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California

Manufacturing Cost Annual 2006 Data

Compiled and Published in 2008

CALIFORNIA

Manufacturing Cost Annual

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This publication would not be possible without the cooperation of the individuals and firms engaged in the production, manufacture, and distribution of milk and dairy products.

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We welcome your comments on this Manufacturing Cost Annual.
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Introduction

The California Food and Agricultural Code specifies that the Department of Food and Agriculture (Department) must consider manufacturing costs in determining appropriate minimum prices for products categorized as Class 4a (butter and dried milk products) and Class 4b (cheese and dry whey products). To comply with the legislative decree, the Department has a direct need for gathering and summarizing information provided in the cost studies to formulate reasonable manufacturing cost (make) allowances through the public hearing process.

The Department maintains a Manufacturing Cost Unit that collects and summarizes cost data from California dairy manufacturing plants. Any plant that produces Class 4a or Class 4b products may be asked to participate in the cost studies. Information gathered in the studies provides an accurate sampling of California's annual butter, nonfat dry milk (NFDM), skim whey powder, and Cheddar cheese production. Study participants typically account for over 90 percent of the products manufactured in California. Data on cream and condensed skim is collected concurrently from plants that participate. Plants that manufacture cream and condensed skim but do not manufacture butter, NFDM, skim whey powder or Cheddar cheese are not included in the study. As a result, data on cream and condensed skim is based on a much lower percentage of annual production.

The data from the cost studies has a practical significance beyond the boundaries of California. They are the only studies in the U.S. which present the audited and detailed processing costs of butter, NFDM, skim whey powder and Cheddar cheese plants over a period of several years. The studies are conducted by professional auditors specializing in dairy accounting practices. The auditors review plant records on-site and work with plant management to collect data on all aspects of the operation. The auditors also determine allocations of plant expenditures for each product manufactured by the plant. For the plants in the study, the results can help to isolate the actual costs of manufacturing and give benchmark figures obtained from other California manufacturing plants. Consequently, although the Department has the legal authority to collect cost information from the various types of milk processing plants, most plants find the study and resulting comparisons valuable and cooperate in the cost studies voluntarily.

Highlights of the Manufacturing Cost Studies

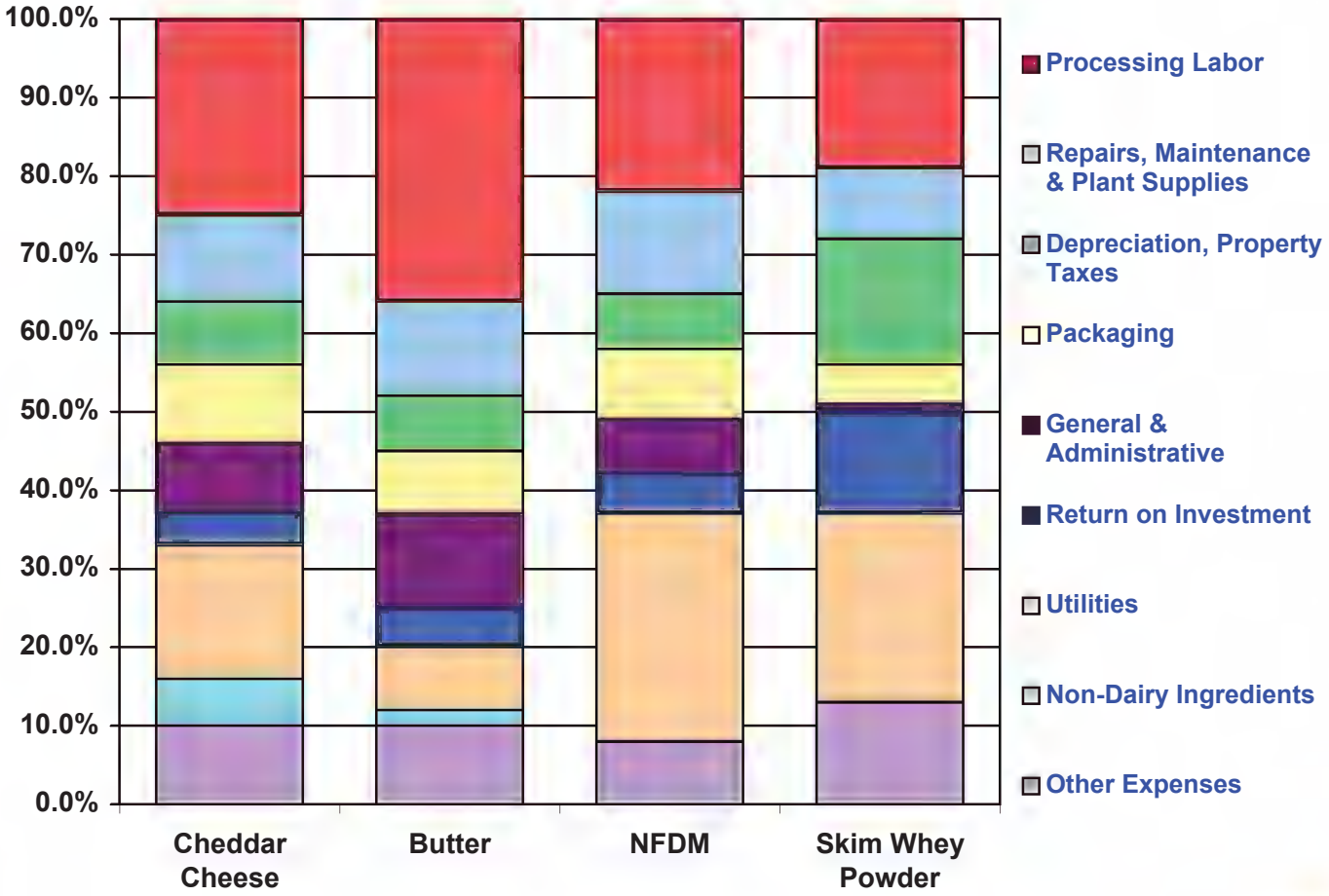
Each plant in the study gave access to cost data for a 12-month period January 2006 to December 2006. The 2007 manufacturing cost annual includes data obtained from 7 butter plants, 8 NFDM plants, 3 skim whey powder plants, 7 Cheddar cheese plants, and 7 condensed skim plants and 7 cream plants. This years' annual report accounts for 95 percent of the butter, 95 percent of the NFDM, 73 percent of the skim whey powder, and 98 percent of the total Cheddar and Monterey Jack cheese produced in California. Since about half the plants process and sell bulk cream and /or condensed skim, data was also accumulated for these products.

Labor Was the Largest Cost Component

The largest single category contributing to overall processing costs for most of the studies was labor (Figure 1). Labor was on average 36 percent of total butter processing costs, 22 percent of NFDM processing costs, 25 percent of Cheddar cheese processing costs, and 19 percent of skim whey powder processing cost. The dollar impact of other cost categories varied by product type. Utility costs accounted for 29 percent of NFDM processing costs, 8 percent of butter processing costs, 17 percent of Cheddar cheese processing costs, and 24 percent of skim whey powder processing costs. Depreciation and lease expenses account for 8 percent of Cheddar cheese processing costs, 7 percent of butter processing costs, 8 percent of NFDM processing costs, and 16 percent of total skim whey powder processing costs.

This publication is divided into sections identified by product, e.g., Cheddar Cheese, Butter, NFDM, Skim Whey Powder, and includes an added section containing Condensed Skim and Cream processing information. Within each section a summary table is included to describe categorized processing costs, and bar charts identify the distribution of costs among the study plants. Pie charts are also utilized to detail the overall contribution of individual cost categories to the overall cost structure.

Figure 1. Comparison of Costs by Category for California Manufacturing Plants



Cheese Study

Cost studies were completed on seven cheese plants for 2006. The seven plants processed 826.8 million pounds of cheese during the 12-month period, January through December 2006, representing 98 percent of the Cheddar and Monterey Jack cheese processed in California that year. To avoid revealing plant specific information, each plant was assigned to one of two cost groups based on total processing costs. While calculations were derived from 40 lb. block Cheddar cheese products only, cheese plants typically manufacture other cheese products and a variety of by-products (Figure 2). The cost summary statistics displayed provide us a quantitative profile of California's Cheddar cheese production, including production statistics, processing costs per pound, and cheese vat information (Tables 1 and 2).

- Labor costs were the single largest expense contributing to the overall cost of production (Figure 1). On a weighted average, processing labor ranged from 4.0¢ per pound in the low cost group to 6.5¢ per pound in the high cost group. Processing Labor accounted for 25 percent of the total manufacturing cost.

- Processing non-labor costs include utilities, depreciation and property taxes, repairs and maintenance, and supplies expenses.

- General and Administrative (G & A) costs were on a weighted average 1.8¢ per pound and include all expenses incurred in the direction, control, and management of the company. Examples of G & A costs are administrative payroll costs, office supplies, short-term interest, and headquarters fees.

- The ROI allowance is an opportunity cost and represents how much interest the company could have earned if its capital was not tied up in land, buildings and equipment. In other words, it is viewed as an alternative source of income had the company invested its capital elsewhere. A higher ROI cost suggests that either a plant is relatively new with little accumulated depreciation of its assets (high book value) or that it is an established plant with low production volume.

- Surprisingly, packaging costs for the low cost group were at 2.1¢ per pound, 27 percent higher than the high cost groups packaging cost of 1.7¢ per pound.

Table 1. Processing Costs for Seven California Cheddar Cheese Plants

CHEESE MANUFACTURING COSTS

CURRENT Study Period: January through December 2006
With Comparison to the same time period PRIOR YEAR (2005)

- Manufacturing cost data were collected and summarized from seven California cheese plants. The seven plants processed 826 million pounds of cheese during the 12-month study period, January through December 2006, representing over 97% of the Cheddar and Monterey Jack cheese processed in California.
- The volume total includes both Cheddar and Monterey Jack cheeses, but the costs reflect only costs for 40 lb. blocks of Cheddar.
- Three plants processed 500-lb. barrels or 640-lb. blocks. Packaging costs and packaging labor for 40-lb. blocks were substituted for these plants.
- To obtain the weighted average, individual plant costs were weighted by their cheese processing volume relative to the total volume of cheese processed by all plants included in the cost study.
- For all cheese: the weighted average yield was 12.24 lbs. of cheese per hundredweight of milk. The weighted average moisture was 37.03% and weighted average vat tests were 4.40% fat and 9.33% SNF.
  - For 40-lb. blocks: the weighted average yield was 12.62 lbs. of cheese per hundredweight of milk. The weighted average moisture was 38.08% and weighted average vat tests were 4.24% fat and 9.10% SNF.
- For this study period, approximately 0% of the cheese was processed at a cost less than the current manufacturing cost allowance for cheese of $0.178 per pound.

Breakdown of Cheese Manufacturing Costs - January through December 2006

Categories	Low Cost Group	High Cost Group	Range of Costs Minimum	Range of Costs Maximum	CURRENT Weighted Average Cost All Plants Jan-Dec 2006	PRIOR YEAR Weighted Average Cost All Plants Jan-Dec 2005	Actual Difference Current Less Prior Year
	Dollars Per Pound of Cheese						
Number of Plants	3	4	7	7	**7**	7	--
Processing Labor	$0.0403	$0.0648	$0.0391	$0.0907	**$0.0499**	$0.0498	$0.0001
Processing Non-Labor	$0.0882	$0.0975	$0.0624	$0.1228	**$0.0918**	$0.0850	$0.0068
Packaging	$0.0210	$0.0165	$0.0114	$0.0231	**$0.0192**	$0.0193	-$0.0001
Other Ingredients	$0.0085	$0.0162	$0.0070	$0.0439	**$0.0115**	$0.0117	-$0.0002
General & Administrative	$0.0206	$0.0145	$0.0080	$0.0239	**$0.0182**	$0.0174	$0.0008
Return on Investment	$0.0076	$0.0091	$0.0034	$0.0131	**$0.0082**	$0.0082	$0.0000
Average Total Cost	$0.1862	$0.2186	--	--	**$0.1988**	$0.1914	$0.0074
Volumn in Group (Lbs.)	503,547,827	323,272,371	--	--	**826,820,198**	826,583,500	--
% Volume by Group	60.9%	39.1%	--	--	**100.0%**	100.0%	--

Processing Labor: Labor costs associated with processing of product, including wages, payroll taxes and fringe benefits.

Processing Non-Labor: Includes costs such as utilities, repairs and maintenance, laundry, supplies, depreciation, plant insurance, and rent.

Packaging: Includes all non-reusable items used in the packaging of the product, such as boxes, bags, cartons, liners, tape, glue and stretch wrap.

Other Ingredients: Includes salt, color, and rennet.

General & Administrative: Includes expenses in the management of the company, such as: office supplies,short-term interest, dues and subscriptions, accounting fees, headquarter charges, office clerical wages and executive salaries.

Return on Investment: Calculated by subtracting accumulated depreciation from the original cost of assts, with the remaining book value multiplied by Moody's "BAA" corporate bond index.

Table 2. Cheddar Cheese Production Parameters from Cost Studies[1]

Cost Group	Finished Moisture %	Vat Fat Test %	Vat SNF Test %	Vat Yield (Lbs.)
Low	36.77%	4.78%	9.67%	13.04%
High	37.45%	3.80%	8.79%	11.00%
Wt'd Avg.	**37.03%**	**4.40%**	**9.33%**	**12.24%**

[1] Moisture, vat tests and yields reflect levels achieved for Cheddar cheese only.

Characteristics of Cheddar Cheese Plants

While the summary analyses of the cost studies that have been published historically have provided many insights into Cheddar cheese operations in California, they do not address some of the most basic features of the plants and how different costs compare among the plants in the study. In the following section, summary statistics provide an indication of how much variation exists among plants producing Cheddar cheese.

Throughout this section, column charts are used to show the distribution of the plants within a specified category or the breakdown of costs. Charts provide us an indication of the variation existing among the plants and the relative impact that individual cost categories have upon production.

To obtain the weighted average, individual plant costs were weighted by their cheese processing volume relative to the total volume of cheese processed by all the plants included in the cost study.

