Evaluating Farm Financial Performance - Case Farm Example Calculations

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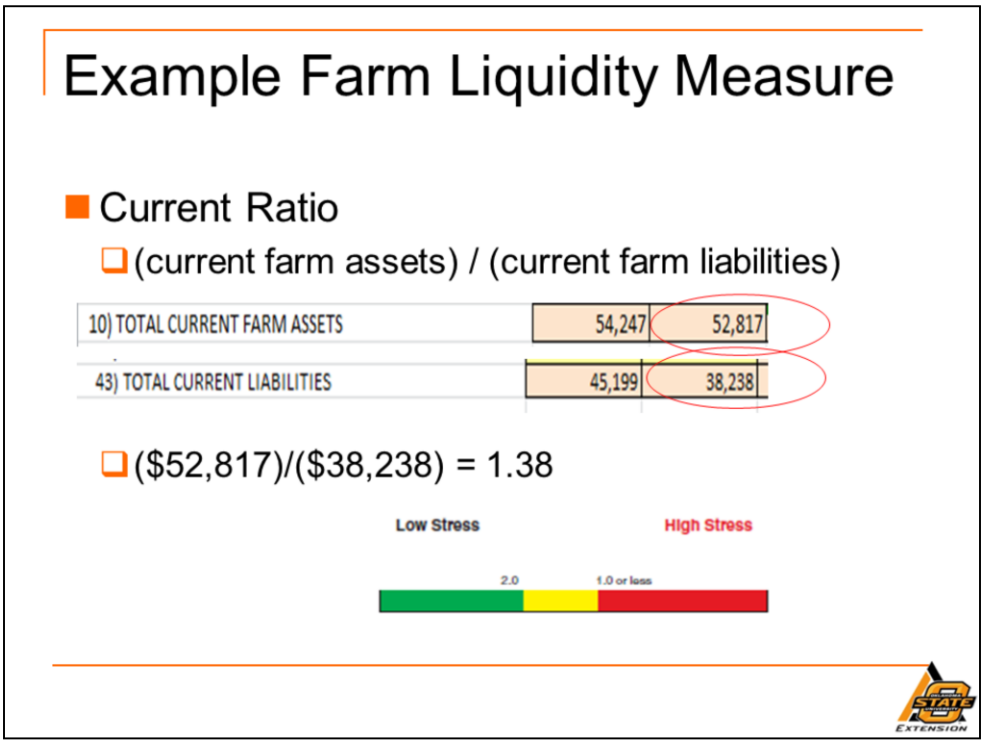
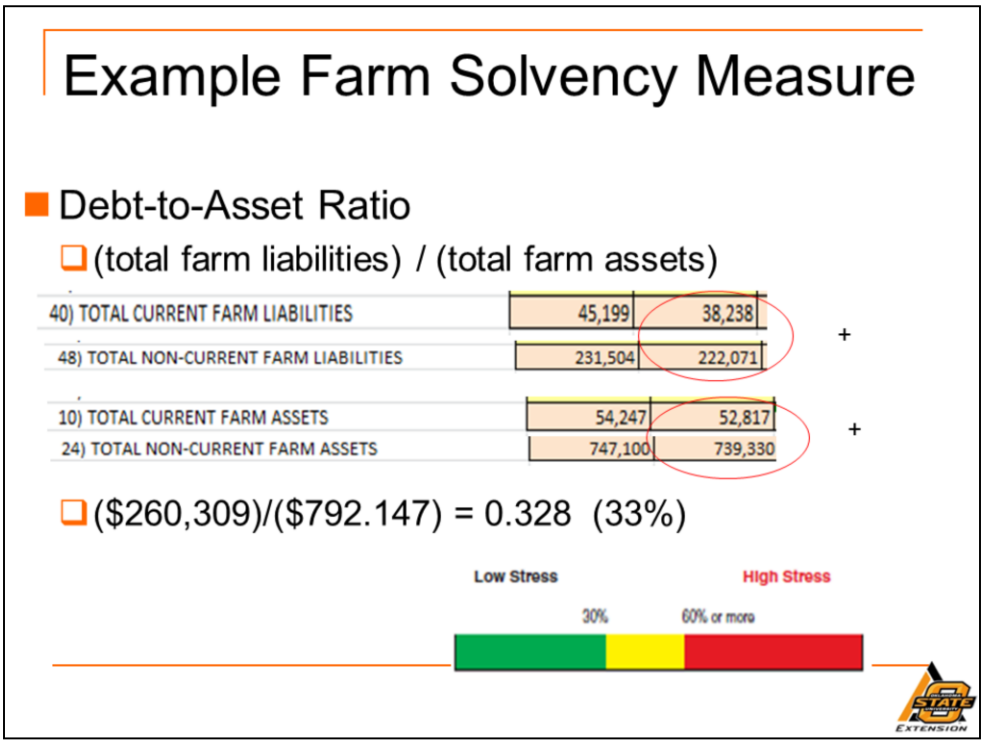
Welcome to the second video in the "Evaluating farm financial performance" component of this farm management educational series. Here I want to demonstrate example calculations of common measures for each of the 5 categories of farm financial position and performance based on information from the example case farm that has been developed for this educational series.



