

Farm Financial Management Case Exercise: Mayer Farm 2009

Doug and Louise Mayer farm near Farmingdale, Iowa. They grow corn and soybeans on approximately 1,020 acres of land, of which they own 400. They inherited 240 acres in 1980, and borrowed against it to buy another 160 acres that borders them to the south in 1990. The rest is cash rented in the neighborhood. They have a 250-sow farrow-to-finish hog operation, which they operate with the help of one employee. The original buildings were constructed in 1978, but they have added several more in the last decade.

The hog production seems to be going well, but they don't feel like their net worth is growing as fast as it should. Your job is to help them prepare a current set of financial statements and use them to answer some key questions:

1. Is this business making money?
2. Are the major debts adequately secured?
3. What kind of return are they earning on their investment?
4. Why do they always seem to be short of cash?
5. What could they do to improve their situation?



To complete this exercise, you may use:

- The blank financial statement forms available from ISU Extension [[link to FM-1824 on ISUE materials web page](#)]
- The ISU Extension financial statement spreadsheet available at this link [[link to Mayer Example.xls](#)]
- The ISU Extension cash flow budget spreadsheet available at this link [[link to Mayer Cash Flow.xls](#)]
- Any other blank financial statement or cash flow budget forms that you want to use
- Any other financial statement or cash flow budgeting software that you want to use

Part 1. Ending Schedules and Net Worth Statement

Here is a list the Mayers prepared of their current inventory items:

Farm checking account				\$16,092
<u>Grain and feed stored</u>	<u>Quantity</u>		<u>Price</u>	<u>Value</u>
Corn	58,000 bu.		\$3.70	\$188,500
Soybeans	12,000 bu.		\$10.00	\$ 75,000
Soybean meal	30 tons		\$250	\$ 4,800
Premix	8,000 lbs		\$.20	\$ 1,600
<u>Prepaid expense</u>				
Seed corn	150 units		\$125 per unit	\$18,750
<u>Market livestock</u>	<u>Number</u>	<u>Weight</u>	<u>Price per lb.</u>	
Raised hogs	850	200	\$.45	\$76,500
Raised hogs	975	120	\$.52	\$60,840
Feeder pigs	1,075	50	\$.60	\$32,250
<u>Breeding livestock</u>	<u>Number</u>		<u>Value per head</u>	
Sows	265		\$125	\$33,125
Gilts	100		\$100	\$10,000
Boars	15		\$400	\$6,000
Account receivable: unpaid portion of cooperative dividend				\$14,435

Here is the beginning of the year value of their equipment line.

<u>Description</u>	<u>Estimated market value</u>
Feed wagon	\$10,250
Feed mill	67,500
9400 combine	70,000
Corn head	8,500
Grain platform	6,500
Grain auger	3,500
Grain auger	1,850
8800 tractor	30,000
No-till soybean drill	20,000
7140 tractor	57,500
5000 gallon spreader	17,500
600 bushel grain truck	32,500
7110 tractor	22,500
Disk	7,500
Soil finisher	17,500
4 grain wagons	18,000
Chisel plow	2,500
Brush mower	1,000
Planter	15,000
Cultivator	9,000
Utility tractor	5,000
Livestock feeders, waterers	30,000
Generator	<u>2,000</u>
Total	\$455,600

The cost value of their machinery line was \$318,813 at the beginning of the year. They claimed depreciation expense at the rate of 10% of the beginning market value.

Their estimated market value at the end of the year was \$455,600 (see table above).

They spent \$30,000 to trade some tillage machinery during the year.

Here is a list of the year-end values of their buildings.

Description	<u>Estimated market value</u>
240 crate gestation barn	\$100,000
50 crate farrowing unit	85,000
450 pig nursery	25,000
1200 pig grower	100,000
1500 pig finisher	80,000
Wet corn storage	50,000
125,000 bu. grain storage	62,500
Machine shed and shop	50,000
Grain dryer	4,500
Barn	10,000
Tile lines	40,000
Tools	<u>10,000</u>
Total	\$617,000

The cost value of their buildings was \$515,597 at the beginning of the year. They claimed depreciation expense at the rate of 5% of the beginning cost value. Their estimated value at the end of the year was \$617,000 (see table above). They did not spend anything on new buildings during the year.

They own two farms, with the following values:

	<u>Basis (cost value)</u>	<u>Estimated market value/acre</u>
Home farm, 240 acres (inherited 1990)	\$400,000	\$3,000
South farm, 160 acres (purchased 2001)	\$360,000	\$2,800

They did not purchase or sell any real estate during the year. However, they did adjust the market value of their land upward from the previous year.

