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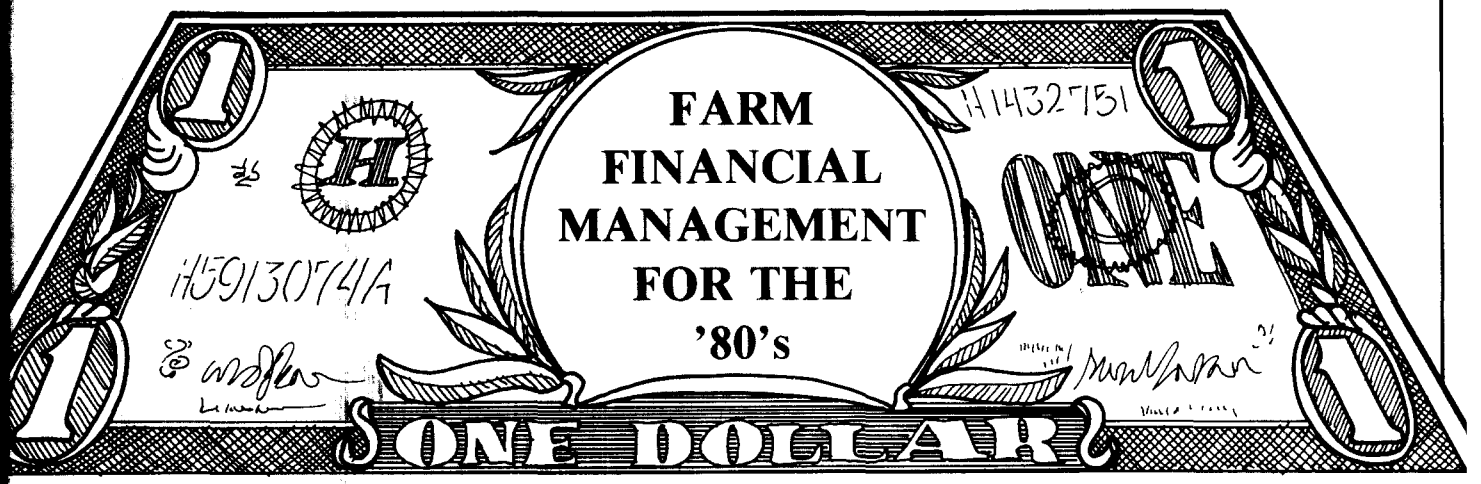
Analyzing Your Farm Financial Statements

Tommy L. Reff, Extension Farm Management Economist
David M. Saxowsky, Assistant Professor
Agricultural Economics Department
North Dakota State University



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Analyzing Your Farm Financial Statements

Three financial tools — the balance sheet, the cash flow statement, and the income statement — are necessary to fully analyze your business. By themselves they can reveal much about the financial well-being of the farm business. Used together they are the basis for a financial analysis of the farm, especially if these statements are available for a period of several years. The combination of these three financial statements can readily identify changes that have been occurring, pinpoint some reasons for these changes, and lead to a better understanding of what is happening to the financial health of your farm business. Armed with better information concerning the financial condition of the business, a farm operator will be in a position to make better decisions in the future. The following examples briefly illustrate the relation between the three financial statements.

Example: A comparison of balance sheets showed that the net worth of a farm operator was $4,500 greater on January 1, 1980 than on January 1, 1979. Without reviewing the income statement the operator would not recognize what portion of the increase was due to inflation of asset value rather than profit generated by the farm.

Example: The farm operation experienced a positive cash flow for the year (that is, the total cash inflow was greater than the total cash outflow). This does not reveal whether the farm operation was profitable or whether the owner's net worth changed. Only the income statement and balance sheet will reveal whether the extra cash was the result of a profitable operation or due to a partial liquidation of inventory and assets.

Example: The income statement revealed a profit for the year, yet the cash flow was tight; that is, available cash during the year was often insufficient to pay obligations as they came due. The cash flow statement and balance sheet need to be reviewed to determine whether the cash shortfall was the consequence of an increased inventory in stored commodities, timing of sales and expenditures, or an extraordinary amount of capital purchases.

Each financial statement can be prepared as a projection for the future; that is, what does the operator project the balance sheet and income statement to be at year's end and what is expected in terms of the business's cash flow during the year. Such projections are referred to as "pro forma" statements. They also can be prepared to report what actually happened during the year; what are the total assets, liabilities and equity position; was the year profitable or did it generate a loss, and was there sufficient cash available to pay obligations as they came due? This publication will emphasize the second type of statements; those that report what happened this past year so the business operator can better understand what occurred.

Development of these statements requires substantial effort, and they are now being generated to a greater extent with the assistance of computers. Using computer-developed financial statements will dramatically reduce the time needed, but the computer will not interpret the information nor make the business decisions. Those are still the tasks and responsibilities of the farm owners. An understanding of how these statements relate to each other will improve the operator's understanding of the farm business. Accordingly, it is necessary to realize what information these statements can provide the owner even though computers may be used to assist in their actual preparation.

This circular takes a closer look at each of the three financial statements to help better understand the changes that occur over time, how these statements relate to each other, and what this means in terms of financial analysis. Financial statements for a hypothetical farm have been included in the appendices and will serve as the basis for some examples in this publication.

NOTE: If you are not familiar with the balance sheet, income statement, and cash flow statement, it will be helpful to obtain the following circulars from your Extension agent for study: Circular EC-818, Your Balance Sheet; Circular EC-819, Your Income Statement; Circular EC-820, Your Cash Flow Budget. You may also want to obtain a copy of Circular EC-895, The Time Value of Money, since some of the concepts discussed in that publication are again mentioned in this one.

The Balance Sheet

A balance sheet is an inventory of business assets and their current market (resale) value balanced against liabilities and debts. An owner's net worth or equity is obtained by subtracting total liabilities from total assets. The resulting net worth, however, is seldom the amount that will remain if the business is totally liquidated because balance sheets generally do not include as a liability the potential income tax cost associated with selling a business.

Assets	what your business assets are worth
– Liabilities	what you owe your creditor(s)
Net worth or equity	current value of owner's contributions

The balance sheet is a financial picture of your business at one point in time. It is prepared periodically (often annually) and "as of" a specific date (usually January 1 of each year). A balance sheet will reveal the solvency of the business; that is, whether the value of the business assets is sufficient to repay the business's liabilities.

Most balance sheets prepared by farm operators include nonfarm assets and liabilities as well as farm assets and debts. Interpreting a balance sheet that combines farm and nonfarm information requires that the operator recognize which items are part of the farm business and which are not. The example balance sheet included in the appendix provides a blank for non-farm assets and liabilities in each of the six categories. However, some other items on the balance sheet also may be nonfarm, such as retirement accounts, cash value of life insurance, securities, some notes receivable, and estimated income and social security taxes. These items illustrate that the balance sheet may be a mixture of farm and non-farm and that care must be taken to determine the amount of farm assets and liabilities. Simply using the bottom line may give a false impression of the farm business's financial performance since the balance sheet often includes nonfarm information.

Besides measuring solvency, balance sheets that have been prepared over several years will clarify how the business has changed and grown. An understanding of why a business's balance sheet would vary over time or what factors caused it to change will improve the meaningfulness of the comparison. Table 1 summarizes transactions that alter the amount of assets and liabilities of a farm business. It also suggests some transactions which do not affect the balance sheet as well as transactions for which it is difficult to determine the impact on a farm's balance sheet. A balance sheet that includes a record of the number of physical units (bushels of grain, gallons of fuel) and value or price per unit rather than just their total value permits a comparison of quantity and per unit value as well as total value.

The fourth section of this report discusses the relation of each financial statement to the other statements. It is important to recognize, however, that an increase in equity due to inflation does not generate cash for the business unless the equity is used to secure additional loan proceeds. Business owners who borrow based on equity that is solely due to inflation must be aware of the accompanying risk. If the equity disappears as a consequence of subsequent deflation, the business will experience a cash shortfall when the loan becomes due unless the operator is willing and able to sell assets to generate cash, or the cash return from use of the loan proceeds exceeds the interest cost. Inflation will increase an operator's net worth regardless of whether the business is profitable; however, a business can really grow only if it generates a profit.

Ratios

Several financial ratios (Table 2, page 4) are used as guides to help you and your lender analyze the balance sheet. While they are useful to determine where you are today, it is important to compare these over time to determine trends the business is taking. Beginning farmers cannot be expected to be in a strong financial position initially. They hope to show progress as time passes and they move from a weak to a stronger position. A well established farmer should be in a stronger position, and should be very concerned if these ratios tend to deteriorate over time.

An example on page 4 showing only asset and liability totals for the beginning and end of a year (January 1, Year 1 and January 1, Year 2) may help clarify the discussion.

The **ownership equity ratio** (net worth/total assets) is the portion of the business you own. Some would suggest that a ratio of .7, rather than .6, indicates a strong financial position. The higher the ratio the more financially stable (solvent) you are. In the example, the ownership equity ratio at the beginning of the year is .82 ($449,210/$545,699). At the end of the year the ratio is .87 ($460,692/$530,086). This is not only illustrates a strong equity position, but also a strengthening one.

A related ratio is the **debt to asset ratio** (debt/asset ratio) which states the total amount of debt as a fraction of the total business assets. A debt free business would have a debt/asset ratio of 0 while a business with no equity (that is, debt equals value of the assets) would have a debt/asset ratio of 1.00. A debt/asset ratio of .5 means the business has a dollar of debt for every two dollars worth of assets and that one half of the business is equity to the owner while the other half is owed to creditors. Generally, farms with a debt/asset ratio in excess of .6 are considered likely to experience severe financial difficulty.

It is possible to estimate the maximum debt/asset ratio a farm business is likely to be able to handle. The needed information is the rate of return on investment the operator is earning on the business assets and the effective interest rate the farmer pays for credit. The rate of return on investment divided by the effective interest rate will yield the maximum debt/asset ratio the business can afford. This calculation is illustrated in the following discussion and example.

Table 1. Transactions that Alter the Balance Sheet of a FArm.

