

Module 5

Cash and Accrual Income Statements

Table of Contents

Learning Objectives.....	2
Introduction	2
Income Statement Overview	2
PODCAST #1: You don't go broke paying income taxes.....	3
Cash Income Statement.....	3
Exhibit 1:.....	4
Cash Income Statement Equation	4
Revenue	5
Expenses and Depreciation.....	5
PODCAST #2: How is an income statement impacted by a business operating a corporation or partnership as opposed to a sole proprietorship?.....	5
What is not Included on an Income Statement?	5
Uses and Limitations of Cash Income Statements	6
Benefits & Limitations of Tax Returns or Cash Income Statements	6
PODCAST #3: Can farmers go broke minimizing taxes?	7
Preparing an Accrual-Adjusted Income Statement.....	8
PODCAST #4: Major Questions to Ask in Accrual Analysis	9
Exhibit 2:.....	10
Exhibit 4:.....	12
Adjustments to Current Assets	13
Adjustments to Current Liabilities	13
Calculating Accrual-adjusted Income.....	14
Summary.....	14

Module 5: Cash and Accrual Income Statements

Learning Objectives

The learning objectives of this module are to:

- Comprehend the linkages between the balance sheet and cash income statement in developing an accrual-adjusted income statement.
- Understand the complexities of developing a farm income statement on an accrual-adjusted basis.
- Illustrate the differences adjustments can make to the interpretation of profits on case example.
- Provide case study application to enhance the understanding of cash to accrual statement adjustments.

Introduction

Now that you have completed your balance sheet, we will move to understanding and exploring the dynamics of compiling an income statement. While the balance sheet you developed in the last module illustrates your equity or net worth, now we want to look at profits. First, we will explore the cash income statement and then move on to the more complex accrual income statement.

In the last module, we discussed their balance sheet, examining assets, liabilities, and owner equity, as well as the personal balance sheet and disclosures. In this module, we will examine their evolving business from income utilizing the previously developed balance sheets to calculate key income measures.

Income Statement Overview

A business income statement, also called a profit and loss statement, is used to measure revenue and expenses over a specific or defined accounting period. Unlike the balance sheet, which reflects the financial position at any given *point* in time, the income statement shows income and expenses for a *period* of time, usually for the time period of one year. Income statements can be used in several ways, for example: to determine your income tax payments, analyze a business' expansion potential, evaluate the profitability of an enterprise, and/or assist in loan repayment analysis.

Net income, or profit, is one of the most important factors that determine the long run viability of a business. Profits are needed to support a living, build equity, service debt, provide capital for expansion, and prepare for the future and also for possible retirement. An income statement measures revenue and expenses over a defined accounting period. This time period is usually January 1 thru December 31;

Module 5: Cash and Accrual Income Statements

however, some farm businesses use a different fiscal year, such as July 1 thru June 30.

In addition to determining the accounting period, identifying the business entity is also important when preparing an income statement. The income statement should be prepared for the same entity as the balance sheet, either business, personal, or consolidated. Because of the relationship between the balance sheet and income statement, the time period covered by the income statement should be the time between the beginning and ending balance sheets. For example, if the beginning balance sheet is dated January 1 and the ending balance sheet is dated December 31, then the income statement should cover the period from January 1 to December 31. The most common period is annually, although quarterly or monthly income statements are sometimes desired.

All agricultural income statements include two categories: revenue and expenses. However, income statements can be prepared using two different methods, distinguished by the way revenue and expenses are derived. A *cash* income statement measures revenue only *when it is received* and expenses only *when they are paid*. An *accrual-adjusted* income statement is more complex and measures revenue *when it is generated or earned* and *expenses when they are incurred*, whether or not cash actually changes hands.

PODCAST #1: Give an illustration to explain the saying, “You don’t go broke paying income taxes.”