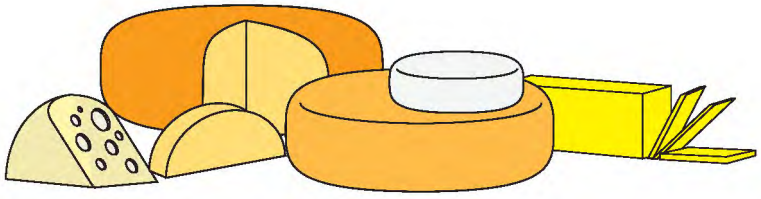


Figure 2. Simplified Product Flow in a Cheese Plant with By-Product Processing

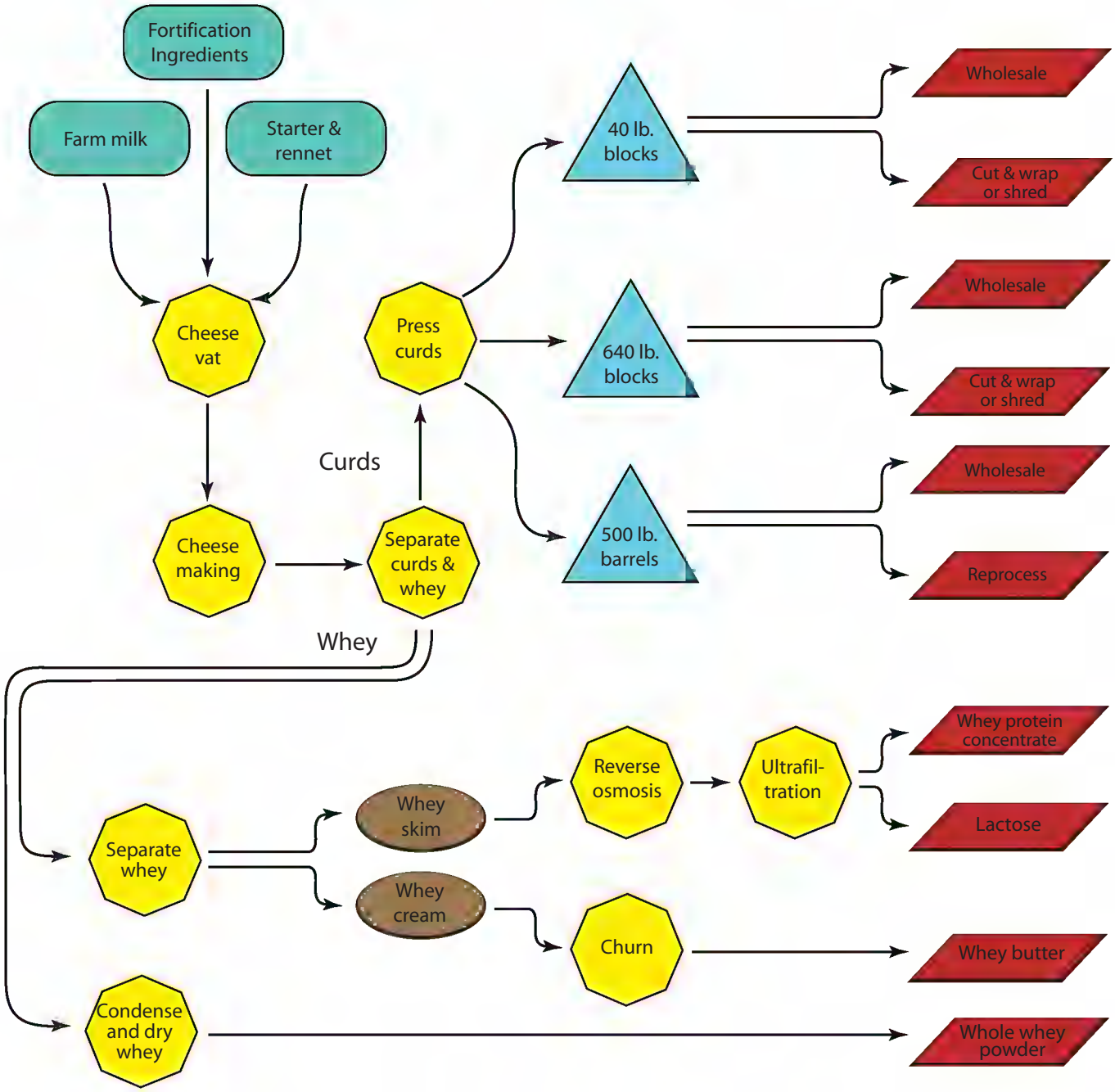


Figure 3. Breakdown of Cheddar Cheese Processing Costs

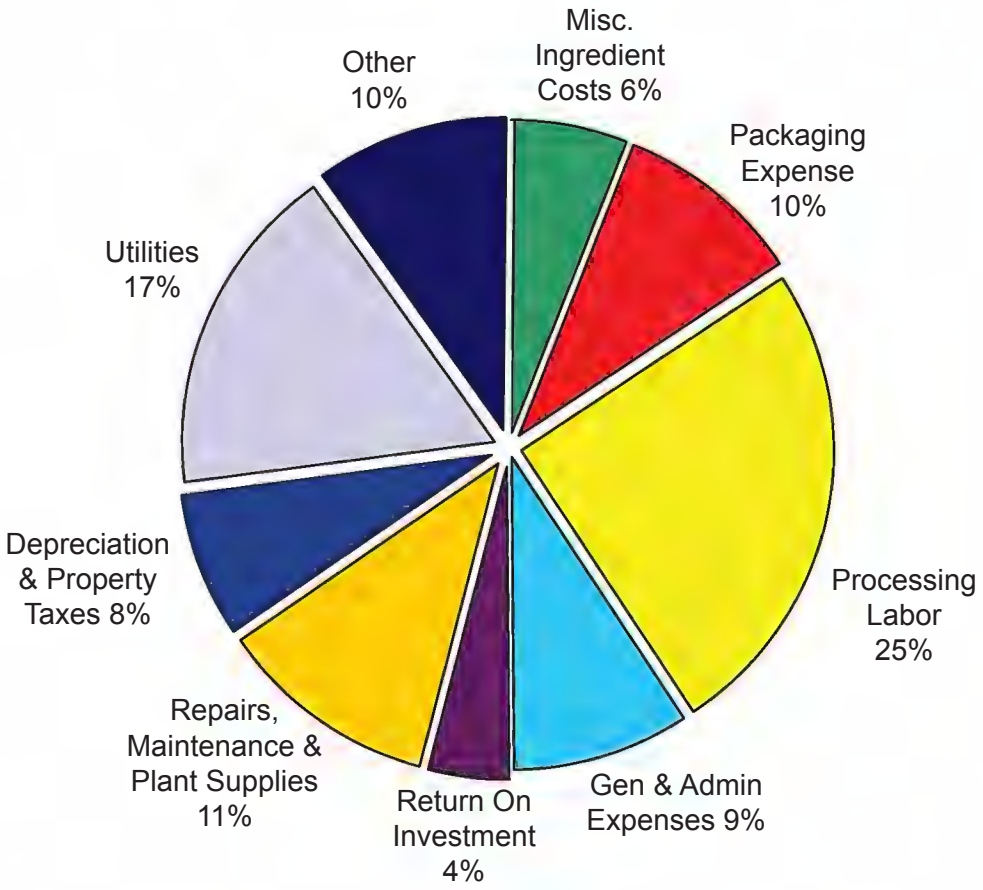


Figure 4. Breakdown of Cheddar Cheese Packaging Sizes

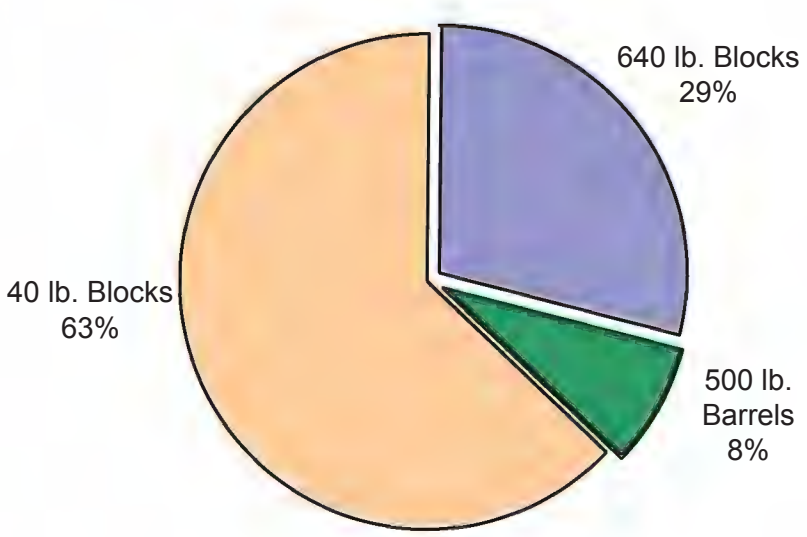
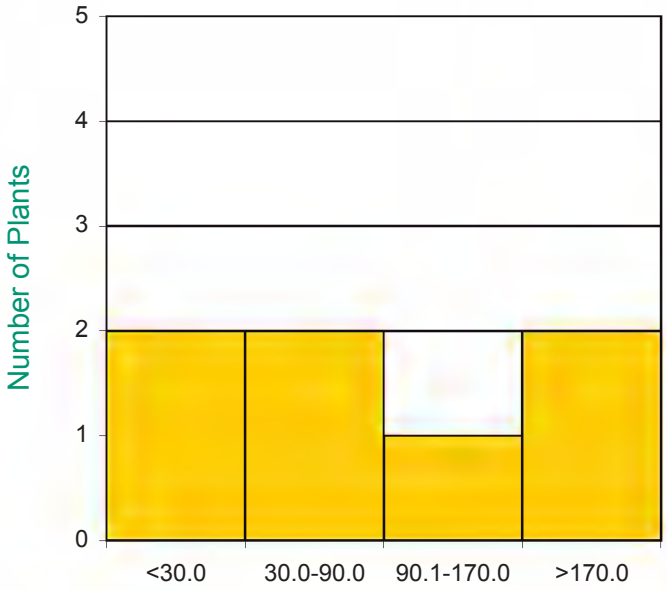


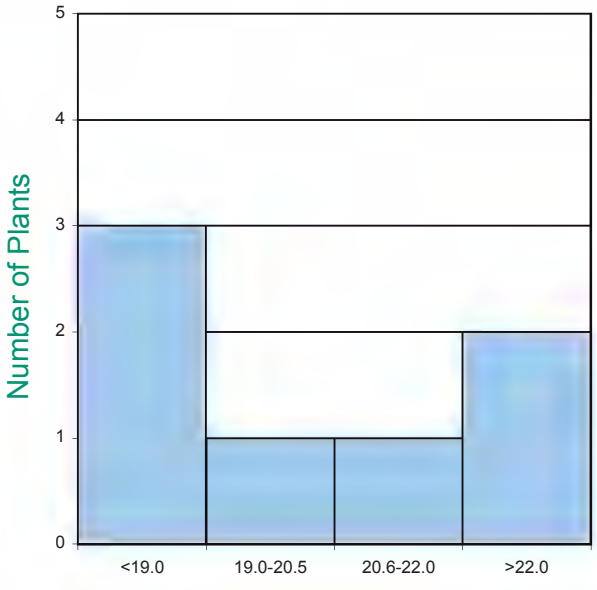
Figure 5. Annual California Cheddar and Jack Cheese Production



Average = 118 million pounds
Median = 84 million pounds
Average Low Cost Group = 168 million pounds
Average High Cost Group = 81 million pounds

- Generally speaking, the cost of manufacturing is typically lower for the large production plants.

Figure 6. Manufacturing Cost per Pound



Average = 20.3¢ per pound
Wt'd Average = 19.9¢ per pound
Median = 19.4¢ per pound
Average Low Cost Group = 18.6¢ per pound
Average High Cost Group = 21.9¢ per pound

- Manufacturing costs ranged from 18.2¢ per pound to 23.1¢ per pound.
- Three plants kept manufacturing costs under 19¢ per pound.

Figure 7. Share of California Cheddar and Jack Cheese Production by Ownership Type and by Workforce Type

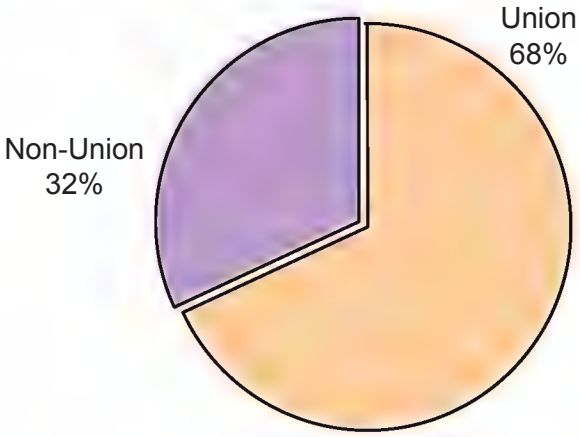
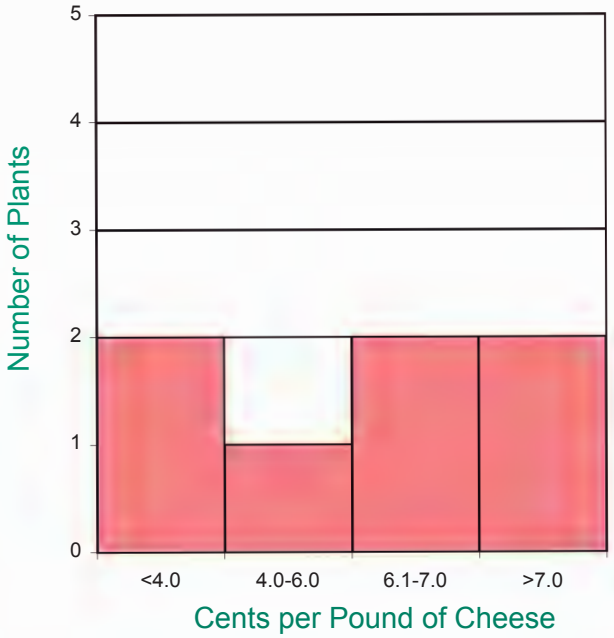


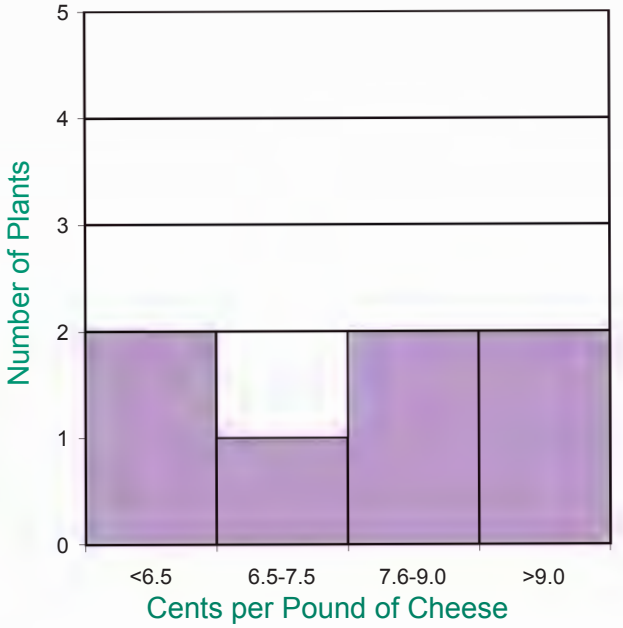
Figure 8. Processing Labor Cost per Pound



Average	= 5.9¢ per pound
Wt'd Average	= 5.0¢ per pound
Median	= 6.2¢ per pound
Average Low Cost Group	= 4.0¢ per pound
Average High Cost Group	= 6.5¢ per pound

- The weighted average labor processing cost based on production volume was 4.9¢ per pound.
- Labor costs per pound for the High Cost Group was 63% greater than the labor costs of the Low Cost Group.

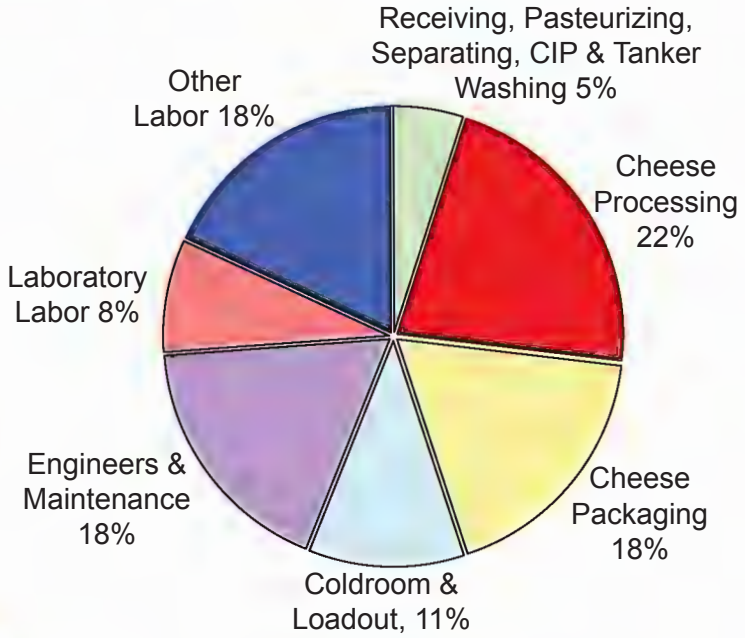
Figure 9. Processing Non-Labor Cost per Pound



Average	= 8.4¢ per pound
Wt'd Average	= 9.2¢ per pound
Median	= 8.7¢ per pound
Average Low Cost Group	= 8.8¢ per pound
Average High Cost Group	= 9.8¢ per pound

- Production non-labor costs include utilities, depreciation, repairs and maintenance, laundry, supplies, and licensing fees expenses.
- Two plants operated with non-labor processing costs of less than 7¢ per pound.

Figure 10. Cheddar Cheese Labor Breakdown by Category

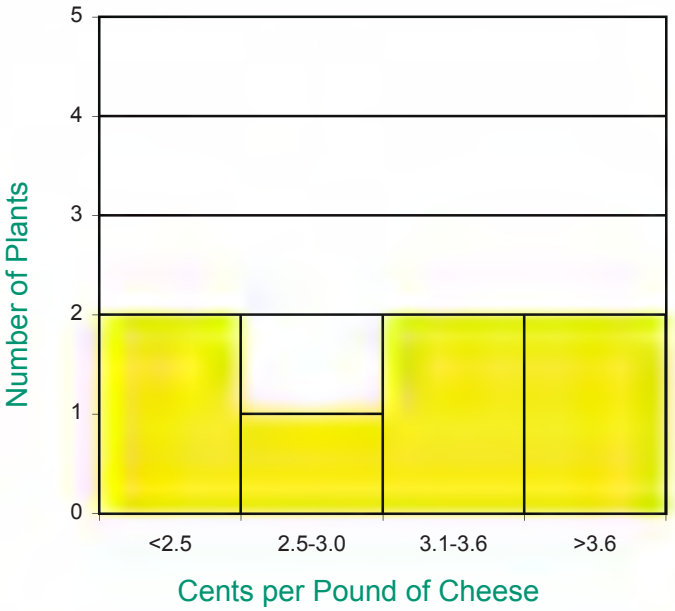


Based on detailed data:
The weighted average labor cost 4.9¢ per pound.

The weighted average labor cost per 40 lb. block was $1.99.

Note: "Other" includes pasteurizing, separating, plant manager/superintendent, general plant, plant clerical, and whey disposal.

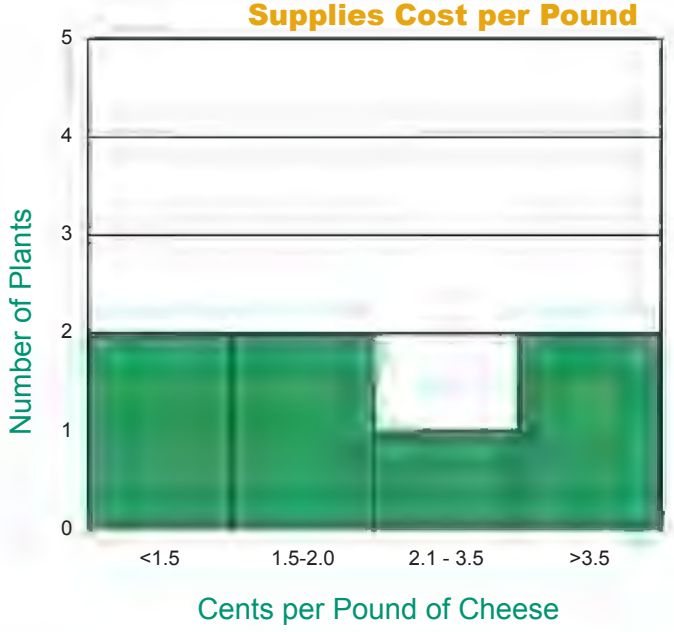
Figure 11. Utility Cost per Pound



Average	= 3.1¢ per pound
Wt'd Average	= 3.4¢ per pound
Median	= 3.1¢ per pound
Average Low Cost Group	= 3.3¢ per pound
Average High Cost Group	= 2.9¢ per pound

- Utility costs ranged from 2.2¢ to 3.8¢ per pound.
- Natural gas charges represented 38% of the average utility cost while electricity represented 33%. Sewage, water, and whey disposal make up the remaining 29% of cost.