	Change Amount of Assets	Change Amount of Liabilities	Transactions That Do Not Change Totals
INCREASE	* Change in quantity of commodities in inventory to the extent the number of units sold is less than quantity produced since preparation of previous balance sheet * Assets or cash received without a sale of commodities or inventory; examples: 1) wages from labor, 2) interest earned on cash in savings, or 3) gifts and inheritances * Price increase of (inventory and capital) assets since preparation of previous balance sheet whether asset was sold or is still owned; this price increase encompasses change in market value of inventory items (stored commodities) as well as inflation (such as increasing land values) * Loan proceeds carried as cash or used to purchase other assets * Value of products (whether placed in inventory or sold) is greater than the value of the assets used to produce them; e.g. $6,000 of supplies on previous balance sheet is used to produce commodities valued at $7,800 on current balance sheet would result in an increase of total assets	* Increase borrowing to maintain cash balance * Buy on credit * Refinance existing debt and thereby convert interest that accrued since preparation of previous balance sheet into debt principal	* Sell inventory for an amount equal to value reported on previous year's balance sheet; simply converts form of assets to cash * Cash used to reduce liabilities; will reduce assets and liabilities by an equal amount, and will not alter net worth unless some assets are used to repay interest that accrued since preparation of last balance sheet because that interest will not have been included as a liability * Refinance short term debt (accounts payable to others) with long term debt; this action may reduce interest payments and increase income and net worth in future years even though it currently has no effect on the amount of liabilities owed
DECREASE	* Change in quantity of commodities in inventory to the extent number of units produced is less than quantity sold since preparation of previous balance sheet * Consumed asset or cash by using it to meet family living needs * Partially or entirely consumed asset by using it in the business operation (includes depreciation) * Cash used for business operating expenses that do not directly result in an asset; e.g. wages paid to hired labor * Price decrease since preparation of previous balance sheet whether asset was sold or remains as part of inventory; this price change could be from reduction in market price of inventoried commodities or deflation of asset values * Repayment of debt whether by cash, with proceeds from sale of assets, or by transfer of asset * Value of products (whether placed in inventory or sold) is less than the value of the assets used to produce them; e.g. $6,000 of supplies on previous balance sheet used to produce commodities valued at $5,500 on current balance sheet would result in a decrease of total assets	* Pay off debt * Debt is partially or entirely discharged or forgiven	**Transactions with Impact That is Difficult to Identify** * Converted an asset to another form and then its value decreased due to deflation or partial consumption; e.g. 1) cash used to purchase equipment which by the end of the year when the balance sheet is prepared has a market value less than its purchase price or 2) sold a piece of equipment and used the cash to meet family living needs * Net worth will increase when loan proceeds are used to acquire inputs such as fuel, seed, and fertilizer which are used in production of commodities and the value of the produced commodities exceed the amount borrowed * Cash used to pay for hired labor that is needed to produce commodities or construct improvements to long term assets (such as a building) is a change in the form of asset (cash converted to commodities or improvements) * Decrease in market value of equipment due to its usage during the year to produce commodities is actually a change in the form of asset from equipment to grain or livestock

Example Balance Sheet

	Jan. 1 Year 1	Jan. 1 Year 2		Jan. 1 Year 1	Jan. 1 Year 2
Current assets	$ 47,119	$ 46,884	Current liabilities	$ 39,975	$ 37,107
Intermediate assets	156,580	142,202	Intermediate liabilities	10,490	760
Long term assets	342,000	341,000	Long term liabilities	48,024	31,527
Total assets	$545,699	$530,086	Total liabilities	$ 96,489	$ 69,394
			Net worth	$449,210	$460,692

Table 2. Balance Sheet Analysis.

Ratios	Financial Condition: Favorable	Satisfactory	Unfavorable
1. Net worth / Total assets = ownership equity ratio	.6 or more	.4 - .6	less than .4
2. Total liabilities / Total assets = debt/asset ratio	.4 or less	.4 - .6	more than .6
3. Current assets / Current liabilities = current ratio	2.3 or more	1.6 - 2.3	less than 1.6
4. Total liabilities / Net worth = leverage ratio	less than .67	.67 - 1.5	more than 1.5
5. Current liabilities / Total liabilities = current to total debt ratio			.3 or more

The rate of return on investment is net farm income (from your income statement) plus interest paid minus a charge for unpaid operator and other family labor divided by average total farm assets. Average farm assets generally is defined as the amount invested in the business at the beginning of the year plus the amount invested at the end of the year divided by 2. The amount invested in the farm operation can be calculated as total assets on the balance sheet minus 1) grain under a Commodity Credit Corporation loan and 2) off-farm investments such as cash and savings since the earnings from those assets are not included as part of farm income. Likewise, accounts receivable which are earning interest that is not considered farm income should not be included as farm assets. Computing rate of return is addressed again in explaining the income statement.

Effective interest rate is the total interest that accrued during the year divided by the amount of debt carried for the year on an annualized basis. An amount of debt can be annualized by multiplying it by the number of months the debt was carried during the year divided by 12.

Maximum debt/asset ratio =

$$\frac{\text{(Net Farm Income + interest paid} - \text{unpaid family labor)/average total farm assets}}{\text{interest accrued/annualized debt}}$$

Example. The hypothetical farm operation described by the financial statements in the appendices carried the following debt during year 1.

Amount of debt	No. of months it was carried	Annualized debt amount
$58,514	12	$ 58,514
8,076	9	6,057
1,653	8.5	1,171
12,152	7	7,088.67
4,345	8.5	3,077.71
25,000	9	18,750
12,000	7	7,000
		$101,658.38

Interest accrued: $12,552
Effective interest rate: 12.347 percent (12,522/101,658.38)

Net Farm Income	$26,973
Interest Paid (+)	12,552
Value of unpaid family labor (−)	19,200
Return to farm assets	$20,325

Value of farm assets	Beginning Year 1	Beginning Year 2
Total assets	$545,699	$530,086
Nonfarm assets (−)	7,600	6,853
Farm assets	538,099	523,233
Average for year 1	530,666	
Rate of return	3.83 percent (20,325/530,666)	
Maximum debt/asset ratio	.31 (3.83/12.347)	

The maximum ratio in this example is low because this operation was able to generate only a low rate of return on its farm assets and paid a higher price for its borrowed money. Caution is urged in using one year's result in the approach above since farm returns can vary significantly from year to year.

The **current ratio** (current assets/current liabilities) measures the dollars of current assets available for each dollar of current debt. This ratio is a first indicator of liquidity or cash flow problems. Many farmers, even those with a high ownership equity ratio, have been faced with cash flow problems in recent years. The higher the current ratio, the more you are able to withstand a decrease in commodity prices and still pay current debt. While some assets (such as fuel, fertilizer, feed, chemicals, seed, supplies and accounts receivable) are listed as current assets, they probably cannot be counted on to produce ready cash to pay off current debt.

The current ratio in the example is 1.24 on January 1 of Year 1 ($47,119/$37,975) and 1.26 on January 1 of Year 2 ($46,884/$37,107). This is a weak position and has not improved during the year.

The **leverage ratio** (total liabilities/net worth) is the dollars of total liabilities for each dollar of net worth. To put it another way, it's the dollars your lender(s) have invested for each dollar you have invested in the business. As this ratio increases, the lender is not only concerned with having more invested than you do but also is concerned whether you can repay the debt. The leverage ratio decreased for most farm operations during the 70s simply due to inflation (increasing land values). Many farmers have seen the leverage ratio increase in recent years as a consequence of falling land values (resulting in loss of equity), high interest rates, and inability to reduce debt.

The leverage ratio on January 1 in the example is .21 ($96,489/$449,210). At year's end, the ratio is .15 ($69,394/$460,692). Not only are both considered "strong," but progress has been made during the year.

Current debt to total debt ratio (current debt/total debt) is the portion of total debt due during the current year. Farm operators must be careful in computing current debt to include accrued interest and the principal portion of intermediate and long-term loans that has to be paid during the year.

The ratio of current to total liabilities at the beginning of the year is .39 ($39,975/$96,489). It has worsened during the year, since at year end the ratio is .53 ($37,107/$69,394). The magnitude or size of the current debt is as important as the ratio. It needs to be examined in conjunction with the ownership equity ratio and the current ratio. If ownership equity is high and the current ratio is satisfactory there may be little concern over a weak current debt to total debt ratio. If ownership equity is strong and the current ratio is weak, combined with a weak current debt to total debt ratio, it may be necessary to take steps to avoid a cash shortage. In the example, there is likely to be some concern about such a high proportion of total debt being current. Refinancing is one possibility.

Refinancing

Refinancing is really restructuring the debts. Most often it is the current and perhaps some of the intermediate debt that is the focus of restructuring. The objective is to reduce the amount of debt to be paid in the current year by refinancing it over a longer time period, and reducing it enough so that it can be paid annually from current earnings. Cash flow budgeting must be done to assess the effect of refinancing. Net worth and leverage are unaffected by refinancing, but there may be a significant reduction in the annual repayment requirement that will allow the loans to perform satisfactorily.

The Cash Flow Statement

The focus of a cash flow is to understand when and from where cash was received by the farm family as well as when and where cash was spent. Information on the cash flow can be assembled for only the farm business but general practice is to include all cash transactions of the farm family. Accordingly, a cash flow will likely summarize business and nonbusiness sources of cash such as cash on hand at the start of the year, operating income during the year, government payments, sale of capital assets, loan proceeds, and nonfarm sources of cash (wages, gifts, inheritances, income from investments). Common cash outflows involve payment of operating expenses (including interest on indebtedness), principal payments on loans, family living expenditures, taxes, and purchase of capital assets. An operator also can determine whether the overall cash flow of the operation for the year will be positive or negative.

Cash Flow Budget

Cash flow information often is assembled as a projection or budget for the upcoming year. A cash flow budget reveals when the operator anticipates a cash shortage and when there will be surplus cash. This information is useful in deciding when and how much credit needs to be acquired or when repayment of debt is most logical. The cash flow budget also can assist in determining whether the timing of sales or purchases could or should be altered to improve the overall cash flow for the next year. Care must be used to realistically construct a cash flow budget. In fact, several cash flow budgets should be prepared using the "most likely" yields and prices, a "worst case" scenario, and an "above average" scenario.

Indication of whether cash flow might be tight during the coming year can be observed by reviewing the current ratio based on the balance sheet. If it is unfavorable, cash will need to be generated not only to meet cash outflows for the coming year but also to compensate for the fact that current liabilities presently equal a major portion of current assets. It is important to reiterate that the balance sheet is "as of" it's date of preparation and an unfavorable current ratio may not result in a tight cash flow if substantial cash inflows are experienced prior to the time of cash outflows.

Another use of a detailed cash flow budget is to monitor the business' progress throughout the year. A detailed budget not only includes when the transaction will occur and what the total cash flow for the transaction is but also details the quantity that is expected to be sold or purchased and how much will be received or spent on each unit. Such a detailed budget permits the operator to periodically (perhaps monthly) compare actual transactions during the year to what was projected and immediately recognize when the operation is performing differently than expected. If the amount of the actual transaction during the year differs from what was projected, the operator can readily determine whether the difference is due to the price being different than expected or whether the quantity involved had varied. Detection of extraordinary circumstances before the end of the production season permits adjustment in operation of the business when there still is time to do something about the situation.

Credit institutions have increased their review of a borrower's cash flow during the past several years rather than continuing to rely primarily upon the borrower's net worth as revealed by a balance sheet. This change recognizes that cash is needed to service debt obligations and that possession of equity by the borrower is no guarantee the business will generate cash sufficient to repay indebtedness. This also acknowledges that a business which does not generate cash to meet its obligations will not remain in business regardless of its current level of profit or its potential profitability in the future. Often a creditor's review will emphasize the businesses projected cash flow, but an awareness of past cash flows can indicate what is likely to occur in the future. Accordingly, a cash flow statement as well as a cash flow budget may be useful when meeting with a creditor. Accuracy is very important in preparing these.

Cash Flow Statement

A cash flow statement is a record of actual cash inflows and outflows during the past year rather than a projection into the future. This report emphasizes the cash flow statement (as opposed to a cash flow budget) because of its potential use by the farm operator regardless of its use in securing credit. Operators can improve their understanding of their businesses' financial condition and how it was reached by reviewing the farm's cash flow statement. Actual preparation of a cash flow statement can be completed on forms similar to those used for a cash flow budget.