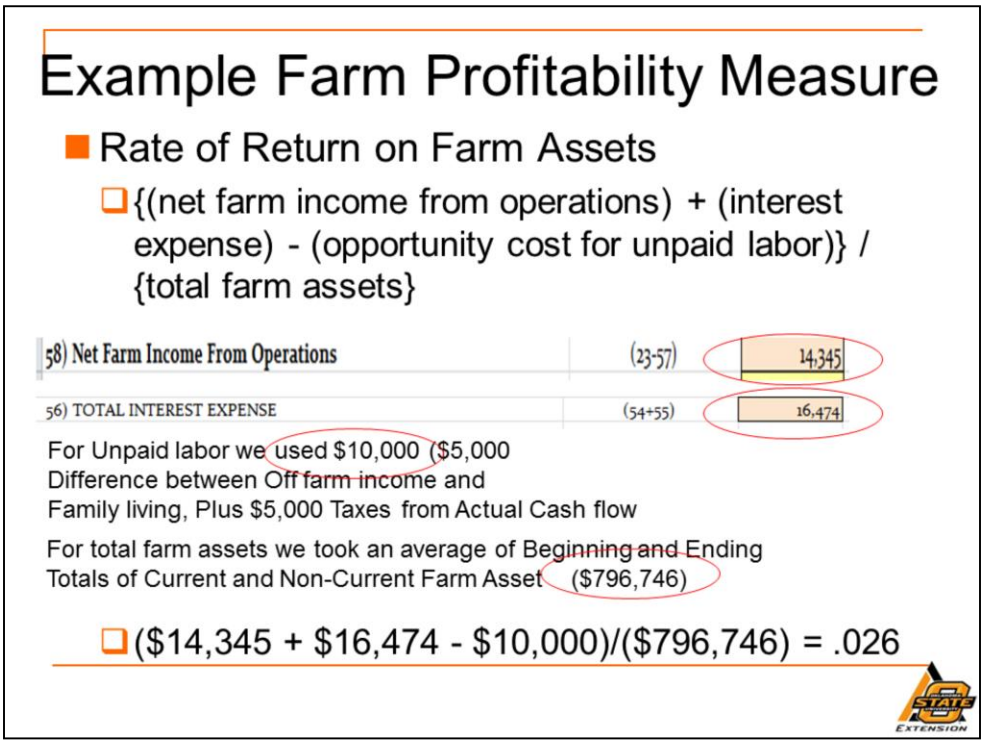
Recall that the most commonly used liquidity measure is the Current Ratio. For Illustrative purposes I have calculated the "End of year" farm current ratio for the case farm. This family did have some non-farm activities reflected on the overall balance sheet, so I used the ending value of current farm assets divided by the ending value of current farm liabilities (which happens to be the same as ending total current liabilities because the family had no non-farm current liabilities). Screen captures and the red circled values clarify exactly where on the case farm balance sheet the numbers come from to perform the calculation. As you can see, the resulting value is 1.38, meaning the farm has $1.38 worth of current assets for every $1.00 in liabilities that need to be paid over the following year.

To put that number into perspective I have included a graphic of the "stoplight" scale for the current ratio from the "farm and ranch stress test" publication, which shows industry consensus benchmarks for this measures on a scale from "low stress" to "high stress". For most typical farming operations anything above a 2.0 would be considered fairly low stress (for this particular measure a higher number is better), and anything under 1.0 would certainly indicate that liquidity may be an issue for a particular farm. The 1.38 measure for this particular example farm is "OK" but is certainly an indicator that the manager would want to carefully monitor the farm's liquidity position because any deterioration in this measure would signal a potential problem.



