MEASURING FINANCIAL PERFORMANCE

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Introduction

Enterprise budgets are not only useful in determining the profitability of an enterprise, they also provide an integral link between enterprises and financial statements. Their estimated cost and returns form a basis for documenting business strengths and potential as shown in financial statements. For example, most of the information necessary to complete a cash flow plan can be gathered from individual enterprise budgets. While the information is summed into totals on the cash flow plan, details can be obtained from budgets used to develop the plan.

A good information system contributes to the financial success of the farm business. The information system should provide the manager with production information as well as current measures of the financial position, financial progress, income performance, and debt repayment capacity. A financial information system contains four essential and interrelated components: 1) the cash flow statement, 2) the balance sheet, 3) the income statement, and 4) farm records and budgets.

A cash flow plan (figure 1) is a recorded projection of the amount and timing of all cash inflows and cash outflows expected to occur throughout the planning period. Larger farms, substitution of capital assets for labor, and inflation increase the amount of cash required to operate the farm or ranch and make the cash flow plan an increasingly valuable tool in farm financial management. The cash flow plan:

- establishes target levels for income and expenses, which can be used in monitoring progress towards goals
- points out potential problems in meeting financial obligations
- indicates when cash is available for new investments

Although the cash flow plan is important in farm management, it is most effective when used with the balance sheet (OSU F-752) and income statement (OSU F-753). These three statements, supported by good farm records and enterprise budgets, form the core of financial decision making information. Financial planning involves projecting the consequences and results of possible actions, using the financial statements, and then analyzing the projected results. Thus, the potential effect of actions and decisions can be analyzed prior to their implementation and the financial requirements can be evaluated in advance. Comparing budgeted flows with those actually occurring is a useful tool for financial management.
management technique for monitoring performance.

The balance sheet (figure 2) indicates the financial position of the farm business at a particular point in time. The balance sheet shows what is owned versus what is owed and is used to analyze the financial position of the farm business. The difference between what is owned and owed represents the owner’s claim to the assets of the business, or owner’s equity.

The income statement (figure 3) indicates whether a business has earned money or suffered a loss. Actual financial statements help evaluate past performance so that improvements can be made as needed. Projected financial statements allow for evaluating options from production to marketing strategies to risk management. It is important to keep good farm records throughout the year to help ease the burden of financial statement preparation and planning.

To be useful, analysis needs to be done at regular intervals using consistent reporting techniques. Annual reviews should be standard, but for some businesses monthly, quarterly, and/or semi-annual evaluation are necessary. Most people prepare tax information on a calendar year. Therefore, financial planning is often done on the same calendar year basis. The balance sheet, cash flow, and income statement planning periods need to align to be effective.

**Cash Flow**

As stated earlier, a cash flow plan is a recorded projection of the amount and timing of all cash inflows and cash outflows expected to occur throughout the planning period. Target levels are estimated for income and expense items by using farm records and budget information. Because this is an estimated plan, the projected target levels can periodically be compared to what is actually occurring during the year to point out any problems that may be occurring. The problems could be a result of lower than expected sales prices, higher than expected death loss, increased expenses, or other discrepancies from the plan. By monitoring the plan against what is actually occurring, changes can be made which may help offset problems before they become severe. The cash flow plan will also indicate when cash is available for loan payments or other investments, and when cash is needed from loans or other sources. To be most effective, the cash flow plan should be prepared annually (at approximately the same time) and monitored on a regular basis. A brief discussion of the sections used in the OSU cash flow worksheet is given below. For more information about cash flows and the layout of the OSU cash flow plan, consult OSU F-751 “Developing a Cash Flow Plan”.

**Revenue** - The OSU Cash Flow worksheet is separated into revenue, expense, loan payments, new borrowing, and a summary section. Revenue is further distinguished by cash received from operations, cash received from capital sales, and other cash received. Cash received from operations includes livestock (except breeding livestock) sales, crop sales, government payments, crop insurance, custom work, patronage dividends, and other receipts from normal farm operation. Cash received from the sale of breeding livestock, vehicles, machinery, real estate, and buildings is included in the capital sales section. Non-farm cash receipts that will be available for use in the farm or ranch business during the coming year are included in other cash received.
**Expenses** - Projecting expenditures is generally easier than projecting revenues. Operating expense figures can come from several sources. The previous year’s cash expenditures serve as a good starting point. If an actual past cash flow statement is not available, hand records, year-end summaries of computerized records, or tax forms from prior years are useful. For some expenses, adjustments may be needed to reflect changes in the farm plan and expected prices. For other expenses, simply inflating or deflating the previous period’s actual expenditures by an appropriate factor may adequately estimate upcoming expenditures. Use your judgment in applying one or both methods to develop good estimates of anticipated cash outflows. Cash operating expenses refer to those cash expenses incurred for the ongoing operation of the business. Purchased feed, fuel, seed, and rent are examples of operating expenses. Any livestock purchased for resale, such as stockers and feeder cattle, should be included in cash operating expenses. Cash outlays to acquire assets with a productive life typically longer than one year, e.g. breeding livestock, machinery, equipment, buildings, fences, land, and major repairs or improvements that depreciate, are also included. Other cash payments include cash withdrawals for family living, income and social security taxes, and dividends and capital distributions.

