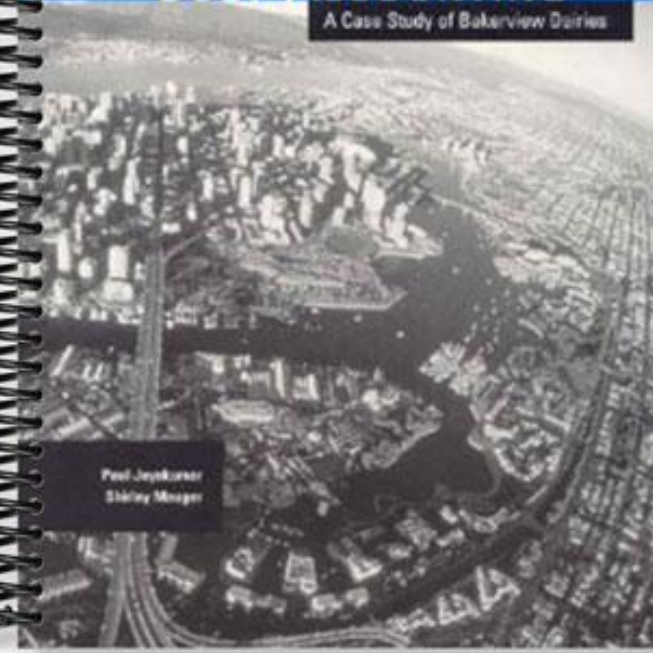


# SOLUTIONS MANUAL

## MANAGERIAL APPLICATIONS OF COST ACCOUNTING

A Case Study of Bakerview Dairies

Paul Joycekumar  
Shelby Manager



# INSTRUCTOR'S RESOURCE MANUAL

## MANAGERIAL APPLICATIONS OF COST ACCOUNTING

### A Case Study of Bakerview Dairies

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Toronto

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Bakerview Dairies is a fictitious company. All facts and data referring to Bakerview have been created for the purposes of this instructional case study and do not represent any specific company's information. Any similarities to a real situation are only by coincidence. Graphs, data, and information relative to national statistics of dairy production, sales, and consumption are used by permission from various sources, including Statistics Canada, Agriculture and Agri-Food Canada, and Euromonitor.

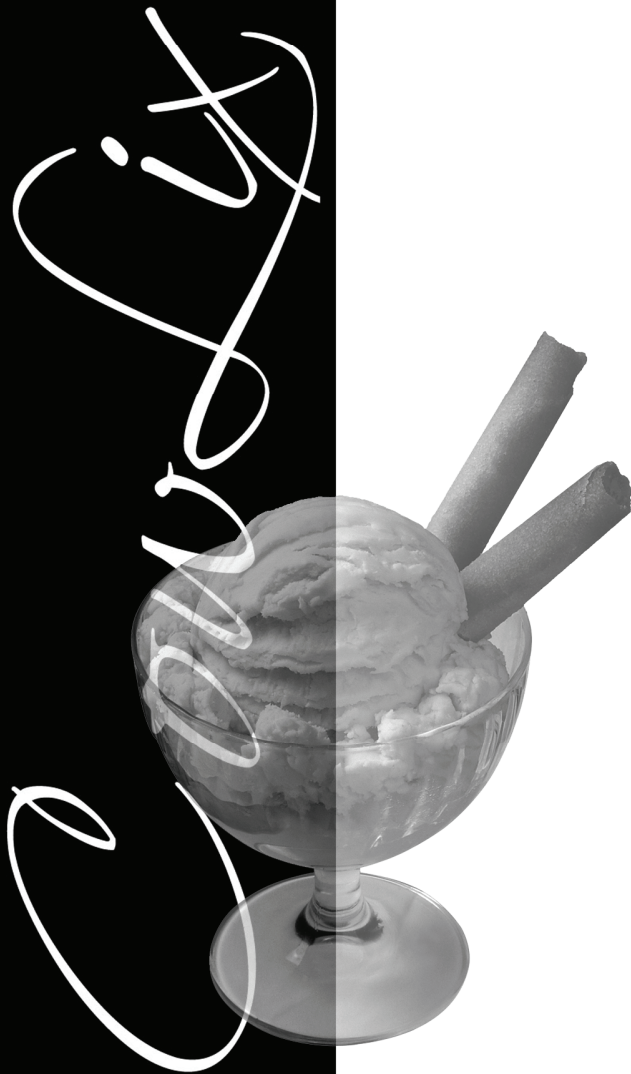
# Bakerview Dairies

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## INSTRUCTOR'S RESOURCE MANUAL

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**INTRODUCTION**

This interrelated series of case studies has been designed to create an environment where students can integrate managerial accounting tools, creative thinking and computer modeling. The idea was borne out of a need to develop problem solving skills in the classroom, thus providing students with job ready skills upon graduation. It is most appropriately delivered in a first and second level managerial accounting course. Students who participate in the case study will gain experience in the following areas:

- **Practical application of selected Managerial Accounting tools.** Methodologies, such as Activity Based Costing are combined with other tools, such as joint costing and strategic analysis to give exposure to ‘real life’ applications. Cost accounting topics applicable to this case are:
  - Strategy
  - Cost of goods manufactured; Cost of goods sold
  - Cost volume profit analysis
  - Overhead application
  - Activity-based costing and preparation of the income statement using the activity-based approach
  - Choice of cost drivers; Regression analysis
  - Budget preparation and variance analysis
  - Absorption and variable costing
  - Theory of constraints: Linear Programming (Solver)
  - Special orders and outsourcing decisions
  - Inventory Management
  - Customer profitability analysis
  - Cost allocations – Support costs
  - Cost allocations – Joint costs
  - Pricing
  - Capital budgeting
  - Benchmarking
  - Performance evaluations
  - Strategy evaluation using ROI, RI and ROS
  - The balanced scorecard
- **Use of Excel as a decision support tool to assess cost accounting systems.** Through the development of decision support models and the optional use of extended tools, such as regression analysis and linear programming students will apply practical management science techniques in a business environment.
- **Application of problem solving skills.** The use of general business knowledge and problem solving skills will be used to analyze many facets of the organization in order to determine the best plan of action.

- **Ability to work in a team environment and demonstrate interpersonal skills.** The case study can be administered independently or in a team environment. If the facilitator delivers the case in a team environment, students will gain experience in interacting and developing solutions with peers.
- **Ability to communicate both orally and in writing.** Strategies and plans can be communicated orally and in writing. Students can be expected to clearly identify issues and solutions in both settings.

We have tested the case study in the classroom setting, providing the students with the option of submitting their responses electronically. However, the material also lends itself to an online environment where students can discuss and submit their work via the Internet. It consists of an introduction and eleven modules. Each module has been designed with the option of delivering the entire case study or selecting only the modules that are pertinent to the students’ current learning environment. While guidelines have been provided, it is our intention that the instructor will adapt the material based on student experience and the classroom environment.

The purpose of this manual is to:

- Highlight the main points of each module
- Provide suggested methods for delivery
- Provide suggested solutions to activities that require computations

## CASE PROCESS

### Eleven Modules

Each module consists of the following:

#### “Emphasis and Outcomes”

- A section entitled ‘Emphasis and Outcomes’ listing the key topics and the learning outcomes upon completion of the module.

#### Case Events

- Sections that present case events simulating the events that can take place in any organization. The situations described under various headings in the main body of each module provide the facts and issues faced by the personnel of Bakerview Dairies’ ice cream processing division. Students are required to analyze these situations and provide recommendations.

#### “You Are In Control”

- A section entitled ‘You Are in Control’ which lists the activities for that portion of the case. The instructor can choose the activities that best suit the learning environment. The activities can also be modified or alternative tasks can be developed.
- You may want to consider assigning a few selected activities from each module during the first year, and give the others during the second year. This is possible since we have attempted to create the activities so each can be assigned independently.