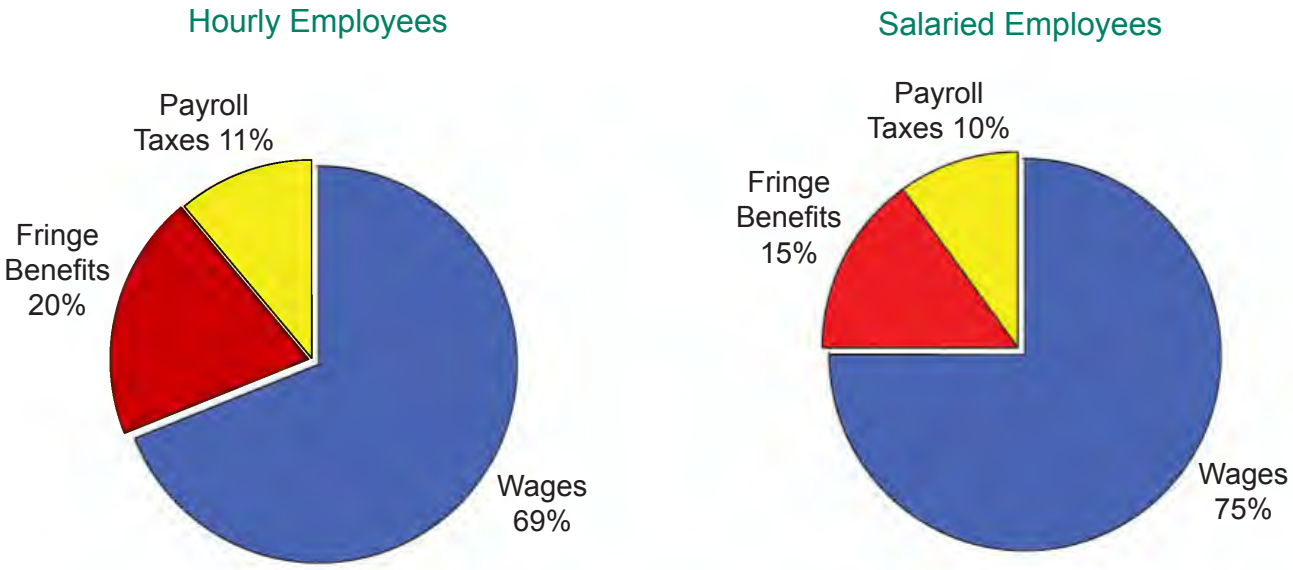
Figure 12. Repairs, Maintenance, and Supplies Cost per Pound



Average	= 2.2¢ per pound
Wt'd Average	= 2.3¢ per pound
Median	= 1.5¢ per pound
Average Low Cost Group	= 1.5¢ per pound
Average High Cost Group	= 2.7¢ per pound

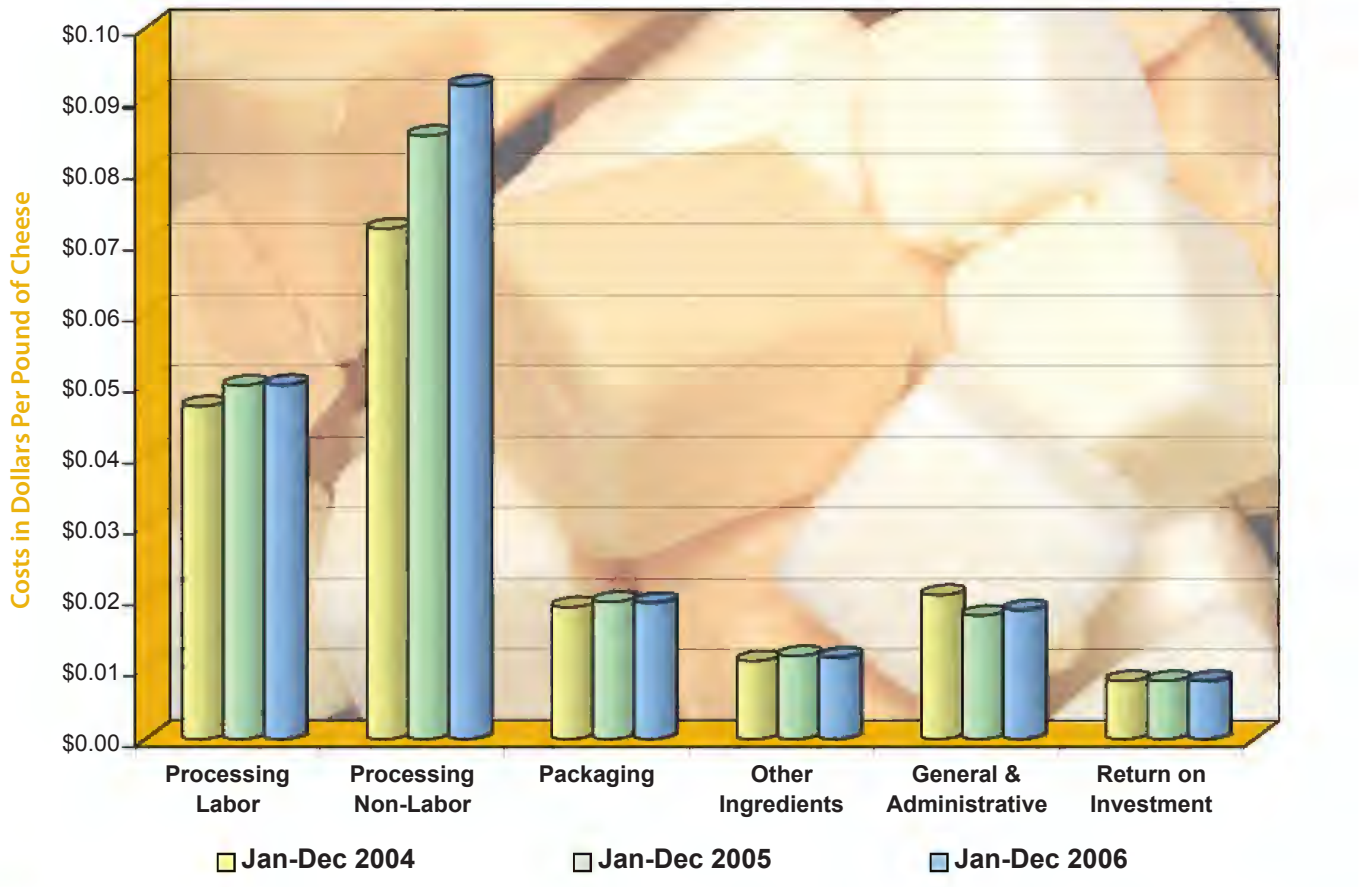
- Repairs and maintenance represented 52% and supplies 48% of this category cost.
- The weighted average repairs, maintenance, and supplies cost for cheese was 2.3¢ per pound.

Figure 13: Comparison of Payroll Breakdown for Plant Employees, Hourly and Salaried



* Wages include vacation, sick leave, and holiday pay.
* Payroll taxes includes FICA, FUTA, SUTA, and Workers Compensation.

Figure 14. Cheese Processing Cost Comparison, 2004, 2005, 2006



Butter Study

Cost studies were completed on seven butter plants for 2006. The seven plants processed 424.6 million pounds of butter during the 12-month period, January 2006 through December 2006, representing 95 percent of the butter processed in California. Statistics indicate the per pound costs for each of the manufacturing processes (Table 3). To avoid revealing plant-specific information, the seven plants were assigned to one of two groups according to total processing costs. Only costs for bulk butter (25 kg and 68 lb. boxes) were analyzed although most plants produce a variety of other size packaging (Figure 17).

- The "Processing Non-Labor" category includes costs such as utilities, repairs and maintenance, supplies, depreciation, and rent, with total costs ranging from 4.2¢ in the low cost group to 6.3¢ per pound in the high cost group.

- General and Administrative (G & A) costs were on average 1.6¢ per pound and include all expenses incurred in the direction, control, and management of the company. Examples of G & A costs are administrative payroll costs, office supplies, short-term interest, and headquarters fees.

- The return on investment (ROI) allowance is calculated by subtracting accumulated depreciation from the original cost of fixed assets. The remaining book value is multiplied by the Moody's "BAA" corporate bond index. The amounts are then allocated to production employing the same methods used to allocate depreciation expense. In the butter studies, the total weighted average ROI cost accounts for a little over 5 percent of the total weighted average cost of production.

Table 3. Processing Costs for Seven California Butter Plants

BUTTER MANUFACTURING COSTS

CURRENT Study Period: January through December 2006
With Comparison to the same time period PRIOR YEAR (2005)

- Manufacturing cost data were collected and summarized from seven California butter plants. The seven plants processed 424.6 million pounds of butter during the 12-month study period, January through December 2006, representing 94.7% of the butter processed in California.
- The volume total includes both bulk butter and cut butter, but the costs reflect only costs for bulk butter (25 kg and 68 lb. blocks).
- To obtain the weighted average, individual plant costs were weighted by their butter processing volume relative to the total volume of butter processed by all plants included in the cost study.
- For this study period, approximately 61% of the butter was processed at a cost less than the current manufacturing cost allowance for butter of $0.156 per pound.

Breakdown of Butter Manufacturing Costs - January through December 2006

Categories	Low Cost Group	High Cost Group	Range of Costs		CURRENT Weighted Average Cost All Plants Jan-Dec 2006	PRIOR YEAR Weighted Average Cost All Plants Jan-Dec 2005	Actual Difference Current Less Prior Year
			Minimum	Maximum			
	Dollars Per Pound of Butter						
Number of Plants	3	4	7	7	**7**	8	--
Processing Labor	$0.0417	$0.0612	$0.0345	$0.1148	**$0.0498**	$0.0528	-$0.0030
Processing Non-Labor	$0.0423	$0.0627	$0.0364	$0.0695	**$0.0508**	$0.0514	-$0.0006
Packaging	$0.0103	$0.0116	$0.0095	$0.0122	**$0.0108**	$0.0104	$0.0004
Other Ingredients	$0.0024	$0.0039	$0.0017	$0.0045	**$0.0030**	$0.0041	-$0.0011
General & Administrative	$0.0134	$0.0193	$0.0059	$0.0239	**$0.0159**	$0.0147	$0.0012
Return on Investment	$0.0064	$0.0079	$0.0018	$0.0096	**$0.0070**	$0.0074	-$0.0004
Average Total Cost	$0.1165	$0.1666	--	--	**$0.1373**	$0.1408	-$0.0035
Volumn in Group (Lbs.)	247,655,028	176,965,541	--	--	**424,620,569**	396,627,948	--
% Volume by Group	58.3%	41.7%	--	--	**100.0%**	100.0%	--

Processing Labor: Labor costs associated with processing of product, including wages, payroll taxes and fringe benefits.
Processing Non-Labor: Includes costs such as utilities, repairs and maintenance, laundry, supplies, depreciation, plant insurance, and rent.
Packaging: Includes all non-reusable items used in the packaging of the product, such as boxes, bags, cartons, liners, tape, glue and stretch wrap.
Other Ingredients: Includes salt, color.
General & Administrative: Includes expenses in the management of the company, such as: office supplies,short-term interest, dues and subscriptions, accounting fees, headquarter charges, office clerical wages and executive salaries.
Return on Investment: Calculated by subtracting accumulated depreciation from the original cost of assts, with the remaining book value multiplied by Moody's "BAA" corporate bond index.

Characteristics of Butter Plants

In the following section, summary statistics provide a comparison of costs and indicate how much variation exists among the individual butter plants. Column charts are used to show the distribution of plants within a specified category or the breakdown of costs by category. Graphs provide an indication of the variation existing among the plants and the relative impact of individual cost categories upon total manufacturing costs.

The "weighted average" cost takes into account the proportional relevance of pounds produced, and the "median" is the middle point at which half of the plants are above and half of the plants are below a given figure.