**Loan payments** - Cash expenditures for scheduled loan payments include both scheduled interest and principal payments on loans. In projecting these payments, the previous year’s balance sheet, current loan schedules, or a liabilities schedule (OSU WF-792)\(^1\) should be useful in determining balances of principal and interest due by the end of the year. Check your loan schedule to see if the interest portion of payments due is listed separately from principal payments. If other than annual payments are to be made, the amounts must be prorated to the proper periods. A loan schedule or a copy of the original note should indicate the exact amount and timing of the payments.

To estimate payments for this coming year on new term loans, review capital asset purchase plans and expense categories. If financing payments are expected on new loans for capital purchases, make the proper entry(s). A discussion with the lender and use of OSU WF-792, “Liabilities Schedule”, should increase the accuracy of this estimate.

**New Borrowing** - Money flowing into the operation from new loan obligations is summarized in the new borrowing section. New loans for short term operating notes, new term debt, and new non-farm debt are included in this section. Advances on the line of credit note are not included in this section, but are shown in the summary section.

**Summary and loan balances** - The cash flow summary section is used to calculate the beginning cash balance, inflows minus outflows, cash position, and expected line of credit borrowing (if any). It also shows payments on line of credit interest and principal, tracks accrued interest on the line of credit and determines the ending cash balance. If the calculated cash position is in excess of the minimum balance, payments are made on the line of credit, interest first then principal. If the cash

\(^1\)WF indicates a fact sheet that is available through the Oklahoma Cooperative Extension Service (OCES) website, http://www.okstate.edu/OSU_Ag/agedcm4h/pearl/agecon/agecon.htm. If you do not have access to the www, contact the author for copies of the fact sheet of interest.
position is less than the minimum cash balance, then the line of credit increases to obtain the desired minimum cash balance.

Loan balances are maintained for line of credit, operating notes, term debt, and non-farm debt. If payments are made during the month, the appropriate balance is reduced by the amount of the principal payment. If new borrowing occurs then the balance increases by the amount of principal borrowed.

**Balance Sheet** (Assets = Liabilities + Owner Equity)

The balance sheet indicates the financial position of the farm business at a particular point in time. The balance sheet shows what is owned versus what is owed and is used to analyze the financial position of the farm business. The difference between what is owned and owed represents the owner’s claim to the assets of the business, or owner’s equity. An accurately prepared balance sheet measures the financial position of a firm at a given point in time. It shows the value of assets that would remain if the business were liquidated and all financial obligations to others were paid. A series of balance sheets prepared at the same time of year for successive years shows the change in financial position and the progress being made by the business.

One of the difficulties in preparing a balance sheet is the valuation of assets. Market-basis valuation is an estimation method based on fair market value less selling costs. Cost-basis valuation adjusts the original cost of the assets for accumulated depreciation. Base value is a stipulated amount which roughly approximates cost and may be used when valuing raised breeding livestock (OSU WF-323) to reduce the amount of record keeping necessary in accounting for all costs of raising each animal. Market-basis valuation is an appropriate method for evaluating financial position for credit analysis and estimating owner equity. Cost-basis valuation is typically more useful when measuring the financial progress of an individual business from year to year. For more information on balance sheet preparation, see OSU F-752 “Developing a Balance Sheet”.

The balance sheet is one of the most commonly used financial tools. Time invested in keeping records and preparing financial statements including the balance sheet yield positive returns. However, the balance sheet does not measure profitability except to the extent that profits increase retained earnings and total owner equity from one period to the next. It also does not measure the repayment capacity or the ability to meet financial obligations when they come due. Thus, for financial analysis and credit management purposes, the balance sheet should be supplemented with an income statement and cash flow projection.

