

## Assessing and Improving Your Farm Solvency

Farm managers need to understand *net worth*, *solvency*, and how to use a *balance sheet* if they are to maintain the farm's long-term financial stability.

### What Is Net Worth and Solvency?

#### Net Worth

Net worth, sometimes referred to as owner's equity, is the difference between the value of farm assets and the liabilities against those assets.

$$\begin{array}{r} \text{Assets} \\ \text{minus} \quad \underline{\text{Liabilities}} \\ \text{equals} \quad \text{Net worth} \end{array}$$

Assets are items owned by the farm business, such as land, buildings, machinery, livestock, crops in storage, and supplies. Liabilities are the debts owed by the farm business. Net worth, therefore, represents your equity in assets or their remaining value if you were to sell the business and pay off the farm's debts. You may think of assets as your accumulated wealth.

#### Solvency

Solvency is a long-run concept that addresses financial security. Net worth is the absolute measure of solvency. If the value of your assets exceeds your liabilities—a positive

net worth—your business is solvent. But net worth does not indicate how vulnerable the business is to changing financial conditions. A relative measure of solvency, the debt/asset ratio, indicates the future security of your farm's financial position. The debt/asset ratio is calculated as:

$$\begin{array}{r} \text{Total liabilities} \\ \text{divided by} \quad \underline{\text{Total assets}} \\ \text{equals} \quad \text{Debt asset ratio} \end{array}$$

A debt/asset ratio of 0.40 indicates that for every dollar of assets, forty cents is owed. How do you use the debt/asset ratio to measure financial risk? Suppose the fictitious Whitmer and Harris farms each have a net worth of \$210,000. However, the Harris farm has twice the assets of the Whitmer farm and three-and-one-half times the liabilities, giving it a debt/asset ratio of 0.70 compared to 0.40 for the Whitmer farm (Table 1).

A 20 percent decline in the value of the assets caused by market conditions would result in a new value of farm assets of \$280,000 for the Whitmer farm and \$560,000 for the Harris farm. Since the value of liabilities would not change with the decline in asset value, the net worth of the Whitmer farm would decline by \$70,000, giving it a net worth of \$140,000, while the net worth of the Harris farm would decline by twice as much—\$140,000—giving it a net worth of only \$70,000. The Harris farm is in a more vulnerable financial position and this is indicated by the higher debt/asset ratio.

**Table 1. Assets, liabilities, and net worth of the Whitmer and Harris farms**

	Whitmer Farm	Harris Farm
Total farm assets	\$350,000	\$700,000
Total farm liabilities	140,000	490,000
Net worth	\$210,000	\$210,000
Debt/asset ratio	0.40	0.70
Decline in asset value (20%)	\$ 70,000	\$140,000
New value of farm assets	280,000	560,000
Total farm liabilities	140,000	490,000
Net worth	\$140,000	\$ 70,000

What criteria can you use to compare the net worth and debt/asset ratio of your farm? Evaluating net worth depends on the characteristics of the farm. A young farmer just starting in business would not have had the time to accumulate the net worth of someone who has been farming for several years. Likewise, a given level of net worth that must be divided between two or more owners of a farm would not be as favorable as a farm that only has one owner. Each person must make his or her own judgments about the level of net worth by keeping in mind that a higher net worth indicates more accumulated wealth.

The safety level of the debt/asset ratio also depends on the characteristics of the farm. Generally, a debt/asset ratio of less than 0.40 is considered safe, a debt/asset ratio greater than 0.70 is considered risky, while a debt/asset ratio between 0.40 and 0.70 calls for some caution.

While higher debt loads in a farm operation may be risky, debt, in itself, is not bad. The idea of leverage suggests that you can use borrowed money to earn greater returns for your farm operation. Farmers borrow money because the returns generated from investing in the business generally exceed the interest expense of that debt. However, it is important to balance the benefits of leverage against the risk involved. Many leveraged farmers who were well-off financially in the seventies faced

financial stress when the economic climate turned against them in the early eighties.

Analyze your farm's net worth and the debt/asset ratio over time to determine trends in the farm's solvency position. A farmer who has calculated these measurements for several years can spot positive or negative trends and make appropriate management decisions regarding the farm's future.

## How Do You Improve Your Solvency Position?

The best way to improve your solvency position is to improve profitability. Profitability drives solvency. If the farm is not making a profit, then family living expenses are probably eroding net worth. Fact Sheet 539, "Assessing and Improving Farm Profitability," provides a comprehensive review of profit and profitability and ways to improve your farm's profitability.

## How Do You Use a Balance Sheet to Analyze Net Worth?

### Balance Sheet or Net Worth Statement

A balance sheet or a net worth statement, is a detailed listing of assets, liabilities, and net worth at a given time. It balances assets against liabilities and net worth (Figure 1).

