



Analyzing a Farm Business

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A guide to help producers prepare, analyze and interpret farm business plans in order to make informed management decisions.

The Net Worth Statement

As the loan manager sees it.....



- ✓ Is the net worth statement complete and are the values reasonable?
- ✓ How do the values compare to previous years and are differences explainable?
- ✓ Has the working capital changed over the past year and why?
- ✓ Has the net worth changed over the past year and why?
- ✓ Are the loan payments current?
- ✓ How much trade credit is being used and has this changed from previous years? What interest is being charged?
- ✓ Has the lending institution's security position changed?

B. Income Statement

Other names used for this important accounting statement include: a profit-and-loss statement, an operating statement, and an income and expense statement.

The income statement lists the income and expenses of a business over a period of time, called the **accounting period**. The accounting period for most farm businesses is the calendar year, since they report income for tax purposes on the calendar year. The income statement measures the profitability of the business over this period. It is a capsule view of what the farm produced over the time period and what it cost to produce it. The difference between these two categories is called the net income, profit or loss for the period.

Structure of an Income Statement

The most common income statement for farm producers is called the **cash income** statement, since it is this statement that is prepared in support of an income tax return. The cash income statement considers only cash transactions at the time they are made, be that income or expenses. The other type of income statement is called an **accrual income** statement. The accrual income statement lists all the income when the goods are produced, not necessarily when they are sold. Expenses are recorded when they are incurred, not necessarily when they are paid for. The accrual income statement does a much better job of reporting income and expenses as they relate to the production cycle, and this provides the basis for a more thorough analysis of the income and expenses. In most cases, producers prepare a cash income statement, and make the accrual adjustments for inventory changes, accounts receivable and payable, etc.

Cash income statements can show some huge distortions in income from one year to the next, and may not have any bearing on the actual profitability.

Farmplan follows this format by reporting the cash income and expenses and then making all the adjustments to this cash statement to produce an accrual income statement.

Net Farm Income

Net Farm Income refers to the 'bottom line' profit that is earned (or projected to earn) by the business during the accounting period. It represents the business' return (calculated on an accrual basis) to the producer's labour, management, and capital. Net Farm Income is calculated by taking the cash income less the cash expenses, including the depreciation for the period, and then making the appropriate accrual adjustments to this cash income. The accrual adjustments include change to inventory and supplies, accounts payable and accounts receivable, and outstanding interest from the beginning to the end of the period.

The Net Farm Income provides the answer to the question of how much profit the farm has made or is projected to make, in the business plan.

The Net Farm Income must be large enough (unless there are other sources of income) to cover additional items such as the principal portion of the loan payments, the producer's AgrilInvest contribution, the personal draw for living, income taxes, and a residual for savings or growth.

Analyzing Net Farm Income

Whether you analyze the Net Farm Income from previous years or a projected Net Farm Income for the coming year, you need to ask yourself a number of questions: "Am I satisfied with the current Net Farm Income?"; "Can the value of the farm production be increased or the costs reduced to improve the income?"; "What went well and what can be done better to improve the overall profitability?"; "How do my results stack up against the plan prepared last year, other similar farms in the area, and bench-mark costs of production for similar enterprises?"

An in-depth analysis will involve looking at each enterprise and each source of revenue and expense to see what could be done to improve the overall income. Analyzing this information on an enterprise basis and on a per unit basis can provide a great deal of insight as to how much it costs to produce an acre of grain, a market hog, a litre of milk, or a tonne of forage. Knowing your costs is the first step to improving the bottom line. Focusing on production issues, marketing, cost control, and risk reduction, is the next logical step to improve Net Farm Income. This critical analysis takes time and effort but can also be very rewarding and absolutely essential for not only learning from the past, but also for planning for the future. This information and analysis is also critical to your lender in helping gain insight into your business and providing credit support.



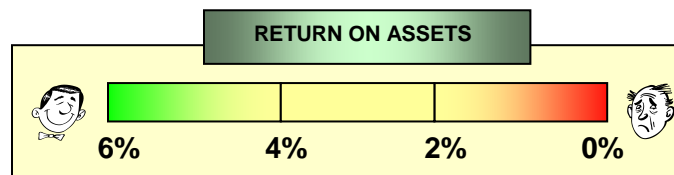
Analyzing the Net Farm Income as a return on the farm assets and equity (net worth) can also be informative. Since the Net Farm Income represents the return the farm earns on your investment, you will be interested to know the value of this return

Return on Assets (ROA) [Profitability]

- ❑ Is a measure of profitability, measuring the rate of return that the farm business earns on its average asset base over the period. The higher the return, the more profitable the farm business.
- ❑ Information for calculating this ratio comes from both the net worth statement and the income statement.