**Current & non-current assets** - Assets are usually defined as items of value owned by the business plus items owed to the business. The assets include items held for sale (e.g. stocker calves, grain) or resources used in the business operation (e.g. breeding livestock, machinery, land). For financial analysis, the assets are usually categorized according to their liquidity or how readily they can be converted to cash. Further, both current and non-current assets are divided between farm and non-farm.
Current assets are cash and other assets which are typically and easily converted to cash in the course of business during the year without any loss in value. Examples of current assets include cash and checking, marketable securities, accounts receivable, prepaid expenses, marketable livestock, crop and feed, and supplies among others.

Non-current assets are not normally for sale but rather are held for the production of livestock or crops to be sold later. Non-current assets are usually not easily and quickly converted to cash without some expense or loss in value. Some non-current assets are depreciable; others are not. Breeding livestock, machinery, and buildings are used up in the production process over more than one production cycle. These are depreciable assets (see OSU WF-791, “Schedule of Assets”). Land is a non-depreciable asset and is typically the least liquid of the assets. Most non-current assets are entered at current market value when preparing a market-based balance sheet. Book value (cost less accumulated depreciation) is entered on a cost-based balance sheet and is also needed to calculate valuation equity (WF-938). Tax basis for assets is needed to calculate deferred taxes. For more information on deferred taxes see OSU WF-939 “Deferred Taxes”.

**Current & non-current liabilities** - Liabilities are claims by others against the assets and are categorized according to the time period in which the obligations are to be paid. Like the assets, liabilities are either current or non-current. OSU WF-792, “Liabilities Schedule”, may be used to summarize the liabilities for an individual or business. Like assets, current and non-current liabilities are separated between farm and non-farm liabilities.

Current liabilities are those which are due in the current operating period, usually within 12 months. Examples of current liabilities include accounts payable, line of credit and operating notes, current portion of term debt, accrued interest, deferred taxes, and taxes.

Non-current liabilities are those which are not due in the current operating year, but are due beyond this year. The non-current portion of term debt is found by subtracting the principal balance due in the current year from the total principal owed. Machinery notes, land notes, and non-current deferred taxes are examples of non-current liabilities.

**Owner Equity** is a calculated residual after the claims of others (liabilities are subtracted from the value of assets). Total equity is, therefore, easy to determine once the value for total assets and total liabilities has been calculated. Division of total equity into contributed capital, retained earnings, and valuation equity is very useful in analyzing the farm’s productivity and financial position.

Contributed capital represents the original investment into the business (or reporting entity) plus additional amounts which may have been added by some source from outside the entity such as gifts and inheritances. When the farm business alone is the reporting entity, additional investment of the owner’s personal funds (e.g. wages from off-farm work) would be added to the initial investment and withdrawals from the business (e.g. family living expenses) would be subtracted.
Retained earnings are an accumulation of net earnings which have not been withdrawn or distributed. A series of retained earnings provides strong historical evidence of the ability of the business to generate profits above withdrawals. The amount may be difficult to determine directly if adequate records are not available to show net farm income for each year since the beginning of the business. However, the amount may be determined indirectly by subtracting contributed capital and valuation equity from total equity.

Total valuation equity is the change in owner equity due to changes in the market values of assets owned. Valuation equity equals the sum of market values of assets minus the sum of book values (cost less accumulated depreciation) and minus non-current deferred taxes.

**Income Statement**

The income statement indicates whether a business has earned money or suffered a loss. Actual financial statements help evaluate past performance so that improvements can be made as needed. Projected financial statements allow for evaluating options from production to marketing strategies to risk management. It is important to keep good farm records throughout the year to help ease the burden of financial statement preparation and planning.

To be useful, analysis needs to be done at regular intervals using consistent reporting techniques. Annual reviews should be standard, but for some businesses monthly, quarterly, and/or semi-annual evaluation are necessary. Most people prepare tax information on a calendar year. Therefore, financial planning is often done on the same calendar year basis. The balance sheet, cash flow and income statement planning periods need to align to be effective.

The income statement shows whether the farm operation returns a profit or a loss to unpaid labor, management, and equity. Profitability is defined as the extent to which an entity generates revenue over and above expenses with the available assets. Assets include land, capital, labor and management. Information from the income statement is also used to evaluate repayment capacity, capital investment potential, and financial efficiency (see OSU F-790, “Evaluating Financial Performance and Position”).

Two basic accounting methods exist for determining net income. Both the cash and accrual methods are acceptable in tax reporting for farmers, and each has its advantages and disadvantages. Most farms use cash accounting to compute income taxes. Cash accounting requires only single entry record keeping, which is achieved through maintaining receipts for income and expenses. Under the cash method, receipts and expenses are reported for the period during which cash or money actually changes hands. If feed is purchased and used during one accounting period, but not paid for until the next accounting period, the feed expense is not recorded until it is paid in the next accounting period. Here, profits are overstated during the first period and understated during the next accounting period. Reliance on cash income figures can delay recognition of financial problems.