They have additional household goods as follows:

Family bank account	\$6,500
Furnishing and appliances, clothing	\$14,500
Car	\$15,000
SUV	\$25,000
Retirement accounts	\$12,500
Cash value of life insurance	\$35,000
Cabin on lake	<u>\$50,000</u>
Total	\$158,500

Enter these items directly into the Net Worth Statement sheet.

After making a few phone calls to the lenders, they establish the following list of liabilities:

<u>Business</u>	<u>Principal Owed</u>	<u>Principal Due This Yr</u>	<u>Interest Rate</u>	<u>Accrued Interest</u>	<u>Years Left</u>
Accounts payable, misc.	\$29,540	\$29,540	various	None	Due
Farm taxes due	\$9,344	\$9,344	---	---	---
General Feed Mills	\$21,863	\$21,863	10%	\$456	Due
First State Bank, operating	\$188,691	\$188,691	8.5%	\$8,760	Due
Enter these items in Schedules N, O and P					
John Deere Credit	\$152,369	\$29,286	8.4%	\$7,025	5
Case-IH	\$444,124	\$ 8,305	7.5%	\$2,084	5
First State Bank, Building 1	\$75,134	\$15,789	8.75%	\$2,616	7
First State Bank, Building 2	\$222,749	\$7,021	6.25%	\$11,832	9
Farm Credit Services R.E.	\$282,711	\$13,658	7.75%	\$13,831	19
Enter these items in Schedule Q					
<u>Personal</u>					
GMC Finance, SUV	\$24,000	\$6,000	6.9%	\$1,000	5
Income tax due (personal)	15,925	\$15,925		None	Due
Visa (family)	\$2,388	\$2,388	18%	None	Due
Enter these items directly into the Ending Net Worth Statement sheet					

A year ago their **cost value** net worth was \$1,059,664 and their **market value** net worth was \$1,625,896.

1. By how much did their net worth change in the last year?

- Cost value \$ _____
- Market value \$ _____

2. Did they change the market value of some of their fixed assets, such as land? If so, by how much? (Hint—compare the change in market value net worth to the change in cost value net worth).

\$ _____

3. What percent of their increase in market value net worth came from retained earnings? (note—retained earnings is the same as the change in cost value net worth)

_____ %

If you completed the net worth statement using the spreadsheet example, save it on your computer for later use.

Beginning Net Worth Statement

Name		Mayer Farm		Date	01/01/09
Farm Assets		Cost Value	Market Value	Farm Liabilities	
				Market Value	
Current Assets				Current Liabilities	
Checking and savings accounts	\$3,588	\$3,588	Accounts payable (Sched. N)	\$36,589	
Crops held for sale/feed (Sched. A)	\$379,875	\$379,875	Farm taxes due (Sched. O)	\$8,480	
Investment in growing crops(Sch. B)	\$9,490	\$9,490	Current notes and credit lines (Schedule P)	\$144,099	
Commercial feed on hand (Sch. C)	\$8,400	\$8,400	Accrued interest - short (Sched. P)	\$4,978	
Prepaid expenses (Sched. D)			- fixed (Sched. Q)	\$44,313	
Market livestock (Sched. E)	\$163,590	\$163,590	Due in 12 months - fixed (Sched. Q)	\$91,434	
Supplies on hand (Sched. F)			Other current liabilities		
Accounts receivable (Sched. G)			Total Current Liabilities	\$329,893	
Other current assets					
Total Current Assets	\$564,943	\$564,943			
Fixed Assets				Fixed Liabilities	
Unpaid coop. distributions (Sch. H)	\$14,435	\$14,435	Notes and contracts remainder (Sched. Q)	\$777,087	
Breeding livestock (Sched. I)	\$50,625	\$50,625	Machinery		
Machinery & equipment (Sched. J)	\$318,813	\$486,222	Land		
Buildings/improvements (Sched. K)	\$515,597	\$617,000			
Farmland (Sched. L)	\$760,000	\$1,060,000			
Farm securities, certificates (Sch. M)			Other fixed liabilities		
Other fixed assets			Total Fixed Liabilities	\$777,087	
Total Fixed Assets	\$1,659,471	\$2,228,282			
A) Total Farm Assets	\$2,224,414	\$2,793,225	B) Total Farm Liabilities	\$1,106,980	
C) Farm Net Worth (A - B)	\$1,117,434	\$1,686,245	Working Capital	\$235,050	
D) Farm Net Worth Last Year	\$1,059,664	\$1,625,896	Current Asset-to-Debt Ratio	1.71	
E) Change in Farm Net Worth (C-D)	\$57,770	\$60,349	Total Debt-to-Asset Ratio	40%	
Personal Assets			Personal Liabilities		
Bank accounts, cash		\$1,455	Credit card, charge accounts, etc.	\$2,388	
Vehicles, boats, etc.		\$16,000	Automobile loans		
Household goods, clothing, personal items		\$10,000	Accounts payable, taxes due	\$12,589	
Stocks, bonds, retirement accounts, life insurance		\$13,580	Other loans		
Real estate		\$50,000	Real estate, other long-term loans		
Other personal assets			Other personal liabilities		
F) Total Personal Assets		\$91,035	G) Total Personal Liabilities	\$14,977	
H) Total Personal Net Worth (F - G)		\$76,058			
I) Total Net Worth, Market Value (C + H)		\$1,762,303	Personal Debt-to-Asset Ratio	16%	