The primary difference between preparing a cash flow budget and a cash flow statement is that one projects to the future while the other reports what occurred in the past. Focus of a cash flow budget is on the amount of available cash whereas a cash flow statement emphasizes amount of cash generated by the business. The difference is that the generated cash inflow does not include cash in the bank at the beginning of the year.

A checkbook can be helpful in preparing a cash flow statement if all receipts are deposited in and all expenditures are made from the account. But checking account statements do not include a record of transactions completed outside the checking account, nor do they record the quantity or price per unit. More exact records are necessary.

A cash flow statement probably is not necessary to determine whether the business incurred a cash surplus or shortage during the past year. Memory of the need to draw upon savings and credit to pay bills or the opportunity to invest extra cash in a nonfarm asset is sufficient to remind us of whether the business experienced a cash flow difficulty. But memories can mislead.

A business may experience periods of cash shortages during the year and still enjoy an overall positive cash flow for the year. This can occur if cash obligations are due prior to the receipt of cash income; that is, there is a mismatch between when cash is needed by the business and when it is available. Likely consequence of such a situation is that payment of some obligations will be postponed but by the end of the year all will have been paid afte additional cash has been received by the business. Without a method of reviewing the past, our mental recall may not be complete. Preparing a detailed cash flow statement, however, will identify the exact

cash surplus or shortage as well as serve to pinpoint where the cash was spent and whether expenditures need adjustment.

The overall cash flow outcome for a year does not distinguish between revenue resulting from sale of commodities produced during the year and commodities stored since an earlier year. There are two means of determining whether the quantity sold exceeded this year's production. One is to compare the quantity produced this year to the quantity sold. A second method is to compare the quantity in inventory at the beginning of the year to the quantity at the end of the year. To the extent ending inventory is less than beginning inventory, some of the cash received this year was not from commodities produced during the year. By comparison, cash proceeds resulting from this year's production will be received in a later year if quantity of ending inventory exceeds beginning inventory. The balance sheet as well as detailed information about quantities produced and marketed are needed to determine the extent cash receipts are not due to selling the equivalent of this year's production.

Likewise, a cash flow statement does not distinguish between expenditures used to pay family living expenses, operating costs, capital acquisitions or improvements, and principal protion of an indebtedness. A review of the example cash flow statement included in Appendix 3 will demonstrate a means of determining the cash flow of only the farm portion of the family's transactions. Cash in the bank on January 1 (line 1, column 3), withdrawals from savings (if considered separate from cash in the bank), and nonfarm income received throughout the year (line 8) should be excluded when calculating the amount of cash the farm generated during a year. Loan proceeds (line 39, money borrowed) should be included as a source of cash in order to be consistent with treating principal payments (line 28) as a cash outflow. Nonbusiness expenditures such as family living, nonfarm vehicle expenditures (lines 13 and 14), and income taxes (income statement) as well as the nonfarm portion of other accounts (hired labor and repairs, lines 15 and 16) need to be excluded in order to compute the total cash outflow for the business.

When the business experiences a positive cash flow, a farm operator will want to determine that all cash obligations have been met and not somehow postponed or overlooked because the form of the obligation has changed. One way to determine whether the obligations have been met is to review the balance sheet to be certain that all loan obligations have been paid rather than refinanced with the due date extended into the future. This applies to operating loans as well as current installments of intermediate and long-term debt. The amount of obligations due during the year that remain unpaid at the end of the year has to be treated as a cash shortfall.

It is also important to determine whether the positive cash flow is a consequence of this year's operation or if the cash was generated by selling grain from inventory. Similarly, farm operators need to recognize the impact of nonfarm sources of cash such as interest, dividends, and wages from nonfarm employment. Whether a farmer owns or leases business assets also can impact the operation's cash flow.

A negative cash flow can be an inability to pay obligations as they mature (as suggested in a preceding paragraph) as well as having to use cash reserves on hand at the beginning of the year to pay liabilities. A business is considered to have experienced a negative cash flow to the extent cash reserves at the end of the year are less than cash reserves at the beginning of that year.

Example. Cash inflow during the year for the family described in the appendices was $747 negative while the farm operation generated a positive cash flow of $14,991.

TOTAL CASH INFLOWS		TOTAL CASH OUTFLOWS	
$177,939	total cash available	$213,086	line 37
−2,600	cash in bank on January 1		
+37,000	loan proceeds during the year		
$212,339			

OVERALL CASH FLOW was −$747 (212,339 − 213,086)

TOTAL FARM CASH INFLOWS		TOTAL FARM CASH OUTFLOWS	
$177,939	total cash available	$213,086	total cash outflow
−2,600	cash in bank on January 1	−19,200	family living
−6,912	non-farm income	− 620	non-farm vehicle expense
− 350	other income (interest)	−3,180	income taxes
+37,000	loan proceeds	$190,086	
$205,077			

OVERALL CASH FLOW FOR THE FARM OPERATION was $14,991 (205,077 − 190,086)

Questions to address when cash flow is negative include what is causing the shortfall, whether cash inflow can be increased through greater production as well as marketing for a higher price, and whether underemployed resources can be utilized more fully, including family labor by acquiring an off-farm job. Cash flow can be improved by reducing production costs (as long as cash inflow does not decrease by an equal or greater amount) and postponing capital expenditures. Restructuring financial obligations and reducing nonbusiness expenditures will improve the overall cash flow. A cash flow shortage can be met with the sale of capital assets; however, this may reduce the future earning power of the business.

A related concern when cash flow is negative is whether any creditors are unpaid. It is possible to have paid all creditors and still experience a negative cash flow if the cash shortage is covered with withdrawals from cash reserves such as savings. This is a serious situation even though all creditors are paid. Continued cash shortage in future years will eventually deplete a reserve and will render the operation unable to meet its cash obligations in a timely manner. If there is an unpaid creditor, the farm operator must determine whether the creditor will forego immediate payment or whether a source of cash must be identified to satisfy the creditor. Open communication with a creditor is the best practice if it appears there will be a cash shortage.

Though lenders are interested in cash flow as an indicator of repayability, the borrower must be mindful of what a cash flow reveals and does not reveal about a business. Cash flow is not an indicator of profitability. An income statement (as will be explained more fully in the next section) is used to determine the level of profit or loss experienced by the farm business during the year.

The Income Statement

An income statement (also called a profit and loss statement) is a summary of the cash and noncash income and expenses incurred during a given time, usually a calendar year. The basic objective in preparing an income statement is to value the commodities produced during the year and compare it to the cost of producing those commodities. The difference is referred to as net farm income and is the single most important measure of performance for a farm operation because it measures the business's profitability for the year. It also permits comparison from year to year.

Net farm income is the return to unpaid family and operator labor, equity, and management. In simpler terms, it is the money available for family living expenses, principal payments on loans, payment of income and social security taxes, and savings or investments. Net farm income must be greater than family living expenses and taxes in order for the farm business to grow, but the amount of net farm income can only be determined from an income statement. The following explanation will review only some basic concepts in preparing an income statement; refer to Circular EC-819, Your Income Statement, for a complete discussion on developing an income statement for your business.

The income statement shows how much income was generated, the sources of income, and where it was spent in the business operation. The example income statement included in the appendix is reproduced here in part and will help clarify the discussion as to its interpretation and what might be done to increase profitability.

Preparation of an income statement begins with the cash income and cash expenses of operating the farm business. It is necessary to distinguish between nonbusiness income and expenses and business income and expenses as well as to recognize that expenditures for acquiring captial business assets or reducing business indebtedness are not operating expenses even though they are incurred as part of the business. The cash flow statement can be helpful in completing this first step of preparing an income statement. Similar to the description in the preceding section (see discussion of Cash Flow Statement), nonbusiness cash inflow and outflow must be excluded in order to determine the amount that is attributable to the farm operation. Preparation of the cash portion of an income statement requires that repaid principal and capital purchases (lines 28 and 29 of the example cash flow statement) also must be excluded in order to calculate cash farm expenses. The difference between cash farm income and cash farm expenses is defined as net cash farm income.

Adjustments

Net cash farm income is not a measure of profitability but instead needs to be adjusted for noncash transactions in order to determine net farm income. One adjustment is to account for change in inventory, because some commodities on hand at the beginning of the year (raised during a previous year) may have been sold while part of the current year's production may be held for sale in a subsequent year. In the example, inventory decreased by $3,416, reflecting that value of inventory at end of the year was that much less than it was at the first of the year. A reduction in value of inventory may be due to reduced quantity, reduced price, or both. If it is primarily due to reduced quantity, part of the cash income derived this year resulted from selling commodities produced in a previous year. Adjusting for change in inventory from beginning to end of the year sets the year by itself to help determine profitability for that year's operation.

Example: Income Statement

Cash Farm Income			
Grain sales	$76,735		
Custom work	2,250		
Government payments	25,200		
Livestock sales	24,376		
Other cash farm income	240		
Gross Cash Farm Income		$128,801	
Cash Farm Expenses			
Operating expenses	$84,384		
Breeding livestock purchased	1,500		
Gross Cash Farm Expenses		$ 85,884	
Net Cash Farm Income			$ 42,917
Adjustments			
Inventory change (+ or –)		$ –3,416	
Depreciation, machinery & equipment		– 12,028	
Depreciation on buildings		– 1,000	
Gain or loss on sales of machinery (+ or –)		+ 500	
Value of products consumed at home		+ 0	
Gross Adjustments (+ or –)			$ –15,944
Net Farm Income			$ 26,973
Non-Farm Income			
Off-farm wages (wife)		$ 6,912	
Interest & dividends		350	
Net Non-Farm Income			$ 7,262
Net Income (Before Taxes)			$ 34,235

Net cash farm income also needs to be adjusted for

1) change in the amount of unused assets such as inventoried supplies,
2) change in amount of unpaid items such as balance owed to suppliers,
3) depreciation,
4) gain or loss on sales of machinery and land, and
5) value of products consumed at home.

The second step is to adjust net cash farm income for noncash income and expenses of operating the farm. These adjustments are considered noncash business transactions and are necessary in determining net farm income. One of the more difficult adjustments is an allowance for depreciation.

DEPRECIATION

A depreciation allowance is a noncash cost of doing business necessary to adjust for the reduced value of equipment due to its usage in the business and obsolescence. The concept is to assign part of the cost of equipment to each production season during which it is used so that the total cost of producing commodities during a year can be determined. Cost of machinery and buildings are prorated over their useful life and accounted for by adjusting the net cash income of a business. Since depreciation is listed as a noncash adjustment to net cash farm income, it is spendable income. In lean years it is possible to "live off" depreciation but this cannot be continued indefinitely because machinery and equipment must be replaced.

One method or replacement plan for operators who own their equipment free of indebtedness is to add new investment each year in about the same amount that is consumed in production; that is, spend an amount on replacement equipment equal to that year's depreciation. A second replacement plan is to set aside cash in a reserve account in an amount equal to the year's depreciation so cash is available to complete the purchase when equipment needs replacing. Proceeds in the reserve can be deposited in an interest bearing account or used in the farm operation, whichever provides the greater return. A farm operator will need to borrow in order to replace equipment if neither of these two methods are used and this is likely to increase the cost of doing business. Farm operators who still owe on equipment because it was purchased with borrowed capital are likely to find this "depreciation" cash is needed to repay that debt and therefore may not have the cash to implement either of the two described replacement methods.