## GUIDELINES FOR WORKING WITH TEAMS

The following discussion consists of suggested guidelines for using the case in the classroom. These guidelines are based on our personal classroom experiences. As such, they are tailored to our classroom environment and teaching styles. You may find alternative approaches that work as well or better in your classroom. We encourage you to use this material in the way that best suits your teaching situation.

Students can work on the case independently or in teams. Our approach leaves the decision of if and where to introduce the team work to the instructor.

We used the team approach when we first introduced the case in the classroom. If the team approach is taken we suggest that each team develop a folder, called a ‘team portfolio’. The portfolio can be kept in electronic, or in paper format. This portfolio could contain:

- Excel spreadsheets containing the various models developed in each part of the case study
- An analysis journal which consists of memos to management discussing the issues described in the case and recommendations.

Teams can be self selected consisting of either four or five members. Alternatively, teams can be formed by the instructor. Each team should be responsible for working together to formulate decision models and analyze situations within the company. As such, they should be expected to work together in a professional manner to complete the requirements of the case study.

Students could develop a team charter to assist in setting up team norms. When drafting a charter they will want to consider the key factors that will contribute to their success as a team. All team members should be encouraged to agree on how they will deal with issues such as absenteeism, conflict, and failing to meet requirements. These guidelines, signed off by all members, will assist in dealing with typical team participation issues.

Teams could also select a team manager. This person would be responsible for:

- Overseeing the organization and assignment of the tasks
- Being present at periodic team manager meetings if called by the instructor. During these meetings the instructor could provide the team managers with insight into the detailed tasks for subsequent module(s) and receive feedback from the managers on the team’s progress to date.

A sample team signup sheet is provided in Appendix I (page 52).

## USING TECHNOLOGY

Depending on availability, the case study can be administered with the use of technology. A working knowledge of some basic tools will allow the student to understand how technology can assist the management accountant. However, our approach is to leave the decision of if and when to use the computer with the instructor.

It would be helpful for students to have access to the World Wide Web (Internet), spreadsheet, and word processing software. Use of the Internet will assist in researching and learning about the ice cream and dairy industry. Benchmarking can also be performed using sites such as Industry Canada and other dairy operations across the continent. Spreadsheet software will allow the student to format statements and build decision models. More advanced topics introduce students to regression analysis and linear programming tools in Excel. Memos and reports can be formatted using word processing software.

More advanced technology can be used to foster interaction and a team environment. Groupware tools can be used for individual teams to collaborate and store documents. If groupware tools are used, we strongly suggest the use of password protected folders, to ensure that each team’s work is not accessible by other teams. Forums can be used for all teams to meet and interact with other teams and instructors. You may want to consider using a tool that allows instructor access to all portfolios in order to monitor student work and assess the final results.

## INTRODUCTORY MODULE

The Introductory Module introduces the student to the case study purpose and process. This is the time to set the stage for the case study. Depending on time and resource availability, your introduction can be as simple as spending a lecture hour introducing the purpose and objective of the case study, or as creative as:

- Inviting the managerial accountant of a local ice cream or food processing plant to discuss the manufacturing and costing processes
- Visiting a local ice cream or dairy processing plant
- Having an ice cream social

The case study has been designed to follow the topics of the major managerial accounting textbooks. The sequence of coverage may vary among some textbooks; however you may want to choose the modules in the sequence that best fits your course outcomes. Note that the modules have been structured so that they can be assigned independently of other modules.

### Does Bakerview Dairies Exist?

Bakerview Dairies is a fictitious company. The facts and figures presented have been created to simulate a typical dairy processing company anywhere in Canada. The location of the operation is chosen by the instructor. While we have taken care to provide accurate information, some of the data and processes have been simplified in order to focus on applying managerial accounting theories and tools at the introductory to intermediate levels.