Figure 15. Simplified Flowchart of a Butter and Nonfat Dry Milk Plant

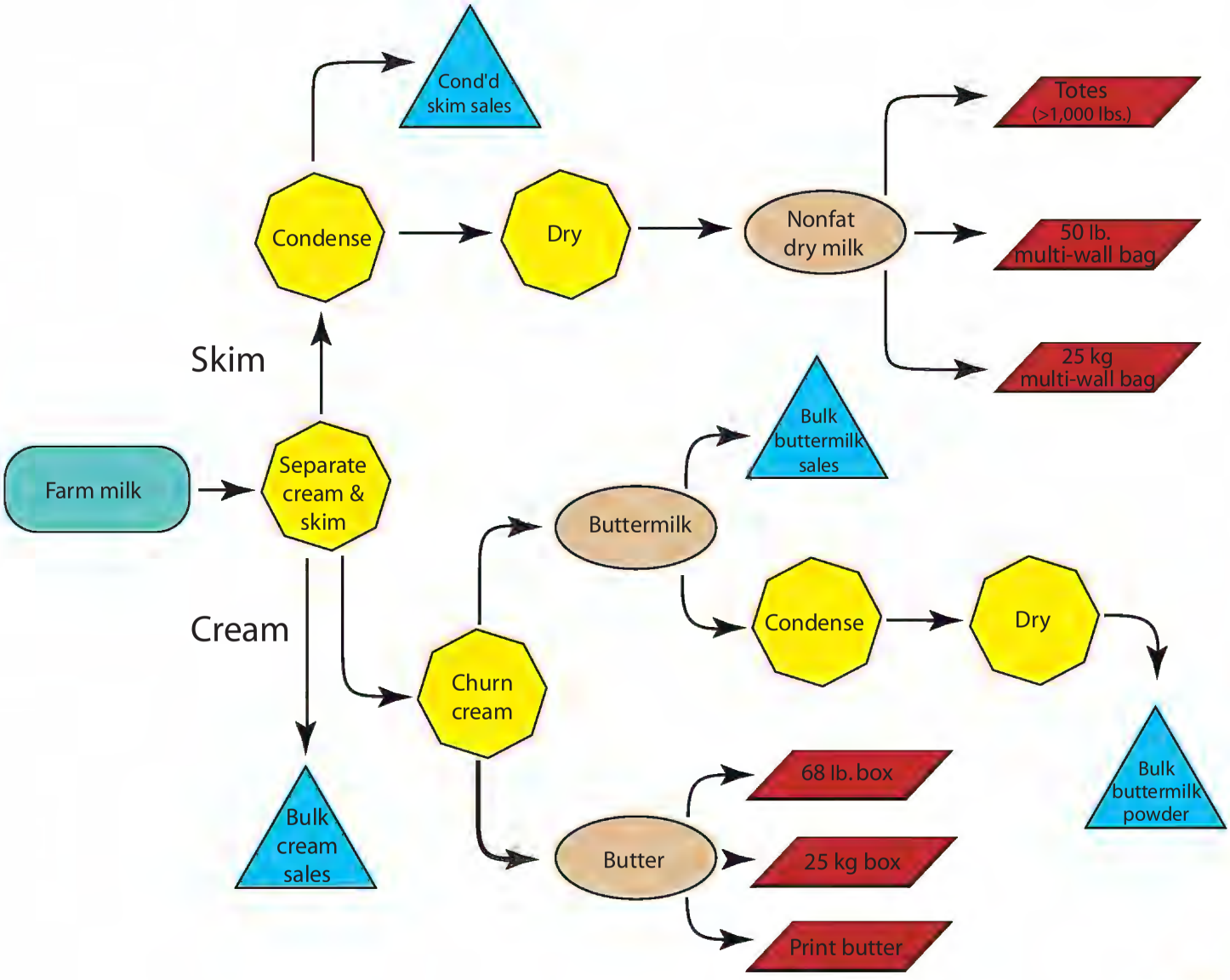


Figure 16. Breakdown of Butter Processing Costs

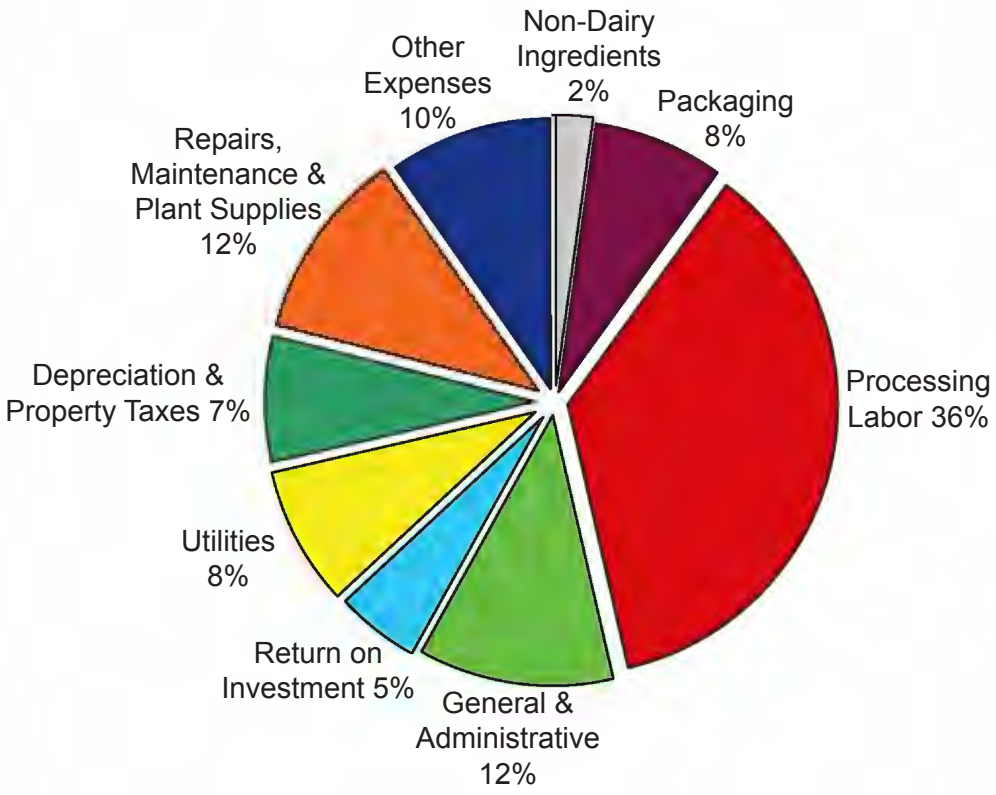


Figure 17. Breakdown of Butter Packaging Sizes and Types

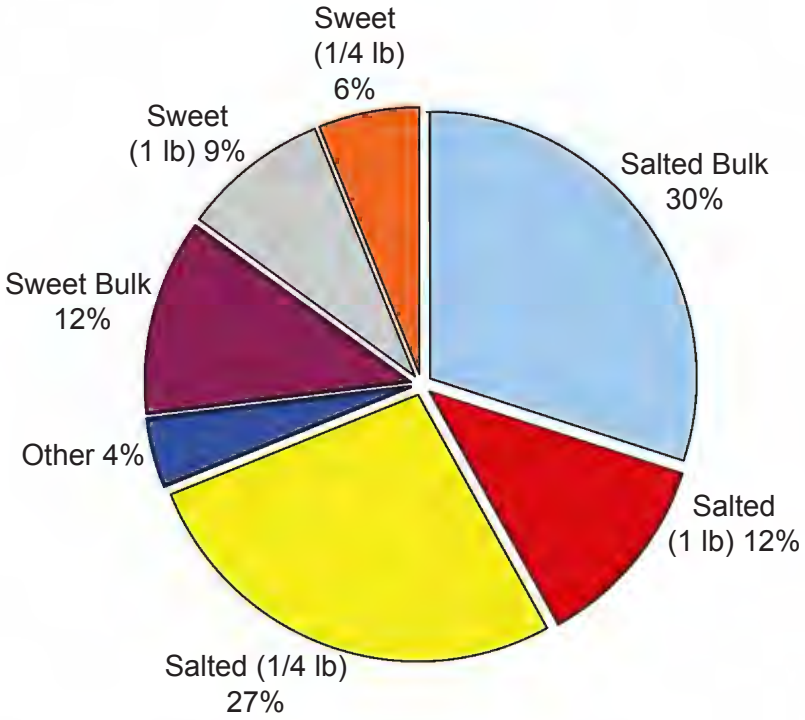
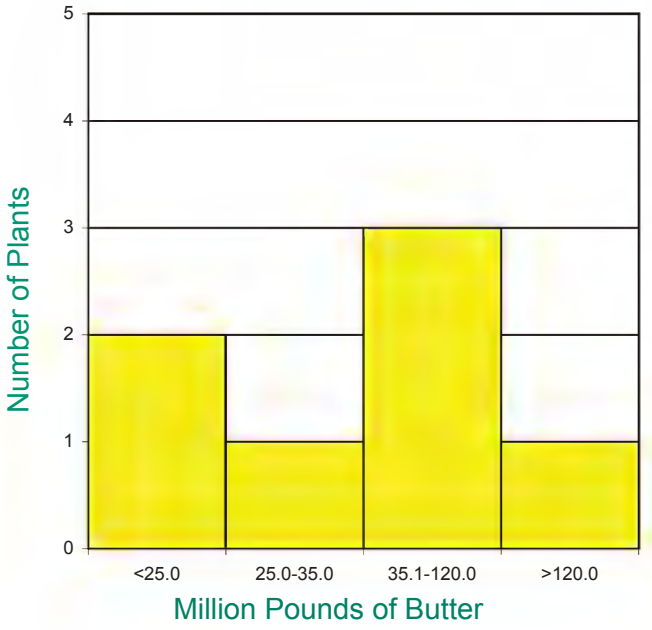


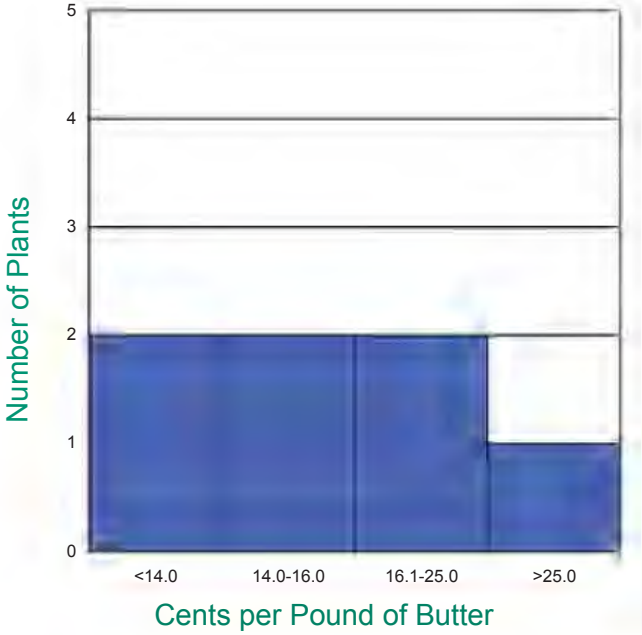
Figure 18. Annual California Butter Production



Average = 61 million pounds
Median = 63 million pounds
Average Low Cost Group = 83 million pounds
Average High Cost Group = 44 million pounds

- The three largest producers combined production was 6.5 times that of the three smallest producers.

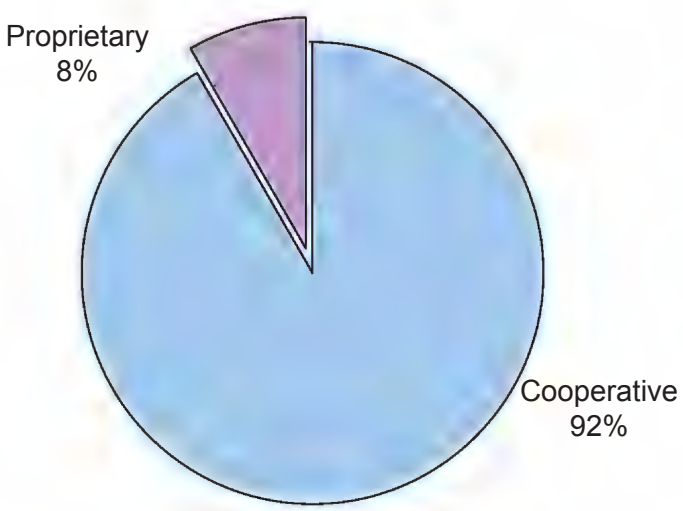
Figure 19. Butter Manufacturing Cost per Pound



Average = 15.0¢ per pound
Wt'd Average = 13.7¢ per pound
Median = 15.3¢ per pound
Average Low Cost Group = 11.7¢ per pound
Average High Cost Group = 16.7¢ per pound

- When weighted against production, the plants in the Low Cost Group manufactured butter for less than 12¢ per pound.

Figure 20. Share of California Butter Production by Ownership Type and by Workforce Type



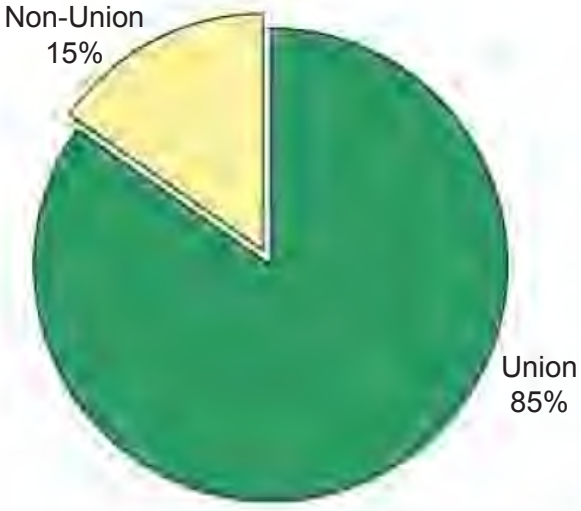
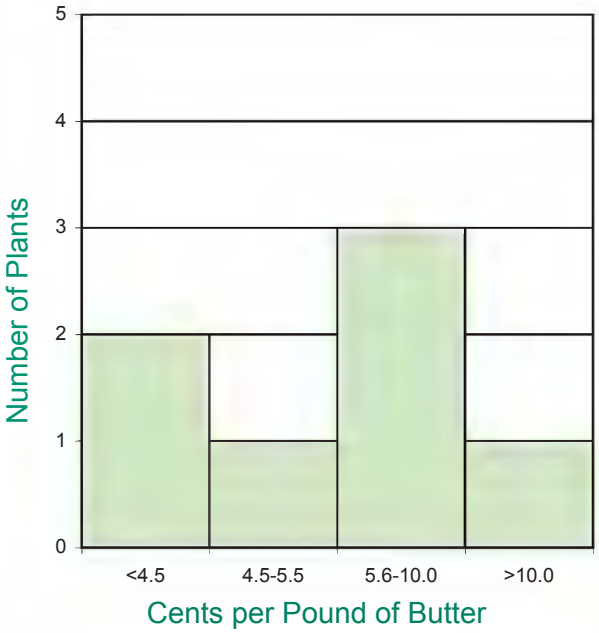


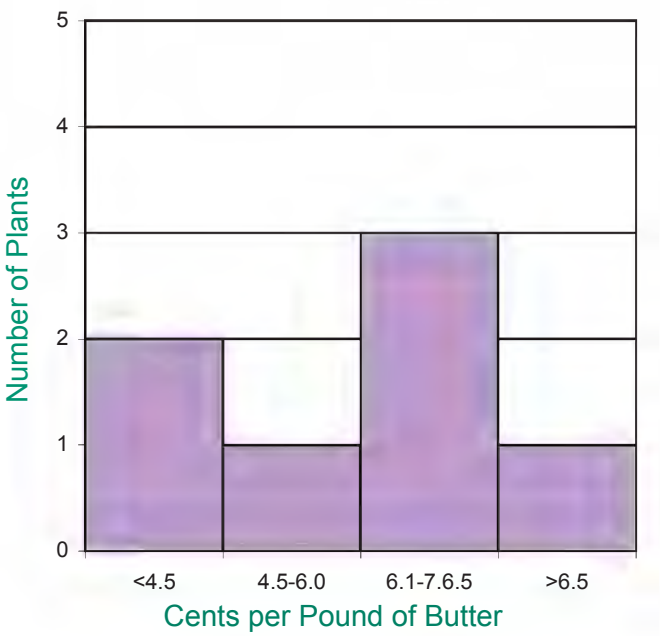
Figure 21. Processing Labor Cost per Pound



Average	= 5.9¢ per pound
Wt'd Average	= 5.0¢ per pound
Median	= 5.8¢ per pound
Average Low Cost Group	= 4.2¢ per pound
Average High Cost Group	= 6.1¢ per pound

- All plants in the Low Cost Group kept labor costs to less than 4.3¢ per pound.
- The plant whose labor costs was the highest had labor costs more than three times that of the lowest cost plant.

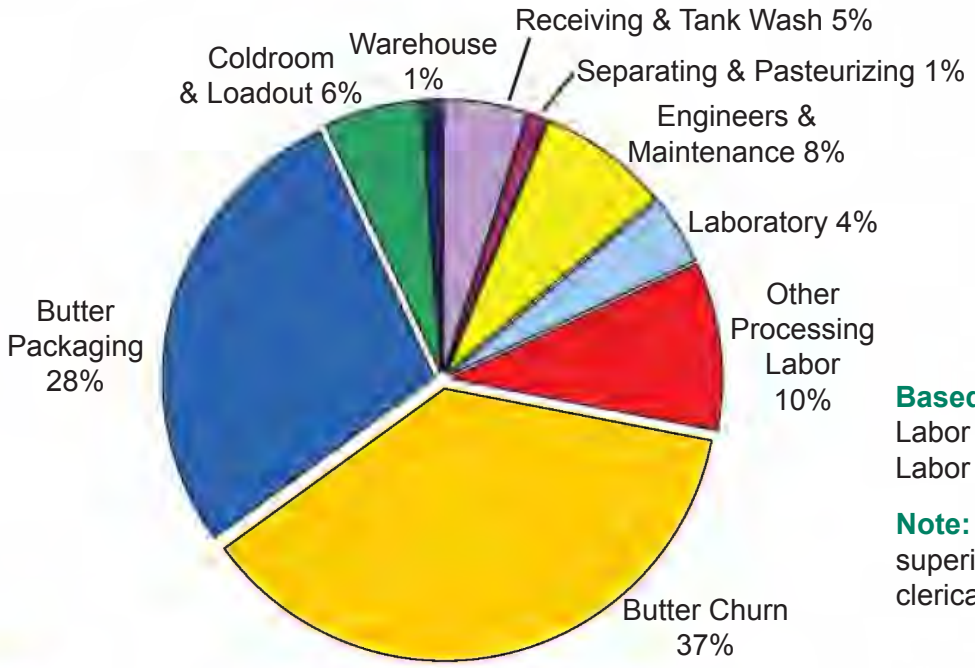
Figure 22. Processing Non-Labor Cost per Pound



Average	= 5.6¢ per pound
Wt'd Average	= 5.1¢ per pound
Median	= 6.2¢ per pound
Average Low Cost Group	= 4.2¢ per pound
Average High Cost Group	= 6.3¢ per pound

- Non-labor costs included utilities, depreciation, repairs and maintenance, laundry, supplies, and licensing fees expenses.

Figure 23. Butter Labor Breakdown by Category

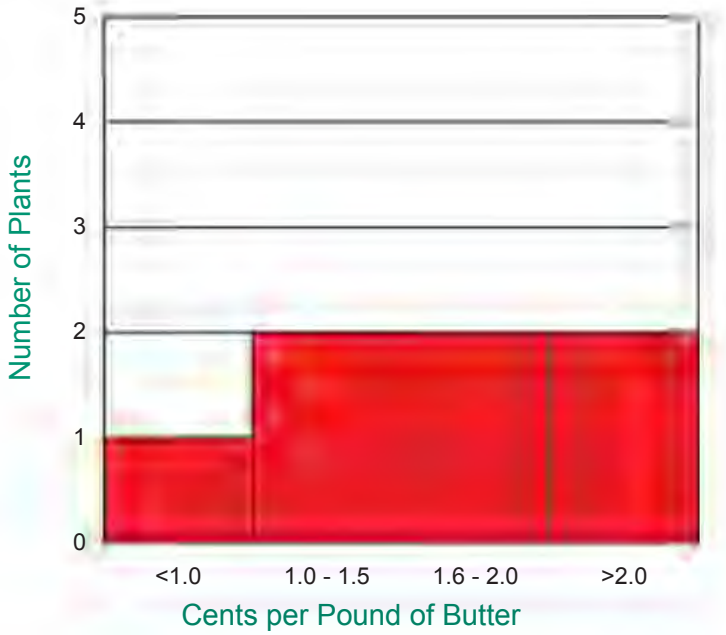


Based on detailed data:
Labor cost averaged 5.9¢ per pound
Labor cost averaged $3.25 per 25 kg box

Note: "Other" includes plant manager/ superintendent, general plant, and plant clerical.

Figure 24. Utility Cost per Pound

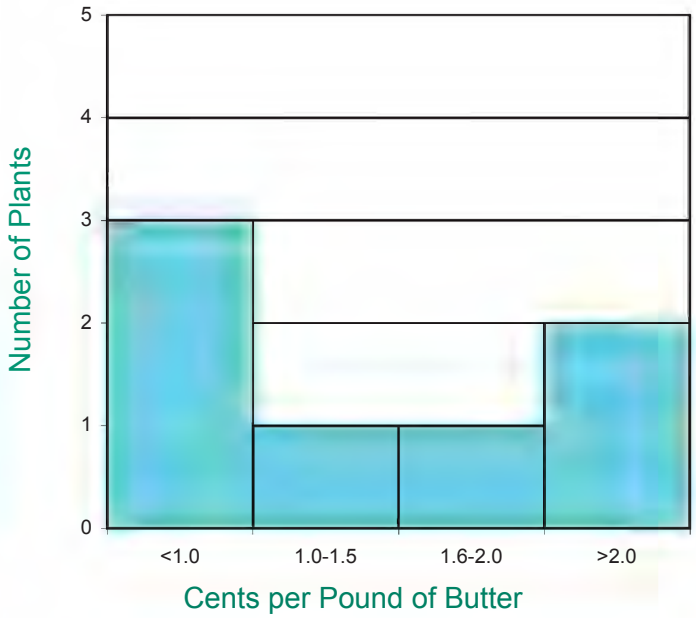
Includes cost of natural gas, fuel oil, electricity, and sewage



Average	= 1.6¢ per pound
Wt'd Average	= 1.1¢ per pound
Median	= 1.6¢ per pound
Average Low Cost Group	= 1.1¢ per pound
Average High Cost Group	= 1.9¢ per pound

- Most plants in the study kept utility costs under 1.7¢ per pound.