- ROA is calculated by **dividing the net farm income plus the interest expense, less the unpaid labour/management costs, by the average value of the farm assets for the period, and is expressed as a percentage.** An appropriate unpaid labor/management cost must be subtracted from the Net Farm Income, in order to get a net return to only the capital invested in the business. Income before interest is used because interest is considered part of the return on your investment and was claimed as an expense in determining the Net Farm Income.

$$\frac{\text{Net Farm Income} + \text{Interest expense} - \text{labour}}{\text{Total Farm Assets (average)}} \times 100$$



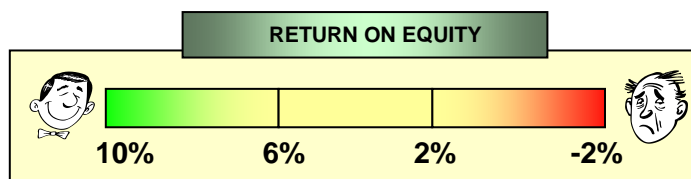
- Typical ROA's for many farms are in the 2% to 5% range.

Return on Equity (ROE)

- Is a measure of the return to the net worth (equity) in the business. The farm equity is the capital that could be invested elsewhere (if you were not farming), and so this analysis provides an interesting perspective to see just how good a return you are receiving on your investment in farming, as compared to other alternatives.
- Is calculated by **dividing the Net Farm Income less the unpaid labour/management costs, by the average value of the farm equity (net worth) for the period, and is expressed as a percentage.**

$$\frac{\text{Net Farm Income} - \text{labour}}{\text{Farm Equity (average)}} \times 100$$

- This return can show huge swings from year to year, especially if the farm operates with a large amount of borrowed capital and has little equity in the farm business.



- A typical ROE for many farms is in the 4% to 8% range.

- A return on equity exceeding the return on assets indicates an economical use of borrowed funds. In other words, it paid to borrow money because the return on this borrowed capital was greater than the cost of borrowing.

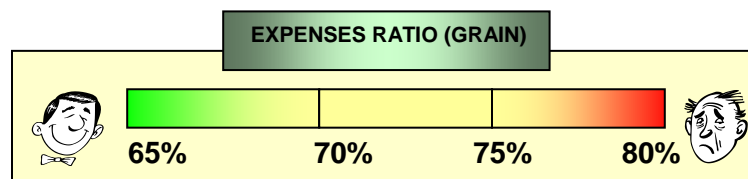
Keep in mind.....

- Valuing assets at their original costs, as opposed to the fair market value, provides a more meaningful measurement of ROE.
- A high rate of return on a low equity business is not very meaningful, and...can just as quickly turn negative, with a slight downturn in the economy.

Expense/Revenue Ratio

- Shows the percentage of the farm income that is required to cover the operating expenses, excluding the principal and interest payments.
- The ratio is calculated by **dividing the operating expenses by the value of the farm production, and is expressed as a percentage.**
- The value of farm production is the total value of the farm sales less the cost of purchased feeds, grain, and market livestock.

$$\frac{\text{Operating Expenses}}{\text{Value of Farm Production}} \times 100$$



- This ratio will vary depending on the specific farm enterprise. For example, a dairy farm expense ratio will generally be between 53% and 60%, and for a typical grain farm this ratio will be between 65% and 80%.

As the Loan Manager Sees It:

The Income Statement

As the loan manager sees it.....



- ✓ Is the value of farm production above or below similar sized farms for the area? Is it consistent from year to year?
- ✓ Are the costs of production similar to the previous years, other farms in the area, and budget guidelines for the enterprise?
- ✓ Have depreciation costs been recognized and are they reasonable, given the condition of the machinery and equipment?
- ✓ Has the production, marketing and financial risk been well managed?

C. Cash Flow

Of all the statements that comprise a farm business plan, the cash flow statement is often the most challenging one to prepare. This statement covers all aspects of farming, and to do a good job requires a considerable amount of time, thought, and commitment. However, the time spent preparing this statement can also pay big dividends in charting the course towards a more profitable farm business.



The cash flow projection simulates the anticipated financial activity that will flow through the farm bank account during the accounting period. The cash flow projection simulates every dollar flowing into the bank account, and every dollar flowing out of the bank account, including both business and personal cash transactions and financial activity affecting the business bank account.