Part 2. Net Farm Income Statement

1. To find out how much their **net farm income** was for last year, enter their cash income and expenses from their Schedule F and other tax forms.

Cash Income

Corn sales	\$88,080
Soybean sales	\$98,750
Market hog sales	<u>\$416,035</u>
Subtotal of mkt. livestock & grain	\$602,865
Cull breeding stock sales	\$24,180
USDA payments	\$18,790
Miscellaneous cash income	<u>\$5,672</u>
Total cash income	\$651,507

Cash Expenses

Car and truck expense	\$1,894
Chemicals	40,760
Conservation expenses	0
Custom hire	0
Employee benefits	1,780
Feed purchased	104,310
Fertilizer and lime	35,500
Freight, trucking	12,290
Gasoline, fuel, oil	23,650
Insurance	6,500
Interest paid	85,511
Labor hired	28,000
Rent and lease payments	72,800
Repairs, maintenance	12,333
Seed	28,560
Storage	0
Supplies	2,375
Taxes (farm)	8,980
Utilities	17,358
Veterinary, health	11,623
Other cash expenses	4,560
Livestock purchased	<u>18,300</u>
Total cash expenses	\$517,084

How much was their **cash net farm income** for the year? \$ _____
(subtract total cash expenses from total cash income)

2. In order to adjust their cash income and expenses to accrual, you will need to enter their beginning and ending inventory and accrued expense values from their beginning and ending net worth statements. If you are using the financial statements spreadsheet, the beginning schedules and net worth statement are already completed for you. If you are using hand forms, a copy of their beginning net worth statement is included on the previous page above.

Their value for home used production was zero.

How much was their **gross farm revenue**, after making the accrual adjustments?

\$ _____

3. Their total depreciation expense for the year was \$60,661 (10% of their beginning machinery inventory cost value and 5% of their beginning building inventory cost value). How much were their gross farm expenses, after making the accrual adjustments and including depreciation?

\$ _____

How much was their **net farm income from operations**? \$ _____

They sold an old stock trailer to their neighbor. It had a depreciated value of zero, but they received \$5,000 for it. Enter this as a capital gain.

How much was their **net farm income** for the year? \$ _____

If you completed the net farm income statement using the spreadsheet example, save it on your computer for later use.

Part 3. Statement of Cash Flows

Now complete the Statement of Cash Flows to see if they accounted for most of their cash revenue and expenditures accurately. Most of the values can be taken from the previous financial statements. In the spreadsheet these values are transferred automatically.

They had new loans of \$192,773 during the year, mostly advances on their operating line. They repaid \$217,752, including operating line payments and principal payments on their intermediate and long-term loans.

They had nonfarm income of \$5,260 from some investments. Their nonfarm expenditures were about \$15,000 for income taxes, \$21,000 down payment on the new SUV (they financed \$15,000), and \$41,200 for other living expenses.

Did they account for all their cash inflows and outflows?

What percent of their total cash inflows came from operating income? _____%

Part 4. Statement of Owner Equity

Now complete the Statement of Owner Equity. All of the values can be taken from the previous financial statements. In the spreadsheet these values are transferred automatically.

Do their calculated ending net worth values match those from their beginning and ending net worth statements?

If you completed the cash flow statement and statement of owner equity using the spreadsheet example, save it on your computer for later use.

