Unit B: Understanding the Purpose of Record Keeping for Agribusinesses

Lesson 3: Understanding Balance Sheets, Cash Flow, and Income Statements.

Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:

1. Explain what a balance sheet is and how one is used.
2. Explain what an income statement is and how one is used.
3. Explain what a cash flow statement is and how one is used.
4. Examine the health of an agribusiness using financial statements.

Recommended Teaching Time: 4 hours

Recommended Resources: The following resources may be useful in teaching this lesson:

Decisions & Dollars. Alexandria, Virginia: The Council for Agriculture Education, 1993. (Curriculum Binder, Unit II.B)

List of Equipment, Tools, Supplies, and Facilities:

Writing surface
PowerPoint Projector
PowerPoint Presentation Unit B 3: Understanding Statements
PowerPoint Presentation Unit B 3: WS 3-1: Financial Statements
Copies of WS: 3-1
Student's completed LS: 2-1 assignment
Copies of Balance Sheet
Copies of Income Statement
Copies of Cash Flow Statement
Copies of LS: 3-1

Terms:

Assets
Accounts Payable
Accounts Receivable
Balance Sheet
Cash Flow Statement
Cash Flow Coverage Ratio
Current Assets
Current Liabilities
Current Ratio
Custom Work
Debenture
Debt-to-Asset Ratio
Debt-to-Equity Ratio
Equity-to-Asset Ratio
Expenditures
Feasibility
Income Statement
Liabilities
Liquidity
Long-term assets
Long-term liabilities
Net income

Terms, continued:

Operating Loan	Return on Equity
Operating Profit Margin Ratio	Revenue
Owner's Equity	Risk
Profitability	Solvency
Return on Assets	Working Capital

Interest Approach:

Have students total the value of items currently in their possession. These items might include their clothing, pencils, paper, and any other items they own or use at school. Ask them to recall the term for the value of their possessions (net worth.) Ask them what happens to their financial position if you owe them $4. (This would be an "account receivable" for them) Are they now worth more or less? (They would be worth more)

Summary of Content and Teaching Strategies

****To help students master the following objectives, have students make a "Financial Statement Know Book" using three pieces of paper. The pages should be held together then folded in half to create a booklet. Allow students to design the cover with the title "Financial Statement Know Book". Students should number each page beginning with the back of the cover as page number 1 and the last page as number 10. Utilize the PowerPoint Presentation to explain each objective while students write down the information in their booklets.*

Objective 1: Explain what a balance sheet is and how one is used.

Anticipated Problem: What is a balance sheet and how is it used?

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I. A ***balance sheet*** is a financial statement that summarizes the assets, liabilities, and net worth of a business. A properly prepared balance sheet will identify what a business owns and owes and its net worth on any specific date. The balance sheet should be prepared using the inventory record sheet and other necessary information.

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A. ***Assets*** are items owned by the business and have value. The main categories on the asset side of a balance sheet include the amount of current assets and long-term assets.

1. ***Current assets*** are those items owned that will be used up or sold within one year.

a. Cash is the amount of money that the business has available to spend immediately.

b. ***Accounts receivable*** are money claims due to the business by others.

c. ***Inventory*** is the merchandise held for sale and the materials used in the process of production.

PowerPoint Slide #5

2. ***Long-term assets*** are those items with useful lives of greater than one year.
    a. These assets are the capital items that a business owns.
    b. Long-term assets include: machinery or equipment, animals kept for breeding, buildings owned, and land owned by the business.
3. Total assets are the sum of current and long-term assets of a business.

PowerPoint Slide #6

B. ***Liabilities*** are debt obligations, or money to be repaid after borrowing it from another person or organization. There are three categories on the liability side of the financial statement. They are current liabilities, long-term liabilities, and total liabilities.

1. ***Current liabilities*** are those liabilities due within a one-year period.
    a. ***Accounts payable*** are money owed to others by the business.
    b. Loans listed under current liabilities are loan payments due within one year
    c. Rent payments are money owed for using land, buildings, or other items that are owned by another business or individual.

PowerPoint Slide #7

2. ***Long-term liabilities*** include bonds, secured and unsecured long-term notes, and debentures. A ***debenture*** is a voucher or certificate that acknowledges a debt owed by the signer.
3. Total liabilities are the sum of the current and long-term liabilities of a business.