The format of the balance sheet follows this pattern by listing assets on the left-hand side and liabilities and net worth on the right-hand side. Farm assets are divided into three categories according to their length of life, their cash liquidity, and their effect on production in the farm business. The categories are called current, intermediate-term, and long-term farm assets. A fourth category lists nonfarm assets.

Liabilities are also grouped into three farm liability categories and a nonfarm liability category. Farm liabilities are classified according to due dates and correspond roughly to the assets against which they are claimed.

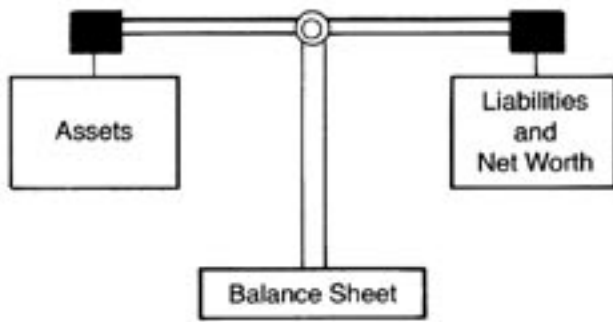


Figure 1. Diagram of a balance sheet.

## Market Value Versus Cost Approach

Listing values for liabilities is straightforward since you can determine exactly how much you owe. However, estimating your assets is more difficult because their present value is probably different from their original cost. For this reason, there are two usual methods for valuing assets: the market value approach and the cost approach.

The market value approach rates assets at their estimated current market value. The cost approach rates assets at their original cost plus cost of improvements minus the depreciation value. Each method provides useful information about your farm. The market value approach accurately estimates the present value of assets and net worth. The method is most useful for determining the absolute solvency position of your farm. However, the cost approach avoids “paper gains or losses” from fluctuations in market values of assets so that any change in net worth can be attributed to the actual performance of the business.

**Market value approach.** The following guidelines are useful when valuing assets using the market value:

- Use well-established markets when determining asset values.
- Be realistic with price expectations.
- Value current assets to be sold in the coming year, such as crops and market livestock, at current market prices minus any marketing costs.
- For machinery and equipment, review their book value on the farm records so you don’t overvalue their market price.
- Consider the obsolescence factor when putting a market value on machinery

and buildings.

- When comparing the value of your farm with other nearby farms that have sold recently, consider the differences between the farms and also the income-producing potential of your farm.
- When valuing intermediate- and long-term liabilities, subtract selling costs such as those associated with selling real estate.

**Cost approach.** The following guidelines are useful when valuing assets using the cost approach:

- Use a systematic method for charging depreciation so that changes in net worth are not affected by asset market price fluctuations.
- In valuing crops and livestock, it is often difficult to determine the cost of production inputs. Use the market value minus the marketing cost.
- You can usually take the value of intermediate assets directly from your income tax records.
- In valuing real estate, do not depreciate land, only buildings and improvements.

Some farmers use both methods of asset valuation to understand the effect of market prices and business management on the farm’s solvency position. Whichever method you use, be consistent and use it for the purpose intended. Table 2 shows a sample balance sheet for the Whitmer farm, using the market value approach. Blank balance sheets are included for your use.

## Types of Farm Assets

**Current farm assets.** These include cash, accounts receivable and other assets that are easily converted to cash without affecting the business operation. They comprise prepaid expenses, supplies, crops, livestock, and other items that will be consumed in production or that will be sold during the year. The Whitmer farm has \$1,500 in savings and \$2,200 worth of feed and supplies on hand. The farm is expecting a deficiency payment of \$6,700. Soybeans with a market value of \$14,500 and market hogs worth \$14,000 are on hand. Therefore, current farm assets for the Whitmer farm total \$38,900.

**Table 2. A balance sheet for the Whitmer farm, using the market values approach**

Balance Sheet                      Name      **WHITMER              FARM**                      Date      **1 - 1 - 1991**