A veterinarian friend of mine was applying for a home loan. The lender required three years of tax returns and the balance sheet. While the veterinarian had a strong balance sheet, he was denied the loan. Why? His veterinary business had not demonstrated a profit in the last three years. The reason was the use of accelerated depreciation and manipulation of revenue and expenses using cash basis accounting. The credit underwriters basically stated that the business was not profitable and had limited repayment, despite his wife’s school administrator position. The moral of the story is that you don’t go broke paying income taxes.

Cash Income Statement

The cash income statement (illustrated in Exhibit 1) is the easiest income statement to prepare and is the most common method used by agricultural businesses. You may be familiar with the Schedule F tax form used to file for tax compliance with the IRS, which is in a cash income statement format.

Module 5: Cash and Accrual Income Statements

Exhibit 1:

Cash Income Statement	
Period: 1/1/XX-12/31/XX	
<u>REVENUE</u>	
Livestock	\$105,800
Crops	\$83,700
Government Payments	\$3,600
Custom Work	\$6,600
Total Revenue	\$199,700
<u>EXPENSES</u>	
Chemicals	\$1,600
Feed	\$40,000
Fertilizer	\$20,000
Gas, Fuel, Oil	\$5,000
Insurance	\$5,000
Hired Labor	\$14,500
Rent	\$3,000
Repairs and Maintenance	\$5,000
Seeds	\$4,000
Supplies	\$3,000
Property Taxes	\$11,400
Utilities	\$2,000
Vet and Medicine	\$1,000
Machine Hire	\$2,000
Other	\$2,000
Depreciation	\$7,000
Interest	\$24,000
Total Expenses	\$150,500
Net Farm Income (Before Taxes)	\$49,200

Notice that there are two categories in the cash income statement: revenue and expenses. Both revenue and expenses can come from a variety of sources in an agricultural business.

Cash Income Statement Equation

The basic equation for the cash income statement is:

$$\text{Revenue} - \text{Expenses} = \text{Net Income (Loss)}$$

Total expenses are subtracted from total revenue or income to arrive at net cash farm income or loss, also called profit.

Module 5: Cash and Accrual Income Statements

Revenue

The revenue categories on the income statement can include:

- Cash revenue from the sale of livestock or other items bought for resale (revenue is reported net of the purchase cost or other basis)
- Cash revenue from the sale of livestock, produce, grains, and other products raised
- Distributions from cooperatives and agricultural program payments and other government programs
- Crop insurance proceeds
- Income from custom hire work
- Other sources of farm income

Expenses and Depreciation

The expense items included on the statement can vary with the type of operation, but should always include all operating expenses, interest, and depreciation.

Depreciation is a special case. While it is not a cash expense, it is included on both the cash and accrual-adjusted income statements. Depreciation serves as the method of expensing the cost of capital purchases, such as equipment, breeding livestock, structures, and improvements. It is a way of spreading the cost of capital purchases over their useful life. The simplest method of calculating depreciation is the straight-line method. The basic equation is:

$$\text{Annual Depreciation Expense} = \frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Years of Useful Life}}$$

Accelerated depreciation is sometimes used for tax purposes to lower taxable net income in a given period. Section 179 of the Internal Revenue Code allows for this in some circumstances. It should be noted if accelerated depreciation is being used because it will distort profitability.

PODCAST #2: How is an income statement impacted by a business operating a corporation or partnership as opposed to a sole proprietorship?

Often, a corporation's business key managers and owners will take a salary opposed to a family living withdrawal in a sole proprietorship. This can influence the bottom line net income when one is benchmarking a company's business returns.

What is not Included on an Income Statement?

Note that family living expenses are not included on the income statement for businesses organized as sole proprietorships or partnerships. If you are completing

Module 5: Cash and Accrual Income Statements

an income statement for a corporation, owner withdrawals will be included as an expense on the income statement, usually in the form of salaries.

Likewise, loan principal payments are also not included on the income statement. Repaying the principal on a loan is not an expense; rather, it is repayment of a debt obligation.