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C. Net worth equals total assets minus total liabilities. Net worth is also called ***owner's equity.***

D. The balance sheet shows the financial health of a business at a given point in time. This financial statement determines the ability for a business to pay all debts by selling all assets.

Objective 2: Explain what an income statement is and how one is used.

Anticipated Problem: What is an income statement and how is one used?

PowerPoint Slide #9

II. An ***income statement*** is a statement detailing the profits and losses of a business over a given period of time, such as monthly, quarterly, or yearly. An income statement can also be called a profit and loss statement. There are three main sections of a income statement: revenue, expenses, and non-business income. The income statement should be prepared using the basic financial records (expense and income record sheets.)

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A. ***Revenue*** is cash receipts from services performed or products sold during the time period shown on the income statement.

1. Commodities sold are the agribusiness products sold.

2. ***Custom work*** is any service or work completed for another individual or business in exchange for payment.

PowerPoint Slide #11

3. The change in inventory must be included in the income statement. The change in inventory equals the total value of inventory on the first day of the time period minus the total value of inventory on the last day of the time period.
   a. When recording this change in inventory, be sure to record a positive or negative sign so that the calculation in the total value of agribusiness production is accurate.

PowerPoint Slide #12

B. Expenses are the costs related to producing a good or service.

1. ***Operating expenses*** are any regular expenses incurred for the activities of the business.

PowerPoint Slide #13

C. Included in the income statement is any non-business income earned by the business owner. This is useful when calculating a family's net income, but should not be used when calculating the net income of the agribusiness.

D. ***Net income*** is revenue minus expenditures.

Objective 3: Explain what a cash flow statement is and how one is used.

Anticipated Problem: What is a cash flow statement and how is one used?

PowerPoint Slide #14

III. Cash flow statements are also used to help businesses analyze their financial standing. A ***cash flow statement*** indicates the amount of income and cash expenses for a business in a given period of time. An accurate cash flow statement enables a business to manage expenses more effectively. The cash flow statement should be prepared using the basic financial records (expense and income record sheets.)

A. Cash flow statements may be used in two ways: as a record of the past, also called actual cash flow, or a projection for the future. It is important to indicate on the cash flow statement if it is an actual or projected cash flow.

PowerPoint Slide #15

B. The income and expenses should be recorded for each month under the appropriate column. Because information is recorded in this manner, it is easy to see when funds will be needed.

1. ***Operating loans*** are those that are borrowed and repaid within one year.
2. The agribusiness owner may also consider making modifications to the business transactions such as storing some commodities to sell at a later time or waiting to purchase items until the following year.
3. Another option that may be considered is adding another enterprise to bring in income when needed. Many factors need to be considered before this option is selected because not only will another enterprise bring in more income, but it will incur more expenses as well.

PowerPoint Slide #16

C. Previous cash balance must be listed in the first row of the cash flow statement. This is the amount of money that the business has

D. Operating income is any income from the production or services provided by the agribusiness.

E. Capital income is any income from the sale of a capital items. Livestock for breeding or equipment are examples of capital items that may be sold.

F. Total Cash Available is the sum of operating and capital income.

PowerPoint Slide #17

G. Operating Expenses are regular expenses incurred from the production of goods or rendering of services.

H. Capital Expenses are monies paid for capital items that are purchased for the business.

I. Total Cash Required is the sum of operating expenses and capital expenses.

PowerPoint Slide #18

J. Cash Available Less Required is total cash available minus total cash required. This is the money remaining after the given time period.

Objective 4: Examine the health of an agribusiness using financial statements.

Anticipated Problem: How is the health of an agribusiness determined using financial statements?

PowerPoint Slide #19

IV. The balance sheet, income statement, and cash flow statement are related and indicate the health of the business. The health of a business is determined by the business's ***feasibility, risk,*** and ***profitability.***

PowerPoint Slide #20

A. Feasibility is how well the business can complete a plan successfully. This is measured by determining the ***liquidity.***

PowerPoint Slide #21

1. Liquidity is the ability to pay bills and debts as they become due without disrupting normal business activities. Liquidity is measured in three ways: ***working capital***, ***current ratio***, and ***cash flow coverage ratio***.