Part 5. Financial Performance Measures

Now complete the Financial Performance Measures worksheet. Most of the values can be taken from the previous financial statements. In the spreadsheet these values are transferred automatically. For a copy of a hand worksheet, go to Ag Decision Maker file C3-55. <http://www.extension.iastate.edu/agdm/wholefarm/pdf/c3-55.pdf> .

The Mayers estimated the value of their own unpaid labor at \$40,000 per year.

Compare the Mayers’ performance values to the average values for farrow-to-finish farms in Iowa for the past 10 years ([check tables in Ag Decision Maker file C3-36](#)). How do they compare in terms of:

		<u>Mayer farm</u>	<u>Farrow-finish Farms</u>
Liquidity:	Current ratio	_____	_____
	Working capital	_____	_____
Solvency:	Debt-to-asset ratio	_____	_____
Profitability:	Net farm income	_____	_____
	Return on assets	_____	_____
	Return on equity	_____	_____
	Operating profit margin ratio	_____	_____
Financial Efficiency:			
	Asset turnover ratio	_____	_____
	Operating expense ratio	_____	_____
	Depreciation expense ratio	_____	_____
	Interest expense ratio	_____	_____
	Net farm income ratio	_____	_____

Save the Mayer family’s financial statements. We will examine them more closely in future modules.

FARM FINANCIAL MEASURES BY FARM TYPE (1998-2007)

	<u>Cash</u> <u>Grain</u>	<u>Farrow to</u> <u>Finish</u>	<u>Beef</u> <u>Feeding</u>	<u>Beef</u> <u>Raising</u>	<u>Dairy</u>
Liquidity Measures					
Current ratio	2.37	2.41	2.04	2.45	2.15
Working capital	\$ 118,216	\$ 198,611	\$ 233,298	\$ 159,659	\$ 119,119
Solvency Measure					
Total debt to asset ratio	27%	33%	36%	36%	40%
Profitability Measures					
Net farm income	\$ 66,766	\$ 99,059	\$ 78,694	\$ 55,491	\$ 89,800
Rate of return on farm as	7.3%	7.4%	6.7%	5.3%	9.3%
Rate of return on farm ec	6.6%	7.0%	6.4%	6.3%	13.7%
Operating profit margin r	22%	22%	24%	18%	25%
Financial Efficiency Measures					
Asset turnover ratio	43%	40%	34%	36%	39%
Operating expense ratio	64%	64%	63%	64%	60%
Depreciation expense rat	7%	7%	7%	8%	9%
Interest expense ratio	6%	7%	10%	8%	7%
Net farm income ratio	23%	23%	21%	20%	24%

Part 6. Cash Flow Budget

Doug and Louise Mayer have pulled together the following information to help build a cash flow budget for the coming year. You can use a blank hand budgeting form, or one of several spreadsheets that are available (a list is shown in Module 5, or the ISU Cash Flow Budget spreadsheet.

Getting Started

Make out a cash flow budget for the Mayer family for the coming year. Divide it into six two-month periods, so they can tell their lender how much capital they will need throughout the year.

Livestock

The Mayers will farrow and finish approximately 450 litters of hogs this year. They will sell market hogs continuously throughout the year.

Revenue. From each litter they should sell about 9 head of 260-pound market hogs. They are planning on a yearly average price of about \$.50 per lb. They also expect to sell about .4 cull sow sales per litter, at 500 pounds and \$.30 per pound.

They estimate their corn feeding needs at 110 bushels per litter. Their feed needs for most of the year can come from their current inventory. The rest can come from new crop corn.

Production Costs.

Their projected livestock costs per litter are:

- Livestock purchases (gilts) \$ 50
- Purchased feed \$350
- Health \$ 25
- Other cash costs \$ 30

These are spread evenly throughout the year.

Allocation: To allocate revenue and costs evenly throughout the year, simply enter “1” in each period if you are using the ISU spreadsheet.

Crops

They plan to produce 200 acres of continuous corn, 400 acres of corn following soybeans, and 420 acres of soybeans.

Their crop budget estimates are as follows:

	<u>Continuous Corn</u>	<u>Corn after Soybeans</u>	<u>Soybeans after Corn</u>
Yield	150 bu.	170 bu.	50 bu.
Seed cost	\$80	\$80	\$50
Fertilizer and lime	\$150	\$125	\$60
Pesticides	\$48	\$35	\$26
Crop insurance	\$15	\$15	\$10
Drying fuel	\$30	\$34	
Miscellaneous	\$10	\$10	\$10

Most of these costs will occur early in the year, except crop insurance premiums and drying fuel, which are payable during harvest.