**MODULE 1 – BAKERVIEW AND THE ICE CREAM INDUSTRY**

**Module Outcomes**     **The emphasis of this module is on obtaining background information on the company, its products and the industry.**

**At the end of this module the students should be able to:**

- Relate the marketing issues in the ice cream and fluid milk industry to Bakerview Dairies.
- Explain how current events can affect a company’s goals and strategies.
- List the major steps in ice cream production.
- Identify at least five major ingredients of ice cream.
- Define the industry terminology.

**Overview**     This module introduces the students to:

- The milk and ice cream processing industry
- Bakerview Dairies

The module consists of a high level external analysis of the dairy industry in Canada. Facts and figures from the Canadian Dairy Industry Centre website are presented to provide some historical data on both the milk and ice cream processing industries. This information should help the student in understanding the opportunities and threats in the environment and will assist in strategy planning and benchmarking. You can visit this site at <http://www.dairyinfo.gc.ca/cdicmain.htm> to check for updates.

Bakerview Dairies’ organization and products are also presented in this module. Throughout this case study it is important to note that Bakerview Dairies consists of two divisions:

- Milk processing division
  - Producing only fluid milk
- Ice cream division
  - Producing Cowlix; its brand name ice cream

The focus of the case study is on the ice cream division. However, in later modules, the milk processing division will be used to demonstrate joint and departmental cost allocations. A partial master budget for the ice cream division is provided in the appendix. A list of available facilities provides the student with an overview of plant operations and storage capabilities.

**Activity 1  
Ice Cream  
Production**

The students should familiarize themselves with the basics of ice cream production. Ben and Jerry’s ‘Cow to Cone’ presentation of ice cream manufacturing provides a good multi media overview of the process. ([http://www.benjerry.com/fun\\_stuff/cow\\_to\\_cone/](http://www.benjerry.com/fun_stuff/cow_to_cone/))

Additionally, the University of Guelph’s Food Science Department has a website that is devoted to ice cream:

<http://www.foodsci.uoguelph.ca/dairyedu/icecream.html>. This site provides a comprehensive discussion of the science of ice cream manufacturing, including



suggested formulas and mix calculations. While the details are more complex than is required for this case, students will appreciate the complexity of the actual process.

You may suggest to the students that they can use any method to flowchart the process. The purpose of the exercise is to illustrate the basic steps in the manufacturing process. This should assist in understanding the processes and terminology used in subsequent modules. The students should be familiar with the term, ‘overrun’. Overrun is the air that is injected in the ice cream. Higher quality ice cream has less overrun, while the reverse is true for lower quality ice cream. In this case, the ice cream contains 100% overrun. This means that each litre of ice cream mix produces two litres of ice cream. To reduce complexities we have maintained overrun at 100% in both standard and actual costs throughout the case study.

**Activity 2  
Fluid Milk  
Production**

As with activity 1, the purpose of this exercise is to familiarize the student with fluid milk processing. While the case study does not focus directly on milk processing, it is important to note that the cream from the fluid milk processing division is transferred to the ice cream division. Module 7 focuses on how raw milk and processing joint costs are allocated between the milk and ice cream divisions.

The University of Guelph Dairy Science and Technology site has a wealth of information on milk processing. (<http://www.foodsci.uoguelph.ca/dairyedu/>)

A sample flowchart of the milk processing division is given in module 7

**Activity 3  
Ice Cream  
Ingredients**

The University of Guelph, again, provides information at <http://www.foodsci.uoguelph.ca/dairyedu/icingr.html>

Some of the questions may require the use of Google to determine the shelf life and costs for working capital requirements. As with the previous activities, exact answers are not as important as the fact that students are gaining background information.