Uses and Limitations of Cash Income Statements

While the cash income statement is the easier of the two ways to prepare an income statement, it is inadequate for measuring true profitability because it does not account for changes in inventory, receivables, accounts payable, and, in some cases, timing. For example, producers can either delay or accelerate marketing commodities and delay or accelerate the purchase of inputs to reduce their tax liability.

That being said, a cash income statement or Schedule F tax form can be a valuable information source for your lender and other professionals for verification and analysis of credit and financial decisions. Most ag lenders will require three years of past financial statements including an annual Schedule F with appropriate statements, W-2 forms, and other verification of off-farm sources of income if used to repay loans.

Benefits & Limitations of Tax Returns or Cash Income Statements

Benefits

A major benefit of tax returns or cash income statements is that they show the components and generators of income. These statements assist the borrower and ag lender in identifying the primary repayment source and possibly a secondary source of repayment.

Lenders use tax returns to cross-check with both the business and personal balance sheets to verify information and develop questions to ask the borrower. For example, interest received and paid, income taxes paid, and level of depreciation reported can be valuable clues to credit risk and future direction of the business. Tax returns can alert lenders to potential changes in a borrower's financial situation; for example, sale of assets, filing status, start-ups, depreciation methods, business entity, divorce, medical problems, etc.

A tax return can provide insight into assorted personal expenses that are often commingled with business expenses. For example, expensive vacations and other perks listed as business entertainment are clues. The number of dependents, earned interest, medical expenses, and retirement strategies can quickly provide clues to financial rigor and discipline also. Identifying these items is very important, not only

Module 5: Cash and Accrual Income Statements

to lenders, but also in family business arrangements and communications between family members.

While tax returns have a great deal of benefit to borrowers and lending professionals, they definitely possess some limitations when used for analysis and decision-making.

Limitations

Tax filers, particularly those who file cash basis returns, generally attempt to minimize taxable income. They accomplish this by deferring revenue, accelerating expenses or depreciation, or a combination of both. This can be detrimental to sound business and personal financial management decisions, particularly in the long run.

Tax returns contain many “non-cash” items and activities that can distort analysis. For example, accelerated depreciation rules that allow a business to write-off large sums of this non-cash cost can make a profitable business appear to be unprofitable. Some businesses will repay expenses or carry over operating losses, which will impact the bottom line. Others will pass income and losses from associated business interests through another entity, distorting the financial picture. Some use the business to disguise personal withdrawals and perks, which influence the returns.

Whether it is a cash or accrual-adjusted income statement, it is critical to determine if cash income items are recurring and sustainable. A one-time sale of a capital asset such as machinery or livestock can generate cash, but might also erode the productive asset base if used too often or liberally.

Both borrower and lender can determine the primary and secondary repayment sources from a tax return. For example, is income coming from off-farm employment, another business or partnership, or rental income from a beach house? Each has to be isolated by amount and stability.

Is the information from the returns realistic and verifiable given the income projection for repayment of the loan? Be aware that some ag lenders require original tax returns to reduce the chance of fraud or receiving false information. It is important to maintain tax records on file up to seven years for IRS compliance and possible background information for agreements and legal issues.

PODCAST #3: What is the downside of minimizing taxes each year?

Yes, in this life, we cannot escape death and taxes. A classic example is when a producer has a good year, generates significant profit, purchases a tractor or building and accelerates depreciation, a non-cash expense, using

Module 5: Cash and Accrual Income Statements

Section 179, against income. While this reduces taxes in the given year or accounting period, the financial obligation is frequently three to ten years paying debt service, that is principal interest on debt, or replenishing cash. One needs to evaluate the long-run, as well as the short-run, consequences of tax decisions.

Preparing an Accrual-Adjusted Income Statement

Now let's journey thru the process of preparing an accrual-adjusted income statement, which builds upon the cash income statement or Schedule F that was just discussed.