Based on their last net worth statement, they have 58,000 bushels of corn and 12,000 bushels of soybeans in storage at the beginning of the year, which could be marketed once their feed needs are met.

They can sell 24,000 bushels of their old crop corn during the first half of the year. They will watch the markets and spread sales over this time period. They plan to move all their remaining soybeans by April 1. They will also sell 30,000 bushels of new crop corn in December.

They are conservatively estimating their selling prices at \$3.80 per bushel for the old crop corn and \$9.50 per bushel for old crop soybeans. They estimate they can sell the new crop corn in December for \$4.00 per bushel. **Note—be sure to the expected sale price in each month for which you have entered sales.**

Overhead

Other Farm Income. After checking with their FSA office, the Mayers estimate their income from USDA programs at about \$18,000 for the coming year, to be received in February and December. They also usually receive about \$6,000 per year in patronage refunds and other farm income, spread throughout the year.

Other Farm Expense. Their other fixed expenses will be much the same as last year. Based on their last net farm income statement, they estimate the following amounts (Overhead):

Real estate taxes	\$16,000	March and September, \$8,000 each
Cash rent	\$100,000	March and December (\$50,000 each)
Hired labor	\$2,500/month	All year
Repairs and upkeep	\$13,000	Continuous, but more in winter
Fuel and lubrication	\$25,000	More in spring and fall
Other expenses	\$ 6,000	Throughout the year

Nonfarm Income. Neither of them is employed off the farm, but they do have some certificates of deposit and some stocks they inherited that earn about \$5,000 per year, and a storage shed that they rent out for \$200 per month (\$2,400 per year)

Nonfarm Expenses. They normally spend a bout \$3,000 per month for family living expenses, or \$36,000 for the year. (You don't need to enter detailed information). They put about \$1,000 per month into savings and retirement accounts. In March they will have to pay about \$11,000 in income and self-employment taxes. Finally, they would like to trade cars in June, before leaving on a family vacation. This will cost them about \$10,000.

Capital Assets

The Mayers have some surplus farrowing crates, hog feeders and waterers that their neighbor wants to buy immediately, for about \$5,000.

They would like to put up a new grain storage bin this summer, and a cost of about \$25,000.

Financing

New Borrowing. The company that will supply the new grain bin has tentatively agreed to finance 80 percent of the cost with a \$20,000 term loan through their company plan.

Existing Liabilities. The same information they collected to complete their last net worth statement can be used to project their debt repayment schedule for the coming year. Note that loan payments must include interest accrued up to the date of payment, as well as principal, whereas the balance sheet information calculated accrued interest only up to the date of the statement.

• Accounts payable	\$29,540	due in January
• Balance, General Feed Mill	\$22,500	due by February 15
• John Deere Credit	\$40,000	Payable in August
• Case-IH Credit	\$11,500	Payable April 1
• First State Bank-1	\$21,000	Due August 10
• First State Bank-2	\$19,000	Due January 15
• Farm Credit RE note	\$33,000	Payable March 15
• GMC Finance	\$ 7,800	Monthly payments of \$650

Cash Balance. Remember to include their cash on hand. Their last net worth statement showed a January 1 cash balance of \$16,092. They also have an operating loan balance of \$188,691 to start the year. The current interest rate on their operating line is 8 percent, and they can earn 4 percent interest on cash surpluses.

Whole Farm Budget

Calculate their net cash flow from operating income and expenses each period.

Using the worksheet or program, estimate their net cash flow for each period. In which months do they project a deficit? Is their projected net cash flow for the entire year positive or negative? Review the discussion in Module 5 to see what adjustments they can make in order to project a positive cash balance for the entire year and for each period within the year. Enter values for the operating line to borrow and operating line to repay until you project a balance of at least \$1,000 at the end of each period.

- What is the largest balance they will need to have on their operating credit line during the year in order to maintain a positive cash flow?
- How did their projected operating loan balance change from the beginning of the year to the end? Can they continue this trend?
- How their ending corn and soybean inventories compare to their numbers at the beginning of the year? Are they meeting cash flow needs by liquidating current assets?
- How would their borrowing needs and ending operating loan balance change if they sold 5,000 bushels of new crop soybeans in October?
- What are the most critical values in the Mayers' budget that will affect their short-term liquidity? Will the cash flow plan still be feasible if these critical values are lower than estimated? What contingency plans would you recommend for them?