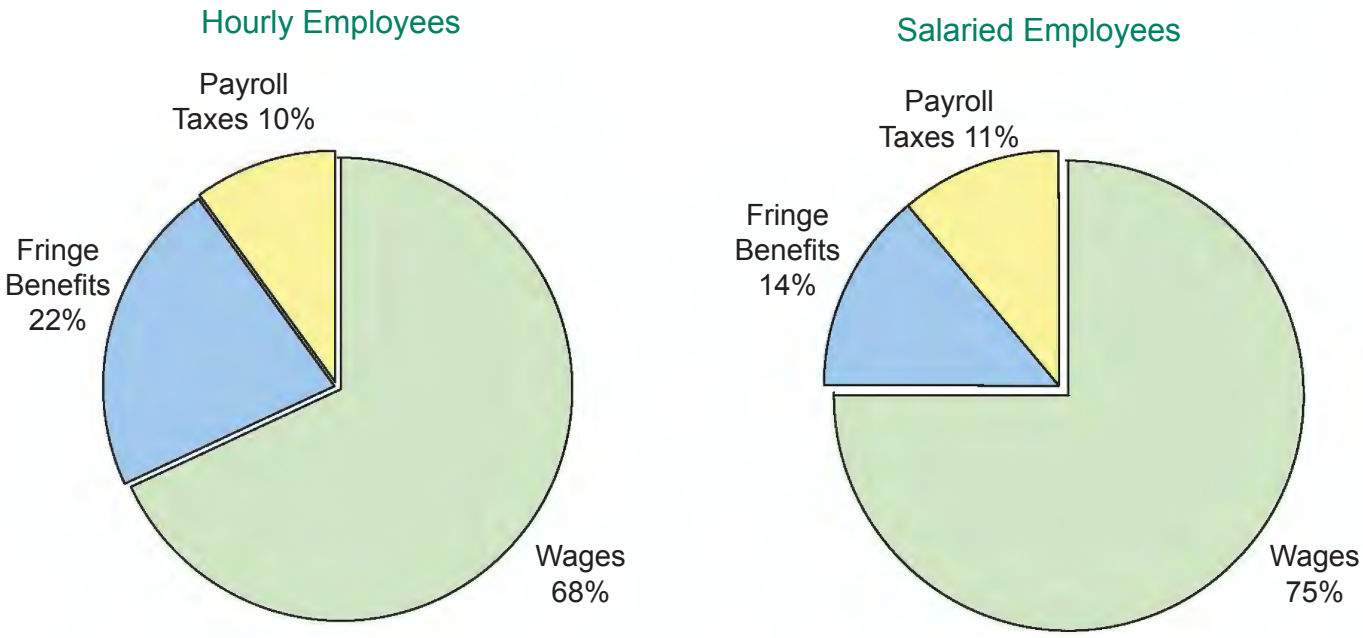
Figure 25. Repairs, Maintenance, and Supplies Cost per Pound



Average	= 1.4¢ per pound
Wt'd Average	= 1.6¢ per pound
Median	= 1.2¢ per pound
Average Low Cost Group	= 1.1¢ per pound
Average High Cost Group	= 1.7¢ per pound

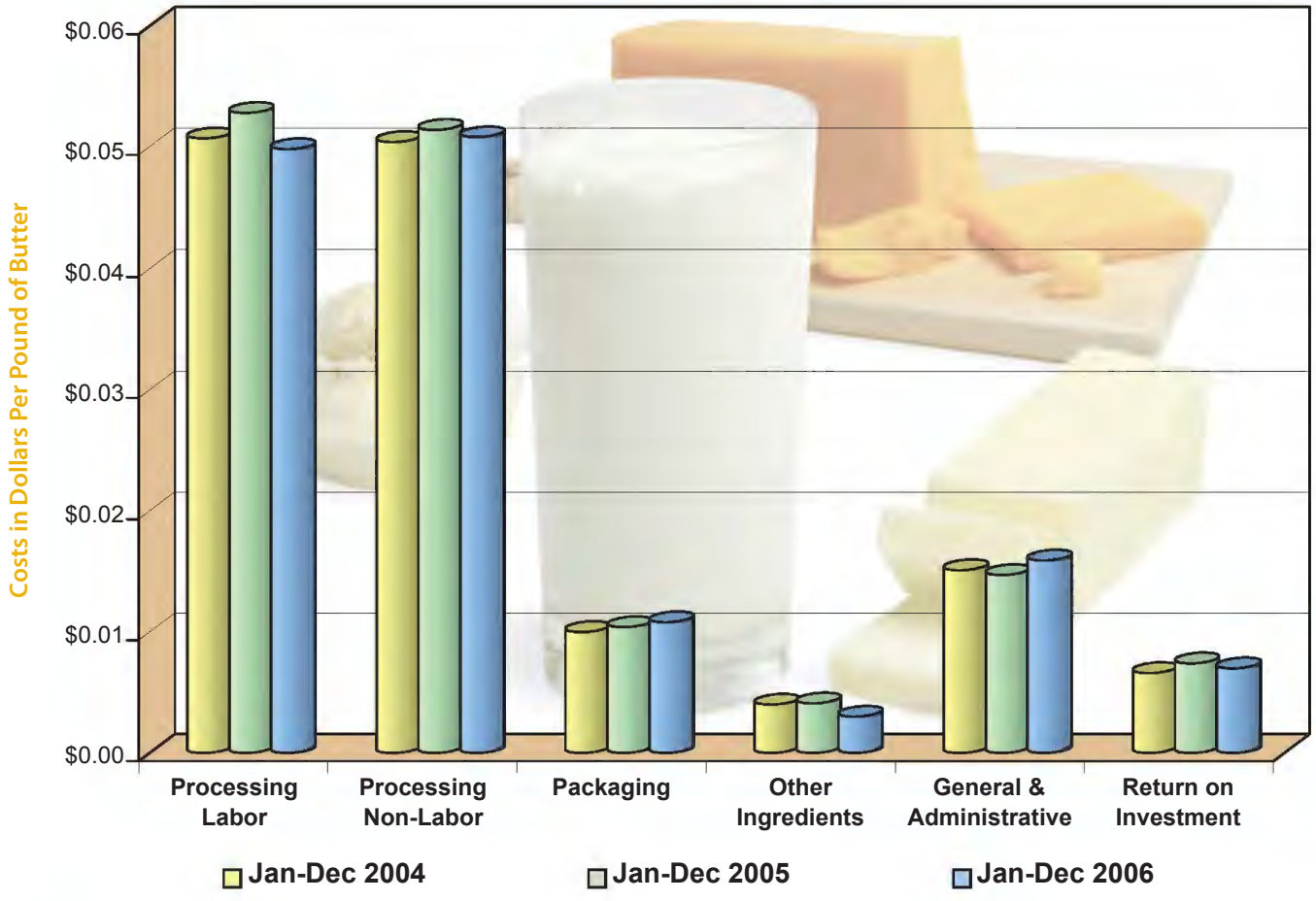
- Repairs, maintenance, and supplies costs ranged from .07¢ to 2.6¢ per pound.
- Only two plants' repairs, maintenance, and supplies costs exceeded 2.0¢ per pound.

Figure 26: Comparison of Payroll Breakdown for Plant Employees and Salaried Employees



* Wages include vacation, sick leave, and holiday pay.
* Payroll taxes includes FICA, FUTA, SUTA, and Workers Compensation.

Figure 27. Butter Processing Cost Comparison, 2004, 2005, 2006



Nonfat Dry Milk Study

Cost studies were completed on eight nonfat dry milk (NFDM) plants for 2006. Plant cost summary statistics based on the study plants give an indication of plant size and per pound processing costs for the various categories (Table 4). To avoid revealing plant-specific information, the eight plants were assigned to one of two groups according to total processing cost. Only costs for bagged NFDM were analyzed although high-volume totes accounted for 22 percent of production (Figure 30).

- The data indicates that the lower cost NFDM plants in the state tended to be the larger plants. Specifically, the four low cost plants in the study produced 81 percent of the NFDM studied.

- Labor costs were significant. Processing labor ranged from a weighted average of 3.4¢ per pound in the low cost group to an average of 4.6¢ per pound in the high cost group, a difference of 35 percent.

- Processing non-labor costs were larger than labor costs but included several different plant expenses, such as utilities, depreciation, repairs and maintenance, laundry, supplies, and plant insurance. The combined costs of which ranged from 9.3¢ per pound in the low cost group to 11.3¢ per pound in the high cost group.

- General and Administrative (G & A) costs were on average 1.1¢ per pound and include all expenses incurred in the direction, control, and management of the company. Examples of G & A costs are administrative payroll costs, office supplies, short-term interest, and headquarters fees.

- The return on investment (ROI) allowance is calculated by subtracting accumulated depreciation from the original cost of fixed assets. The remaining book value is multiplied by the Moody's "BAA" corporate bond index. The amounts are then allocated to the products in the plant based on the same methods used to allocate depreciation expense. ROI costs for the eight NFDM plants were on average .0079¢ per pound.

- The low cost group's packaging costs were 1.5¢ per pound. At 1.4¢ per pound, packaging costs were actually lower for the high cost group.

Table 4. Processing Costs for Eight California Nonfat Dry Milk Plants

NONFAT POWDER MANUFACTURING COSTS

CURRENT Study Period: January through December 2006
With Comparison to the same time period PRIOR YEAR (2005)

- Manufacturing cost data were collected and summarized from eight California nonfat powder plants. The eight plants processed 536.3 million pounds of nonfat powder during the 12-month study period, January through December 2006, representing 87.47% of the nonfat powder processed in California.
- The volume total includes all grades of nonfat powder packaged in any container size, but the costs reflect only costs for 25 kg and 50 lb. bags of nonfat powder.
- To obtain the weighted average, individual plant costs were weighted by their nonfat powder processing volume relative to the total volume of nonfat powder processed by all plants included in the cost study.
- For this study period, approximately 28% of the nonfat powder was processed at a cost less than the current manufacturing cost allowance for nonfat powder of $0.160 per pound.

Breakdown of Nonfat Powder Manufacturing Costs - January through December 2006

Categories	Low Cost Group	Medium Cost Group		Range of Costs		CURRENT Weighted Average Cost All Plants Jan-Dec 2006	PRIOR YEAR Weighted Average Cost All Plants Jan-Dec 2005	Actual Difference Current Less Prior Year
				Minimum	Maximum			
	Dollars Per Pound of Nonfat Powder							
Number of Plants	4	4	0	8	8	**8**	9	-1.0000
Processing Labor	$0.0339	$0.0459	$0.0000	$0.0258	$0.0780	**$0.0362**	$0.0377	-$0.0015
Processing Non-Labor	$0.0925	$0.1132	$0.0000	$0.0826	$0.2337	**$0.0965**	$0.0961	$0.0004
Packaging	$0.0149	$0.0138	$0.0000	$0.0112	$0.0151	**$0.0147**	$0.0143	$0.0004
General & Administrative	$0.0100	$0.0156	$0.0000	$0.0091	$0.0334	**$0.0111**	$0.0096	$0.0015
Return on Investment	$0.0070	$0.0118	$0.0000	$0.0040	$0.0116	**$0.0079**	$0.0082	-$0.0003
Average Total Cost	$0.1583	$0.2003	$0.0000	--	--	**$0.1664**	$0.1659	$0.0005
Volumn in Group (Lbs.)	433,519,945	102,850,525	0	--	--	**536,370,470**	471,894,459	--
% Volume by Group	80.8%	19.2%	0.0%	--	--	**100.0%**	100.0%	--

Processing Labor: Labor costs associated with processing of product, including wages, payroll taxes and fringe benefits.
Processing Non-Labor: Includes costs such as utilities, repairs and maintenance, laundry, supplies, depreciation, plant insurance, and rent.
Packaging: Includes all non-reusable items used in the packaging of the product, such as boxes, bags, cartons, liners, tape, glue and stretch wrap.
General & Administrative: Includes expenses in the management of the company, such as: office supplies,short-term interest, dues and subscriptions, accounting fees, headquarter charges, office clerical wages and executive salaries.
Return on Investment: Calculated by subtracting accumulated depreciation from the original cost of assts, with the remaining book value multiplied by Moody's "BAA" corporate bond index.

Characteristics of Nonfat Dry Milk Plants

Throughout this section, column charts are used to show the distribution of plants within a specified category or the breakdown of costs by category. The charts give an indication of the variation existing among the plants and the relative impact of individual cost categories upon production.

Summary statistics are provided to indicate how much variation exists among NFDM plants.

- To obtain the weighted average, individual plant costs were weighted by their NFDM processing volume relative to the total volume of NFDM processed by all the plants included in the cost study.

- The "median" is the midpoint in the data and indicates the point at which half of the plants are above and half the plants are below a given figure.