<b>ASSETS</b>			<b>LIABILITIES AND NET WORTH</b>	
<b>Current farm assets</b>		<b>Value</b>	<b>Current farm liabilities</b>	<b>Value</b>
Cash, checking, and savings accounts		1,500	Farm accounts payable and accrued expenses	
Prepaid expenses and supplies		2,200	ACME FUEL	350
Accounts Receivable DEFICIENCY PAYMT.		6,700	ACCRUED INTEREST - OPERATING	450
Crops held for sale or feed	Quantity		- MACHINERY	450
SOYBEANS	2,400	14,500	- MORTGAGE	6,500
			Current farm notes payable	
			OPERATING LOAN	11,250
Livestock held for sale			Intermediate- and long-term principal due within 12 months	
MARKET HOGS	150	14,000		
			MACHINERY LOAN	3,500
			FARM MORGAGE	2,900
Other current farm assets			Other current farm liabilities	
			CONTINGENCY INCOME TAX	1,500
Total current farm assets		38,900	Total current farm liabilities	26,900
<b>Intermediate farm assets</b>			<b>Intermediate farm liabilities (amount due beyond 12 months)</b>	
Breeding livestock				
			J.D. TRACTOR	9,200
			CASE DISK	4,300
Machinery and equipment		64,800		
Other intermediate assets				
Total intermediate farm assets		64,800	Total current farm liabilities	13,500
<b>Long-term farm assets</b>			<b>Long-term farm liabilities (amount due beyond 12 months)</b>	
Farm real estate				
100 ACRES, INCLUDING			FARM CREDIT - MORGAGE	85,000
HOME AND BUILDINGS		250,000		
			CONTINGENCY TAX	14,000
Other long-term assets				
Total long-term farm assets			Total long-term farm liabilities	99,000
Total farm assets		353,700	Total farm liabilities	139,400
<b>Nonfarm assets</b>			<b>Nonfarm liabilities</b>	
CAR		8,500	GMAC - CAR LOAN	3,550
HOUSEHOLD ITEMS		10,000		
CASH VALUE OF LIFE INS.		1,700		
Total nonfarm assets		20,200	Total nonfarm liabilities	3,550
Total assets		373,900	Total liabilities	142,950
			Net worth	230,950

**Intermediate farm assets.** These include assets that support farm production and have a useful life of more than one but less than 10 years. Breeding livestock, tools, vehicles, machinery, and equipment fall into this category. Unlike current assets, intermediate assets are not easily converted to cash; doing so would disrupt production. For example, machinery and equipment are harder to sell than crops and market livestock, and selling these assets may reduce farm productivity. The market value of the Whitmerses' machinery is \$64,800.

**Long-term farm assets.** These comprise farmland, buildings, improvements, and items that have a useful life of more than 10 years. These assets are difficult to convert to cash, and doing so would seriously affect farm production. The Whitmers own 100 acres, including a house and farm buildings, valued at \$250,000. Another 450 acres are rented, but these are not assets of the Whitmer farm so they are not listed on the balance sheet.

The total from each farm asset category is added together. The Whitmers have a total farm asset of \$353,700.

**Nonfarm assets.** This is another section included on the asset side of the balance sheet. For many farmers, personal items such as a home, furnishings, and vehicles are considered part of the farm operation. If they are not included in the farm asset categories, they may be included in the nonfarm asset section. However, some individuals choose not to include personal items on the balance sheet. In this case, the nonfarm asset section would be left blank. The Whitmers list their home as part of the farm assets in the long-term farm asset category because it is difficult to list the value of the house separately from the value of the rest of the farm. However, they list other personal assets in the nonfarm asset category. The total is \$20,200.

The bottom line on the asset side of the balance sheet shows the Whitmerses' total assets as \$373,900.

## Types of Farm Liabilities

**Current liabilities.** These are debts due in the coming business year. They include farm accounts payable and accrued expenses such as rent, interest, and taxes. Short-term notes

such as those you use to cover operating loans and the principal on longer-term liabilities due within the next year are also listed in this category. These liabilities correspond somewhat to current assets since funds needed to make payments on these liabilities may have to come from liquidating current assets. The Whitmers owe \$350 to the local oil company. They list interest they owe for their operating loan (\$450), machinery loan (\$450), and farm mortgage (\$6,500). In addition, they owe \$11,250 in principal on an operating loan. In the next 12 months they will pay \$3,500 on their machinery loan principal and \$2,900 on the farm mortgage principal. The Whitmers estimate that they owe \$1,500 in contingency income tax liabilities (see section, "Contingent liabilities"). Their current farm liabilities total \$26,900.

**Intermediate liabilities.** These comprise liabilities that will be repaid from one to 10 years from the date on the balance sheet. Loans for breeding livestock, machinery, and equipment are typical of this category. Do not double-count liabilities by including the current principal portions of these liabilities that have already been included in the current liability section.

Intermediate liabilities correspond to intermediate assets because the intermediate assets will generate the income needed to make the payments on these liabilities as they come due. The Whitmers owe \$13,500 in machinery loans. This does not count the \$3,500 that they will pay on the loan principal the coming year. The Whitmers do not list any contingency taxes since they estimate the market value of their equipment to be about the same as their book value (see "Contingent liabilities" section).

**Long-term liabilities.** These consist of mortgages and contracts owed on farmland and loans for buildings and improvements. These liabilities have payment due dates beyond 10 years. These liabilities correspond to long-term assets. The long-term assets will generate income needed to make payments on these liabilities when they are due. As with the intermediate liabilities, the current principal portion of these loans that are included in the current liability category should not be entered here. The Whitmers owe \$85,800 on their farm mortgage. This does not include

\$2,900 that they will pay on the loan principal this coming year. The Whitmers calculate their contingency tax on the increased value of their farm to be \$14,000 (see “Contingent liabilities” section).