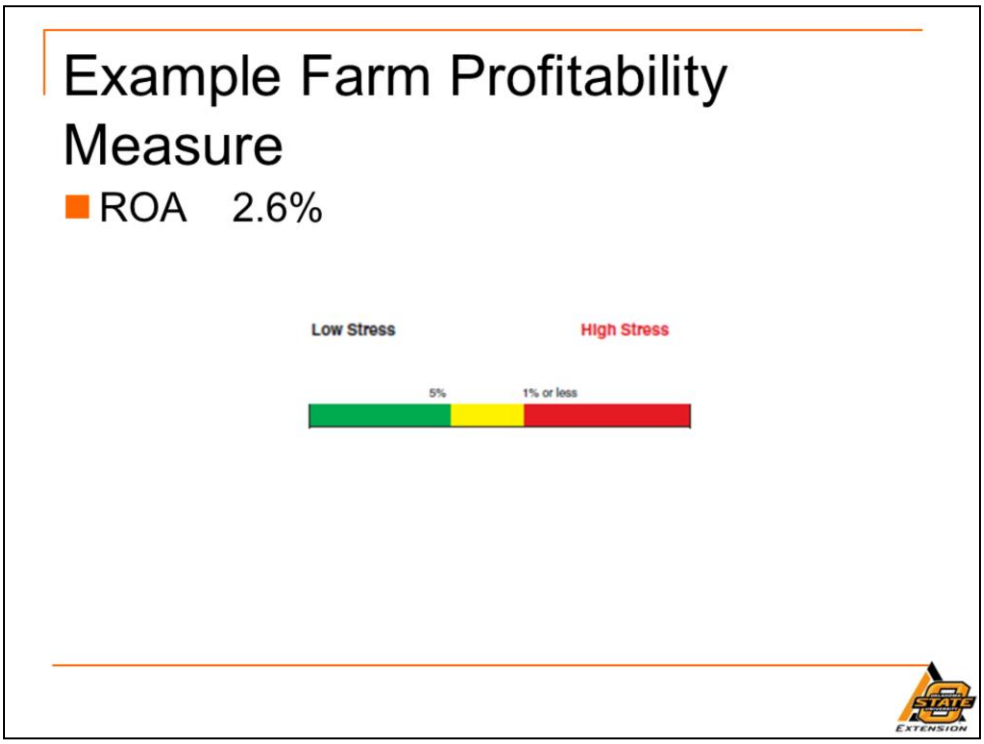
One of the most common solvency measures (the one that I see most often utilized) is the debt to asset ratio, which is just what it sounds like, total farm liabilities divided by total farm assets. On our OSU example balance sheet we simply have to add the current and non-current categories of both liabilities and assets to get the totals. Here again I have used the end of year values for illustrative purposes. Recall that some analysts like to use the average of the beginning and ending year values. The important point is to be consistent in how you calculate the measures. The screen capture illustrations reveal exactly where the values come from based on the case farm balance sheet. In this example, the result is a D/A ratio of .328, or about 33%.

The associated graphic from the industry standard "stoplight" scale (again from the farm and ranch stress test publication) shows where 33 percent falls. Here anything under 30% would be considered low stress (for this ratio, a lower number is better (from purely a financial position standpoint)), and anything over 60% indicates that a particular farm could be in a stressful solvency position. At 33% this example case farm is in pretty good shape from a solvency standpoint.