PowerPoint Slide #22

a. Working capital measures whether current assets are greater than current liabilities.

i. The balance sheet helps determine working capital. Working capital is measured by current assets minus current liabilities.

ii. The higher the value of working capital, the greater liquidity a business has. Adequate working capital varies from one business to another business depending on the size and needs of the business.

PowerPoint Slide #23

b. The current ratio shows how well the current assets would cover current liabilities if the current assets need to be sold to pay current debts.

i. The balance sheet helps determine the current ratio. The current ratio is current assets divided by current liabilities

ii. An acceptable current ratio is 1. A current ratio of 1.5 would allow a business to withstand major price changes or catastrophes. The higher the ratio, the more liquid the business.

PowerPoint Slide #24

c. The cash flow coverage ratio looks closely at the major categories that affect cash flow.

i. The actual cash flow statement helps determine the cash flow coverage ratio. The cash flow coverage ratio is beginning cash plus all cash received from operations divided by all cash paid for operations and all liability payments.

ii. Like working capital and the current ratio, the higher the value or ratio, the more liquid the business.

PowerPoint Slide #25

B. When operating a business, risk is always present. This risk includes not earning a profit as well as a plan not being able to be completed as anticipated. Risk is determined by considering the ***solvency*** of a business.

PowerPoint Slide #26

1. Solvency measures total assets as compared to total liabilities. Solvency is measured in three ways: ***debt-to-asset ratio, equity-to-asset ratio,*** and ***debt-to-equity ratio.***

PowerPoint Slide #27

a. The debt-to-asset ratio measures the value of the assets owed to money lenders if assets needed to be sold to repay these debts.

i. The balance sheet helps determine the debt-to-asset ratio. The debt-to-asset ratio is total liabilities divided by total assets.

ii. The lower the ratio, the more risk the business will endure.

PowerPoint Slide #28

b. The equity-to-asset ratio measures the proportion of the total assets paid for by the business.

i. The balance sheet helps determine the equity-to-asset ratio. The equity-to-asset ratio is total owner's equity (net worth) divided by total assets.

ii. The higher the ratio, the more risk the business will endure.

PowerPoint Slide #29

c. The debt-to-equity ratio compares the debt to equity instead of assets.

i. The balance sheet helps determine the debt-to-equity ratio. The debt-to-equity ratio is total liabilities divided by total owner's equity.

ii. The lower the ratio, the more risk the business will endure.

PowerPoint Slide #30

C. The profitability of a business is essential for its survival. Profitability is how much money a business earns after expenses. Profitability is measured in three ways: ***return on assets, return on equity***, and ***operating profit margin ratio***.

PowerPoint Slide #31

1. The return on assets measures how fast money is made in comparison to the assets of a business.

a. The income statement helps determine the return on assets. The return on assets is the net income from the business minus any unpaid labor to the business owner dividend by the total assets.

b. The higher the ratio, the more profitable the business.

PowerPoint Slide #32

2. The return on equity measures how fast money is made in comparison to the owner's equity of a business.

a. The income statement helps determine the return on equity. The return on equity is the net income from the business minus any unpaid labor to the business owner dividend by the total owner's equity.

b. The higher the ratio, the more profitable the business.

PowerPoint Slide #33

3. The operating profit margin ratio measures the money returned to capital per dollar of gross revenue earned.
   a. The income statement helps determine the operating profit margin ratio. The operating profit margin ratio is the net income from the business minus any unpaid labor to the business owner divided by the value of agribusiness production.
   b. The higher the ratio, the more profitable the business.

For further understanding of Objectives 1, 2, 3, and 4, have students complete WS: 3-1. You may show them the financial statements on Unit B: 3, WS: 3-1 Financial Statements PowerPoint, or you may print a copy for each student. Be prepared to answer student questions about the worksheet to guide them. Once students have completed the WS: 3-1, discuss the answers together. You may need to provide further explanation to be sure all students understand the material.

Review/Summary: Divide students into 4 groups and assign one objective to each group. Have students write a song using the information provided in their assigned objective. To make this activity easier, you may want to provide a list of familiar song tunes. Students can write their song to a selected familiar tune.

Application: Students should complete LS: 3-1. In order to complete this assignment, students will need their completed LS: 2-1 assignment from the previous lesson as well as copies of the balance sheet, income statement, and cash flow statement.