The Farm Financial Standards Council recommends the use of accrual-adjusted income statements. A University of Illinois and Purdue University study found that the difference between cash and accrual-adjusted income averaged 55 percent over five years and was even higher (70 percent) in another study conducted at the University of Illinois. This research emphasizes the importance of using an accrual-adjusted income statement when analyzing the viability of a farm business. Ideally, a business' accounting records prepared by a CPA will produce an accrual statement; however, in practice, adjustments are made to the cash income statement (or Schedule F) to prepare an accrual-adjusted income statement.

Exhibit 4 illustrates how accrual adjustments are prepared. To convert cash income to accrual-adjusted income, we must look at changes between the beginning-of-year and end-of-year balance sheets. Adjustments to revenue include changes in inventories and accounts receivable. In the expense section, adjustments are made for changes in assets like cash investment in growing crops and unused assets such as supplies, prepaid expenses, accrued expenses, and accounts payable. Gains or losses on the sale of capital assets are also added or subtracted. We will explain these changes in more depth later.

Module 5: Cash and Accrual Income Statements

PODCAST #4: Major Questions to Ask in Accrual Analysis

Examination of all the numbers between beginning and ending balance sheets and the cash income statement can be very complex. If you are overwhelmed, then just answer these major questions in the cycle of accrual analysis.

- 1- Was the beginning and end of the year inventory for crops and livestock positive or negative? Was it because of value changes or amount or number of units?
- 2- What direction, positive or negative, did the accounts payable go? (Feed, fertilizer, repairs, etc.)
- 3- Did accrued expenses increase or decrease?
- 4- Did accounts receivable increase or decrease?
- 5- Did the business do prepaid expenses last year and none this year, or vice versa, and what is the amount or differences?
- 6- What direction were supplies, crops growing in the field, feed on hand, livestock held for sale, etc. on the beginning and end of year balance sheets?
- 7- From a management stand point, how quick can the current assets be turned into cash?
- 8- What is the timing of current liability obligations? How does it mesh with the assets that can be turned to cash?

Now let's walk through the process of converting the cash income statement or Schedule F into an accrual-adjusted basis to accurately assess the profitability of promise farms. To complete this task, you will need to reference the cash income statement or Schedule F (Exhibit 1) and the case study's beginning and ending balance sheets (Exhibit 2 and 3). Now, I will walk you through the accrual-adjustment illustration shown in Exhibit 4.

Module 5: Cash and Accrual Income Statements

Exhibit 2:

Balance Sheet- Beginning of Year

Troy & Tami Tiller

January 1, Year A

ASSETS			LIABILITIES & OWNER'S EQUITY		
	Cost	Market Value		Cost	Market Value
Current Assets			Current Liabilities		
Cash	6,750	6,750	Accounts payable	3,500	3,500
Marketable securities	2,500	5,500	Operating loans due within 1 year	45,000	45,000
Accounts receivable	600	600	Principal portion of long-term		
Livestock held for sale	48,500	48,500	debt due within 1 year	34,000	34,000
Crops and feed	61,500	61,500	Accrued interest & expenses	10,500	10,500
Cash investment in crops	1,200	1,200	Estimated accrued taxes	8,600	8,600
Supplies	1,300	1,300	Accrued rents payable	1,300	1,300
Prepaid expenses	500	500			
Total Current Assets	\$122,850	\$125,850	Total Current Liabilities	\$102,900	\$102,900
Intermediate Assets			Intermediate Liabilities		
Machinery and equipment		85,500	Machinery & Equipment Loan		
Cost	110,500		(Principal due beyond 12 months)	46,000	46,000
Acc. Depreciation	40,000	70,500			
Breeding livestock		22,500			
Beef Replacement Heifers		6,500			
Beef Replacement Heifers		8,100			
Horses		8,000			
Total Intermediate Assets	\$115,600	\$130,600	Total Intermediate Liabilities	\$46,000	\$46,000
Long Term Assets			Long Term Liabilities		
Timber Tract #1		4,600	Real Estate and building loans		
Timber Tract #2		13,100	(Principal due beyond 12 months)	175,000	175,000
Farm real estate and building		495,000	Total Long Term Liabilities	\$175,000	\$175,000
Cost	380,000				
Acc. Depreciation	40,000	340,000	Total Liabilities	\$323,900	\$323,900
Total Long Term Assets	\$357,700	\$512,700	Total Owner's Equity	\$272,250	\$445,250
TOTAL ASSETS	\$596,150	\$769,150	TOTAL LIABILITIES & OWNER'S EQUITY	\$596,150	\$769,150

