/1	1.30/1
<b>DEBT SERVICING:</b>											
13. P.+I. PAYMT:INCOME (6)	N/A	0.07/1	0.05/1	0.07/1	0.08/1	0.09/1	0.09/1	0.08/1	0.09/1	0.09/1	0.08/1
<b>PROFITABILITY:</b>											
14. CAPITAL TURNOVER (7)	N/A	3.79/1	3.52/1	3.33/1	3.25/1	3.16/1	2.87/1	2.24/1	2.06/1	1.88/1	1.55/1

(1) CASH IS ACCUMULATED EACH YEAR.

(2) INCLUDES FARM & NON-FARM.

(3) CURRENT DEBTS ARE PAID OFF EACH YEAR EXCEPT WHEN SURPLUS CASH IS NOT AVAILABLE.

(4) INDICATES THE BORROWED CAPITAL PER DOLLAR OF OWNER CAPITAL.

(5) INDICATES THE TOTAL CASH INCOME GENERATED BY ONE DOLLAR OF CASH EXPENSE.

(6) INDICATES THE DEBT SERVICING DRAIN AS A PERCENT OF TOTAL CASH INCOME.

(7) INDICATES THE NUMBER OF YEARS NEEDED TO PRODUCE TOTAL CASH INCOME EQUAL TO THE FARM INVESTMENT.

APPENDIX TABLE 12

## FLOW OF FUNDS SUMMARY FROM TRANSITION PLAN

	YEAR 1 1967	YEAR 2 1968	YEAR 3 1969	YEAR 4 1970	YEAR 5 1971	YEAR 6 1972	YEAR 7 1973	YEAR 8 1974	YEAR 9 1975	YEAR 10 1976
CASH BALANCE -- BEG OF YEAR	4000.	4348.	10342.	17555.	21038.	25025.	29967.	39194.	41236.	46248.
TOTAL ADJ FARM CASH INCOME	38341.	41274.	45107.	47194.	44997.	54513.	71717.	78957.	86107.	98679.
NET NON-FARM INCOME	0.	0.	184.	553.	717.	909.	1153.	1633.	1718.	1966.
MONEY BORROWED -- CAPITAL	3850.	3850.	3850.	3850.	3850.	3850.	3850.	3850.	3850.	0.
MONEY BORROWED -- CURRENT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
<b>TOTAL SOURCES OF DOLLARS</b>	<b>46191.</b>	<b>49472.</b>	<b>59483.</b>	<b>69152.</b>	<b>74602.</b>	<b>84297.</b>	<b>106687.</b>	<b>123634.</b>	<b>132911.</b>	<b>145893.</b>
<b>TOTAL FARM CASH EXPENSES</b>	<b>27480.</b>	<b>27873.</b>	<b>29334.</b>	<b>34161.</b>	<b>35267.</b>	<b>38947.</b>	<b>51014.</b>	<b>64412.</b>	<b>68742.</b>	<b>75679.</b>
NET CAPITAL PURCHASES	3850.	3850.	3850.	3850.	3850.	3850.	3850.	3850.	3850.	0.
EST FAMILY LIVING	6000.	6500.	7000.	7500.	8000.	9500.	9000.	9500.	10000.	10500.
INCOME TAX & SOC SEC	133.	133.	543.	974.	403.	548.	717.	1295.	305.	1100.
SCHED PRIN PAYMT -- CAPITAL	774.	774.	1202.	1630.	2057.	2485.	2913.	3341.	3766.	3768.
SCHED PRIN PAYMT -- CURRENT	3606.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CASH BALANCE -- END OF YEAR	4348.	10342.	17555.	21038.	25025.	29967.	39194.	41236.	46248.	55845.
<b>TOTAL USES OF DOLLARS</b>	<b>46191.</b>	<b>49472.</b>	<b>59483.</b>	<b>69152.</b>	<b>74602.</b>	<b>84297.</b>	<b>106687.</b>	<b>123634.</b>	<b>132911.</b>	<b>145893.</b>
CHANGE IN DEBT -- CAPITAL	-774.	3076.	2648.	2220.	1793.	1365.	937.	509.	84.	-3768.
CHANGE IN DEBT -- CURRENT	-3606.	0.	0.	0.	0.	0.	0.	0.	0.	0.