**Activity 4  
Industry  
Events**

Understanding environmental threats and opportunities provides insight into what external factors affect the company’s operations. During our classroom experience with the case, research indicated that the industry was affected by rising vanilla and sugar prices. A closer look at current events revealed that storms in Madagascar had destroyed prime vanilla crops (<http://edition.cnn.com/2000/WEATHER/04/04/mozambique.floods.02/>) and the sugar industry in Brazil was turning over its raw cane to be processed as fuel. (<http://news.bbc.co.uk/1/hi/business/4602972.stm>)

Searching CNN, the BBC or simply using Google will assist in finding recent news items.

**Internet Research**

When the students are using the Internet to research, they can begin their search at a popular search engine or directory such as Google or Yahoo. Remind students to check the credibility of each website visited. Key factors to consider are:

- Who is the sponsor of the website?
- How current is the material?

Also remind them to reference any direct quotations and include a short bibliography of websites used as resources.

**Activity 5  
Strategy and  
Benchmarking**

This activity requires the student to identify and discuss Bakerview Dairies’ Ice cream division’s strategy. You may want to provide the students with an overview of the two generic strategies; cost leadership and product differentiation. Based on the information provided in the case, one should infer that the division uses a product differentiation strategy. The use of natural ingredients, attention to a low fat product, and its creation of ‘wacky’ flavours differentiate the product from the company’s competition.

The students should be able to use a search engine to find other similar dairies in North America. The following is a short list of some Canadian and US operations at time of writing:

- Chapman’s Ice Cream: <http://www.chapmans.ca/>  
(A video tour is in the making)
- The Kawartha Dairy Company: <http://www.kawarthadairy.com/>
- Guida’ Milk and Ice Cream: <http://www.supercow.com/>
- Island Farms: <http://www.islandfarms.com/>
- Wells’ Dairy Inc.: <http://www.wellsdairy.com/>
- Belfonte Ice Cream: <http://www.belfonteicecream.com/>

- **What are Bakerview’s capabilities?**  
While the case does not explicitly state Bakerview’s capabilities, students should be able to identify that the ability to produce a tasty, low fat, natural product in unique flavours requires the operation of an innovative research and development department.
- **Who are its competitors and where are they located?**  
The answer to this question will depend on where you geographically locate Bakerview Dairies.
- **Are there substitute products on the market?**  
Students may consider other products such as: low fat alternatives, yoghurt based products, or soya based products.
- **Has Bakerview differentiated its products? If so, how?**  
Bakerview has differentiated its ice cream based on:
  - Flavour
  - Natural ingredients
  - Low fat ingredients

- **Do you agree with this strategy? If so, why do you agree? If not, what do you think the company should change?**  
Answers will vary depending on the interpretation of strategy. Using the generic strategies, Bakerview has a choice of either cost leadership or product differentiation strategies. A cost leadership strategy is typical of a much larger operation where the company can take advantage of volume discounts and reduction in fixed unit costs due to capacity utilization. Because the case does not highlight any specific capabilities to produce low cost product, it appears that this company competes based on high quality products.
- **How is its strategy similar or different to the other dairies you have researched?**  
Responses will vary based on companies researched.

**MODULE 2 – PRELIMINARY ANALYSIS**

**The emphasis of this module is on the statement of cost of goods manufactured, the income statement, cost volume profit analysis and the use of the contribution margin in managerial decisions.**

**At the end of this module the students should be able to:**

- Develop a cost of goods manufactured statement and an income statement
- Classify costs incurred as period and product costs.
- Use cost volume profit analysis to assess alternatives and make decisions that will improve a company’s profitability.
- Differentiate between gross margin and contribution margin and recognize how each is used to assess a company’s profitability.
- Explain the importance of taking into consideration both the financial and non-financial effects of decision making.

**Overview**

To complete this module we expect that the students are familiar with the fundamental cost terms. We require the students to prepare a cost of goods manufactured and an income statement from an incorrectly presented statement. An understanding of the difference between a product and period cost is necessary to decide which costs are included in the manufacturing statement and which are included on the income statement. You may want to review the importance of separating these two costs.