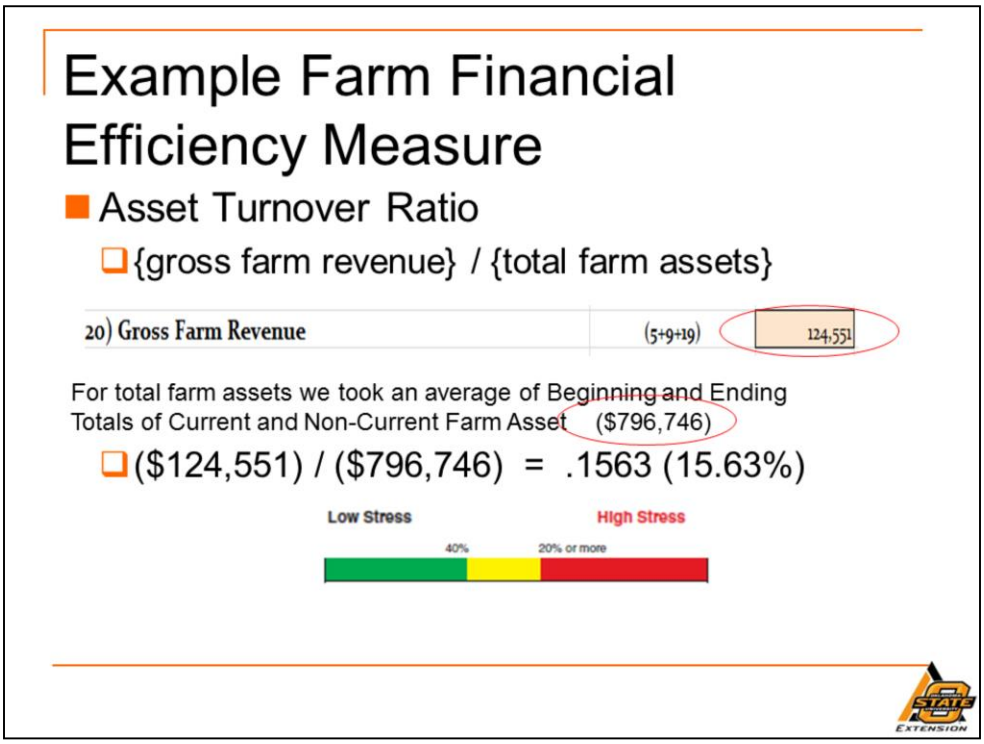
Here we show the example profitability measure (return on Farm Assets) calculation based on the example case farm. Net farm income comes from the Accrual income statement, in this case $14,345, and interest expense also comes directly from the accrual income statement. Recall that for the ROA measure, we need subtract off a charge for unpaid operator labor, something that represents the value of the labor contributions that are not explicitly paid for. In this case we will use $10,000. We arrived at that value by considering the fact that family living costs plus taxes that need to be paid are running about $10,000 more that off farm income (based on the cash flow numbers) so the farm needs to contribute approximately that amount in the form of unpaid labor. In the denominator we need a total farm asset value. Since ROA is a measure of financial performance over time, it makes sense to use the average of the beginning and ending values for the farm assets (the sum of current and non-current).

The resulting value based on the case farm is .026, or 2.6%.



Again, this 2.6% value can be compared to agricultural industry benchmarks using the example "stoplight" graphic. These benchmarks suggest that an ROA above 5% would generally be considered low stress, and an ROA below 1% would be considered on low (or potentially high stress) end of the scale. Our example farm is sort of in the middle, OK, but would like to see a little stronger number.

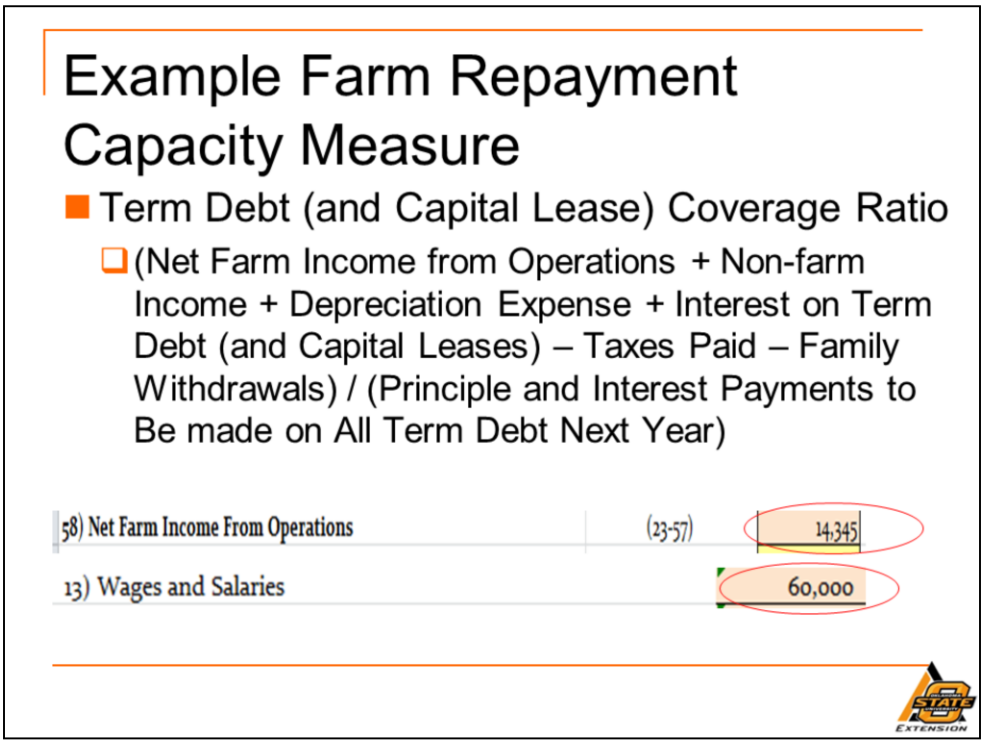
On a side note here, the benchmark ROA of 5% might seem a little low compared to some alternative investment alternatives, but keep in mind that we generally do not include unrealized capital gains (especially on owned real estate, which makes up a large share of the average farm balance sheet) as an income in the calculation. That is a form of income (all be it unrealized) that many farmers benefit from that does not show up in the typical calculation of ROA, so a 4 or 5% ROA on a typical farm might not actually be as far below the return to other alternatives as it seems at first glance..