A cash flow projection is important:

- It requires careful planning and thought in managing all aspects of the farm business, and allows the user to test ideas before they are put into practice.
- The cash flow projection addresses the question of whether or not the business plan will be feasible in the short run. Under some circumstances, it may be necessary to prepare a cash flow budget for more than one year to fully address feasibility issues and prolonged start-up costs.
- The cash flow statement provides information as to whether or not an operating line of credit will be required during the production period, and if so, when and how much credit will be required.

- ❑ The cash flow budget also helps to confirm whether the farm can operate within an existing approved line of credit, and if not, how much more credit will be required and during what time period(s).

The cash flow statement is especially helpful when...

- ⇒ a new business or enterprise is under consideration,
- ⇒ the business is being expanded,
- ⇒ a significant change(s) in production is planned,
- ⇒ a start-up period is required to get into full production, and...
- ⇒ a change in financial structure is being contemplated

Structure of a Cash Flow Statement

- ❑ Cash flow statements can be prepared on an annual, quarterly or monthly basis.
- ❑ The report lists the categories of cash inflow on the top left hand side of the report and the cash outflow categories underneath. Each column to the right of these categories represents a period of time during the accounting period. The surplus or deficit cash positions for each period and the accumulated cash position for the accumulated periods are calculated at the bottom of the cash flow.
- ❑ Farmplan builds the cash flow plan starting with the crop and livestock inventory and production plan section. Cash inflow and cash outflow items not covered in this section must be added in the detailed cash flow section and are summarized in the cash flow summary report.
- ❑ Farmplan is designed to produce a monthly cash flow. Although not recommended it can be created quarterly.

Gathering the Information

Preparing a detailed cash flow requires not only time and effort, but also a considerable amount of production and financial information. Gathering information, updating, researching, analyzing the information is all part of the work necessary in preparing a cash flow projection. Where does all this information come from? The following are some of the more likely sources:

- ⇒ Previous year's income tax returns
- ⇒ Previous year's bank statements
- ⇒ Previous year's cash flow projections
- ⇒ Published cost of production information. (Manitoba Agriculture, Food and Rural Development is a good source)
- ⇒ Price and marketing information. (Manitoba Markets, farm news papers and the Internet)



Getting started is the hardest part. Like other tasks, it happens one step at a time or maybe as is the case with computers...one key stroke at a time! Computers have taken much of the drudgery out of the number crunching when preparing a business plan, and this is especially noticeable in preparing a cash flow projection.

Cash Flow Management

The cash flow statement is all about managing the timing of cash transactions. In what time periods will the cash inflow be received and in which time periods will the cash outflow occur? The timing of marketing decisions, purchasing decisions, paying bills, making loan payments and using cash advance programs are all decisions that affect the cash flow statement.

So, what can be done when the cash inflow just does not keep up with the cash outflow demands? Apart from increasing the approved line of credit (if that is an option), there are numerous alternatives that could be considered including...

- ⇒ Cutting or postponing expenses that will not adversely affect production,
- ⇒ Using cash advance programs,
- ⇒ Using trade credit to finance some of the production costs,
- ⇒ Using a stocker loan to purchase feeder cattle,
- ⇒ Refinancing to raise more operating capital,
- ⇒ Selling more inventory or selling some capital assets,
- ⇒ Withdrawing funds from the AgrilInvest account,
- ⇒ Changing to crop share rent as opposed to cash rent for land,
- ⇒ Improving marketing skills to make wise use of hedges, options, contracts, insurance and other risk management strategies,
- ⇒ Leasing or custom hiring versus owning, if newer machinery is needed.

Keep in mind.....

- The cash flow statement does not show whether the business is profitable, but rather simulates the flow of cash into and out of the business bank account.
- Trade credit used but not paid for during the reporting period, cash advances used, and changes to inventory during the reporting period are just some reasons why the cash flow statement does not reflect business profitability.
- A quarterly cash flow, as compared to a monthly cash flow, is less sensitive to the timing of the cash flow. This issue may create some cash management problems when expenses flow into the plan at the beginning of the three-month period, and the income flows into the plan at the end of the period.

Monitoring Cash Flow

- ❑ Monitoring the actual cash flow against the projected cash flow can certainly be helpful in keeping the plan on track.
- ❑ Updating the cash flow budget as the year unfolds and new information becomes known is also helpful in maintaining a current business plan.
- ❑ Recording the actual income and expenses at the end of each month or quarter, thus replacing the projected values in the cash flow, is another excellent way to manage the business plan.

With careful planning, financial goals can be achieved, and the projected cash flow statement can improve the chances of getting there on time, on target and on budget!

As the Loan Manager Sees It:

The Cash Flow Statement

As the loan manager sees it.....