The accrual method more accurately reports net income and is better for financial analysis.
However, accrual accounting requires double-entry bookkeeping which is more complicated. Accrual accounting “matches” associated expenses to revenue as they are earned. The Farm Financial Standards Council (FFSC) recommends that farm financial statements be developed using “accrual adjusted” accounting, a compromise between cash and accrual methods. Accrual adjusted financial statements are based on cash records with accrual adjustments to revenue (e.g. changes in inventories, accounts receivable, and prepaid expenses) and expenses (e.g. accounts payable, accrued taxes and interest).

For more information on the income statement see OSU F-753, “Developing an Income Statement”. The basic sections of the OSU income statement format is presented below.

Revenue - Revenue is income generated by the farm operations. Not all cash inflows are income. Cash proceeds from an operating loan are an example of a cash inflow that is not income. Revenue includes proceeds from the sales of market livestock, livestock products and crops, plus government payments. Changes in inventories of market livestock, raised crops and feed, gains or losses from the sale of culled breeding stock, changes in accounts receivable, and prepaid expenses are also recorded in the revenue section. Revenue using the OSU format is broken into gross revenue from market livestock and products, gross revenue from crops, and other farm revenue.

Gross revenue from market livestock and products includes sales of raised market livestock, livestock purchased for resale, and livestock products. Raised livestock may include stockers, feeder pigs and broilers. Livestock purchased for resale may include purchased stocker steers and heifers or feeder pigs. Examples of livestock products are milk, eggs, wool, and mohair. Note that sales of breeding livestock are not included in this section. An accrual adjustment is also made for the change in market livestock inventory.

Gross revenue from crops includes sales of raised crops and crops or feed purchased for resale. An accrual adjustment is made for changes in the inventory of stored crops/feed.

Other farm revenue includes government payments, cash rent income, crop insurance claims, patronage dividends, and custom work to name a few. The gain/loss from the sale of culled breeding stock sums gains and losses from sales of raised and purchased breeding animals culled (WF-323). For raised breeding livestock, the gain/loss is calculated by subtracting the base value from the sale proceeds; for purchased breeding stock, subtract the cost basis from the sale proceeds to determine the gain or loss. Only the gain from the sale, not the gross revenue, is recorded; otherwise, revenue will be overstated. Change in value due to change in quantity of raised breeding stock is the sum of the changes in value of raised livestock which are being retained for possible future use in the breeding herd, but for which the related cash costs have been expensed in the income statement. Raised livestock for breeding are not depreciated if using a base-value method. Instead, revenue is recognized each period when the animals are at a transfer point such as changing from market livestock to replacement heifer, replacement heifer to bred heifer, or bred heifer to cow. The value recorded on the income statement is the gain in value (no cash exchanged) of market livestock as they change livestock classes within the breeding herd. Other accrual adjustments are made for the change in accounts...
receivable, prepaid expenses, cash investment in growing crops, supplies, other current assets, contracts and notes receivable, and investments in cooperatives. Gross farm revenue is a summation of gross revenue from market livestock and products, gross revenue from crops, and other farm revenue.

**Expenses** - Operating expenses are those expenses incurred to generate revenue. An expense is the amount of goods or services (cash or non-cash) used to produce a revenue generating item or service. Cash expenditures do not always constitute an expense. For example, principal payments on farm loans are cash expenditures and are recorded on the cash flow statement; however, they are not operating expenses. Only the interest portion of a loan payment is recorded as an expense for the income statement. Expenses included on the income statement include purchased market livestock, chemicals, insurance, labor hired, and supplies to name a few. Accrual adjustments are made for the change in purchased feed inventories, accounts payable, ad valorem taxes, employee payroll withholding taxes, other accrued expenses, other current liabilities, and other non-current liabilities from the beginning to the end of the fiscal year.

Depreciation is considered an operating expense and it is reported on a separate line on the income statement. Economic depreciation is used for the income statement because it tends to better estimate the useful life of assets. It differs from depreciation used for tax purposes. Economic depreciation is a systematic and rational method of allocating the non-recoverable cost of breeding stock, machinery, and buildings over the estimated number of years that the item will generate revenue. Economic depreciation is based on a known quantity and cost, an estimate of the useful life of an asset, and the salvage value at the end of the useful life. Only the appropriate amount of depreciation for the reporting period is recorded. Land is not depreciated, since it is assumed that land will not be depleted and will continue to generate revenue.