## APPENDIX

TABLE 13

Net Farm Profits Before Taxes for a Typical Southwest Missouri Dairy  
Farm Under Various Equity Levels With Interest Rates at 11%, 10.5%  
and 10% (1967 to 1976)\*

Percent Equity	Years										Total
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	
100	\$6331	\$8171	\$9932	\$6531	\$6656	\$7887	\$12274	\$ 5355	\$ 7608	\$13026	\$ 83771
90	4838	7155	8995	5674	5878	7189	11655	4816	4148	12645	75993
80	3346	5865	8058	4816	5100	6490	11035	4276	6687	12264	67937
70	1934	4293	6379	3474	3704	5017	9570	3259	5352	10794	53776
60	360	2540	4428	1302	1299	2342	6595	-49	1688	6721	27226
50	-1133	878	2577	-758	-994	-209	3759	-3203	-1819	2823	1921
40	-2626	-785	726	-2818	-3286	-2759	1922	-6357	-5326	-1075	-22384
30	-4119	-2448	-1125	-4879	-5579	-5310	-1915	-9511	-8832	-4973	-48691
20	-5611	-4110	-2976	-6939	-7871	-7860	-4751	-12665	-12339	-8871	-73993
10	-7104	-5773	-4828	-8999	-10164	-10410	-7588	-15820	-15846	-12769	-99301
0	-8597	-7436	-6679	-11060	-12457	-12961	-10424	-18974	-19352	-16667	-124607

\*Interest rates are current, intermediate and long-term respectively.

## APPENDIX

TABLE 14

Net Farm Profit Before Taxes for a Typical Southwest Missouri Dairy  
Farm Under Various Equity Levels With Interest Rates at 9%, 8.5%  
and 8% (1967 to 1976)\*

Percent Equity	Years										Total
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	
100	\$6588	\$8435	\$10284	\$6997	\$7191	\$8505	\$13053	\$6298	\$8617	\$14119	\$90087
90	5383	7618	9532	6308	6567	7947	12557	5865	8249	13815	83841
80	4177	6653	8779	5620	5942	7387	12060	5432	7880	13510	77440
70	3038	5406	7619	4842	5218	6735	11563	4999	7511	13205	70136
60	1767	4014	6097	3180	3429	4780	9431	3152	5325	10835	52010
50	561	2695	4653	1601	1708	2897	7374	903	2877	8162	33431
40	-644	1375	3209	22	-20	1009	5310	-1352	414	5471	14794
30	-1849	-56	1765	-1557	-1747	-879	3247	-3606	-2050	2780	-3952
20	-3055	-1264	322	-3137	-3474	-2767	1138	-5861	-4513	90	-22476
10	-4260	-2583	-1122	-4716	-5201	-4655	-881	-8116	-6977	-2601	-41112
0	-4976	-3268	-1747	-5268	-5650	-4972	-1013	-8075	-6714	-2093	-43776

\*Interest rates are current, intermediate and long term respectively.

APPENDIX

TABLE 15

Net Farm Profit Before Taxes for a Typical Southwest Missouri Dairy  
 Farm Under Various Equity Levels With Interest Rates at 7%, 6.5%  
 and 6% (1967 to 1976)\*

Percent Equity	Years										Total
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	
100	\$6855	\$8698	\$10637	\$7463	\$7726	\$9129	\$13832	\$7240	\$9627	\$15213	\$96409
90	5927	8081	10069	6943	7255	8706	13459	6915	9350	14985	91690
80	5009	7404	9500	6423	6784	8283	13084	6589	9073	14756	86905
70	4143	6475	8768	5904	6312	7861	12710	6263	8796	14527	81759
60	3173	5432	7646	4861	5258	6810	11730	5657	8069	13848	72484
50	2255	4444	6584	3722	4049	5511	10338	4168	6493	12157	59721
40	1338	3457	5521	2580	2831	4202	8932	2658	4885	10430	46834
30	420	2469	4459	1437	1603	2882	7514	1135	3253	8678	33850
20	-498	1481	3397	295	375	1563	6097	-386	1618	6924	20866
10	-1416	494	2334	-847	-853	243	4679	-1909	-16	5170	7879
0	-2334	-494	1272	-1990	-2080	-1076	3262	-3431	-1651	3415	-5107

\* Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 16

Net Farm Profits Before Taxes for a Typical Southwest Missouri Dairy  
Farm Under Various Equity Levels With Interest Rates at 5%, 4.5%  
and 4% (1967 to 1976)\*

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Percent Equity	Years										Total
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	
100	\$7101	\$8961	\$10989	\$7929	\$8261	\$9750	\$14612	\$8182	\$10636	\$10636	\$102727
90	6471	8961	10606	7578	7944	9465	14360	7964	10451	16154	99537
80	5840	8122	10222	7227	7626	9180	14109	7745	10266	16002	96339
70	5247	7497	9821	6876	7308	8896	13857	7527	10080	15849	92958
60	4580	6793	9080	6352	6831	8490	13572	7308	9895	15697	88598
50	3950	6126	8374	5611	6057	7677	12721	6691	9191	15043	81441
40	3319	5458	7667	4868	5278	6856	11858	5788	8247	14047	73386
30	2689	4791	6961	4123	4498	6031	10989	4875	7293	13039	65289
20	2059	4124	6254	3375	3715	5204	10114	3951	5326	12019	56141
10	1428	3456	5548	2628	2928	4372	9235	3022	5352	10890	48859
0	798	2789	4841	1881	2138	2138	8352	2090	4371	9954	40751

\* Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 17

Annual Net Worth Including Land Appreciation for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 11%, 10.5%, and 10% Interest Rates (1967-1976)\*

Percent Equity	Years										
	Begin	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$147750	\$147864	\$153026	\$160192	\$160904	\$163342	\$169427	\$181330	\$199849	\$204681	\$217999
90	133376	132214	136439	142518	142183	143527	148506	159296	176743	180141	192281
80	119000	116346	119281	124595	123236	123395	127217	136896	1533166	155059	165974
70	105363	101297	102660	106374	104035	102799	105480	113400	128717	129170	138644
60	90250	84610	84220	85983	81570	77929	77636	82882	95006	91795	97195
50	75876	68743	66691	66603	60130	54196	51353	53761	62733	56014	57518
40	61500	52874	49159	47220	38687	30460	25066	24638	30456	20230	17835
30	47125	37007	31629	27383	17245	6726	-1219	-4483	-1819	-15552	-21845
20	32750	21139	14098	8457	-4197	-17009	-27503	-33604	-34095	-51334	-61525
10	18375	5271	-3432	-10925	-25639	-40743	-53788	-62726	-66370	-87115	-101204
0	4000	-10597	-20963	-30306	-47081	-64477	-80073	-91847	-98645	-122897	-140884

\*Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 18

Annual Net Worth Including Land Appreciation for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 9%, 8.5% and 8% Interest Rates (1967 to 1976)\*

Percent Equity	Years										
	Begin	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$147750	\$148006	\$153449	\$160921	\$162049	\$165013	\$171630	\$184268	\$203654	\$209444	\$223826
90	133376	132688	137306	143867	144105	146095	151802	163477	181911	186673	200020
80	119000	117117	120900	126784	126064	127053	131788	142473	159948	163407	175687
70	105363	103506	107050	112960	112524	113821	118861	129905	147708	151661	164407
60	90250	86017	87101	90532	87942	86432	88577	96658	111886	112310	121825
50	75876	70437	70202	72190	68076	64844	65106	71130	84209	82186	89028
40	61500	54856	53301	53845	48152	43193	41567	45527	56864	51864	56015
30	47125	39276	36402	35502	28230	21543	18029	19926	28495	21545	23005
20	32750	23695	19502	17159	8307	107	-5508	-5675	638	-8775	-10005
10	18375	8115	2602	-1185	-11616	-21756	-29046	-31277	-27218	-39094	-43015
0	4000	-6976	-13175	-17586	-28569	-39159	-46766	-49129	-45029	-56644	-60057

\* Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 19

Annual Net Worth Including Land Appreciation for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 7%, 6.5% and 6% Interest Rates (1967 to 1976)\*

Percent Equity	Years										
	Begin	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$147750	\$148268	\$153873	\$161657	\$163167	\$166609	\$173796	\$187163	\$207414	\$214169	\$229559
90	133376	133169	138187	145232	146039	148669	155101	167646	187173	192937	207467
80	119000	117968	122401	128843	128873	129916	136340	148057	166658	171634	185250
70	105363	103506	107050	112960	112524	113821	118861	139905	147708	151661	164407
60	90250	87423	89805	94862	93639	93957	98087	108376	125658	128827	140958
50	75876	72131	73646	77565	75431	74540	74416	86404	102522	104115	114893
40	61500	56838	57364	60221	57085	54976	56543	64125	78925	78909	88019
30	47125	41545	41084	42878	38600	35263	35511	41675	54986	53338	60696
20	32750	26252	24803	25535	20115	15550	14478	19225	31013	27732	33335
10	18375	10959	8523	8192	1629	-4163	-6555	-3225	7041	2125	5974
0	4000	-4334	-7758	-9151	-16856	-23876	-27587	-25675	-16831	-23482	-21387

\*Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 20

Annual Net Worth Including Land Appreciation for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 5%, 4.5% and 4% Interest rates (1967 to 1976)\*

Percent Equity	Years										
	Begin	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$147750	\$148467	\$154287	\$152382	\$164300	\$168221	\$175978	\$190043	\$211159	\$218873	\$235295
90	133376	133599	138966	146479	147851	151113	158253	171662	192076	199026	214672
80	119000	118725	123802	130807	131577	134214	140706	153433	173152	179342	194220
70	105363	104550	109057	115799	116909	118192	124052	136135	155198	160660	174824
60	90250	88830	92693	98847	98785	100523	106083	117851	136313	141281	154840
50	75876	73826	77021	82611	81977	83042	87851	99049	117131	121421	134489
40	61500	58819	61348	66304	65083	65421	69595	80002	96936	100733	113023
30	47125	43814	45675	49971	48159	47717	51113	60752	77429	79821	81314
20	32750	28809	30002	33592	31181	29956	32524	41288	57220	59646	69306
10	18375	13803	14330	17212	14126	12214	13851	21736	36860	37312	46982
0	4000	-1202	1343	833	-3001	-4901	2101	16366	16366	15837	24471

\* Interest rates are current, intermediate and long term respectively.



## APPENDIX

TABLE 21

Annual Cash Available for Alternative Uses After Servicing of Debts for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 11%, 10.5% and 10% Interest Rate Level (1967-1976)\*

Percent Equity	Years									
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$ 5048	\$ 6913	\$ 8536	\$ 5017	\$ 5853	\$ 7081	\$ 11497	\$ 4475	\$ 7747	\$ 12152
90	-607	5201	6247	2340	2702	3489	7472	61	2546	7207
80	-6478	660	4710	543	744	1559	5561	-1862	266	5630
70	-11532	-6739	-4403	-5613	-7037	-7691	-4335	-7950	-9897	-6051
60	-18223	-15957	-16346	-20403	-25007	-29110	-29503	-37083	-43469	-44041
50	-24096	-24266	-27280	-34172	-41841	-49269	-53273	-53273	-64780	-80260
40	-29969	-32567	-38215	-47941	-58677	-69530	-77044	-92480	-107427	-116484
30	-35841	-40883	-49146	-61706	-75508	-89583	-100807	-120170	-139396	-152705
20	-41713	-19193	-60081	-75475	-92343	-109743	-124577	-147868	-171375	-188927
10	-47586	-57502	-71016	-89243	-109179	-129903	-148347	-175566	-203354	-225147
0	-53459	-65812	-81950	-103012	-126014	-150063	-172117	-203265	-234333	-261369

\* Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 22

Annual Cash Available for Alternative Uses After Servicing of Debts for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 9%, 8.5% and 8% Interest Rate Level (1967-1976)\*