Figure 28. Simplified Flowchart of a Butter and Nonfat Dry Milk Plant

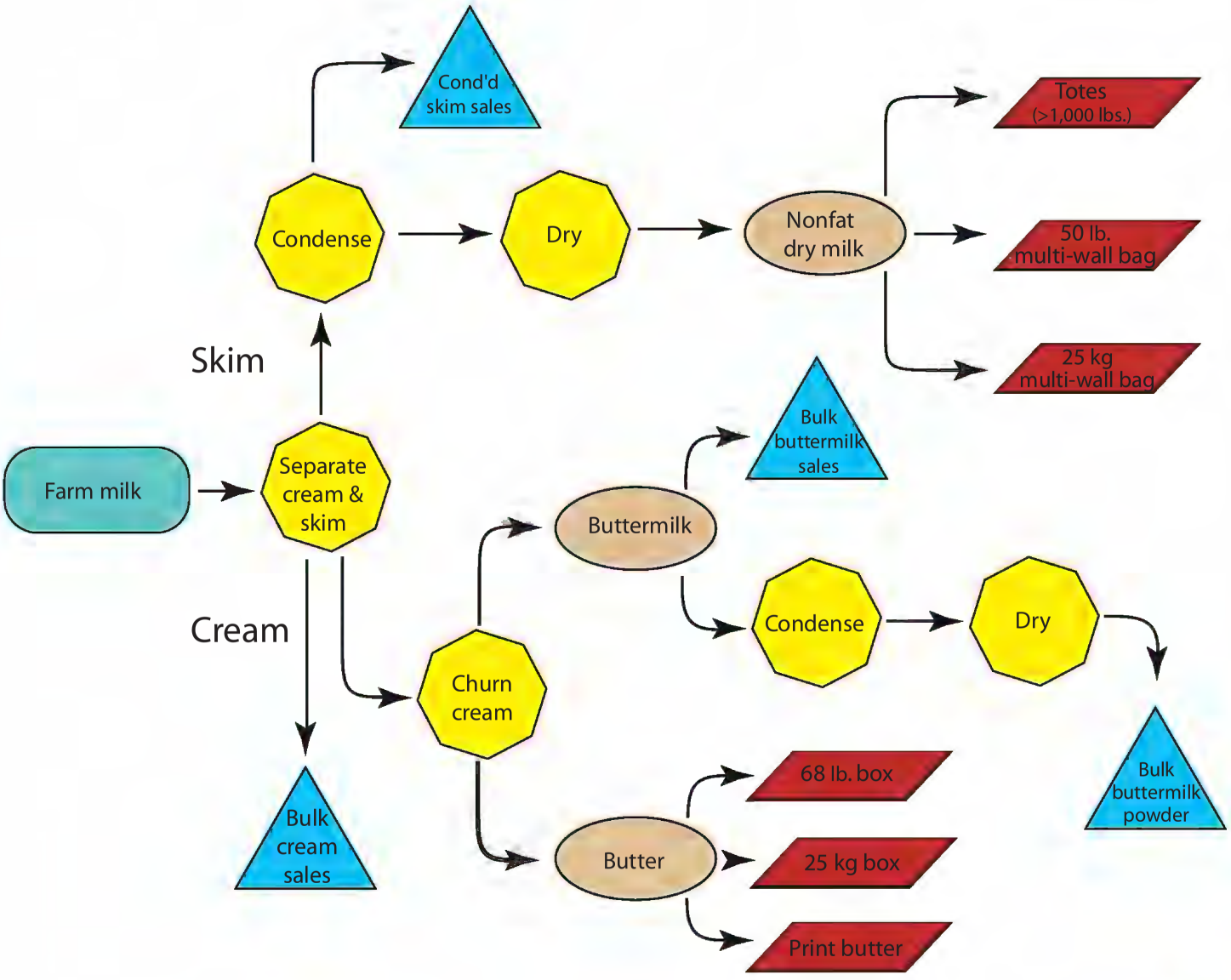


Figure 29. Breakdown of Nonfat Dry Milk Processing Costs

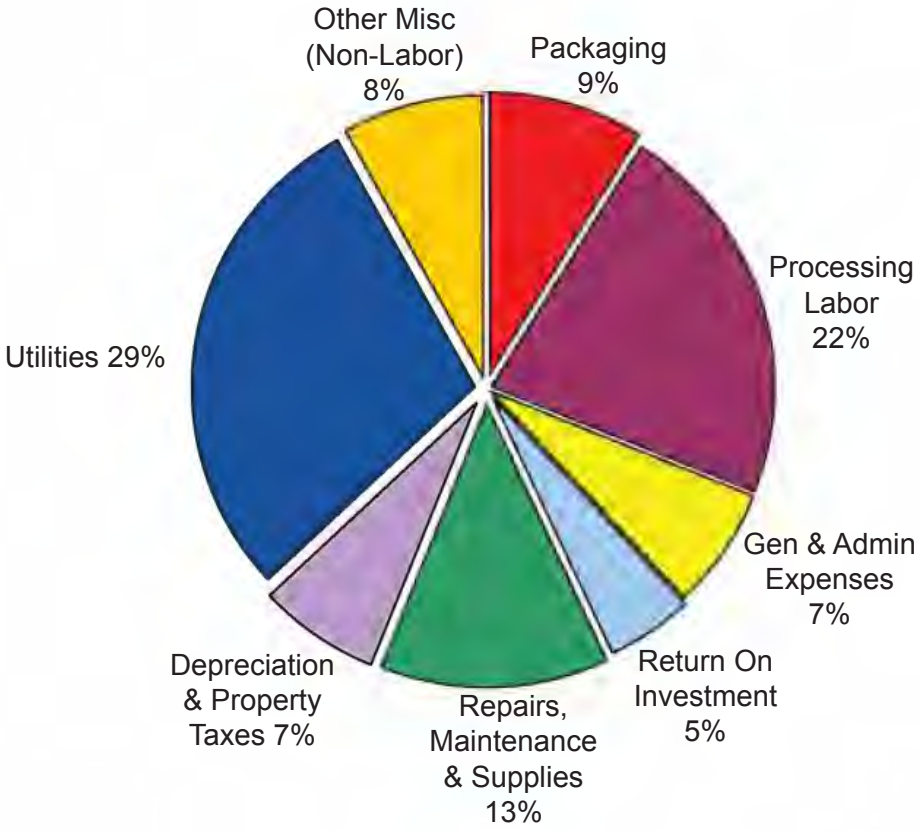


Figure 30. Breakdown of Nonfat Dry Milk Packaging Sizes

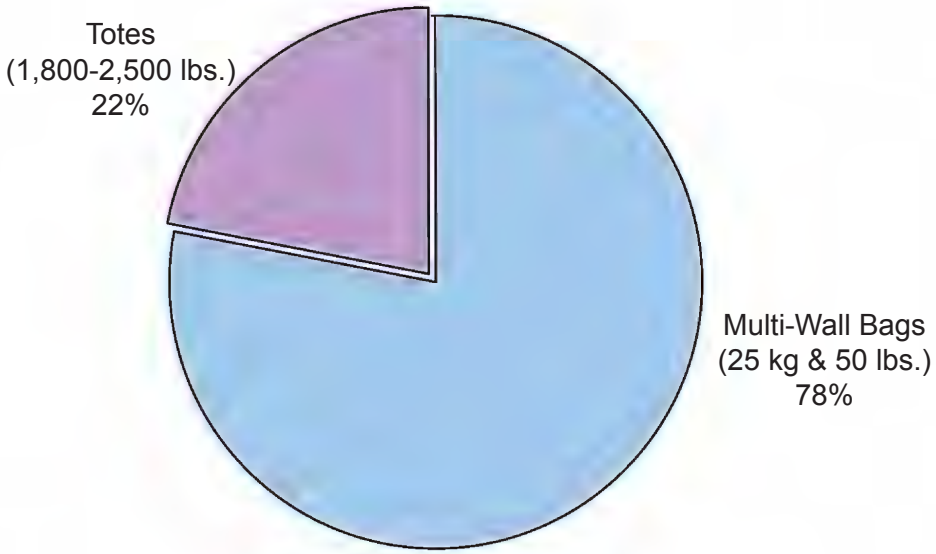
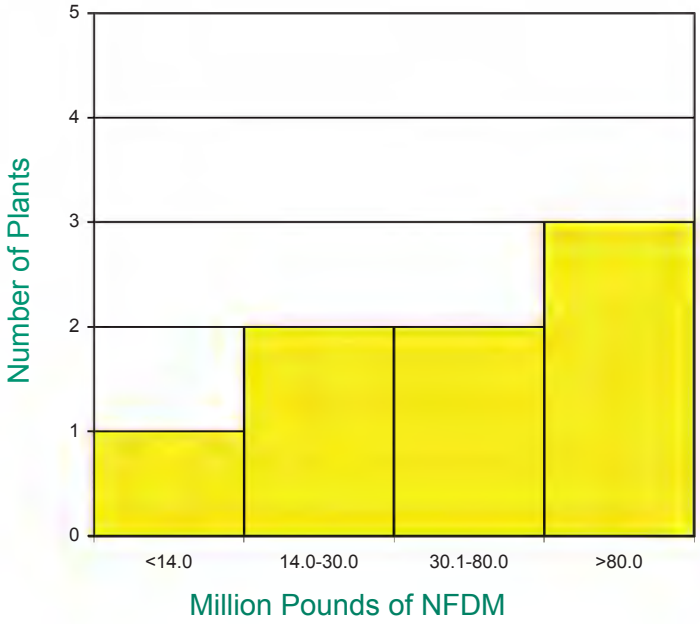


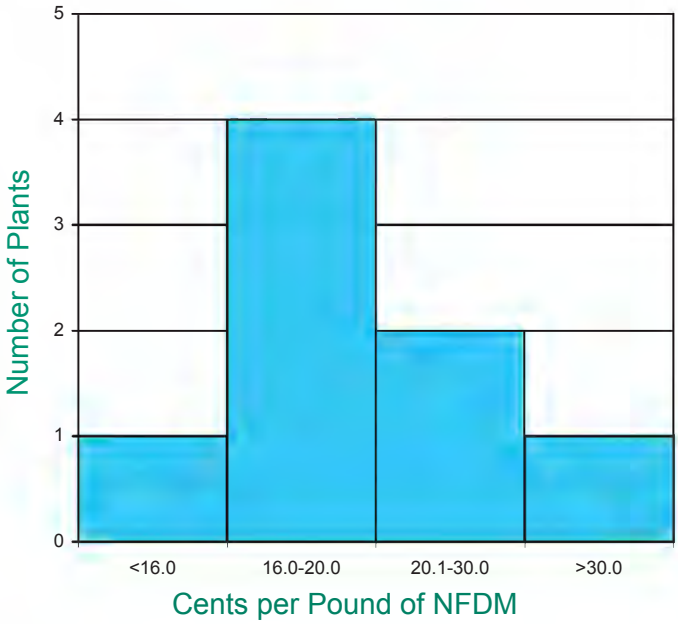
Figure 31. Annual California Nonfat Dry Milk Production



Average = 67 million pounds
Median = 45 million pounds
Average Low Cost Group = 108 million pounds
Average High Cost Group = 26 million pounds

- Together, two plants produced over 275 million pounds of NFDM, representing more than 50% of the total volume presented.
- The Low Cost Group produced more than four times the amount of NFDM than the High Cost Group.

Figure 32. NFDM Manufacturing Cost per Pound



Average = 20.4¢ per pound
Wt'd Average = 16.6¢ per pound
Median = 17.2¢ per pound
Average Low Cost Group = 15.8¢ per pound
Average High Cost Group = 20.0¢ per pound

- Four plants produced NFDM at or below the weighted average cost of 16.6¢ per pound.
- NFDM production costs ranged from slightly more than 15¢ to almost 37¢ per pound.
- Typically, high volume plants operated with lower costs.

Figure 33. Share of California Nonfat Dry Milk Production by Ownership Type and by Workforce Type

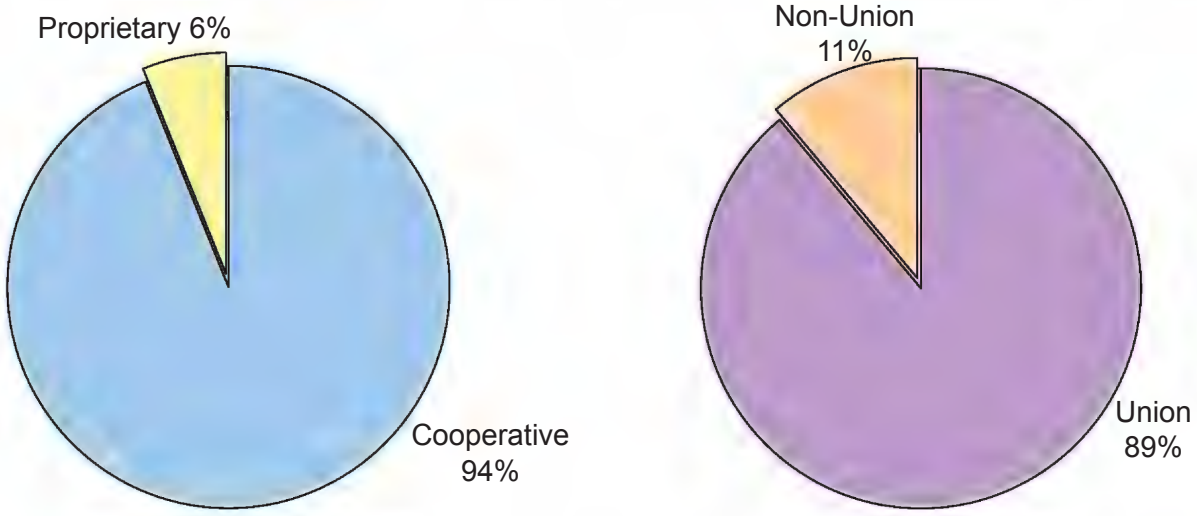
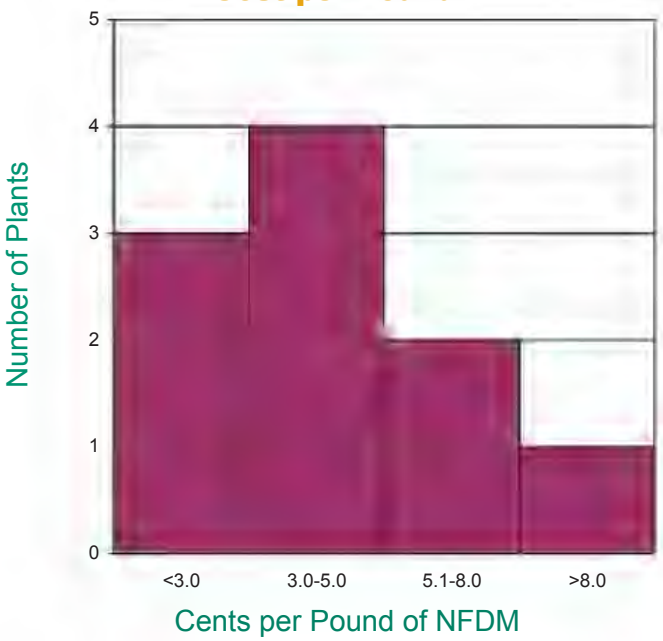


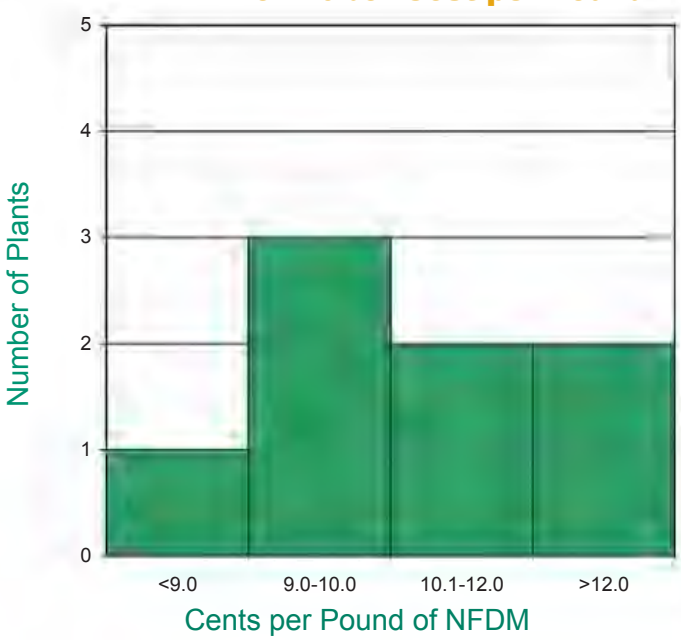
Figure 34. NFDM Processing Labor Cost per Pound



Average = 4.9¢ per pound
Wt'd Average = 3.6¢ per pound
Median = 3.7¢ per pound
Average Low Cost Group = 3.4¢ per pound
Average High Cost Group = 4.6¢ per pound

- Only two of eight plants had labor costs over 6¢ per pound, while five of the eight plants managed to keep labor costs under 4¢ per pound.

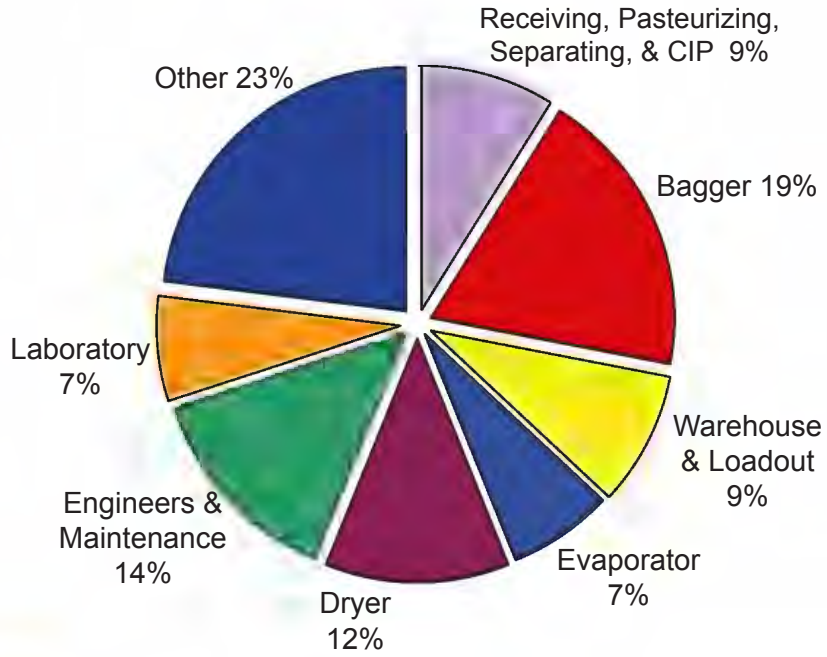
Figure 35. NFDM Processing Non-Labor Cost per Pound



Average = 11.8¢ per pound
Wt'd Average = 9.6¢ per pound
Median = 10.1¢ per pound
Average Low Cost Group = 9.3¢ per pound
Average High Cost Group = 11.3¢ per pound

- The variation in processing non-labor costs was great.
- Costs ranged from less than 9¢ to more than 23¢ per pound.

Figure 36. Nonfat Dry Milk Labor Breakdown by Category

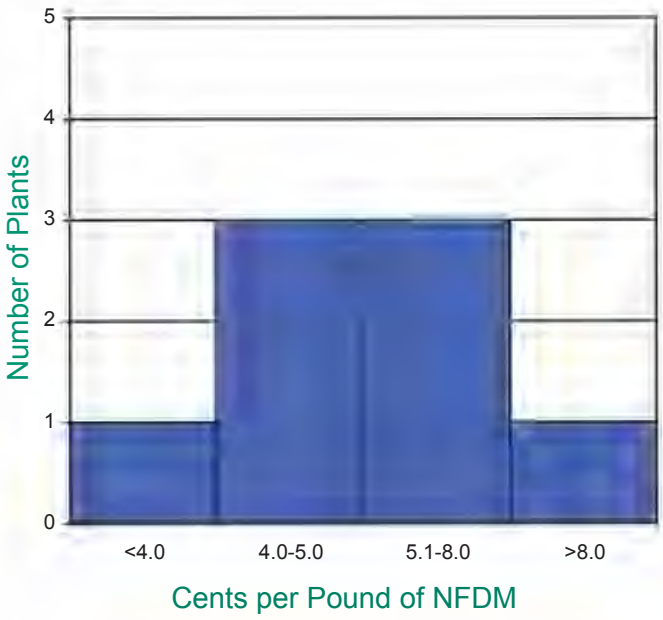


Based on detailed data:
Labor cost averaged 4.9¢ per pound
Labor cost averaged $2.69 per 25 kg bag

Note: "Other" includes plant manager/ superintendent, general plant, plant clerical, and field men.