Interest expense includes cash interest expense plus the change in accrued interest. Cash interest paid is the sum of cash interest payments for farm loans, including operating notes, line of credit, machinery and equipment notes, and real estate loans. Accrued interest is the amount of interest outstanding at the reporting date from all farm notes and loans. The change in accrued interest is the accrued interest at the end of the accounting period minus the accrued interest at the beginning of the accounting period. Principal payments are not a farm operating expense; rather they are repayment of cash that was received from loan proceeds and so are not included on the income statement.

**Net Farm Income from Operation (NFIFO)** is the amount of profit (loss) strictly from the farm operations, not including gains or losses on the sale of farm capital items or personal and income tax. Thus, net farm income from operations equals gross farm revenue minus total farm expenses. NFIFO is useful for comparisons over time periods as it focuses on the net returns to normal farm operations (capital sales are expected to be occasional).

**Net Farm Income** is a standard measure of profitability for a farm business, calculated by matching revenue with expenses incurred to generate the revenue, plus the gain or loss from the sale of farm capital assets, before taxes. It is a residual return to the unpaid labor and management and owner equity. Net farm income equals NFIFO plus/minus gains or losses on sales of farm capital assets and
gains or losses due to changes in base value of breeding livestock. Net farm income must be positive for the farm to be profitable. A profit shows that operating expenses and debt interest are paid and that owner and family labor and management have earned a positive return. Generating profits over time allows the farm business to expand, replace capital, and reduce debt.

**Non-Farm** - The OSU income statement also provides for non-farm revenue and expense entries. Further, entries can be made for cash income taxes paid, change in accrued income taxes, change in current portion of deferred taxes, and extraordinary items.

**Integrated Farm Financial Statements (IFFS)**

IFFS is spreadsheet-based software to facilitate farm/ranch financial planning and analysis. Enterprise budgets can be summed to build a cash flow plan or actual summary data can be entered in a cash flow statement or plan. Both version 3 and 4 can generate enterprise budgets, customized budgets, a monthly cash flow statement, debt worksheets, balance sheet, income statement, and financial measures. Version 4 requires detailed asset information to generate additional statements conforming to the FFSC recommendations: schedules of assets and liabilities, schedule of deferred taxes and valuation equity, statement of cashflow (annual), and owner’s equity.

Currently two Lotus 1-2-3 based versions of IFFS are available on 3 1/2" diskettes for $150.00. Both versions handle multiple-year planning. To request additional information or to order, contact Department of Agricultural Economics, Oklahoma State University, 515 Agricultural Hall, Stillwater, OK 74078, or (405) 744-9835. More information on IFFS can also be obtained from the Farm Financial Management Resources web page at http://www.okstate.edu/OSU_Ag/asnr/agec/ffmr.htm.

**Intensive Financial Management and Planning Support (IFMAPS)**

IFMAPS, a special program provided through the Oklahoma Cooperative Extension Service, has helped farm and ranch families develop sound financial plans since 1985. Trained financial specialists work one-on-one with agricultural producers to increase their financial management skills, analyze the current financial condition of their farm or ranch operation, identify options for change, and evaluate alternative plans. Over 4,700 farm families have received IFMAPS one-on-one assistance while broadening their personal planning and management skills. Oklahoma farm and ranch families receive assistance free and financial information is kept confidential. The only cost to the producer is the time spent working with the financial specialist to prepare the plan. For further information contact IFMAPS at (800) 522-3755. More information on IFMAPS can also be obtained from the Farm Financial Management Resources web page at http://www.okstate.edu/OSU_Ag/asnr/agec/ffmr.htm.
Quicken Training

Quicken is a popular and inexpensive personal financial record-keeping software package that can be adapted for farm use. The Oklahoma Cooperative Extension Service offers “hands on” Quicken workshops to help producers use and adapt Quicken to their operation. Contact your extension office to determine the next available training. Instructions are also posted on the WWW at http://www.okstate.edu/OSU_Ag/asnr/agec/Doye/QUICKFRN.HTM.

Fact Sheets

Oklahoma Cooperative Extension Service publishes OSU Fact Sheets that describe many different topics. Some of the more relevant Fact Sheets which will supplement this article are listed below.

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Petermann - Cash flow 1
Petermann - Cash flow 2

WF indicates a fact sheet that is available through the OCES website, http://www.okstate.edu/OSU_Ag/agedcm4h/pearl/agecon/agecon.htm.
Petermann - Balance
The proper citation for this article is: