Lesson D3–3

Understanding Budgets and Financial Analysis Ratios

Unit D. Basic Agribusiness Principles and Skills

Problem Area 3. Keeping and Using Records in Agricultural Occupations

Lesson 3. Understanding Budgets and Financial Analysis Ratios

New Mexico Content Standard:

Pathway Strand: Agribusiness Systems

Standard: **III:** Apply generally accepted accounting principles and skills to manage budget, credit, and optimal application of AFNR business assets.

Benchmark: **III-A:** Use key accounting fundamentals to accomplish dependable bookkeeping and associated files.

Performance Standard: **1.** Budget resources (e.g., capital, human, financial, time). **2.** Manage assets for optimum utilization. **3.** Manage risk liabilities. **4.** Evaluate credit uses and options. **5.** Prepare and interpret financial statements (e.g., balance sheet, profit/loss statement, cash flow statement). **6.** Prepare tax forms (e.g., W-4, I9, Depreciation, 1099, Workers Compensation). **7.** Determine cost of doing business. **8.** Compare and examine advantages and disadvantages of banking procedures (e.g., bank reconciliation). **9.** Analyze investment options (e.g., buy, lease, finance, risk).

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

1. Prepare whole business budgets.
2. Understand enterprise budgets.
3. Prepare partial budgets.
4. Analyze financial trends using financial ratios.
5. Calculate financial ratios using net worth statements.
6. Calculate financial ratios using income statements.

List of Resources.
The following resources may be useful in teaching this lesson:

Recommended Resources. One of the following resources should be selected to accompany the lesson:

Steward, Jim, Raleigh Jobes, James Casey, and Wayne Purcell. *Farm and Ranch Business Management*. Moline, Illinois: Deere & Company, 1992. (Text and Student Manual, Chapter 4).

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

Other Resources. The following resources will be useful to students and teachers:

Barry, Peter, et. al. *Financial Management in Agriculture*, Sixth Edition. Danville, Illinois: Interstate Publishers, Inc., 2000. (Chapter 3)

List of Equipment, Tools, Supplies, and Facilities

Writing surface
Overhead projector
Transparencies from attached masters
Copies of student lab sheets

Terms.
The following terms are presented in this lesson (shown in bold italics):

Budget
Current debt-to-worth ratio
Current ratio
Enterprise budget
Fixed ratio
Gross ratio
Leverage ratio
Net capital ratio
Operating ratio
Partial budget
Whole business budget
Working capital

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Have the students open their SAEP record books to the enterprise budget. Ask them to explain how they developed the budget. What source was used to determine the values used? Relate the objectives of this lesson to the students.

Summary of Content and Teaching Strategies

Objective 1: Prepare whole business budgets.

Anticipated Problem: What is a whole business budget?

I. A ***budget*** is a plan. A ***whole business budget*** looks at all components of the business.
   A. There are numerous reasons to budget. These reasons include:
      1. Plan for meeting financial obligations .
      2. Useful when applying for credit.
      3. Experiment with opportunities to show alternative outcomes before investing resources.
      4. Organize the business.
   B. Collecting reliable data for budgets is critical. The following data sources should be used:
      1. Actual business records.
      2. State summary data.
      3. Sample data.
      4. Data from similar businesses.
      5. Computer sources.
   C. Whole business budgeting has limitations.
      1. It is difficult to predict future actions, (i.e. prices and costs).
      2. There is a tendency to underestimate expenses and overestimate income.
      3. Budgeting is time consuming.

Assign Farm and Ranch Business Management, Chapter 4 for students to read. Use TM: D3–3A to cover budgeting. Ask students to relate their experiences of completing their Supervised Agricultural Experience Program budget.

Objective 2: Understand enterprise budgets.

Anticipated Problem: What is an enterprise budget?

II. An ***enterprise budget*** looks at income and expenses related to a particular component of the whole business.

   A. An enterprise is a portion of the whole business, (i.e. Retail shop as a component of a wholesale greenhouse operation.)

   B. An enterprise budget is used to project financial needs of the enterprise. They are used to:

      1. Determine the amount of capital that will be used for this enterprise.
      2. Determine the amount of labor to be used for the enterprise.
      3. Show creditors how borrowed money will be spent.

   C. There are three basic components of an enterprise budgets.

      1. Income shows revenue being generated.
      2. Expenses should include a category for all fixed and variable costs.
      3. Returns show the profit of the enterprise.

Use Farm and Ranch Business Management, Chapter 4 as a reference for this objective. Use TM: D3–3B to cover enterprise budgets.

Objective 3: Prepare partial budgets.

Anticipated Problem: What is a partial budget?

III. A ***partial budget*** shows the expenses and income related to a possible change in the business/enterprise.

   A. Examples of changes that may require a partial budget include:

      1. Expanding an enterprise.
      2. Adding an alternative enterprise.
      3. Changing production practices.
      4. Purchasing new equipment.

   B. A partial budget will answer four questions.

      1. What additional returns will be received?
      2. What costs will be reduced?
      3. What additional costs will be incurred?
      4. What returns will be lost?

Use Farm and Ranch Business Management, Chapter 4 as a reference for this objective. Use TM: D3–3C to cover partial budgets. Assign LS: D3–3A—Using a Partial Budget.

Objective 4: Analyze financial trends using financial ratios.

Anticipated Problem: What is a financial ratio?

IV. Financial ratios provide valuable financial information.

A. Show weaknesses and strengths of a business.

B. Important to lender.

C. Needed to obtain credit/loans.

Use Farm and Ranch Business Management, Chapter 4 as a reference for this objective.

Objective 5: Calculate financial ratios using net worth statements.

Anticipated Problem: How are financial ratios calculated for net worth statements?

V. Financial analysis ratios can be calculated in a matter of minutes.

A. ***Current ratio*** (liquidity) determines the short-run ability to cover debt.

1. Current ratio = total current assets total ÷ current liabilities.
2. Ratio of 2:1 is considered acceptable.

B. ***Current debt to worth ratio*** compares current liabilities to net worth.

1. Computed as total current liabilities ÷ net worth
2. Net worth should be high compared to current debts.

C. ***Leverage ratio*** or debt equity ratio (solvency) relates total debt to net worth.

1. Leverage = total liabilities ÷ net worth
2. Higher ratios mean creditors hold a large share of assets, indicating greater risk to creditors.

D. ***Net capital ratio*** (solvency) measures the ability to pay off all debts.

1. Net capital ratio = total assets ÷ total liabilities.
2. Must be greater than 1:1 for a business to be solvent.

E. ***Working capital*** gives an indication of ability to pay current debts.

1. Working capital = current assets – current liabilities.
2. Should be positive.

Use Farm and Ranch Business Management, Chapter 4 as a reference for this objective. Use TM: D3–3D to cover net worth statement ratios. Assign LS: D3–3B—Determining Net Worth Ratios.

Objective 6: Calculate financial ratios using income statements.

Anticipated Problem: How are financial ratios calculated for income statements.

VI. Ratio analysis can be used to determine trends in the income and expenses of a business.

A. ***Operating ratio*** compares operating expenses to gross income.

    1. Operating ratio = total operating expenses ÷ gross income.
    2. A lower ratio is better.
  B. ***Fixed ratio*** compares fixed expenses to gross income.
    1. Fixed ratio = total fixed expenses ÷ gross income.
    2. A lower ratio is better.
  C. ***Gross ratio*** compares total expenses to gross income.
    1. Gross ratio = total expenses ÷ gross income.
    2. A lower ratio is better.

Use Farm and Ranch Business Management, Chapter 4 as a reference for this objective. Use TM: D3–3D to cover income statement ratios. Assign LS: D3–3C—Analyzing an Income Statement.

Review/Summary. Focus the review and summary of the lesson around the student learning objectives. Call on students to explain the content associated with each objective.

Application. Application can involve one or more of the following student activities using attached lab sheets:

LS: D3–3A — Using a Partial Budget
LS: D3–3B — Determining Net Worth Ratios
LS: D3–3C — Analyzing an Income Statement

Evaluation. Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is attached.

Answers to Sample Test:

Part One: Matching

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

Part Two: Completion

1 = enterprise
2 = income, expense, profit
3 = budget
4 = underestimate, overestimate
5 = positive
6 = 2:1
7 = net capital ratio
8 = low

Part Three: Short Answer

1. a = 5.21:1
   b = 1.97:1
   c = $101,000
2. a = 0.55:1
   b = 0.11:1
   c = 0.66:1

Sample Test Name ______________________________

Test

Lesson D3–3: Understanding Budgets and Financial Analysis Ratios

Part One: Matching

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

a.	operating ratio	f.	current debt-to-worth ratio
b.	current ratio	g.	gross ratio
c.	enterprise budget	h.	net capital ratio
d.	leverage ratio	i.	fixed ratio
e.	working capital	j.	partial budget

_______ 1. Total operating expenses ÷ gross income.

_______ 2. Current assets – current liabilities.

_______ 3. Total current liabilities ÷ net worth.

_______ 4. Total fixed expenses ÷ gross income.

_______ 5. Total current assets ÷ total current liabilities.

_______ 6. Total expenses ÷ gross income.

_______ 7. Total liabilities ÷ net worth.

_______ 8. Total assets ÷ total liabilities.

_______ 9. Tool for analyzing changes in a business or enterprise.

_______ 10. Shows income and expenses for one component of a business.

Part Two: Completion

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

1. An ____________________ is a component of the whole business.
2. The three components of an enterprise budget are ____________________, ____________________, and ____________________.
3. A ________________ is a plan for a business.
4. There is a tendency to ______________________ expenses and ______________________ income when budgeting.

5. Working capital should be ______________________.
6. A desirable current ratio should be ________________ or higher.
7. __________ _________________ _______________ measures the ability to pay off all debts.
8. A ______________ ratio is preferred when figuring a gross ratio.

Part Three: Short Answer

Instructions. Provide information to answer the following questions.

1. Use the following information to answer the questions that follow.

   Current assets = $125,000

   Non-current assets = $489,000

   Current liabilities = $24,000

   Non-current liabilities = $287,000

   a. Current ratio = _________________

   b. Net capital ratio = _________________

   c. Working capital = _________________

2. Use the following information to answer the questions that follow.

   Operating expenses = $62,525

   Fixed expenses = $12,250

   Gross income = $113,575

   a. Operating ratio = _________________

   b. Fixed ratio = _________________

   c. Gross ratio = _________________

Budgeting

Budget—a plan for business.

Reasons to budget

- Plan financial obligations.
- Apply for credit.
- Experiment with opportunities.
- Organize the business.

Sources to use when budgeting

- Actual business records.
- State's summary data.
- Sample data.
- Data from similar businesses.
- Computer sources.

Enterprise Budgets

Enterprise—a portion of the whole business

Enterprise budget—income and expenses of one component of the whole business.

Uses of an Enterprise Budget

- Determine capital needs
- Determine labor needs
- Show creditors use of borrowed money

Three Components of an Enterprise Budget

- Income
- Expenses
- Fixed
- Variable
- Returns

Partial Budgets

Partial budget—shows expenses and income related to a change in the business/enterprise.

When you may use a partial budget:

- Expanding an enterprise.
- Adding an alternative enterprise.
- Changing production practices.
- Purchasing new equipment.

Answers four questions:

- What additional returns will be received?
- What costs will be reduced?
- What additional costs will be incurred?
- What returns will be lost?