ESTIMATING DEPRECIATION ALLOWANCE

The depreciation deduction for purpose of an income statement is not the same as the depreciation allowed for income taxes which is estimated according to the guidelines set forth in federal tax law. Often depreciation for an income statement will be less than depreciation for income taxes. One suggested method for estimating depreciation is to start with your tax depreciation records and adjust it so that is accurately reflects the cost of doing business during the current year.

Change in market value from one year to year to another is one way to estimate depreciation. However, on the income statement, depreciation should take into account only the value change due solely to use of the equipment. This is consistent with the idea that an income statement should not include any changes in value of business assets that are due to inflationary or deflationary pressures. For example, a decrease (or increase) in the value of land owned by the farmer will not appear on an income statement. A change in the value of equipment due to inflation or deflation should be treated in a similar manner. Therefore, using change in market value to estimate depreciation requires separating the total change into two components; 1) change due to use, age, and obsolescence and 2) change due to market forces of inflation and deflation.

The separation can be difficult but it may be possible to estimate the first component by using an economic approach as described in EC-895, Time Value of Money (page 7). The second component then can be computed as the difference between total change in market value and the first component. Only the first component is entered as deprecation in preparation of an income statement even though total change in market value of depreciable property is accounted for in development of the balance sheet.

Using this approach, the balance sheet includes current fair market values yet the income statement is not influenced by inflationary or deflationary pressures. It is possible to identify, by comparing the income statement to change in the balance sheet, the portion of change in net worth that is attributable to market forces on asset values and the portion that is a consequence of usage.

The economic method of estimating depreciation also can be restated as an amount "per unit of use" rather than on a "per year" basis, which assumes a relatively constant annual usage. When using the "per unit" approach, annual depreciation is computed by multiplying the number of units involved in the operation that year times the per unit depreciation. The following example is on a "per hour" basis. The useful life of each type of equipment has been estimated by the American Society of Agricultural Engineers. (A partial list of the estimates is reproduced in "Estimating Farm Machinery Costs," Cooperative Extension Service, NDSU, EC-883, November 1985.) Annual usage in the following example is hypothetical and for illustrative purposes only since hours of use will vary among operators and by year.

Example. Farmer A owns the following machines and uses them in the family's farm operation:

Machine	Initial Investment	Salvage Value	Years of Useful Life	Annual Depreciation*
Combine	$60,000	$5,000	10	$5,500
Tractor	48,000	8,000	12	3,333
Truck	18,500	3,500	15	1,000
Total				$9,333

Machine	Market Value at end of Previous Year	Market Value at end of Current Year	Change in Market Value during Year
Combine	$39,000	$36,500	$ −2,500
Tractor	29,000	20,000	−9,000
Truck	9,000	9,000	0
Total			−11,500

Value of intermediate assets on the balance sheet would show a decrease of $11,500 from the previous year to the current year whereas the income statement would include a depreciation deduction of $9,333. The difference of $2,167 (11,500 − 9,333) is due to deflation of equipment values and is not a consideration in determining the business' profitability.

*Annual depreciation for preparation of an income statement may (but most likely will not) equal the depreciation deduction for income tax purposes.

Example. Farmer A owns the following machines and uses them in the family's farm operation:

Machine	Initial Investment	Salvage Value	Useful Life (hrs)	Depreciation Per Unit (hr)	Annual Usage	Annual Depreciation
Combine	$60,000	$5,000	2,000	$27.50	140 hrs.	$3,850
Tractor	48,000	8,000	12,000	3.33	1100 hrs.	3,663
Truck	18,500	3,500	2,000	7.50	160 hrs.	1,200
Total						$8,713

OTHER ADJUSTMENTS

Three other adjustments to an income statement warrant discussion. These are

1) gain or loss on sale of machinery,
2) gain or loss on sale of land, and
3) accounts receivable and accounts payable under inventory change.

The theory for explaining why these adjustments are needed is relatively simple. More detail will be presented on each of the above-mentioned adjustments after a brief review of the underlying theory.

UNDERLYING THEORY

Sale of machinery or land at a price different from its cost means the seller has earned a profit or incurred a loss. The revenue from such a sale, however, will not appear as part of cash farm income since it is the consequence of selling an asset used in the business rather than selling a commodity produced in operation of the business. Likewise, the cost of the machine or land will not be listed as a cash farm expense for two reasons.

First, the expenditure to acquire it was likely made in an earlier year and therefore is not a cash expense during the current year. Second, the expense of purchasing machinery or land is incurred to acquire an asset to be used in the business rather than being a cost to operate the business. Consequently, gain or loss on the sale of land or machinery is included in the income statement in the form of an adjustment.

Example. A combine was purchased for $48,000 four years ago. The farm operator estimated annual depreciation to be $7,000 based on its anticipated usage. Current book value would be $20,000 (48,000 – (4 × 7,000)). Selling the machine for $21,500 would result in a gain of $1,500 (21,500 – 20,000).

Changes in amount of accounts receivable or payable are included in the income statement in order to accurately reflect the profit or loss generated by the business operation during the year. For example, an account receivable means the business sold commodities that were produced during the year but that will not be paid for by the buyer until a following year. The amount of accounts receivable at end of the year, therefore, is added to cash income to adjust for the portion of the year's production that will not result in a cash inflow this year. Similarly, commodities produced and sold during a prior year but paid for in the current year are part of the cash income for the current year although not part of its production. This discrepancy is adjusted for by subtracting from the current year's income the amount of accounts receivable at the beginning of the year. The process of adding and subtracting to adjust for accounts receivable can be simplified, however, by determining the difference in amount of accounts receivable at the beginning of the year to the amount at the end of the year. Accounts payable are treated similarly (see Schedule 2 of Income Statement in Appendix).

Example. By January 1, 1985, Farmer A had sold all the commodities produced during 1985 but $5,000 remained unpaid. Therefore, both the balance sheet and income statement prepared in early January 1986 recognized this account receivable. During 1986, the $5,000 was collected plus the farmer sold all of 1986's production for $88,000 cash and $4,000 which would be collected in 1987. Cash receipts during 1986 totaled $93,000 (5,000 + 88,000). The $93,000 cash income is adjusted to accurately reflect 1986's production by 1) subtracting the amount of accounts receivable at the beginning of the year and 2) adding the amount of accounts receivable at the end of the year.

$93,000 cash income
– 5,000 accounts receivable at beginning of year
+ 4,000 accounts receivable at end of year

$92,000 value of 1986's production

The simplified approach is to determine the difference between beginning accounts receivable and end of year accounts receivable and adjust the cash income by this difference. In this example, the difference is $1,000 (5,000 – 4,000) which is subtracted from cash income for 1986 (93,000 – 1,000) to arrive at value of 1986's production ($92,000). Had the difference been a negative number (that is, accounts receivable at end of year exceeded the amount of accounts

receivable at beginning of year), the difference would be added to the cash income for the year.

OPERATION VERSUS NON-OPERATION

The objective of the income statement is to determine the profit or loss from operation of the business during the year; that is, to compare the value of commodities produced during the year to the cost of producing those commodities. However, general practice is to include gain or loss from business assets sold during the year even though they are not strictly a product of the year's operation. Therefore, accountants recommend that manufacturing firms distinguish between income derived from sale of the produce and income from sale of business assets on their financial statement. A similar recommendation seems advisable for farm businesses. Appendix 5 includes a possible format for an income statement which distinguishes between income from a farm operation and income from sale of farm business assets.

Land and machinery, although used in the operation of a farm, are not the product of a farm. Therefore, they are considered business assets and income from their sale would not be treated as a result of the farm operation even though depreciation which arises from use of machinery is an expense of the operation.

BREEDING LIVESTOCK

Treatment of breeding livestock (business assets for cow-calf, farrowing, and lambing operators) is more difficult to determine. The reason for the additional difficulty is that a farm operation can produce breeding livestock whereas it cannot produce land or machinery. Livestock raised during the year and added to the breeding herd should be recognized as part of that year's production. The sample income statement in Appendix 4 treats breeding livestock as part of the operation whereas the format in Appendix 5 treats them as a business asset. Either way is acceptable as long as an operator's income statements treat breeding livestock consistently over the years.

Whichever approach is used, it is important to recognize that determination of the value of raised breeding livestock can cause a problem. Common practice is to compare the value of the breeding herd at start of the year to its value at end of the year. This practice not only recognizes physical changes in the breeding herd but also takes into consideration any change in their market value. Thus a cardinal rule in preparing an income statement is broken by reflecting change in market value of some business assets; breeding livestock. An awareness of this unique treatment for breeding livestock plus using conservative values will avoid serious distortions and thereby improve the operator's understanding of the farm business.

LAND SALE

A sale of land also raises a concern as to how it should be treated on an income statement. Land is usually owned at least several years before it is sold, and during this time its value will seldom remain unchanged. Consequently, the amount of gain or loss (difference between the purchase price and the selling price) can be substantial and to show it all in one year would distort the level of income for that year. One suggestion is to show only the amount of gain or loss during the current year; that is, calculate the amount of gain or loss as the difference between the selling price and the value of the land at the beginning of the year. This way only the change in value that occurred during the year is reflected on this year's income statement.

A second approach is to show the entire gain or loss (selling price - historical cost) for the year during which it was sold but emphasize (with either footnote or by identifying it as nonoperating income) that is not a part, product, or result of that year's farm operation. This emphasis will clarify that this year's income is not typical of the operation.

ACCOUNTS PAYABLE AND RECEIVABLE

A question that needs to be considered is how should accounts receivable or payable be defined. It may be necessary to reiterate the purpose of an income statement in order to answer that question. Purpose of an income statement is to compare the value of the current year's production to the cost of producing that production. To the extent not all produce has resulted in cash revenue nor all expenses resulted in a cash outflow, it is necessary to adjust the income statement.

ACCOUNTS PAYABLE

A basic idea that needs to be recognized in defining accounts payable for an income statement is that is does not mean all debt. Accounts payable primarily encompass unpaid suppliers of farm operating inputs. An unpaid obligation to a financial institution which provided operating capital does not require an adjustment on the income statement because the loan proceeds, when used to purchase farm operating supplies, appear as farm operating expenses. Including the unpaid operating loan would amount to double counting of the farm operating expense.

Accounts payable for purpose of the income statement should include only unpaid suppliers of production inputs such as fertilizer, fuel, feed, seed, repairs, and chemicals. Accrued interest on ALL farm debt (whether or not the debt is considered an account payable), accrued taxes, and accrued rents should be included as accounts payable only if they are not listed separately. The sample income statements in Appendices 4 and 5 provide individual blanks for each of these items (Schedule 2). Changes in land or equipment debt as well as change in amount owed to a financial institution which provides operating capital have no effect on calculating the profitability of a farm operation.