Percent Equity	Years									
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$ 5251	\$ 7134	\$ 8414	\$ 4577	\$ 5056	\$ 5940	\$ 10094	\$ 2775	\$ 5711	\$ 9794
90	-133	5593	6730	2913	3348	4217	8357	1048	3910	8414
80	-5647	-2297	5279	1182	1574	2471	3595	-684	1832	6995
70	-10428	-4522	-987	-1094	-1004	18	5274	-2269	212	5985
60	-16816	-13076	-11797	-14031	-15504	-18169	-15726	-20203	-22952	-19411
50	-22402	-20755	-21693	-26225	-31194	-35515	-35904	-43305	-49275	-48751
40	-29969	-32576	-38215	-47941	-58677	-69530	-77044	-92480	-107427	-116484
30	-31302	-36111	-41483	-50721	-60691	-70335	-76398	-89856	-162300	-107855
20	-31957	-43789	-51379	-62970	-75441	-87748	-96648	-113135	-128817	-137404
10	-44742	-51468	-61276	-75220	-90192	-105161	-116998	-136414	-155333	-166958
0	-49838	-57042	-69230	-84500	-100696	-116756	-129400	-149649	-169070	-180542

\*Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 23

Annual Cash Available for Alternative Uses After Servicing of Debts for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels with 7%, 6.5% and 6% Interest Rate Level (1967-1976)\*

Percent Equity	Years									
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$ 5453	\$ 7354	\$ 8726	\$ 4960	\$ 5533	\$ 6511	\$ 10823	\$ 3640	\$ 6676	\$ 10803
90	348	5994	7213	3483	3987	4942	9227	2042	5012	9597
80	-4856	3780	5837	1932	2428	3360	7627	442	3350	8330
70	-9323	-2349	2184	693	1109	2003	6181	-1129	1553	7117
60	-15410	-10252	-7466	-8334	-8978	-8959	-4008	-6431	-6436	-278
50	-20708	-17318	-16318	-18870	-21497	-23205	-20630	-24991	-27345	-22885
40	-26005	-24371	-25214	-29542	-32161	-37953	-37557	-44011	-48748	-46300
30	-31302	-31428	-34107	-40350	-46970	-52854	-54649	-63365	-70507	-70164
20	-36600	-38488	-43003	-51163	-59785	-67762	-71748	-82760	-92310	-94067
10	-41898	-45547	-51899	-51975	-72599	-82669	-88847	-102155	-114114	-117060
0	-47196	-52607	-60795	-72787	-85413	-97577	-105946	-121551	-135918	-141872

\* Interest rates are current, intermediate and long term respectively.

## APPENDIX

TABLE 24

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Annual Cash Available for Alternative Uses After Servicing of Debts for a Typical Southwest Missouri Dairy Farm Under Various Equity Levels With 5%, 4.5% and 4% Interest Rate Level (1967-1976)\*

Percent Equity	Years									
	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
100	\$ 5632	\$ 7570	\$ 9038	\$ 5367	\$ 3013	\$ 7080	\$ 11522	\$ 4503	\$ 7635	\$ 11835
90	778	6343	7682	4047	4620	5649	10092	3029	6098	10713
80	-4099	5181	6400	2673	3222	4228	8636	1501	4563	9593
70	-8279	-342	5022	1421	1914	2823	7219	131	3063	8536
60	-14003	-7484	-3480	-3186	-2413	-663	5467	-1244	-1795	7585
50	-19013	-13936	-11272	-12324	-12996	-12671	-7985	-10383	-10040	-3289
40	-24024	-20387	-19131	-21545	-23717	-24901	-21679	-25550	-26924	-21296
30	-29033	-26837	-27014	-30792	-34517	-37252	-35572	-40922	-44024	-39546
20	-34043	-33289	-34946	-40097	-45379	-49716	-49684	-56553	-61396	-58096
10	-39054	-39741	-42878	-49479	-56311	-62264	-63886	-72336	-78927	-76961
0	-44064	-46192	-50811	-58932	-67340	-74891	-78170	-88253	-96599	-96014

\* Interest rates are current, intermediate and long term respectively.