Module 5: Cash and Accrual Income Statements

Exhibit 3:

Balance Sheet- End of Year

Troy & Tami Tiller

December 31, Year A

ASSETS			LIABILITIES & OWNER'S EQUITY		
	Cost	Market Value		Cost	Market Value
Current Assets			Current Liabilities		
Cash	1,800	1,800	Accounts payable	5,300	5,300
Marketable securities	2,500	5,800	Operating loans due within 1 year	41,000	41,000
Accounts receivable	900	900	Principal portion of long-term		
Livestock held for sale	54,100	54,100	debt due within 1 year	35,500	35,500
Crops and feed	68,300	68,300	Accrued interest & expenses	9,400	9,400
Cash investment in crops	1,450	1,450	Estimated accrued taxes	8,800	8,800
Supplies	600	600	Accrued rents payable	1,300	1,300
Prepaid expenses	350	350			
Total Current Assets	\$130,000	\$133,300	Total Current Liabilities	\$101,300	\$101,300
Intermediate Assets			Intermediate Liabilities		
Machinery and equipment		87,500	Machinery & Equipment Loan		
Cost	110,500		(Principal due beyond 12 months)	37,450	37,450
Acc. Depreciation	40,000	73,500			
Breeding livestock	20,500	20,500			
Beef Replacement Heifers	8,600	8,600			
Beef Replacement Heifers	8,650	8,650			
Horses	8,000	8,000			
Total Intermediate Assets	\$119,250	\$133,250	Total Intermediate Liabilities	\$37,450	\$37,450
Long Term Assets			Long Term Liabilities		
Timber Tract #1	4,600	4,600	Real Estate and building loans		
Timber Tract #2	11,900	11,900	(Principal due beyond 12 months)	149,400	149,400
Farm real estate and building		509,000	Total Long Term Liabilities	\$149,400	\$149,400
Cost	380,000				
Acc. Depreciation	40,000	336,000	Total Liabilities	\$288,150	\$288,150
Total Long Term Assets	\$352,500	\$525,500	Total Owner's Equity	\$313,600	\$503,900
TOTAL ASSETS	\$601,750	\$792,050	TOTAL LIABILITIES & OWNER'S EQUITY	\$601,750	\$792,050

Module 5: Cash and Accrual Income Statements

Exhibit 4:

Accrual-Adjusted Income Worksheet		
<p><i>"+" increases accrual-adjusted net income; "-" reduces accrual-adjusted net income. Parentheses (x) indicate items that reduce net farm income and should be subtracted when calculating accrual-adjusted income.</i></p>		
		Year ending 12/31/YY
1	Schedule F Net Cash Farm Income (Profit or Loss)	+ \$49,200
2	Gain/loss from the sale of culled breeding livestock (purchased & raised)*	+/- (\$1,400)
3	Change in value due to change in quantity of raised breeding livestock**	+/-
4	Inventory (livestock & crop), Increase	+ \$12,400
5	Inventory (livestock & crop), Decrease	-
6	Accounts receivable, Increase	+ \$300
7	Accounts receivable, Decrease	-
8	Investment in crops, Increase	+ \$250
9	Investment in crops, Decrease	-
10	Supplies, Increase	+
11	Supplies, Decrease	- (\$700)
12	Prepaid expenses, Increase	+
13	Prepaid expenses, Decrease	- (\$150)
14	Accounts/rent payable, Increase	- (\$1,800)
15	Accounts/rent payable, Decrease	+
16	Accrued expenses (taxes, interest, etc.), Increase	-
17	Accrued expenses (taxes, interest, etc.), Decrease	+ \$900
18	Accrual-adjusted Net Farm Income from Operations (sum of lines 1-17 above)	\$59,000
19	Gain/loss from sale of farm capital assets excluding culled breeding livestock***	+/- \$4,500
20	Gain/loss due to change in general base values of breeding livestock	+/-
21	Accrual-adjusted Net Farm Income (sum of lines 18, 19 & 20)	\$63,500
<p><i>*Found on tax form 4797 of income tax return "normal culling practices" **Value above normal replacement numbers *** Normal capital transactions (i.e. machinery, equipment, real estate)</i></p>		