- ✓ Does the cash flow provide significant detail; is it complete, and realistic?
- ✓ Does the cash flow match past historical patterns? If not, why not?
- ✓ Has the production and marketing plan been well thought out?
- ✓ Are the costs being well controlled? Do they compare to last year?
- ✓ Is the approved line of credit sufficient? Would more be approved if necessary?
- ✓ Is the line of credit adequately secured throughout the period?

D. Debt Servicing Worksheet

The ability of a business to service its debt with some margin for error is one of the most significant criteria in granting a loan. The debt servicing worksheet provides the necessary information to determine how well the projected farm plan will be able to service the loan payments.



The debt servicing worksheet produced by Farmplan reports the amount of Net Farm Income that will be available to service the debt, on both a cash and on an accrual basis. The worksheet reports all of the term loan payments, including interest and principal, coming due within the year, and subtracts this total amount from the available income remaining to service this debt. The resulting value represents the surplus (or deficit) available to service the debt. Farmplan looks at debt servicing from both a cash and an accrual perspective. Both methods of reporting debt servicing are important, and provide a different perspective on the debt serviceability.

The amount available for debt servicing on an **accrual basis** includes **the net farm income, plus the off-farm income, less the living expenses, plus depreciation and interest on term debt.** (The interest on the term debt is added back in since it was claimed as an expense in calculating the net farm income.)

The amount available for debt servicing on a **cash basis** includes the **net cash farm income, plus the off farm income, less the living expense, plus the interest on term debt.** The cash basis analysis does not consider depreciation since it is not a cash expense.

Why consider both the Cash and Accrual method in debt servicing?

The cash basis determines whether there will be sufficient cash available during the projection period to meet the debt payments. Since loan payments are made with cash, it is important to know whether there will be sufficient cash available to make the loan payments as they come due.

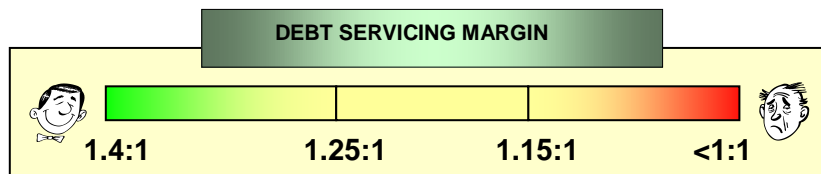
The accrual basis determines whether the farm can make its loan payments based on the value of the farm production reported during the projection period. The accrual presentation looks more at viability, whereas the cash presentation looks at the cash availability. Both the cash basis and accrual analysis are important, but for different purposes in analyzing debt serviceability.

Analyzing the Debt Servicing worksheet

The purpose of this worksheet is to determine the amount of surplus (deficit) income on both a cash and an accrual basis that will be available after debt servicing. If the surplus is relatively large, the plan has a good margin of safety and if the surplus is small or negative, the worksheet raises some 'red flags' on viability and risk issues.

How much surplus after debt payments is enough? Most lenders, being conservative by nature, would always want more rather than less. A rule of thumb would be to have at least \$1.25 available for debt servicing for every \$1.00 of debt payments.

The following chart should be read as follows: 1.4:1 means that **\$1.40 of income is available to service \$1.00 in debt and so on...**



A Note of Caution

The Debt Servicing worksheet can produce results that may be misleading if the report is not fully understood and analyzed. One situation in which the results can be misleading is when the projected debt payments include partial or total principal payout on one or more loans. This situation could happen when a loan is being refinanced and the refinanced loan is being replaced with a new loan. In this situation, the principal payment being made on the existing loan represents a payment that far exceeds regular annual loan payment, and therefore overstates the non-reoccurring annual loan payments that are required in the future.

Another situation where the report can be problematic is where capital purchases are made and the loan payments on this new purchase fall outside the reporting period. This could also happen in a financial restructuring situation where new loan payments may not begin during the projection period, or the current payment(s) may represent only a partial year's payment, and therefore understate the full payments in future years.

Keep in mind.....

- This report can produce results that can be misleading if the report is not carefully scrutinized and understood.
- Reducing or increasing accounts payable and receivables from the previous period can distort the surplus available for debt payments.
- New loans or restructured debt within the accounting period can produce unusual results that must be carefully interpreted.

Restructuring Debt

Restructuring debt in order to improve the debt serviceability is a decision that bears careful thought. If the underlying cause that has led to the need for restructuring is not addressed, the same result is likely to reappear in the very near future. Refinancing operating lines of credit is often a 'red flag' and can be a clear indication that the farm has viability issues that need to be addressed.

As the Loan Manager Sees It:

The Debt Service Worksheet

As the loan manager sees it.....



- ✓ **Is the farm plan viable? If not, what can be done to make it viable?**
- ✓ **Does the debt servicing surplus fall within lending policy?**
- ✓ **If there is insufficient debt servicing ... which loan payments is likely to be missed?**
- ✓ **Would the lending institution consider refinancing, should restructuring become necessary in a loan default situation?**

Concluding Thoughts

This publication has certainly not exhausted the number of ratios and values that can be analyzed. We have however, covered the most important aspects of farm business analysis. Farm business analysis should not be so detailed and complicated that the majority of farm managers shy away from the task altogether. To be sure, farm business analysis is much more an art than an exact science. Knowing the correct ratio may not be nearly as important as knowing what is happening, being aware of the trends, and understanding the significance of the information.



As important as financial analysis is, most farmers would agree that there is more to farming than just crunching numbers... and who would argue with that!

The following table summarizes some of the most important numbers to keep an eye on from one year to the next. Farm managers who prepare and track of these numbers in the following chart are already in a class of their own.

Farm Business Analysis Summary

| <i>Category</i> | <i>Year 1</i> | <i>Year 2</i> | <i>Year 3</i> | <i>Year 4</i> | <i>Year 5</i> |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|
| <i>Cash Net Farm Income</i> | | | | | |
| <i>Accrual Net Farm Income</i> | | | | | |
| <i>Working Capital</i> | | | | | |
| <i>Net Worth</i> | | | | | |
| <i>Cost of Living</i> | | | | | |

Remember... In the above categories, the trend over time is an important indicator of where the farm business is going!



Notes:

FARM INCOME STATEMENT

Statement from _____ 20__ to _____ 20__

| | | |
|---|---------|---------|
| <u>Income: (cash basis)</u> | | |
| Crop Sales | _____ | |
| Livestock sales | + _____ | |
| Other Income | + _____ | |
| Total Cash Income | | _____ |
| <u>Expenses (cash basis)</u> | | |
| Crop Expenses | + _____ | |
| Livestock Expenses..... | + _____ | |
| Total Cash Expenses | | - _____ |
| Cash Net Farm Income (cash income - cash expenses) | | _____ |
| <u>Income Adjustments:</u> | | |
| Ending Crops Inventory | + _____ | |
| Beginning Crops Inventory | - _____ | |
| Ending Livestock Inventory | + _____ | |
| Beginning Livestock Inventory | - _____ | |
| Ending Livestock Products Inventory | + _____ | |
| Beginning Livestock Products Inventory..... | - _____ | |
| Ending Supplies Inventory..... | + _____ | |
| Beginning supplies Inventory..... | - _____ | |
| Ending Accounts Receivable | + _____ | |
| Beginning Accounts Receivable..... | - _____ | |
| Ending Accounts Payable..... | - _____ | |
| Beginning Accounts Payable..... | + _____ | |
| Ending Outstanding Interest | - _____ | |
| Beginning Outstanding Interest | + _____ | |
| Depreciation | - _____ | |
| Gain on Sale of Assets | + _____ | |
| Loss on Sale of Assets | - _____ | |
| Total Income Adjustment | | + _____ |
| Net Farm Income (Cash Net Farm Income + Total Income Adjustment) | | _____ |

NET WORTH STATEMENT

Date: _____

| ASSETS | LIABILITIES |
|----------------------------------|--|
| Current: | Current: |
| Cash on Hand & Deposit | Operating Loans |
| Accounts Receivable | Accounts Payable |
| Grain and Forage | |
| | |
| | |
| | |
| | |
| Market Livestock | Cash Advance Payments |
| | Accrued Interest |
| | |
| Farm Supplies | Arrears (P +I) |
| Investment in Growing Crops | |
| Marketable Securities | Current Portion of Intermediate Debt |
| Other Current | Current Portion of Long-Term Debt |
| Total Current Assets | Total Current Liabilities |
| Intermediate: | Intermediate: |
| Machinery and Equipment | |
| | |
| | |
| | |
| | |
| Breeding Stock | |
| | |
| RRSP's | |
| AgriInvest Account Balance | Subtotal Intermediate Debts |
| Other Intermediate | Less: Current Portion of Intermediate Debt |
| Total Intermediate Assets | Total Intermediate Debts |
| Long Term: | Long Term: |
| Land | |
| | |
| | |
| | |
| | |
| Buildings | Subtotal Long-Term Debts |
| Non Farm Real Estate | Less: Current Portion of Long-Term Debt |
| Other Long Term | Total Long Term Debts |
| Total Long Term Assets | Total Liabilities |
| Total Assets | Net Worth |
| | Total Liabilities + Net Worth |