Sometimes a farm operator will experience years during which it is impossible to eliminate all accounts payable. An alternative management strategy is to refinance with a lending institution and use the loan proceeds to repay the suppliers. Refinancing does not require an adjustment to the income statement because the reduction in accounts payable is offset by increase in expenses.

ACCOUNTS RECEIVABLE

Obligations owed to the farmer are accounts receivable for purpose of the income statement only if they result from sale of a commodity produced by the farm operation. These would include grain for feed or seed, or livestock. Sale of a business asset (such as land or machinery) with a promise to pay over several years (installment sale or contract for deed) are not accounts receivable for determining profitability of the farm operation.

A related concern is how to report agreements to sell land or machinery for which payments will be completed over time. Clearly, such a transaction will be included in the "non-operation" portion of the income statement. Including all the gain in the year of sale even though payments will be over several years causes profit that year (according to the income statement) to exceed cash income. During the following years when payments are received, cash inflow will exceed income as determined on the income statement. Federal income tax law recognizes the discrepancy between the time of sale and when the cash is received and therefore permits installment reporting of gain from sale of noninventory assets. The accounting practice, on the other hand, is to report the entire selling price in the year of sale but conspicuously note that the payments will be received over several years. An awareness of how these major but infrequent transactions appear on financial statements can result in a better understanding of your farm business.

Nonfarm Income

Most North Dakota farm families have off-farm sources of income whether it be wages of either the operator or spouse, interest or dividends, leases of mineral rights, rents, gifts or inheritances, or income from off-farm investments. For many operations, nonfarm income is the major source of family income. For others it is a minor but important source.

In the example, the wife had income of $6,912 and there was $350 of interest income. This represented 21 percent of the net income before taxes for the particular year in our example.

Reviewing the Income Statement

An operator reviewing the farm's income statement may find that net cash farm income is positive while net farm income is negative. A likely explanation is that the overall effect of noncash adjustment was negative. By comparison, net cash farm income could be negative yet the net farm income be positive if the overall positive noncash adjustment exceeds the negative net cash farm income.

In the example, net farm income is almost $27,000. This is good, or is it? Is it enough to pay family living expenses, taxes, principal payments on debts, and have some left over for savings or investment? Nonfarm income of $7,262 will certainly help and may be the difference in whether or not there was a positive cash flow for the year. This income statement reveals that profits were made, but if there was a positive cash flow statement we would know that family living costs, taxes and principal payments were also covered. Whether or not $27,000 net farm income is good also depends on net worth. This level of net farm income is favorable for a young family with $50,000 in net worth, but it would be unfavorable for a farm having a $500,000 net worth (i.e. the return on equity would be much less for the large farm).

Ratios

Three financial ratios measure your farm's profitability: (1) return on investment, (2) return on net worth and (3) profit margin ratio.

1. **Return on investment =**

$$\frac{\text{Net farm income} + \text{interest paid} - \text{value of unpaid operator and family labor}}{\text{Average total farm assets}}$$

It is difficult to determine the value of unpaid operator and family labor. Net withdrawals for family living expenses can be used as a proxy for unpaid labor and are used in this example. Since we are calculating a return on all capital (both debt and equity), interest paid must be added back because it is the return creditors earned on debt capital. Using $19,200 as the family living expense, and an average of $530,666 for total farm assets $\left(\frac{538{,}099 + \$523{,}233}{2}\right)$ from our beginning and ending balance sheets, we can determine return on investment for our example farm:

$$\text{ROI} = \frac{\$26{,}973 + \$12{,}552 - \$19{,}200}{530{,}666} = .038 \times 100 = 3.8\%$$

While a 3.8 percent return on investment is typical in the current farm economy, it is satisfactory and is in the usual range of 3 to 6 percent.

2. **Return on net worth =**

$$\frac{\text{Net farm income} - \text{value of unpaid operator and family labor}}{\text{Average net worth (farm only)}}$$

Average net worth is $454,949 in our example (determined by dividing beginning net worth $449,211 and ending net worth $460,686 by 2).

$$\text{Return on net worth} = \frac{\$26,973 - \$19,200}{454,949} = .017$$

In using these ratios, total assets and net worth need to be adjusted to exclude nonfarm assets. The return on equity in the example is low considering the high ownership position. Farms with a high equity position and low interest costs should show a return on equity only slightly less than return on investment. The difference between these rates of return will be greater for farms in a low equity position and high interest costs.

Another ratio that is used to measure efficiency is the profit margin ratio. It shows the proportion of the value of production, as adjusted, earned by the operation as a return to capital and management.

3. **Profit Margin Ratio =**

$$\frac{\text{Net farm income} + \text{interest paid} - \text{value of unpaid operator and family labor}}{\text{Value of farm production}}$$

The value of farm production is gross cash farm income ± adjustments in notes and accounts receivable – livestock purchases and feed purchases. In the example gross cash farm income is $128,801, livestock purchased is $1,500 and feed purchased is $4,589. (No adjustment for notes and accounts receivable.) The profit margin ratio for the example farm is:

$$\text{Profit margin ratio} = \frac{\$26,973 + \$12,552 - \$19,200}{\$122,712} = .166$$

This shows a profit per dollar of adjusted gross production of 16.6 cents, which is weak and helps explain why the return on equity is low.

Assuming there is dissatisfaction with the present net farm income, what are ways that it might be improved? A business has two ways to increase profits; either by increasing the volume of production or improving the profit per unit produced.

Increasing Net Farm Income

1. Increase production - doing a better job to achieve higher yields either in crops or livestock will generate more to sell. Care must be taken that the extra production (and value) is worth more than any extra cost to produce it.
2. Produce more efficiently. This may be done by finding ways to produce the same volume with less cost. In the example, a 5 percent reduction in operating costs results in 10.3 percent increase in net farm income (providing there is no effect on cash sales).
3. Market more wisely. Develop a marketing plan to try to achieve a higher price for the products you raise. Try to avoid having to sell to meet debt payments unless it also coincides with your marketing plan. Let your lenders know what you are doing. Know your costs of production; this is necessary in developing a marketing plan.
4. Carefully budget whether or not to participate in the farm program to maximize profit. The farm program offers a form of price protection on some crops and generally provides more income than nonparticipation. It will usually be to your advantage to prove yields for purposes of the program. This budgeting process also should address the extent to which an operator will want to participate in the farm program.
5. Take steps to reduce costs of inputs by purchasing in bulk or combining orders with neighbors to negotiate a better price.

These five suggestions make it necessary for the farm operator to understand the overall business as well as each enterprise with the farm operation. Detailed enterprise budgets and records are a necessity in determining the cost of producing a commodity. This information also may reveal how the farm business could be operated more efficiently.

Collective Review of the Financial Statements

Only in rare instances will the "bottom line" on each statement indicate similar results; for instance, net worth increased by $10,000, while a positive cash flow of $10,000 was realized and the income statement reports a $10,000 profit. Almost inevitably, the numbers will be of varying amounts and may even be opposite in sign; that is, net worth decreased although the income statement reported a profit for the year. A farm operator should not expect nor strive for the same "bottom line" on each financial statement, but comparing outcomes will reveal something about the business. Consequently, farm operators must review all three in order to more fully understand their business.

This section has two purposes; the first is to explain reasons for variation among the "bottom lines" of a farm's financial statements; for instance, why is the level of profit greater than the increase in net worth. The second purpose is to suggest interpretations for various combinations of "bottom lines;" for example, what does it mean if a business's net worth increased during the year and its overall cash flow

was positive but its operation was unprofitable. An awareness of the reasons for variation improves interpretation of the financial statements and understanding of the farm business.

REASONS FOR VARIATION AMONG FINANCIAL STATEMENTS

Each financial statement requires distinctive data in its preparation and provides unique information. These differences, when coupled with the myriad of farm business transactions and the complexity of our economy, assure that the "bottom line" of each statement will vary. Table 3 summarizes some causes of the variations.

Table 3. Causes of Variation Among a Farm Business' Change in Net Worth, Level of Profit, and Overall Cash Flow.

Reasons for Level of Profit to Differ from Change in Net Worth

(1) owner's cash contributions or withdrawals
(2) change in market value of the business assets

Reasons for Overall Cash Flow to Differ from Level of Profit

(1) owner's cash contributions or withdrawals
(2) sold business assets with a basis not equal to amount still owed on it
(3) depreciation allowance was not used for replacement or improvements
(4) cash used to repay principal or purchase capital assets
(5) borrowed additional funds and did not spend them or spent them on operating expenses
(6) change in inventory of supplies or stored commodities
(7) change in amount of accounts payable
(8) change in amount of accounts receivable

Reason for Overall Cash Flow to Differ from Change in Net Worth

(1) owner's noncash contributions or withdrawals
(2) change in market value of the business assets
(3) withdrew depreciation allowance from the business
(4) cash used to repay principal or purchase capital assets
(5) borrowed additional funds but withdrew the proceeds from the business or did not spend them
(6) change in inventory of supplies or stored commodities
(7) change in amount of accounts payable
(8) change in amount of accounts receivable

LEVEL OF PROFIT DIFFERS FROM CHANGE IN NET WORTH

Net worth or equity in a business increases as a result of any one or a combination of three factors which are:

1) profitable operation,
2) inflation increasing the value of business assets, and
3) the owner contributes additional resources to the business by converting assets from a nonfarm use to a farm application.

The three opposite transactions reduce a business's net worth; these are unprofitable operation, deflation, and owner withdrawals. Therefore, any variation between a farm's level of profit for the year and the change in the business's net worth is a consequence of (1) change in market value of the business assets and (2) the owner's contributions or withdrawals. Most farm families find the level of profit to be greater than the increase in the business's net worth because withdrawals for personal living expenses are necessary if the farm operation is the major source of the family's income.

OVERALL CASH FLOW DIFFERS FROM LEVEL OF PROFIT

The basic reason for a difference between the overall cash flow and the level of profit is that some cash inflows are not considered income and some cash outflows are not operating expenses. Furthermore, some expenses do not require a cash outflow and some income does not generate a cash inflow. Family living expenses, capital acquisitions or improvements, and principal portion of a debt repayment are examples of cash outflows (or withdrawals) that are not deducted when computing profit. Consequently, the overall cash position will exceed the business's level of profit. The result is just the opposite when cash derived from another source is invested in (contributed to) the farm business.

The adjustments on the income statement further explain why the overall cash flow and level of profit differ. These adjustments include change in inventory, accounts receivable and accounts payable. There is income for the purpose of determining profit when the inventory of supplies or commodities grows, when accounts payable decrease, or when accounts payable increase but there is no corresponding cash inflow. There is a negative effect on the level of profit without a cash outflow when the opposite occurs. For example, retaining a significant portion of a year's produce as stored inventory (without acquiring a Commodity Credit Corporation loan) will cause profit to exceed cash inflow.

Similarly, a cash flow statement does not include all costs of operating a business; it is a record of only those expenditures that require a cash outflow. Depreciation is an example of a cost that does not require a corresponding cash outflow. Commodities produced with depreciable assets will be sold for

cash yet the amount needed to compensate for depreciation will not necessarily be paid out as cash. Therefore, it is possible that the business will have more cash than profit because income from using depreciable equipment is retained as cash rather than used to replace or improve machinery. It is important to realize that using equipment to produce commodities which are sold for cash is really liquidation of the equipment over time.