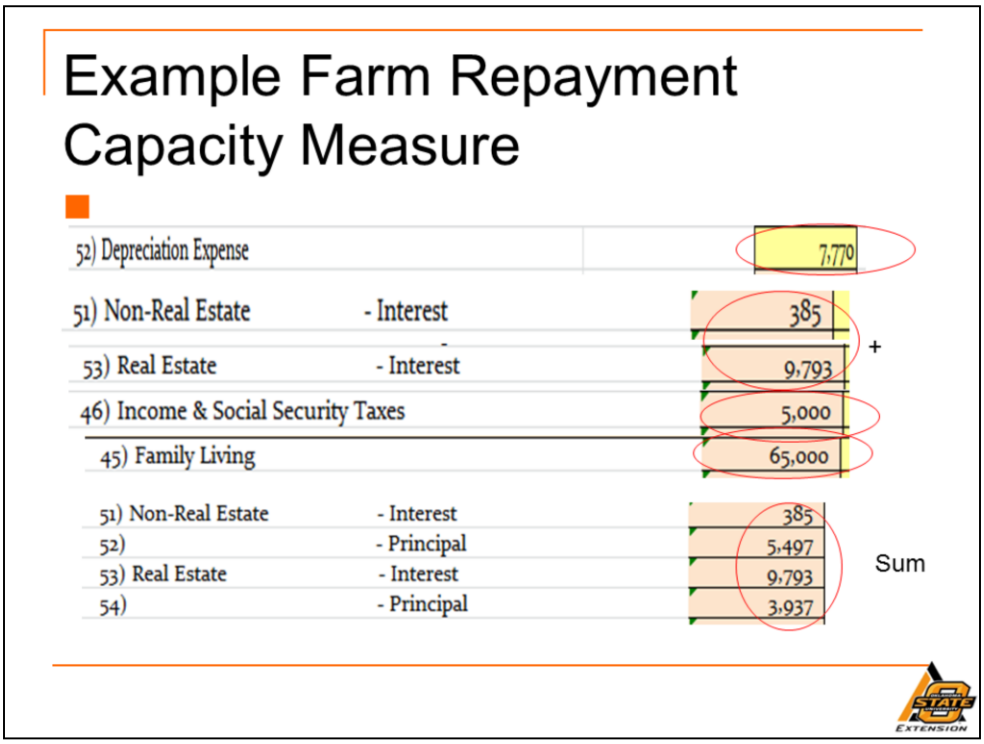
As an example of a very common farm financial efficiency measure, here we calculate the asset turnover ratio for the case farm. We use gross farm revenue off of the Income statement as illustrated here by the screen capture graphic, and divide by the total farm asset value (sum of current and non-current). Here we are using the average of the asset values from the beginning and ending balance sheet numbers, since this is a measure of financial efficiency over the period represented by the accrual income statement. Here our calculated ATR is .1563, or 15.63%. When compared to the industry benchmark scale this looks a bit on the low side. Industry standards suggest that a value above .4 would be considered low stress for a typical agricultural business, and anything under .2 might be a sign of a financially stressful situation.