The sum totals from each farm liability category add up to \$139,400.

**Nonfarm liabilities.** These should be listed if nonfarm assets were listed on the asset side of the balance sheet. The Whitmers list \$3,550 owed on an automobile loan. This is added to their overall farm liabilities and equals a total liability of \$142,950. This figure is then subtracted from total assets to calculate a net worth of \$230,950, which is recorded on the bottom line on the right-hand side of the balance sheet. The Whitmers could also calculate a farm net worth by subtracting total farm liabilities (\$139,400) from total farm assets (\$353,700) to get \$214,300.

**Contingent liabilities.** Consider this type of liability in formulating your balance sheet. These liabilities are contingent upon the sale of your assets. Sales of crops and livestock listed in the current asset category may generate a profit on which you have to pay income taxes. An estimate of these taxes should be included in the current liabilities on the balance sheet.

Your intermediate- and long-term assets such as machinery, equipment, land, buildings, and improvements often have higher market values than the book values of these items used for taxes. If you were to sell them, you would have to pay a tax on capital gains. Estimate these contingent taxes and enter them on the balance sheet as liabilities. This is particularly true when you value your assets using the market value approach. When using the cost approach, you usually use the book value for taxes to value the assets, making it unnecessary to consider contingent tax liabilities. Estimating contingent tax liabilities is sometimes difficult, especially with constantly changing tax laws. Recent tax guides provide information about capital gains tax rates. Also, professional accounting or tax services will be able to help you.

## Diagnosing Debt-Related Problems

The fact that the liability categories correspond to the asset categories is another useful feature of the balance sheet. Comparing debts with their corresponding assets can indicate potential problems. Comparing current assets with current liabilities can tell you something about the liquidity or cash flow of your farm operation—its ability to generate enough cash to meet financial obligations when they are due (see Fact Sheet 541, “Assessing and Improving Your Farm Cash Flow”). The current ratio is calculated as:

$$\begin{array}{l} \text{Current assets} \\ \text{divided by } \frac{\text{Current liabilities}}{\text{Current liabilities}} \\ \text{equals} \quad \text{Current ratio} \end{array}$$

A current ratio of less than one indicates a potential cash flow problem, while a current ratio greater than one indicates enough cash on hand to meet current obligations.

Similarly, you can compare intermediate liabilities and assets. While your intermediate liabilities rarely exceed your intermediate assets, there should be an ample margin to prevent future cash flow problems.

If your balance sheet shows a low current ratio (indicating cash flow problems) or high intermediate debts, you may consider refinancing the debts as long-term liabilities. However, this option only works for farms that have long-term assets that exceed long-term liabilities.

## What Farm Management Computer Software Is Available?

The financial management of your farm can be complex and time consuming. You need time to gather and organize data before you can formulate and analyze your balance sheets. Computer software is available that can be a big help in analyzing your farm operation. Maryland Cooperative Extension

**Balance Sheet**

**Name**

**Date**

<b>ASSETS</b>		<b>LIABILITIES AND NET WORTH</b>	
<b>Current farm assets</b>		<b>Value</b>	<b>Current farm liabilities</b>
			<b>Value</b>
Cash, checking, and savings accounts			Farm accounts payable and accrued expenses
Prepaid expenses and supplies			
Accounts receivable			
Crops held for sale or feed	Quantity		
			Current farm notes payable
Livestock held for sale			Intermediate- and long-term principal due within 12 months
Other current farm assets			Other current farm liabilities
Total current farm assets			Total current farm liabilities
<b>Intermediate farm assets</b>			<b>Intermediate farm liabilities (amount due beyond 12 months)</b>
Breeding livestock			
Machinery and equipment			
Other intermediate assets			
Total intermediate farm assets			Total current farm liabilities
<b>Long-term farm assets</b>			<b>Long-term farm liabilities (amount due beyond 12 months)</b>
Farm real estate			
Other long-term assets			
Total long-term farm assets			Total long-term farm liabilities
Total farm assets			Total farm liabilities
<b>Nonfarm assets</b>			<b>Nonfarm liabilities</b>
Total nonfarm assets			Total nonfarm liabilities
Total assets			Total liabilities
			Net worth

offers farmers computer assistance for financial analysis through the FINPACK farm financial planning and analysis computer program. Developed by the University of Minnesota, FINPACK does a complete financial analysis of your farm. It has been used

on over 40,000 farms in 40 states. The FINAN component of this program provides a comprehensive balance sheet analysis of the farm operation. To find out more about this program, see your Extension agent at your local county Extension office.

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