Generally, borrowing additional money will not affect the business's level of profit or the cash flow position if the loan proceeds are used to purchase a business asset. In that case, the cash inflow (loan proceeds) equals the cash outflow (purchase price) so there is no change to the cash flow position. Furthermore, the expenditure is not deductible as an operating expense and has insignificant impact on the level of profit. On the other hand, using loan proceeds for an operating expense will reduce the business's level of profit but not affect the overall cash flow. The only other way borrowing money will increase the cash position without affecting the level of profit is for the money to be borrowed but not spent. This will not happen often since prudent business operators will recognize that such activity is likely to be unprofitable.

OVERALL CASH FLOW DIFFERS FROM CHANGE IN NET WORTH

Similar reasons explain why the overall cash flow position would differ from the change in net worth. Noncash contributions and withdrawals are one example. Converting an asset from a use in the farm operation to a nonfarm purpose decreases the amount of assets which, in turn, diminishes the owner's equity in the business. Such conversions do not involve cash and therefore are not part of the cash flow and have no impact upon it. Inflation and deflation of asset values also affect net worth but do not involve a cash flow nor a business transaction.

As explained above, a business's depreciation allowance is being converted to cash if it is not used to replace or improve depreciable assets. This does not affect the owner's net worth in the farm operations unless the cash is withdrawn from the business. Consequently, change in net worth will be different from the farm operation's overall cash flow position to the extent the depreciation allowance is not reinvested in business assets but instead is used for operating expenses or withdrawn and used for nonfarm purposes such as family living. This is sometimes referred to as "living off of depreciation."

Repaying principal portion of a debt or purchasing capital assets are cash outflows but do not affect net worth since the transactions simply convert the form of the asset from cash to equipment or land. Similarly, changes in inventory, accounts payable and accounts receivables affect net worth without a cash transaction. The result of these transactions is that the overall cash flow position will not equal the owner's change in net worth.

Generally borrowing additional money will not affect the business's net worth or the cash flow position if the loan proceeds are used to purchase a business asset. In that case, the cash inflow (loan proceeds) equals the cash outflow (purchase price) so there is no change to the cash flow position. Furthermore, the new debt will equal the value of the recently acquired asset so there is no change in the net worth of the business. On the other hand, withdrawing the loan proceeds from the business and using them for a nonfarm use will reduce the business' net worth but not affect the overall cash flow. Therefore, the only way borrowing money will increase the cash position without affecting net worth is for the money to be borrowed and not spent. As suggested earlier, this will not happen often since prudent business operators will recognize that such activity is likely to be unprofitable.

There are numerous reasons why the "bottom line" of the three financial statements will vary and the preceding discussion identified some of the reasons. The following section suggests interpretations for these differences.

INTERPRETING THE "BOTTOM LINES"

Numerous combinations of "bottom lines" are possible when the three financial statements are compared. These combinations follow eight patterns. Table 4 illustrates these eight patterns and can be used as a guide to understand the remaining discussion in this section. Reference to the balance sheet means the extent a business's net worth changed since preparation of the previous balance sheet. For example, what is the net worth as of January 1, 1986 compared to the net worth as of January 1, 1987. A positive change means the net worth increased during the year (1986) while a negative change indicates a decrease. Positive cash flow describes a situation where total cash inflows during the year exceeded the cash outflows. A negative cash flow refers to the opposite condition. A positive income statement means a profit was generated during the year whereas a negative income statement describes a year during which the business incurred a loss.

Table 4. Possible Patterns of Outcomes for Financial Statements of a Business.

Situation	Change in Net Worth	Cash Flow	Income Statement
1	+	+	+
2	+	+	−
3	+	−	+
4	+	−	−
5	−	+	+
6	−	+	−
7	−	−	+
8	−	−	−

Throughout this publication, it has been necessary to distinguish between farm business and nonfarm activities and that distinction continues to be important. The remaining discussion considers only the farm business portion when determining the change in net worth and profit or loss whereas farm and nonfarm are combined when considering the cash flow. This different treatment is warranted because the goal is to analyze the family farm business rather than the family's total income or property holdings. The family will want to determine what is happening to the net worth of its farm and whether it is profitable or incurring a loss. Total cash flow is considered, however, because business owners are likely to use cash from whatever source to continue operation of their farms during a given year.

***Situation 1 - Increased Net Worth, Positive Cash Flow and Profit**

This is the situation (as shown in the Appendices) all business owners desire; the farm was profitable (a net farm income of $26,973), the owner's net worth increased by $11,482 ($460,692 – 449,210), and the farm generated a positive cash flow of $14,991 (recall that the overall cash flow was – $747, see page 7). However, more can be learned about the operation because the dollar amount of profit, increase in net worth, and positive cash flow are not the same.

Withdrawing cash from the business to meet family living expenses depletes the business's cash reserve and its owner's equity but does not alter the level of profit. It is possible to determine the amount the family withdrew from the farm operation. According to the cash flow statement and income statement, the family spend $23,000 cash nonfarm expenses (that is, $19,200 family living, $620 nonfarm vehicle expense, and $3,180 for income and self-employment taxes). Total cash received from nonfarm sources was $7,262 (off-farm wages of $6,912 and interest income $350). This means $15,738 ($23,000 – 7,262) was withdrawn from the farm to meet nonfarm expenses. Having withdrawn $15,738 dollars for nonfarm expenses from the farm's profit of $26,973 leaves $11,235 ($26,973 – 15,738) to reinvest in the business and increase the owner's net worth. Since net worth increased by $11,482, the remaining approximately $250 ($11,482 – 11,235) must have been gained through inflated values of business assets. The operator would now know more precisely how the farm's profit was being used.

Cash flow for the farm operation, although it was positive, was significantly less than the level of profit ($14,991 positive cash flow compared to $26,973 profit). Note that the positive cash flow from the farm operation ($14,991) minus the amount withdrawn from the business ($15,738) equals the overall cash flow (– $747).

Having a positive cash flow in excess of the business profit may sound like a desirable situation but operators must be careful not to misunderstand what is occurring. The reasons presented above as to why cash flow may exceed the level of profit have a common characteristic of liquidating assets of the farm operation. Unless this cash is reinvested in the business or set aside for future reinvestment, there may not be sufficient cash to re-equip the farm once the current assets have been consumed. Cash in excess of profit may mislead an uninformed business owner to take actions that can have long term negative implications, such as increasing family living expenditures.

***Situation 2 - Increased Net Worth, Positive Cash Flow, but Loss**

As stated above, the primary reasons for increasing net worth are profitable operation, inflation, or owner's contributions. This situation assumes a loss is incurred (rather than profit) so any increase in net worth is due solely to inflation of asset values or added investment. Assuming a minimum amount of nonfarm assets is converted to the farm operation, total impact of inflation can be calculated by adding the amount of loss and the increase in net worth.

Relying solely on the change in net worth as revealed by the balance sheet can mislead a farm operator and lender to conclude that the operation is profitable. This may have been the case during the late 1970s. Rapidly inflating land values compensated for low profitability, and without preparing an income statement there was little opportunity to recognize what was occurring. Inflation is easily misinterpreted as profit.

Cash flow can be positive even though a loss is incurred. The same explanations presented as to why an overall cash flow position can exceed amount of profit also apply here. Situation 2, however, is characterized by rapid inflation so the most likely explanation of why overall cash position would be positive even though the operation incurred a loss would be that additional funds were borrowed based on an increased net worth.

***Situation 3 - Increased Net Worth, Negative Cash Flow, but Profit**

For purpose of comparing profit to net worth, the ideas expressed in a preceding section (Level of Profit Differs from Change in Net Worth) address whether the increase in net worth is due to profit, inflation, owner's contributions or a combination of the three. Operators must be aware that if profit is greater than the increase in net worth, there may have been deflation of business asset values (but it was less than the amount of profit) or the operator made withdrawals from the business. The dollar impact of inflation can be determined as:

Amount of inflation = change in net worth – net farm profit – contributions + withdrawals

Change in net worth can be observed from the two balance sheets whereas net farm profit is found on the income statement. Withdrawals and contribu-

tions may require some further computations, but the idea is to compare the amount of cash and assets withdrawn from the farm and used for consumption or nonfarm investment to the amount transferred from nonfarm sources to the farm operation. The cash flow statement may be of considerable assistance in identifying these transfers, but other informational sources will be needed for noncash transactions.

This situation also addresses when net farm income is positive but the business experiences a tight cash flow. Reasons for a profitable business to experience a tight cash flow include increases in inventory, repayment of debt principal, and acquisition or improvement of capital assets such as buildings, breeding livestock, or equipment. Excessive withdrawals from the business should not be the cause of the tight cash flow unless the increase in net worth is a result of inflation. A farm operation experiencing tight cash flow even though it is profitable is likely to warrant additional credit if it appears reasonable that the business will continue to be profitable and regain its ability to pay its cash obligations by altering its cash spending practices.

***Situation 4 - Increased Net Worth, but Negative Cash Flow and Loss**

Although a business's net worth can be increased by the owner transferring nonfarm assets to the farm operation, the most likely explanation for an increase in net worth is due to inflating business asset values and that the amount of inflation was greater than the operation's loss. A person who extensively relies upon only the balance sheet to analyze the farm operation is not likely to recognize the seriousness of the situation. The ideas expressed in the discussion of Situation 2 also apply in this case.

Farmers and lenders must be careful not to be misled into further borrowing based on increased net worth without understanding why there is a tight cash flow. Depreciation should permit negative cash flow to be less than loss if the depreciation allowance is not spent on replacement. This may be an appropriate time to temporarily "live off of depreciation" if the farm can reasonably be expected to again be profitable in the near future.

If it is not readily apparent why there was a loss, it may be helpful to compare the current year's income statement and production records with those of past years. Was the loss due to reduced yields, poorer prices, increased costs, negative adjustments, or combination of these? These factors also can cause negative cash flow.

***Situation 5 - Decreased Net Worth, but Positive Cash Flow and Profit**

Again net worth is influenced by market pressures on asset values (deflation in this case) to such an extent that value decreases exceed the profit earned by the farm. Excessive withdrawals for consumption and family living also can cause a profitable operation to experience a diminishing net worth, but this is not likely the case; otherwise the cash flow would be tighter. Therefore, the focus will be upon a method to identify the dollar impact of deflation.

Deflation can be estimated with a formula that simply restates the ideas discussed in Situation 1. The formula would be:

Amount of deflation = change in net worth + net farm profit + contributions – withdrawals

The sources of this information are the same as explained in Situation 3.

The relation between cash flow and profit level of business would be the same as discussed in Situation 1.

***Situtation 6 - Decreased Net Worth, Positive Cash Flow, Loss**

Sufficient cash flow but negative net farm income can arise when stored inventory is sold or when capital expenditures necessary to replace depreciation are not made. This is "living off of depreciation" and cannot continue. Adequate cash and a loss also can occur when assets are sold with the proceeds used to pay cash obligations.

An important step in this situation is to determine why net worth decreased; was it due to the loss, deflation, withdrawals, or a combination of the three. If the decrease in net worth is less than the loss, asset values are likely to have inflated and partially offset the operating loss. If the decrease is greater than the loss, the difference is due to withdrawals or deflation. The impact of these two factors can be distinguished by calculating the amount of withdrawals (less any contributions) and comparing it to the difference between net worth decrease and loss. Deflation is the likely explanation why the difference would be greater than withdrawals. There was no deflation if withdrawals exceed the difference.

This is a situation of survival in the short run. Profits must be made soon to turn this situation around.

***Situation 7 - Decreased Net Worth, Negative Cash Flow, but Profit**

Again net worth is diminished by deflation of asset value similar to situation 5, but the negative cash flow is due to circumstances similar to those described in situation 3; i.e. cash outflow was used to acquire assets and services not considered expenses on the income statement. This may be the situation many operators are experiencing during the 1980s. The operation is profitable but decreasing asset values are reducing net worths. More significantly, excessive principal payments are depleting cash resources and leaving the operation unable to repay its debts. This combination is

rendering it more difficult for the heavily indebted farm to continue operating even though the value of its produce may be greater than the variable cost of producing it.

This situation also may result from excessive withdrawals from the business for family living or nonfarm investments even though the impact of inflation or deflation is insignificant. If that is the case, withdrawals should be reduced at least enough to eliminate the negative cash flow. Withdrawals will need to be further reduced if the decrease in net worth begins to adversely affect the profitability of the farm operation.

***Situation 8 - Decrease Net Worth, Cash Flow and Profit are Negative**

This has been a common situation for those in serious financial condition. Equity has been eroding due to deflation in land values and inability to pay debts. (Unpaid interest is accumulating, which causes the decrease in net worth and loss.) Cash flow is negative because of lower prices for commodities and/or low yields, high interest costs and debt obligations. Profits are negative because of the cost-price squeeze and reduction of inventories.

The magnitude of the negative amounts or decreases on the three financial statements is more important than the fact that they are negative. However, the warning signs are there and steps must be taken to turn the situation around or the situation will worsen rapidly.

Conclusion

Attention must be given to developing a good set of farm records which not only allow preparation of the financial statements, but also determine costs for each enterprise. The records need to be sufficient to determine which enterprises are profitable and which are not. In addition, long range farm planning (three to five years) budgets need to be constructed to see if, and how, profits can be improved.

Goals for the farm business and farm family need to be set, with priorities established for each. These goals should be both short run and long run in nature. A plan should be formulated as to how to carry out these goals. The plan may be altered to fit changing conditions.

Summary

Generally, the positive change in net worth on the balance sheet, to the extent it is greater than the profit shown on the income statement, is due to inflation. Inflation and deflation can affect the balance sheet to offset or augment the change in net worth as a consequence of profit or loss (as observed from the income statement).

Cash flow is not a measurement of profit or loss. It merely records whether the operator had access to cash to meet obligations as they came due.

It is possible for the business to experience a loss on the income statement yet generate a positive cash flow. This combination is often the consequence of liquidating inventory or equipment. Creditors are probably interested in the cash flow since they demand repayment in cash. The owner/operator, in addition to being interested in satisfying creditors with cash repayment, should be concerned about the business's long term financial condition. Therefore, a loss on the income statement must be given serious review even though the operation can generate a positive cash flow.

APPENDIX 1

Beginning
BALANCE SHEET

Name: _____

Date Jan. 1, Year 1 Signature: _____

CURRENT ASSETS	Assets normally sold or converted to cash during year	CURRENT VALUE
Cash 2,600	Savings 5000	7,600
Accts. Receivable		
Marketable Securities		
Hedging Account Equity		

Commodities for Sales & Feed Kind	No. units	Unit Value	✓if under contract	
Sunflower	1350 cwt	9.00		12,150
Barley	1000 bu	1.65		1,650
Alfalfa	60 T.	50		3,000

Investment in Growing Crops			
Feed Straw 800	Seed		800
Fert.	Chem.		
Fuel 600	Other Supplies		600

Livestock Held for Sale	No.	Weight	Unit value	
Steer calves	25	6.75 cwt	68	11,475
Heifer calves	25	6.25 cwt	63	9,844

Non-farm	
Amounts from Schedule 1	
1. CURRENT ASSETS SUBTOTAL	47,119

I.T. ASSETS	Assets not normally sold during the year			
Breeding Livestock	No.	Weight	Unit value	
Cows	50	1100	450/hd	22,500
Repl. Heifers	10	1000	400/hd	4,000
Bulls	2	1500	750/hd	1,500

Auto(s) (yr., make, model)		2,000
Truck(s)		
Machinery Book value:	80,360	123,080
Book value:		
Retirement accts.	Notes rec'bl	
Securities	Cash value life ins. 3,500	3,500
Non-farm		
Amounts from Schedule 2		
2. INTERMEDIATE TERM ASSETS SUBTOTAL		156,580

LONG-TERM ASSETS	Farm buildings and real estate			
Description	Year purchased	Orig. cost	Improvement cost since purchase	
960 A.		48,000		312,000
Bldgs				15,000

Contract(s) notes rec'bl		
Non-farm House		15,000
Amounts from Schedule 3		
3. LONG-TERM ASSETS SUBTOTAL		342,000
TOTAL ASSETS (1 + 2 + 3)		545,699

CURRENT LIABILITIES	Amounts due in 1 year Creditor(s) name	AMOUNT(S) OWED
Feed		
Seed		
Fertilizer		
Chemicals		
Fuel		
Repairs		
Other Accounts		
Rent(s)/Lease(s)		
Estimated & Accrued: Income Tax 1,180	Soc. Sec. 2,000	3,180
R.E. Taxes		4,960

NOTES TO:	Date due	

Principal Portion I.T. Liab. due in 12 mo. (from below)		9,729
Principal Portion L.T. Liab. due in 12 mo.		16,497
Accrued int. – notes		
Accrued int. I.T. $ 1,399 L.T. $ 2,210		3,609
Non-farm		
Amounts from Schedule 4		
4. CURRENT LIABILITIES SUBTOTAL		37,975

I.T. LIABILITIES	Debts due in more than 1 and less than 10 years (less current amounts)			
PAYABLE TO:	Pymt. due	Princ. balance	(–) Princ. due in 12 mo.	
John Deere	Oct. 1	16,153	8,076	8,077
Farmers Bank	Sept. 10	4,066	1,653	2,413
Non-farm				
SHOW TOTAL IN CURRENT ABOVE			9,729	
Life ins. loans				
Amounts from Schedule 5				
5. INTERMEDIATE TERM LIABILITIES SUBTOTAL				10,490

LONG-TERM LIABILITIES	Debts due in more than 10 yrs. (less current amounts)			
CREDITOR(S) NAME:	Pymt. due	Princ. balance	(–) Princ. due in 12 mo.	
Uncle	Aug. 3	55,570	12,152	43,418
Dad	Sept. 17	8,951	4,345	4,606
Non-farm				
SHOW TOTAL IN CURRENT ABOVE			16,497	
Amounts from Schedule 6				
6. LONG-TERM LIABILITIES SUBTOTAL				48,024
TOTAL LIABILITIES (4 + 5 + 6)				96,489
NET WORTH (Prior Year $)				449,210

APPENDIX 2

Ending
BALANCE SHEET

Name: _____

Date Jan. 1, Year 2 Signature: _____

CURRENT ASSETS	Assets normally sold or converted to cash during year	CURRENT VALUE
Cash 1,853	Savings 5000	6,853
Accts. Receivable		
Marketable Securities		
Hedging Account Equity		
Commodities for Sales & Feed		

Kind	No. units	Unit Value	✓if under contract	
Sunflower	1480 cwt	8.90		13,172
Barley	1500 bu	1.70		2,550
Alfalfa	60 T	50		3,000

Investment in Growing Crops		
Feed 90 T. Straw, K440 Seed		1,440
Fert.	Chem.	
Fuel $500	Other Supplies	500

Livestock Held for Sale	No.	Weight	Unit value	
Steer Calves	25	6.75 cwt	62	10,463
Heifer Calves	25	6.25 cwt	57	8,906

Non-farm	
Amounts from Schedule 1	
1. CURRENT ASSETS SUBTOTAL	46,884

I.T. ASSETS	Assets not normally sold during the year	

Breeding Livestock	No.	Weight	Unit value	
Cows	50	1,100	450/hd	22,500
Bulls	2	1,500	50/cwt	1,500

Auto(s) (yr., make, model)		1,600
Truck(s)		
Machinery Book value:	68,332	112,752
Book value:		
Retirement accts.	Notes rec'bl	
Securities	Cash value life ins. 3,850	3,850
Non-farm		
Amounts from Schedule 2		
2. INTERMEDIATE TERM ASSETS SUBTOTAL		142,202

LONG-TERM ASSETS	Farm buildings and real estate			

Description	Year purchased	Orig. cost	Improvement cost since purchase	
960 A.		48,000		312,000
Bldgs.				14,000

Contract(s) notes rec'bl		
Non-farm House		15,000
Amounts from Schedule 3		
3. LONG-TERM ASSETS SUBTOTAL		341,000
TOTAL ASSETS (1 + 2 + 3)		530,086

CURRENT LIABILITIES	Amounts due in 1 year Creditor(s) name	AMOUNT(S) OWED
Feed		
Seed		
Fertilizer		
Chemicals		
Fuel		
Repairs		
Other Accounts		
Rent(s)/Lease(s)		
Estimated & Accrued: Income Tax 1,239	Soc. Sec. 2,335	3,574
R.E. Taxes		5,307

NOTES TO:	Date due	

Principal Portion I.T. Liab. due in 12 mo. (from below)		9,730
Principal Portion L.T. Liab. due in 12 mo.		16,497
Accrued int. – notes		
Accrued int. I.T. $ 313 L.T. $ 1,686		1,999
Non-farm		
Amounts from Schedule 4		
4. CURRENT LIABILITIES SUBTOTAL		37,107

I.T. LIABILITIES	Debts due in more than 1 and less than 10 years (less current amounts)			

PAYABLE TO:	Pymt. due	Princ. balance	(–) Princ. due in 12 mo.	
John Deere	Oct. 1	8,077	8,077	—
Farmers Bank	Sept. 10	2,413	1,653	760
Non-farm				
SHOW TOTAL IN CURRENT ABOVE			9,730	
Life ins. loans				
Amounts from Schedule 5				
5. INTERMEDIATE TERM LIABILITIES SUBTOTAL				760

LONG-TERM LIABILITIES	Debts due in more than 10 yrs. (less current amounts)			

CREDITOR(S) NAME:	Pymt. due	Princ. balance	(–) Princ. due in 12 mo.	
Uncle	Aug. 3	43,418	12,152	31,266
Dad	Sept. 17	4,606	4,345	261
Non-farm				
SHOW TOTAL IN CURRENT ABOVE			16,497	
Amounts from Schedule 6				
6. LONG-TERM LIABILITIES SUBTOTAL				31,527
TOTAL LIABILITIES (4 + 5 + 6)				69,394
NET WORTH (Prior Year $)				460,692

APPENDIX 3

CASH FLOW STATEMENT*

Date: Year 1

CASH INFLOWS	Ledger column(s)	1 Actual total last year	2 Projected total this year	3 Jan.	4 Feb.	5 March	6 April	7 May	8 June	9 July	10 Aug.	11 Sept.	12 Oct.	13 Nov.	14 Dec.	
1. Cash in bank		2,600		2,600	(144)	3,717	24,328	12,642	948	10,824	6,480	23,216	15,041	2,018	6,077	1
2. Crop sales	4,6,8,10,12	76,735							12,825					18,400	45,510	2
3. CCC loans	14	38,776									38,776					3
4. Custom work	15	2,250													2,250	4
5. Patronage dividends	16	240						240								5
6. Gov't program payments	18	25,200												25,200		6
7. Farm capital sales	24	500													500	7
8. Non-farm income	25,26	6,912		576	576	576	576	576	576	576	576	576	576	576	576	8
9. Livestock product sales	29															9
10. Livestock sales	30,31,32	24,376			13,175	6,851					720			3,630		10
11. Other income		350													350	11
12. **Total cash available (add line 1-11)**		177,939		3,176	13,607	11,144	24,904	13,458	14,349	11,400	46,552	23,786	15,617	49,824	55,263	12
CASH OUTFLOWS																
13. Family living	2	19,200		1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	13
14. Non-farm vehicle exp.	3	620		620												14
15. Hired labor	4	1,205							1,205							15
16. Repairs	5,6,7	5,821			150	4,951				720						16
17. Land rent	8	12,000													12,000	17
18. Seed	9	5,265				5,265										18
19. Fertilizer	10	12,340						12,340								19
20. Chemicals	11	8,590						8,590								20
21. Machine hire	12	720							720							21
22. Crop & general supplies	13															22
23. Farm fuel	14	8,350					8,350									23
24. Insurance	16,17	3,080		1,100				1,980								24
25. Taxes	18	8,140			8,140											25
26. Utilities	19	2,600								2,600						26
27. Interest	21	12,552									5,001	1,147	2,423	2,947	1,034	27
28. Principal	22	63,226									12,152	5,998	8,076	37,000		28
29. Capital purchases	24	2,200												2,200		29
30. CCC buyback	25	38,776													38,776	30
31. Livestock supplies	27	2,085					2,085									31
32. Livestock purch.	28	1,500											1,500			32
33. Veterinary-medicine	29	227					227									33
34. Feed	30	4,589									4,589					34
35.																35
36.																36
37. TOTAL CASH REQUIRED (add lines 13 through 36)		213,086		3,320	9,890	11,816	12,262	24,510	3,525	4,920	23,342	8,745	13,599	43,747	53,410	37
38. CASH SURPLUS OR CASH DEFICIT (line 12 minus 37)		1,853*		(144)	3,717	(672)	12,642	(11,052)	10,824	6,480	23,210	15,041	2,018	6,077	1,853	38
39. Money borrowed		37,000				25,000		12,000								39
40. Balance						25,000	25,000	37,000	37,000	37,000	37,000	37,000	37,000	0		40

*Final cash surplus or deficit equals Total Cash Available, line 12, ($177,939) plus Money Borrowed, line 39 ($37,000) minus Total Cash Required, line 37 ($213,086).

APPENDIX 4

Income Statement For 12 Months Ending Dec. 31, ~~19~~ Year 1

Cash Farm Income			
Grain and hay sales	16,735		
CCC loans (if reported as income)			
Custom machine work	2,250		
Government payments	25,200		
Livestock product sales			
Livestock sales (market and breeding)	24,376		
Other cash farm income (include refunds on purchases)	240		
Gross Cash Farm Income		128,801 (1)	
Cash Farm Expenses			
Cash operating expenses (see schedule 1 on reverse side)	84,384		
Breeding livestock purchases	1,500		
Gross Cash Farm Expenses		(–) 85,884 (2)	
Net Cash Farm Income (Line 1 – Line 2)			42,917 (3)
Adjustments			
Inventory change (see schedule 2 on reverse side)		(~~±~~) 3,416 (4)	
Depreciation on machinery and equipment (depreciation record)		(–) 12,028 (5)	
Depreciation on buildings and improvements (depreciation record)		(–) 1,000 (6)	
Gain or loss on machinery and equipment:			
Gross sales of machinery and equipment	a. 500		
Less remaining cost (as per depreciation record)	b. 0		
Gain or loss (a – b)		+ (~~±~~) 500 (7)	
Adjustment for sale of real estate			
Gross sales_____, less cost of selling_____	c._____		
Less net beginning of year value from balance sheet	d._____		
Net adjustment for real estate (c – d)		(±) _____ (8)	
Value of products consumed at home		(+) _____ (9)	
Gross Adjustments To Net Cash Farm Income (add lines 4 through 9)			(~~±~~) -15,944 (10)
NET FARM INCOME (Line 3 + Line 10)			26,973 (11)
Non-Farm Income			
Operator's wage off farm minus expenses		_____ (12)	
Wife's wages off farm minus expenses		6,912 (13)	
Interest and dividend income		350 (14)	
Gifts or inheritances		_____ (15)	
Gain or loss on securities (see schedule 3 on reverse side)		_____ (16)	
Non-farm inventory change		_____ (17)	
Net income: other farms or non-farm real estate		_____ (18)	
Net Non-Farm Income (add lines 12 through 18)			7,262 (19)
Net Income Before Taxes (Line 11 + Line 19)			34,235 (20)
Income and Social Security Taxes		3,180 (–) (21)	
NET INCOME (Line 20 – Line 21)			31,055 (22)

Schedule 1 — Farm Operating Expenses

(from farm records or tax form 1040-F)

Hired Labor	1,205
Repairs and maintenance	5,821
Rents, leases	12,000
Seed purchased	5,265
Fertilizer	12,340
Chemicals	8,590
Machine hire	720
Crop and general supplies	
Farm fuel	8,350
Insurance	3,080
Real estate taxes	4,960
Utilities	2,600
Interest	12,552
Livestock supplies	2,085
Livestock purchased for resale	
Veterinary - medicine	227
Feed purchased	4,589
Other	
Total Farm Operating Expense	84,384

Schedule 2. Inventory Changes From Beginning to End of Year

Expense Adjustment (unused assets)	Beginning Inventory	Ending Inventory	Change
Grain and feeds	17,600	20,162	
Livestock to be sold	21,319	19,369	
Breeding livestock	28,000	24,000	
Prepaid expenses			
Seed, supplies	600	500	
Cash invested in growing crops			
Farm accounts receivable			
Other	13,100	12,303	
Total	(a) 80,619	(d) 76,334	
Expense Adjustment (unpaid items)			
Farm accounts payable			
Accrued interest	3,609	1,999	
Accrued taxes	8,140	8,881	
Accrued cash rent			
Total	(b) 11,749	(e) 10,880	
Unused assets — unpaid items	(c) 68,870	(f) 65,454	
Net Inventory Change			(g) -3,416

Line a – line b = line c
Line d – line 3 = line f

If line c is greater than line f, line g is (–)
If line f is greater than line c, line g is (+)
Do not include current loans.

Schedule 3 — Gain or Loss on Marketable and Unmarketable Securities

End of year value		
Sales during year		
Total		(+) (1)
Purchased during year		
Beginning of year value		
Total		(–) (2)
Gain or Loss (1 – 2)		(3)

APPENDIX 5

Name_____

For 12 Months
ending _____, 19____

Address_____

Income Statement

Farm Operation			
Cash Farm Operation			
Cash Farm Income			
Grain and hay sales	_____		
Market livestock sales	_____		
Livestock product sales	_____		
Government payments	_____		
Custom work	_____		
Other cash farm income	_____		
Gross Cash Farm Income		_____(1)	
Cash Farm Expenses			
Cash operating expenses (schedule 1)	_____		
Gross Cash Farm Expenses		_____(2)	
Net Cash Farm Operation (line 1 – line 2)			_____(3)
Farm Operation Adjustments			
Inventory change (schedule 2)		_____(4)	
Depreciation on equipment (depreciation record)		_____(5)	
Depreciation on buildings (depreciation record)		_____(6)	
Value of products consumed at home		_____(7)	
Gross Adjustments to Farm Operation (lines 4 through 7)			_____(8)
Net Farm Operation Income (line 3 + line 8)			_____(9)
Farm Non-operation			
Farm Non-operation Adjustments			
Gain or loss on sale of machinery			
Gross sale price	_____(10)		
Less remaining cost	_____(11)		
Gain or loss (lines 10 – 11)		_____(12)	
Gain or loss of sale of land			
Gross sales	_____(13)		
Less cost of selling	_____(14)		
Less historical cost	_____(15)		
Gain or loss (lines 13 – 14 – 15)		_____(16)	
Gain or loss on breeding livestock			
Ending inventory	_____(17)		
Sales	_____(18)		
Subtotal (lines 17 + 18)	_____(19)		
Beginning inventory	_____(20)		
Purchases	_____(21)		
Subtotal (lines 20 + 21)	_____(22)		
Gain or loss (lines 20 – 22)		_____(23)	
Gross Farm Non-operation Adjustment (lines 12, 16 & 23)		_____(24)	
Net Farm Non-operation Income (line 24)			_____(25)
Net Farm Income (line 9 + line 25)			_____(26)

Non-Farm Income		
Operator's off-farm wages	_____(27)	
Spouse's off-farm wages	_____(28)	
Interest and dividend income	_____(29)	
Non-farm Business income	_____(30)	
Gain or loss on securities (schedule 3)	_____(31)	
Gifts or inheritances	_____(32)	
Non-farm inventory change	_____(33)	
Net income: other farm and non-farm real estate	_____(34)	
Net Non-Farm Income (lines 27 through 34)		_____(35)
Net Income before Taxes (line 26 + line 35)		_____(36)
Income and Social Security Taxes	_____(37)	
Net Income (line 36 – line 37)		_____(38)

Schedule 1 - Farm Operating Expenses

(from farm records or tax form 1040-F)

Labor hired	
Repairs and maintenance	
Rents, leases	
Feed purchased	
Seed purchased	
Fertilizer	
Chemicals	
Machine hire	
Supplies	
Livestock expenses	
Gas, fuel, oil	
Real estate taxes	
Interest	
Insurance	
Utilities	
Freight, trucking	
Conservation expenses	
Pension, profit sharing plans	
Auto, farm share	
Storage, warehouse costs	
Feeder livestock purchased	
Other	
Total Farm Operating Expense	

Schedule 2. Inventory Change

	Beginning Inventory	Ending Inventory	Change
Asset Adjustment			
Grain and feeds			
Livestock to be sold			
Prepaid expenses			
Seed, supplies			
Investment in growing crops			
Farm operation accounts receivable			
Total Asset Adjustment	a)	d)	
Liability Adjustment			
Farm operation accounts payable*			
Accrued interest on debt			
Accrued taxes			
Accrued cash rent			
Liability Adjustment Total	b)	e)	
Asset – Liability Adjustment Line a – line b = line c Line d – line e = line f	c)	f)	
Net Inventory Change If line c is greater than line f, line g is (–) If line f is greater than line c, line g is (+)			g)

*Includes only unpaid suppliers of inputs used in farm operation.

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