Net Worth Statement Ratios

- Current ratio (liquidity) = total current assets ÷ total current liabilities.
- Current debt to worth ratio = total current liabilities ÷ net worth
- Leverage ratio (solvency) = total liabilities ÷ net worth
- Net capital ratio (solvency) = total assets ÷ total liabilities.
- Working capital = current assets – current liabilities.

Income Statement Ratios

- Operating ratio = total operating expenses ÷ gross income.
- Fixed ratio = total fixed expenses ÷ gross income.
- Gross ratio = total expenses ÷ gross income.

Name________________________________

Lab Sheet

Using a Partial Budget

Purpose:

1. To provide a practice problem for using partial budgets.

Procedure:

1. Use the form provided to determine the effect on net income if the following change is made.

You have been hiring custom combining for 120 acres of corn at $95.00 per acre. You can rent a combine for $80.00 per acre but will need to supply your own fuel, oil, and grease. You estimate that these costs will amount to $5.00 per acre.

Assume your labor is worth $7.50 per hour, with .3 hour of labor needed per acre. You feel that you will be able to get an additional $5.00 worth of crop per acre by operating the machine yourself.

What is the estimated effect on net income if you change to renting?

Partial Budget Form

Additional Costs	$__________	Additional Costs	$__________
Reduced returns	$__________	Reduced returns	$__________
A. Total additional costs and reduced returns	$__________	B. Total additional costs and reduced returns	$__________
		Net Change in income (B –A)	$__________

Lab Sheet Key

Using a Partial Budget

Partial Budget Form

Additional Costs *$80 × 120 = $9,600* *$5 × 120 = $600* *$7.50 × .3 × 120 = $270*	*$10,470*	Additional Costs *$5 × 120 = $600*	*$600*
Reduced returns	$__________	Reduced returns *$95 × 120 = $11,400*	*$11,400*
A. Total additional costs and reduced returns	*$10,470*	B. Total additional costs and reduced returns	*$12,000*
		Net Change in income (B –A)	*$1,530*

 Name________________________________

Lab Sheet

Determining Net Worth Ratios

Purpose:

1. Analyze a net worth statement using financial ratios.

Procedure:

1. Using the following information, answer the questions that follow.

Current assets. $94,475
Non-current assets $329,285
Current liabilities $48,100
Non-current liabilities $130,695

a. What is the current ratio? _______________
b. What is the current debt to worth ratio? _______________
c. What is the leverage ratio?_______________
d. What is the net capital ratio?_______________
e. What is the working capital?_______________

Lab Sheet Key

Determining Net Worth Ratios

a.	What is the current ratio?	*1.96:1*
b.	What is the current debt to worth ratio?	*0.20:1*
c.	What is the leverage ratio?	*0.73:1*
d.	What is the net capital ratio?	*2.37:1*
e.	What is the working capital?	*$46,375*

LS: D3–3C Name ______________________

Lab Sheet

Analyzing an Income Statement

Purpose:

1. To utilize financial information to determine net income.

Procedure:

1. Determine the net income for the following situation, using both cash accounting and accrual accounting.
   Operating Expenses = $56,000
   Fixed Expenses = $10,000
   Gross Income = $125,000

   a. What is the operating ratio? ______________
   b. What is the fixed ratio? ______________
   c. What is the gross ratio? ______________

   Operating Expenses = $175,000
   Fixed Expenses = $20,000
   Gross Income = $475,000

   d. What is the operating ratio? ______________
   e. What is the fixed ratio? ______________
   f. What is the gross ratio? ______________

Lab Sheet Key

Analyzing an Income Statement

a. What is the operating ratio? *0.45:1*
b. What is the fixed ratio? *0.08:1*
c. What is the gross ratio? *0.53:1*
d. What is the operating ratio? *0.37:1*
e. What is the fixed ratio? *0.04:1*
f. What is the gross ratio? *0.41:1*