Figure 37. Utility Cost per Pound

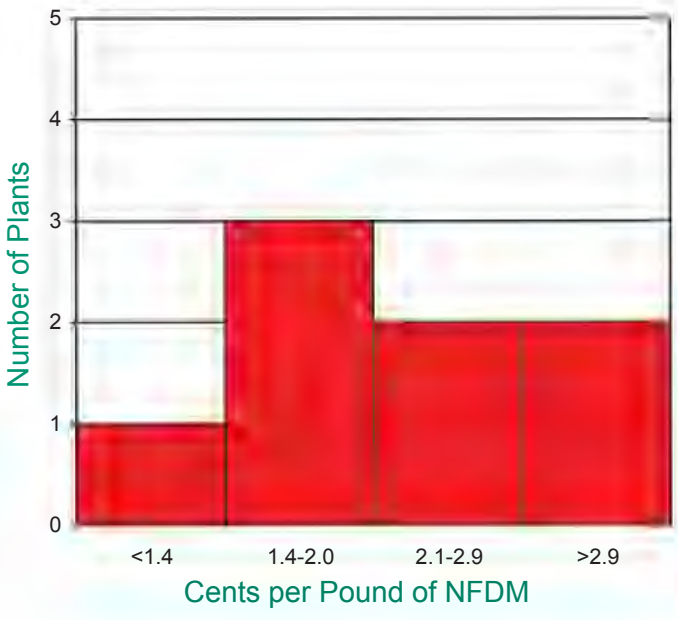
Includes cost of natural gas, fuel oil, electricity and sewage



Average	= 6.5¢ per pound
Wt'd Average	= 4.9¢ per pound
Median	= 5.1¢ per pound
Average Low Cost Group	= 4.8¢ per pound
Average High Cost Group	= 8.1¢ per pound

- The operation of the dryers and evaporators add significantly to the utility cost of power production.
- Natural gas costs account for 54% to 74% of total utility costs.
- Most of the plants kept utility costs between 4¢ and 6¢ per pound.

Figure 38. Repairs, Maintenance, and Supplies Cost per Pound



Average	= 2.3¢ per pound
Wt'd Average	= 2.2¢ per pound
Median	= 2.2¢ per pound
Average Low Cost Group	= 1.9¢ per pound
Average High Cost Group	= 2.7¢ per pound

- Four plants had repairs and maintenance costs at or less than 2.0¢ per pound.

Figure 39. Weighted Average Breakdown of Dollars Spent per Year on Natural Gas and Electricity in NFDM Plants

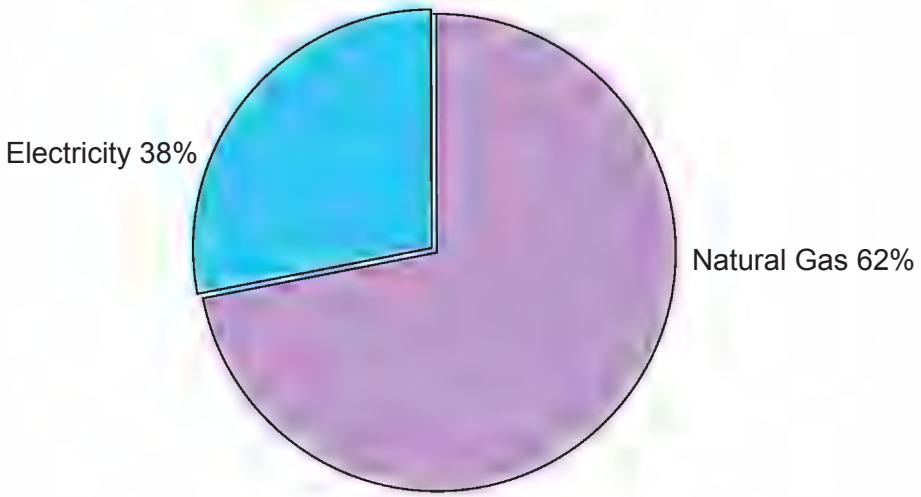
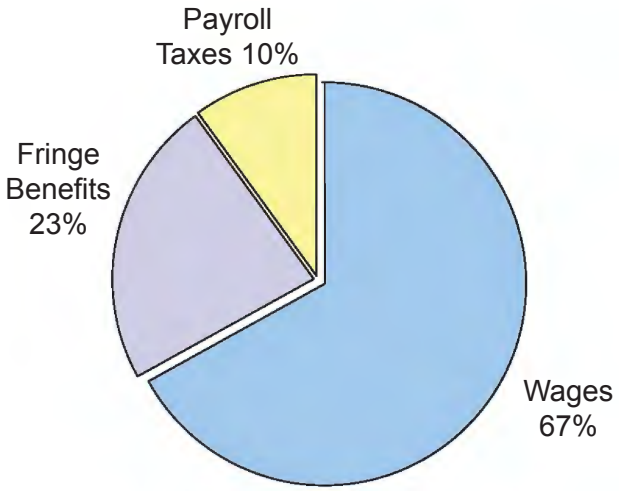
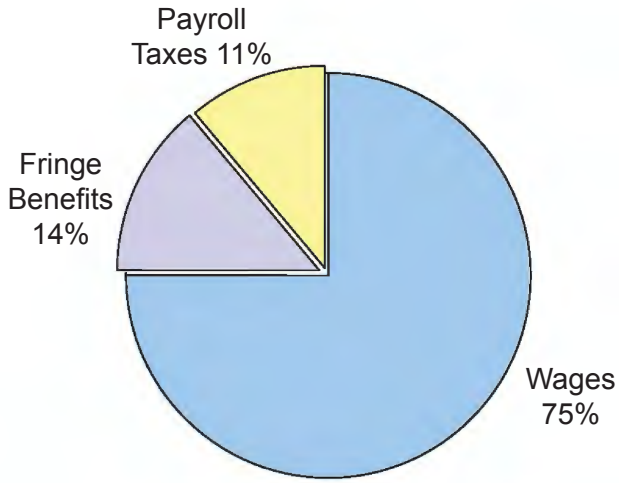


Figure 40: Comparison of Payroll Breakdown for Plant Employees and Salaried Employees

Hourly Employees

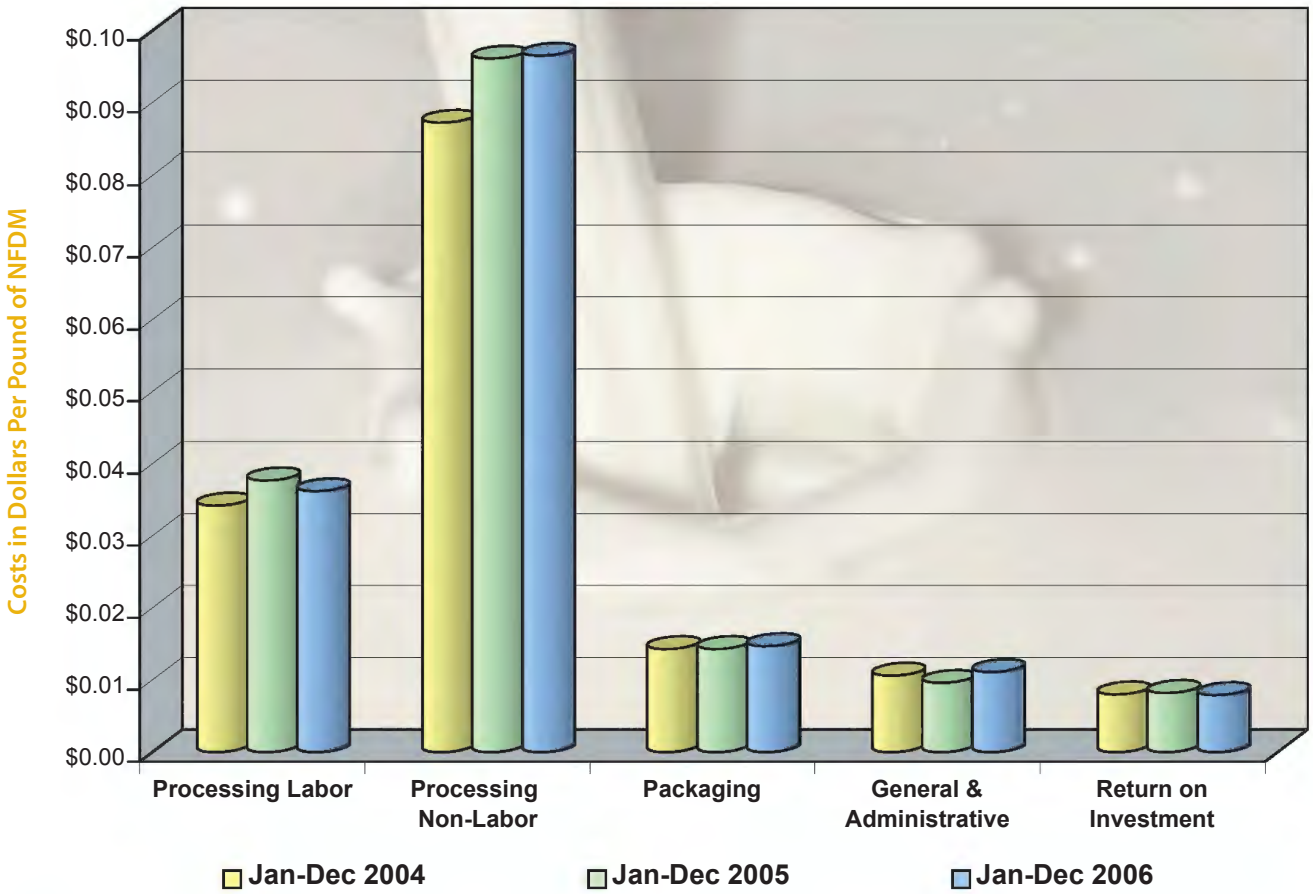


Salaried Employees



* Wages include vacation, sick leave, and holiday pay.
* Payroll taxes includes FICA, FUTA, SUTA, and Workers Compensation.

Figure 41. NFDM Processing Cost Comparison, 2004, 2005, 2006



Skim Whey Powder Study

Manufacturing cost data was collected and summarized from three California skim whey powder plants. The three plants processed 84.9 million pounds during the 12 month study period January through December 2006, representing 73 percent of the total skim whey powder processed in the state. Plant cost summary statistics based on the study plants give an indication of plant size and per pound processing costs for various categories (Table 5).

- As with nonfat dry milk powder, the combined utilities usage costs of producing skim whey powder exceeds that of any other single cost, including labor.
- The weighted average utilities cost was 7.4¢ per pound, which works out to be 28 percent higher than the cost of processing labor: 5.8¢ per pound.
- Combined utilities costs include natural gas, electricity, and water/sewage expense.
- The plant(s) that incurred the lowest costs in the study produced the largest percentage of skim whey powder.
- Packaging costs based on container sizes of 20 kg, 25 kg, and 50 lb bags were on average 1.5¢ per pound.
- The return on investment (ROI) allowance is calculated by subtracting accumulated depreciation from the original cost of fixed assets. The remaining book value is multiplied by the Moody's "BAA" corporate bond index. The amounts are then allocated to the products in the plant based on the same methods used to allocate the depreciation expense.

Throughout this section, tables, charts, and graphs are used to present the impact of individual cost categories upon production or to display distribution.

Table 5. Processing Costs for Three California Skim Whey Powder Plants

SKIM WHEY POWDER MANUFACTURING COSTS

CURRENT Study Period: January through December 2006
With Comparison to the same time period PRIOR YEAR (2005)

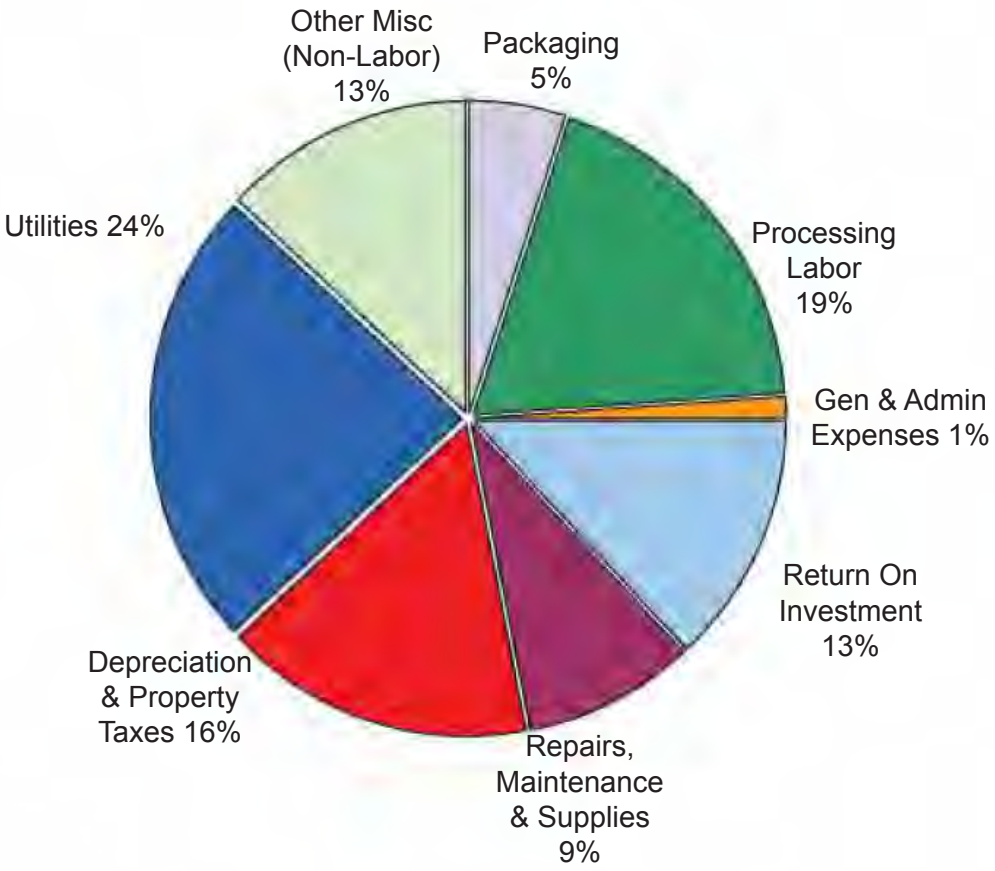
- Manufacturing cost data were collected and summarized from three California skim whey powder plants. The three plants processed 84.89 million pounds of skim whey powder during the 12-month study period, January through December 2006, representing 79% of the skim whey powder processed in California.
- The volume total includes skim whey powder packaged in container sizes of 25 kg and 50 lb. bags.
- To obtain the weighted average, individual plant costs were weighted by their skim whey powder processing volume relative to the total volume of skim whey powder processed by all plants included in the cost study.
- For this study period, one of the three plants processed skim whey powder at costs lower than the current manufacturing cost allowance for skim whey powder of $0.267 per pound.

Breakdown of Skim Whey Powder Manufacturing Costs - January through December 2006

Categories	Cost Group	Range of Costs Minimum	Range of Costs Maximum	CURRENT Weighted Average Cost All Plants Jan-Dec 2006	PRIOR YEAR Weighted Average Cost All Plants Jan-Dec 2005	Actual Difference Current Less Prior Year
	Dollars Per Pound of Skim Whey Powder					
Number of Plants	3	3	3	**3**	3	--
Processing Labor	$0.0580	$0.0447	$0.0901	**$0.0580**	$0.0562	$0.0018
Processing Non-Labor	$0.1943	$0.1448	$0.5293	**$0.1943**	$0.1735	$0.0208
Packaging	$0.0150	$0.0105	$0.0227	**$0.0150**	$0.0132	$0.0018
General & Administrative	$0.0020	$0.0012	$0.0025	**$0.0020**	$0.0029	-$0.0009
Return on Investment	$0.0406	$0.0324	$0.0896	**$0.0406**	$0.0393	$0.0013
Average Total Cost	$0.3099	--	--	**$0.3099**	$0.2851	$0.0248
Volumn in Group (Lbs.)	84,898,909	--	--	**84,898,909**	97,953,043	--
% Volume by Group	100.0%	--	--	**100.0%**	100.0%	--

Processing Labor: All labor costs associated with processing of product.
Processing Non-Labor: Includes costs such as utilities, repairs and maintenance, laundry, supplies, depreciation, plant insurance, and rent.
Packaging: Includes all non-reusable items used in the packaging of the product, such as boxes, bags, cartons, liners, tape, glue and stretch wrap.
General & Administrative: Includes expenses in the management of the company, such as: office supplies,short-term interest, dues and subscriptions, accounting fees, headquarter charges, office clerical wages and executive salaries.
Return on Investment: Calculated by subtracting accumulated depreciation from the original cost of assts, with the remaining book value multiplied by Moody's "BAA" corporate bond index.

Figure 42. Breakdown of Skim Whey Powder Processing Costs



- Utility costs are comprised of electricity, gas, and water/sewage costs.
- Electricity charges represented 48% of the utility costs while natural gas represented 41%. Water, sewage, and whey disposal account for the remaining 11% of cost.