In the cash income statement (Exhibit 1), notice net cash farm income was \$49,200. This is the starting point for accrual adjustments, and this amount goes on Line 1 of the accrual-adjusted income worksheet (Exhibit 4). The producer had losses of \$1,400 from the sale of culled breeding livestock (Line 2). There is no change in value due to change in quantity of raised breeding livestock.

Module 5: Cash and Accrual Income Statements

Adjustments to Current Assets

See in the Beginning Balance Sheet (Exhibit 2) under current assets, that livestock and crops held for sale were \$48,500 and \$61,500, respectively. Now, see in the Ending Balance Sheet (Exhibit 3) under current assets that end-of-year inventories of livestock and crops were \$54,100 and \$68,300, respectively. First, we calculate the difference in livestock of \$5,600. Next, we calculate the difference in crops of \$6,800. Adding the two differences together gives us \$12,400, which is an increase or positive change in accrual revenue of \$12,400 (Line 4) which had not been sold as cash on the tax records of the example farm.

Another adjustment when comparing beginning and end-of-year balance sheets is in accounts receivable. This amount is for hay sold where cash has not been received. See the beginning-year accounts receivable value of \$600 and the end-of-year value of \$900. This would be recorded as a \$300 increase in accounts receivable (Line 6).

Another line item to adjust is the producer's value of investment in crops, i.e. winter cover crop. This value increased by \$250 (Line 8) from the beginning to the end of the year balance sheets.

On the negative side, supplies (in this case bull semen) and prepaid expenses (liability insurance), had declined by \$700 and \$150, respectively, when comparing beginning and ending balance sheets (Lines 11 & 13).

Adjustments to Current Liabilities

Shifting to the liabilities section on the right hand side of the balance sheets, let's explore the positive and negative changes. Accounts payable at the feed store increased from \$3,500 to \$5,300, a change of \$1,800, which would negatively impact net cash farm income (Line 14).

Accrued interest on loans outstanding that had accrued or accumulated, but had not been paid is reduced by \$900 from the beginning to the end of the year, which is a positive addition to net cash farm income (Line 17). However, please note that accrued rent payable did not change, so no adjustment is needed.

One may also ask why the changes in cash and marketable securities on the asset side and operating loan and principal due within the year on the liability side were not included. These assets either do not impact revenue (cash) or have not been converted into a gain or loss as a result of their sale (marketable securities). The operating loan represents a financial obligation that does not impact expenses when paid, because the operating loan was used to pay the operating expenses that are already recorded on the income statement as expenses.

Module 5: Cash and Accrual Income Statements

Calculating Accrual-adjusted Income

Finally, sum all the positive items and deduct the negative items on the Accrual-adjusted Income Worksheet. In this case, net income reported on the cash income statement was \$49,200; however, accrual-adjusted net farm income from operations was approximately \$10,000 more, at \$59,000, demonstrating even more favorable results. However, we have one more step. The producer sold a piece of used farm equipment and realized a gain of \$4,500. When this is included, the actual accrual-adjusted net farm income was \$63,500. One would have to determine if this was a one-time sale or if this was recurring revenue, because it could distort true profitability.

Summary

The income statement, cash or accrual, can be a powerful tool to determine whether your business made money and provided a return on your investment of both capital and time. Understanding the intricacies of statement construction and analysis can be a powerful management factor in working with your accountant, lender, or examining the financial success of your business.