Lets examine our case farm's number a bit closer. Like many farms and ranches, the total value of this farms asset base is heavily weighted by real estate and buildings, which in many cases have a lot of "non-ag" value built into the market dollar value that is recorded on the balance sheet. In situations like this, the "denominator" of the ATR calculation is very large due to the non-ag influence on the balance sheet values, resulting in a relatively low ATR when compared to industry benchmarks. Is this a problem?? Not necessarily, in this instance the critical thing to remember would be to monitor ATR over time, and calculate the impact of any proposed major purchase on the ATR to see how it changes over time. Use the 15.63% as a benchmark to compare to rather than focusing too much on the fact that it certainly is a bit low compared to

industry benchmarks (and perhaps calculate a few additional financial efficiency measures just to assure yourself that there is not a serious financial efficiency issue.

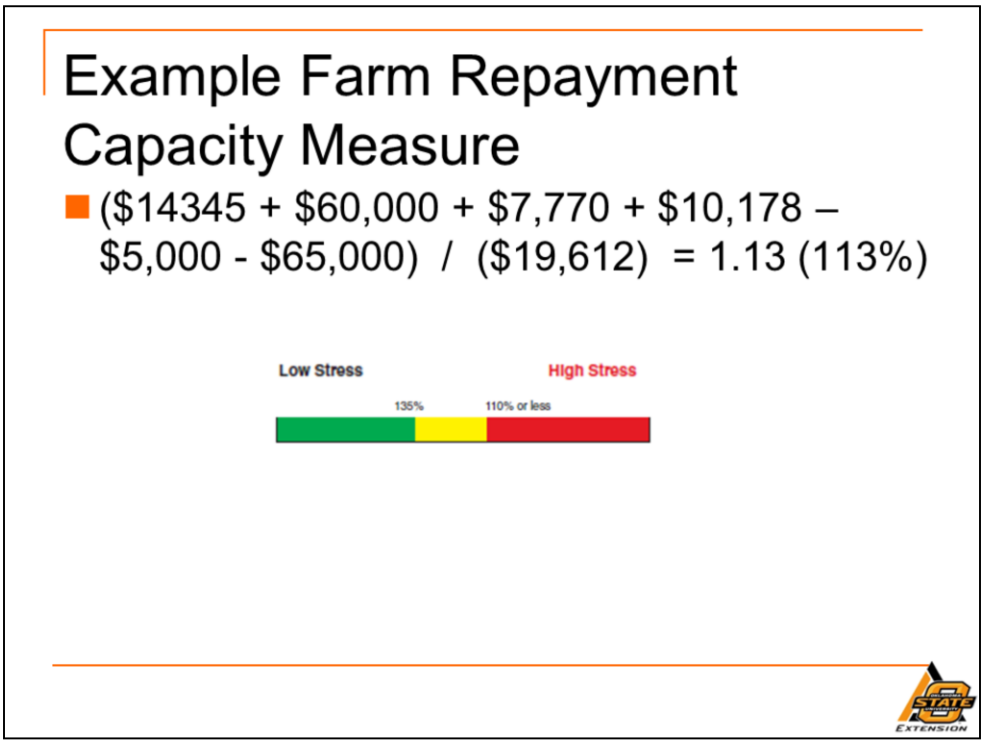


Finally, as an example of a repayment capacity measure based on the case farm values, here we work through the calculation of the term debt coverage ratio. The first step is to calculate all sources of income that could potentially be used to make principle and interest (and capital lease if relevant) payments) We start with net income from the farm off of the accrual income statement, and add non-farm wage and salary income from the cash flow.



We can add true management depreciation expense back to net income, because it is a non-cash expense so that cash could be available, and we also add interest expenses (from the accrual income statement). We subtract taxes and family living expenses because those have to be paid before we can allocate the remainder to debt service payments. Both of those values come from the cash flow.

The denominator of this ratio is the sum of principle and interest payments on term debt that need to be made in the following year. These values come from the cash flow as well.



For our example case farm the result of this calculation is 1.13, or 113%. This tells us that the farm family basically has about a 13% projected cushion with regard to their ability to meet term debt payment obligations for the following year. The graphic of an industry benchmark scale suggests that anything above 135% would be considered low stress, and a number under 110% would be a potential financially stressful situation. Our farm, at 113% is at the low end of the range that would still be considered acceptable, so this is definitely a number that needs to be watched closely. Any revenues or cash inflows that fall short of expectations could result in a situation where the farm would have trouble making debt payments through the year.