Figure 43. Weighted Average Breakdown of Dollars Spent per Year on Natural Gas and Electricity in Skim Whey Powder Plants

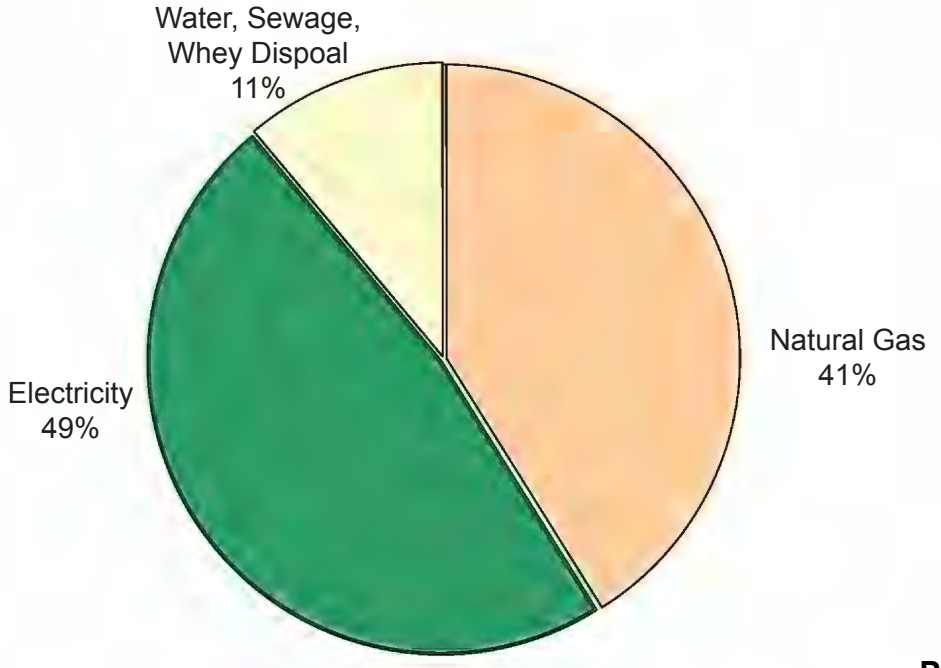
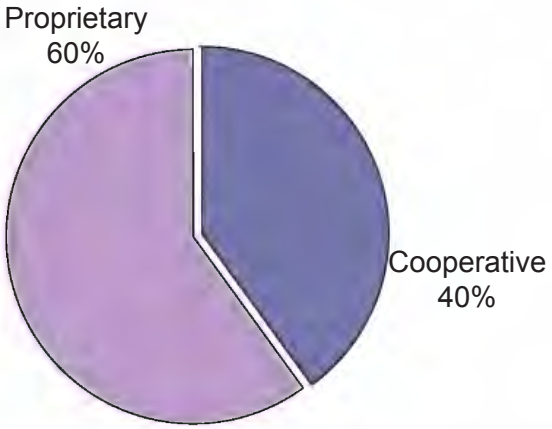


Figure 44. Share of California Skim Whey Powder Production by Ownership Type and by Workforce Type



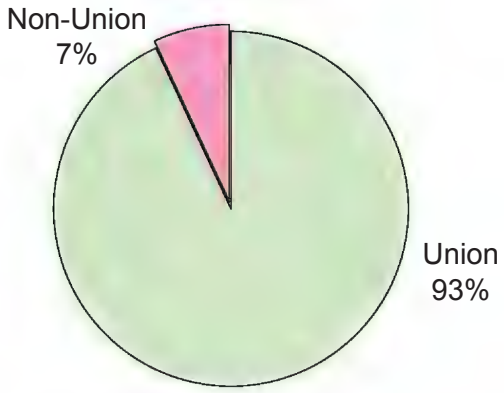
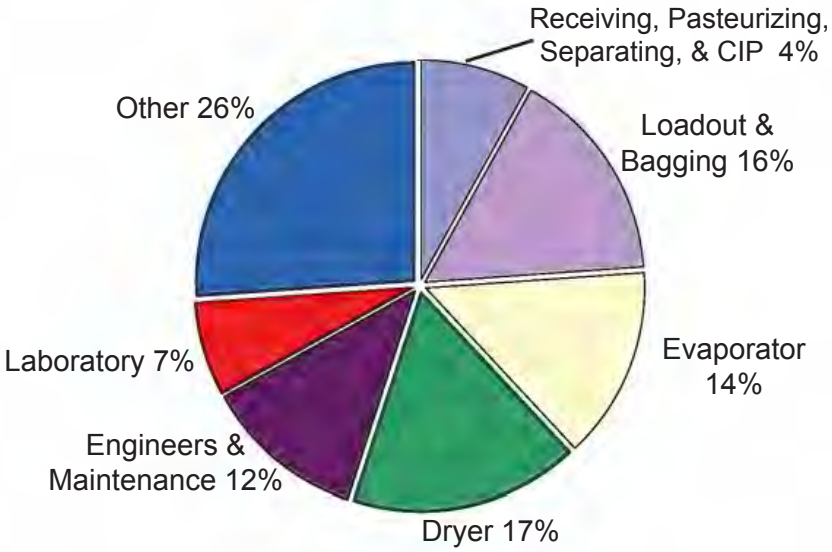


Figure 45. Skim Whey Powder Labor Breakdown by Category

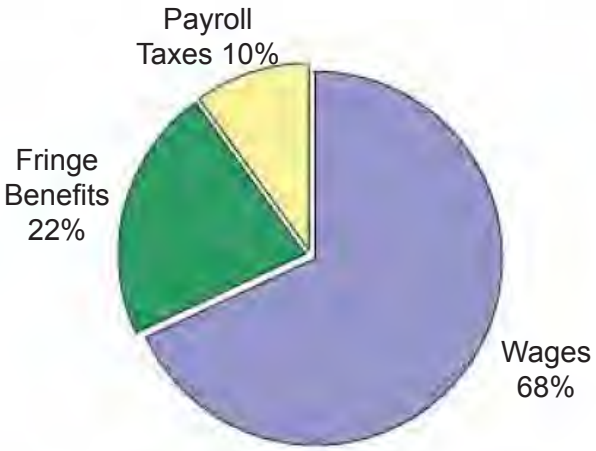


Based on detailed data:
Labor cost averaged 6.6¢ per pound
Labor cost averaged $2.94 per 25 kg bag
Labor cost averaged $3.97 per 20 kg bag
Based on overall production, loadout, bagging, and warehousing costs account for 16% of the total labor costs.

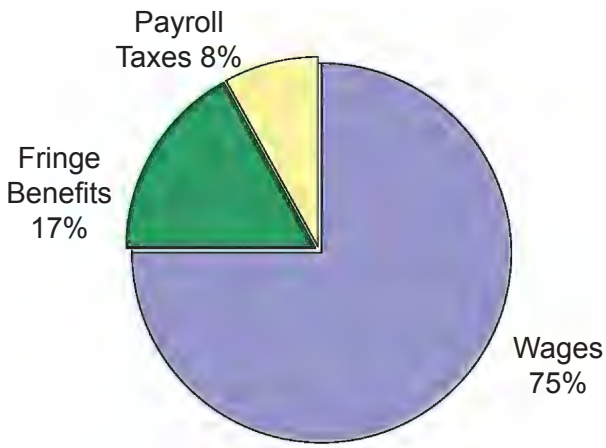
Note: "Other" includes plant manager/ superintendent, general plant, plant clerical, and field men.

Figure 46: Comparison of Payroll Breakdown for Plant Employees and Salaried Employees

Hourly Employees



Salaried Employees



* Wages include vacation, sick leave, and holiday pay.
* Payroll taxes includes FICA, FUTA, SUTA, and Workers Compensation.

Condensed Skim and Cream Study

Most of the costs allocated to condensed skim, cream, and other bulk dairy products come from indirect labor and indirect non-labor plant costs. There are very little, if any, direct plant costs allocated to bulk fluid products, thus the derived costs per pound of condensed skim and cream are not as precise compared to the derived costs per pound of packaged products such as butter, NFDM, and cheese whose plant costs are largely composed of direct costs.

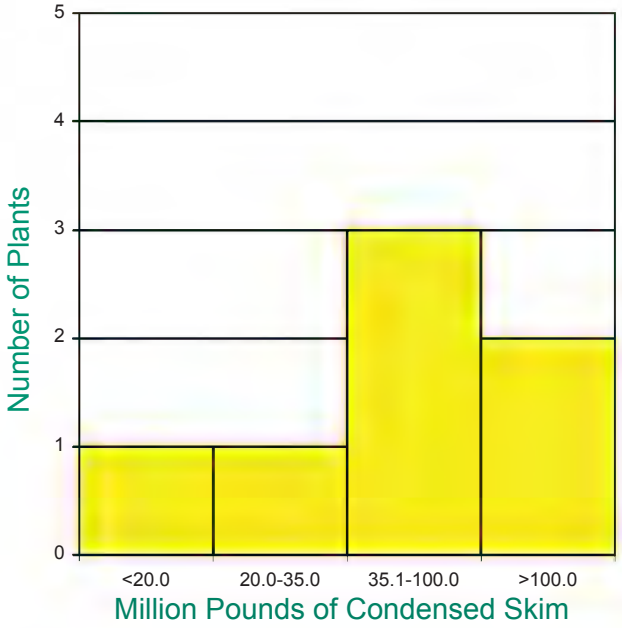
In order not to reveal individual plant information, only non specific information is included in the following sections.

Condensed Skim Overview

Cost studies were completed on seven condensed skim plants for the year 2006. The plants combined production totaled 893 million pounds.

- The seven plants processed an average of 128 million pounds of condensed skim in 2006; however, this is somewhat misleading because of the tremendous disparity in actual processing volume between the plants. Two of the seven plants alone were responsible for more than 75 percent of the total volume produced!

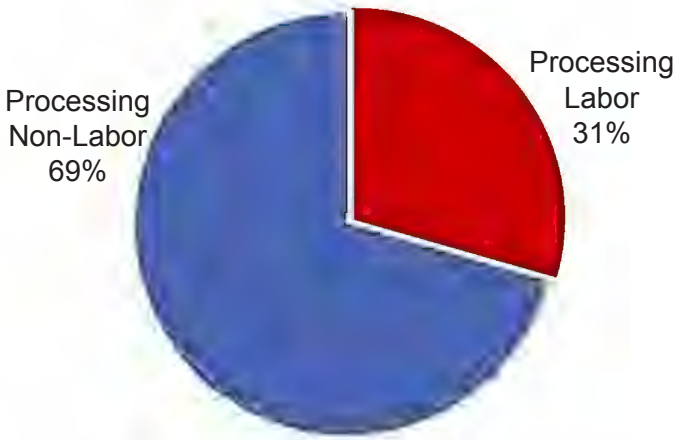
Figure 47. Annual Condensed Skim Production



Average	= 128 million pounds
Median	= 39 million pounds
Average Low Cost Group	= 201 million pounds
Average High Cost Group	= 71 million pounds

- As a group, the three plants with the lowest overall manufacturing costs produced nearly three times the amount of condensed skim as the group of three with the highest costs.

Figure 48. Comparison of Processing Costs for Condensed Skim



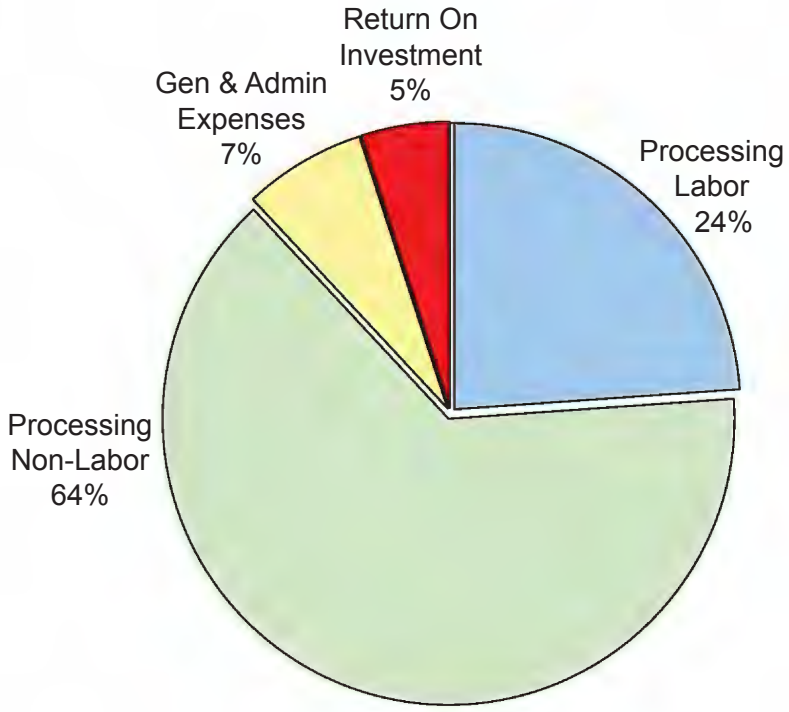
Processing non-labor includes utilities, depreciation, repairs and maintenance, laundry, supplies, and plant insurance

Low ratio	=	20% Labor 80% Non-Labor
High ratio	=	42% Labor 58% Non-Labor

- Non-labor processing costs for condensed skim production ranged from 1.4 times to as much as 4 times the cost of production labor.
- Non-labor processing costs include plant expenses of utilities, depreciation, repairs and maintenance, laundry, supplies, and insurance.

- The weighted average cost per pound of manufacturing condensed skim was 2.9¢ per pound.

Figure 49. Breakdown of Condensed Skim Processing Costs



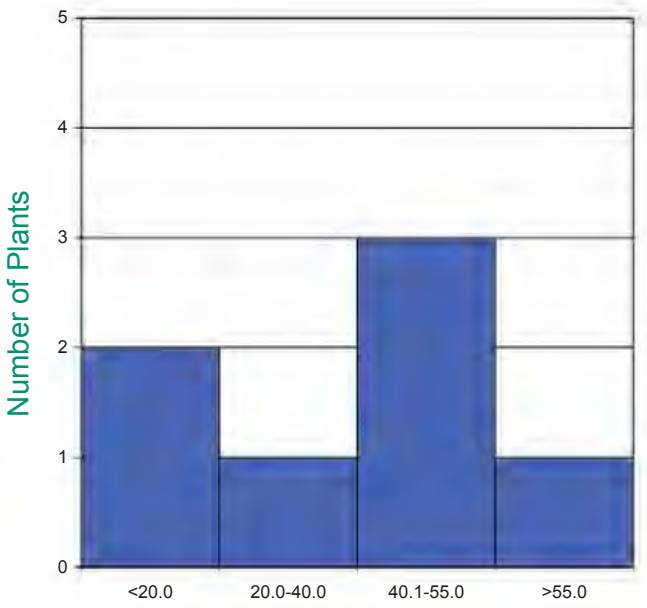
Cream Overview

Cost studies were completed on seven cream plants for the year 2006.

- Plants processed an average of 36 million pounds of cream for the year. Surprisingly, the volume of cream production varied little between the groups of plants with the lowest and highest overall manufacturing costs.

- The weighted average cost per pound of manufacturing cream was 5.0¢ per pound.

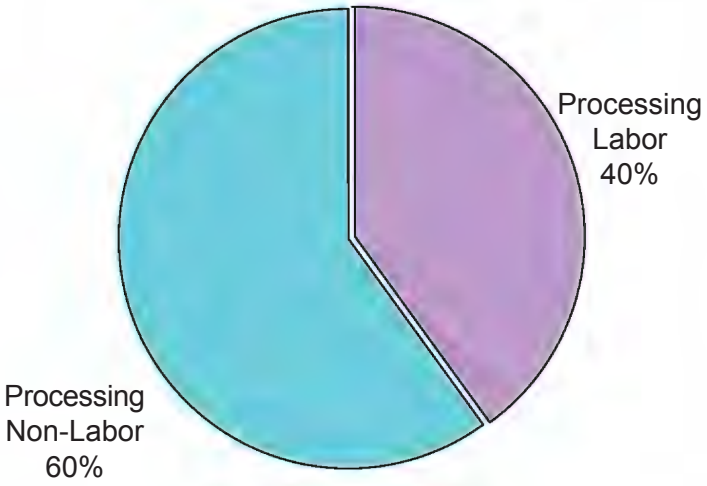
Figure 50. Annual Cream Production



Average	=	36 million pounds
Median	=	40 million pounds
Average Low Cost Group	=	36 million pounds
Average High Cost Group	=	35 million pounds

- Surprisingly, the volume of cream production varied little between the gruops of three plants with the highest and lowest overall manufacturing costs.

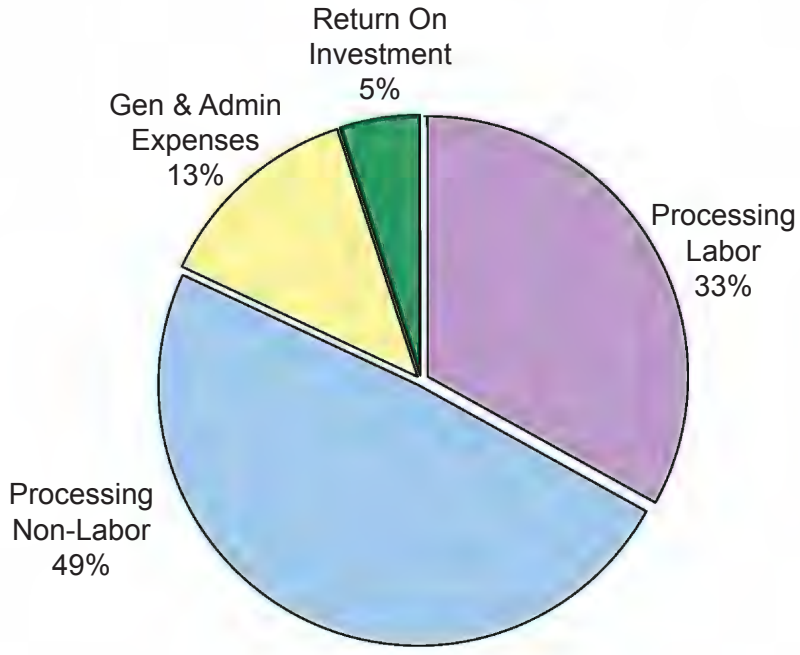
Figure 51. Comparison of Processing Costs for Cream



Processing non-labor includes utilities, depreciation, repairs and maintenance, laundry, supplies, and plant insurance

Low ratio	=	37% Labor 63% Non-Labor
High ratio	=	58% Labor 42% Non-Labor

Figure 52. Breakdown of Cream Processing Costs



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