The students may not recognize that packaging is a direct material cost in this case. You may want to highlight this in your discussion.

The students are used to classifying Research and Development and computer usage as non manufacturing costs which should be expensed as period costs. In this case, although the costs are referred to as research and development, in actual fact, they are manufacturing costs. Additionally, computer costs are directly related to manufacturing. As a result these costs are presented in the statement of cost of goods manufactured.

Understanding the behavior of costs is important when assessing the proposals suggested by the various managers in the company. Will the alternative have an effect on fixed costs or variable costs and how will the contribution margin be affected? While the module does not stress a contribution margin statement, you may want the students to build a spreadsheet model using the contribution margin approach. They could even create a graph showing the break even point.

Effective spreadsheet skills are essential if the students are developing a model of the company’s cost structure. They should remember to design the model so the user knows where to input the data, keeping in mind that outputs should be clearly highlighted.

The term ERP (enterprise resource planning) is used in this module. The term is used to describe a software package that consists of modules that tie together business processes in an organization. While ERP software was once common in large organizations, many midsize companies are now successfully using ERP software to manage all of their processes and financial information. To learn more about ERP software, visit: <http://www.cio.com/research/erp/edit/erpbasics.html>

**Activity 1**

<b>BAKerview DAIRIES</b> <b>COWLIX ICE CREAM DIVISION</b> <b>Schedule of Cost of Goods Manufactured for the Quarter</b> <b>ended September 30</b> <b>*****SOLUTION*****</b>	
<b>Ingredients:</b>	
Beginning inventory, July 1	\$ 52,670
Ingredients purchases	675,675
Cost of ingredients available for use	\$ 728,345
Ending inventory, September 30	48,550
<b>Ingredients used</b>	<b>\$ 679,795</b>
<b>Direct labour</b>	<b>87,780</b>
<b>Indirect production costs:</b>	
Packaging	\$65,450
Plant utilities	38,775
Salary and wages (Indirect)	56,415
Computer and supplies (production scheduling)	80,850
Plant equipment amortization	67,650
Quality control	40,425
Equipment maintenance	33,825
Research & development	48,400
Plant lease	85,800
	<b>517,590</b>
<b>Cost of ice cream produced</b>	<b>\$1,285,165</b>

<b>BAKerview DAIRIES</b> <b>COWLIX ICE CREAM DIVISION</b> <b>Income Statement Data – For the Quarter Ended September 30</b> <b>*****SOLUTION*****</b>		
<b>Net sales</b>		\$1,615,075
<b>Cost of goods sold</b>		
Beginning ice cream inventory, July 1	\$ 14,270	
Cost of ice cream produced (from manuf. stmt.)	1,285,165	
Cost of ice cream available for sale	1,299,435	
Ending ice cream inventory, September 30	11,000	\$1,288,435
<b>Gross margin</b>		<b>\$ 326,640</b>
<b>Operating costs</b>		
Administrative salaries	\$119,323	
Interest and bank charges	12,513	
Professional fees	7,975	
Advertising and Promotion	16,225	
Delivery, shipping and warehouse	12,925	
Commissions	39,078	
Miscellaneous administrative expenses	3,255	
Administrative computer services	8,570	\$ 219,864
<b>Operating Income</b>		<b>\$ 106,776</b>

**REMINd STUDENTS THAT ALL CALCULATIONS FOR ACTIVITIES 2 THROUGH 6 RELATE TO THE FOURTH QUARTER.**

**Activity 2**

<b>Advertising Promotion Option</b>		
Increase in sales units (10% of 160,000 sales in fourth quarter)	\$16,000	
CM per unit	\$1.53	
Increase in CM (16,000 x \$1.53)		\$24,480
Increase in fixed cost for advertising		\$30,000
Increase in income		\$ -5,520

If the company spends \$30,000 in advertising, it will decrease income by \$5,520. No, it should not invest in the advertising campaign.