Evaluation: A sample written test is attached.

Answers to Test:

Part One: Matching

1=c, 2=k, 3=g, 4=a, 5=e, 6=j, 7=h, 8=i, 9=b, 10=d, 11=f

Part Two: Completion

1=Balance sheet; 2 = net income; 3 = revenue, expenditures; 4 = Liquidity;
5 = liabilities, assets

Part Three: Short Answer

1. Cash flow statements can be used to show ability to cover financial obligations, provide information that may need to be reported, and show needs for loans.

2. The three measures of a business's health are feasibility, risk, and profitability. Feasibility is the ability to complete a plan successfully and is measured by liquidity. Risk is the chance that a profit might not be earned or a plan might not be able to be completed. Risk is measured by solvency. Profitability is the money a business earns after paying all expenses and is measured by return on assets, return on equity, and operating profit margin ratio.

WS: 3-1 Name____________________

Understanding Balance Sheets, Cash Flow, and Income Statements

Dan Miller, owner of Sunnyside Dairy began planning his agribusiness in 2007 and started saving money from his job for his new agribusiness. He was able to borrow $100 from a friend in January 2008 to start his operation. He 3 bred nanny goats, milking pails and supplies for storing and selling milk. In April, the nannies gave birth and Dan sold 4 of the kids and kept 2 to feed and sell in the fall. While feeding the nannies before they began producing milk, he paid the bills from his own money that he had saved. As he began milking the goats and selling the milk, he paid himself for the labor he was putting into the business. Now, Dan wants to know how well Sunnyside Dairy is doing. He is considering purchasing more goats if it would help the health of his business.

Instructions. Using the given financial statements, analyze the Sunnyside Dairy Farm, then answer the following questions. ***Be sure to show all work when completing the analysis problems.***

Liquidity
Working Capital-

Current Ratio-

Cash Flow Coverage Ratio-

Solvency
Debt-to-Asset Ratio-

Equity-to-Asset Ratio-

Debt-to-Equity Ratio-

Profitability
Return on Assets-

Return on Equity-

Operating Profit Margin Ratio-

1. Would you say the health of Sunnyside Dairy is excellent, good, fair, or poor? Why?

2. Would you recommend that Sunnyside Dairy purchases more nannies for milking? Why?

WS: 3-1 KEY Name____________________

Understanding Balance Sheets, Cash Flow, and Income Statements

Dan Miller, owner of Sunnyside Dairy began planning his agribusiness in 2007 and started saving money from his job for his new agribusiness. He was able to borrow $100 from a friend in January 2008 to start his operation. He purchased 3 bred nanny goats, milking pails and supplies for storing and selling milk. In April, the nannies gave birth and Dan sold 4 of the kids and kept 2 to feed and sell in the fall. While feeding the nannies before they began producing milk, he paid the bills from his own money that he had saved. As he began milking the goats and selling the milk, he paid himself for the labor he was putting into the business. Now, Dan wants to know how well Sunnyside Dairy is doing. He is considering purchasing more goats if it would help the health of his business.

Instructions. Using the given financial statements, analyze the Sunnyside Dairy Farm, then answer the following questions. ***Be sure to show all work when completing the analysis problems.***

Liquidity
Working Capital- $22 - $20 = $2
Current Ratio- $22 / $20 = 1.1
Cash Flow Coverage Ratio- ($10 + $250) / $288 = 0.90

Solvency
Debt-to-Asset Ratio- $100 / $122 = 0.82
Equity-to-Asset Ratio- $22 / $122 = 0.18
Debt-to-Equity Ratio- $100 / $22 = 4.55

Profitability
Return on Assets- $107 / $122 = 0.88
Return on Equity- $107 / $22 = 4.86
Operating Profit Margin Ratio- $107 / $395 = 0.27

1. Would you say the health of Sunnyside Dairy is excellent, good, fair, or poor? Why?
Student answers will vary—fair or poor would be a good description of Sunnyside Dairy's health. Because Sunnyside Dairy just began operation this year, the business has a lot of debt as compared to profit. In the future, the owner needs to decrease his expenses or increase his profits so that he can repay his debt. (Examples might be to decrease payment to himself for labor or purchase more nannies to produce more milk)

2. Would you recommend that Sunnyside Dairy purchases more nannies for milking? Why?
Student answers will vary-be sure to discuss the positive and negative aspects of both answers. Yes-This will increase the amount of revenue earned this year, but will also increase the feed cost. No-The business does not have any money to spend on purchasing nannies right now, so he will not earn any more money next year. Sunnyside Dairy could keep any does that are born next year to be bred and milked the following year.

Test Name______________________

Understanding Balance Sheets, Cash Flow, and Income Statements

Part One: Matching

Instructions. Match the term with the correct response. Write the letter of the term by the definition.

a. assets
b. cash flow
c. current assets
d. current liability
e. expenditure
f. income statement
g. net income
h. balance sheet
i. non-current asset
j. non-current liability
k. revenue

_______ 1. Items to be used or turned into money within one year.

_______ 2. Money that was received.

_______ 3. Cash revenue minus cash expenditures.

_______ 4. Item owned with market value.

_______ 5. Cash paid to others for business activities.

_______ 6. Debt due after one year.

_______ 7. Financial document used to determine owner equity.

_______ 8. Item owned with market value that will be used for more than one year.

_______ 9. Financial document used to show ability to cover financial obligations over a period of time.

_______ 10. Debt due within one year.

_______ 11. Financial document used to determine profit.

Part Two: Completion

Instructions. Provide the word or words to complete the following statements.

1. Values from the __________ _________________ are used to determine solvency of a business.
2. __________ _________________ is another name for profit.
3. An income statement lists both ___________________ and ___________________.
4. ______________ is the ability to pay bills as they become due without disrupting business activities.
5. Net worth is determined by subtracting ________________ from ______________.

Test Name______________________

Understanding Balance Sheets, Cash Flow, and Income Statements

Part Three: Short Answer

Instructions. Provide information to answer the following questions.

1. How can an agribusiness owner utilize a cash flow statement for his operation?

2. Discuss and define the three measures of a business's health.

LS: 3-1 Name____________________

Lab Sheet
Understanding Balance Sheets, Cash Flow, and Income Statements

Part One

Instructions. Using John Doe Apple Orchard's records from Lesson 2 and the information below, complete a balance sheet, income statement, and cash flow statement.

<u>Additional Information:</u>

-John Doe Apple Orchard has $40 on hand on 30 September 2008

-John Doe Apple Orchard borrowed $100 from Bill Smith in 2006 and repays $25 each year.

-The remaining liability is $50; the John Doe Apple Orchard will repay $25 in December 2008

-Inventory on 28 February 2008 was $150

-Cash on hand on 28 February 2008 was $105

-Unpaid labor to the owner is $96 for 1 March 2008 – 30 September 2008

Part Two

Instructions. Analyze the John Doe Apple Orchard agribusiness by answering the following questions. Be sure to show all work when completing the analysis problems.

<u>Liquidity</u>

Working Capital-

Current Ratio-

Cash Flow Coverage Ratio-

<u>Solvency</u>

Debt-to-Asset Ratio-

Equity-to-Asset Ratio-

Debt-to-Equity Ratio-

<u>Profitability</u>

Return on Assets-

Return on Equity-

Operating Profit Margin Ratio-

LS: 3-1 KEY Name____________________

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-Inventory on 28 February 2008 was $150

-Cash on hand on 28 February 2008 was $105

-Unpaid labor to the owner is $96 for 1 March 2008 – 30 September 2008

Part Two

Instructions. Analyze the John Doe Apple Orchard agribusiness by answering the following questions. Be sure to show all work when completing the analysis problems.

<u>Liquidity</u>

Working Capital- $85 - $25 = $60

Current Ratio- $85 / $25 = 3.40

Cash Flow Coverage Ratio- ($105 + $180) / ($58 + $25) = 3.43

<u>Solvency</u>

Debt-to-Asset Ratio- $50 / 270 = 0.19

Equity-to-Asset Ratio- $220 / $270 = 0.81

Debt-to-Equity Ratio- $50 / $220 = 0.23

<u>Profitability</u>

Return on Assets- $252 - $96 / $270 = 0.58

Return on Equity- $252 - $96 / $220 = 0.71

Operating Profit Margin Ratio- $252 - $96 / $310 = 0.50