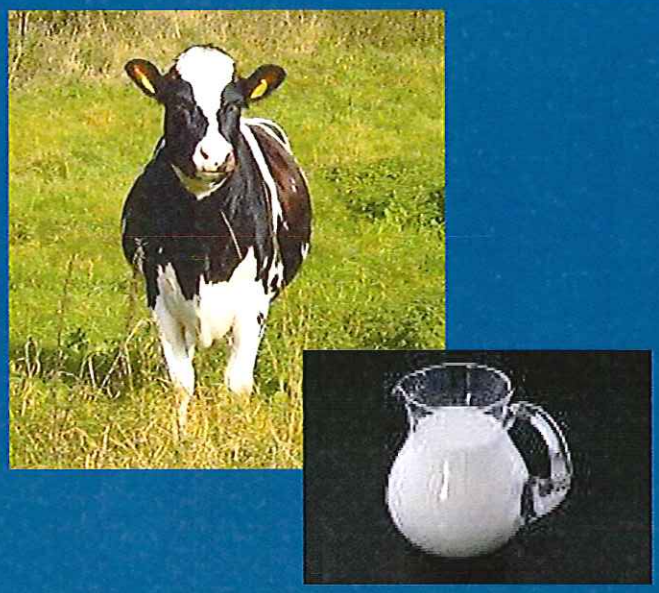
# Dairy Cost Study

## The Economics of Milk Production in Alberta 2013



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# DAIRY COST STUDY:

# THE ECONOMICS OF MILK PRODUCTION

# IN ALBERTA

# 2013

## Volume 73

by

Richard Heikkila
Pauline Van Biert

Economics Branch
Economics and Competitiveness Division
Alberta Agriculture and Rural Development

# Acknowledgements

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Questions or comments regarding this study or other related issues should be directed to:

Richard Heikkila
Senior Economic Analyst
Economics Branch, AARD
Phone: (780) 422-4088
e-mail: richard.heikkila@gov.ab.ca

Pauline Van Biert
Research Analyst
Economics Branch, AARD
Phone: (780) 415-2153
e-mail: pauline.vanbiert@gov.ab.ca

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**Appendix**

# Introduction

The Dairy Cost Study is a valuable benchmark of cost and return information for individual dairy producers in Alberta. Participants in the study receive a detailed analysis of their farming operation which can be directly compared to the provincial profiles (e.g. average, top-third, bottom-third). Other dairy producers in the province can compare their own records and analysis with the provincial profiles. The Dairy Cost Study also provides vital information to other dairy industry participants, such as financial institutions, market analysts and policy analysts.

The Dairy Cost Study was introduced during World War II. Since then, the Economics Branch has added cost and return assessments for a wide range of crop and livestock production in Alberta.

In summary, the objectives of the study are as follows:

- to provide an annual account of the costs and returns of milk production in Alberta;
- to provide the participating dairy farmers with a personal business analysis for management purposes;
- to provide a benchmark for the evaluation of milk pricing; and
- to provide economic information for farm management, extension education, and service providers.

## The Dairy Cost Study

The Dairy Cost Study is an economic analysis of the costs and returns of a sample of Alberta dairy producers for a given production year. Study participants are required to complete monthly survey forms regarding their dairy production activities - dairy herd inventory, capital purchases, milk sales and farm use, feed use and purchase costs, labour costs, and other expenses related to the dairy enterprise - and an annual form on their dairy investments. (The survey forms are shown in Appendix F.) From this database, weighted sample averages are calculated which represent benchmarks for all dairy producers in the province. As well, study participants receive a confidential report on their dairy operation which can be compared with these provincial benchmarks.

Milk production in Canada is directed towards two categories, fluid milk and industrial milk, which comprises milk used for all dairy products such as cheese and yogurt. In 2013, approximately 49 percent of Alberta's total milk production was for fluid milk. In the past, dairy producers had separate quota allocations for fluid and industrial milk production. However, in August 2008, Alberta moved to a total production quota (TPQ) system and no distinction is made between fluid and industrial milk production at the farm level. The cost profiles in this report therefore represent all milk production in Alberta. Also, in August 2009, it became mandatory for Alberta milk producers to participate on the Canadian Quality Milk Program.

## The Survey Group

Fifty dairy producers across the province submitted monthly business information for the 2013 calendar year. Two regional sub-groups were also identified for Northern Alberta (north of Ponoka) and Southern Alberta. Northern Alberta was represented by 19 producers while Southern Alberta had 31 participants complete the study.

The study was designed to represent a cross section of dairy farms by the size of their milk quota. Efforts were made to select study participants by systematic random sampling to provide better representation of the total population. Some characteristics of the sample are shown in Table 1. Appendix E presents charts showing individual results for the 50 dairy cost study participants.

**Table 1**

**2013 Sample Characteristics**

| Years in Dairy | Total Sample | Indebtedness | | Herd Size (# of cows) | |
|---|---|---|---|---|---|
| | % | <30% | ≥30% | <75 | ≥75 |
| <10 | 12 | 2 | 4 | 1 | 5 |
| ≥10 | 88 | 29 | 15 | 7 | 37 |
| **Total (%)** | **100** | **62** | **38** | **16** | **84** |

# Study Methodology

1. **Enterprise identification:** There are several different approaches for calculating the farm cost of producing fluid milk. Some studies use the total farm approach, which combines the dairy costs with those of other enterprises. This Alberta study examines only the dairy enterprise, which is defined as all activities associated with both milking cows and maintaining dry cows and young dairy stock. In most cases, the dairy operator uses home-grown feed in association with purchased feed. The costs of production of the homegrown feed are allocated to the crop enterprise portion of the farm, and are not considered in the dairy enterprise. Consequently, the final costs outlined in this report are only those associated with milk production.

2. **Inventory adjustment:** Since the cost of raising young dairy stock is included in the cost of milk production, the total income includes net cattle sales and net inventory changes. Cattle inventory changes, or herd growth, are determined by subtracting the beginning-year inventory value from the year-end inventory value. Gross income is thus composed of milk sales, net cattle sales, and the value of this net inventory adjustment. The net inventory adjustment may be negative or positive.

3. **Home grown feed:** Hay that is grown on the farm and fed to dairy livestock is priced at the regional market value of stacked hay on the farm. Similarly, feed grain is valued at regional elevator prices provided by the Alberta Canola Producers Commission. In other words, the

dairy enterprise is charged the current market value for these home-grown inputs, just as if they were purchased from the cropping enterprise. The total value of home-grown feed is determined by multiplying the regional value or price by the actual quantity fed. This procedure adequately compensates for the production cost of home-grown feed. Alternatively, where feed is purchased, the actual purchase cost is used in the analysis.

4. **Value of investment and depreciation:** The information presented in this report is intended to reflect the average yearly production conditions in the dairy industry. Depreciation estimates are based on the original value of buildings and machinery. Current market value of owned assets is also estimated by updating the original value of the dairy investment with appropriate inflation factors, and then depreciating each item accordingly, based on the number of years in use. Original values and years in use are obtained from participants' farm records. With the exception of acreage for pasture, house, dairy buildings and corral location, farmland is not considered to be a dairy investment. The dairy livestock inventory is valued using the average annual market price. Value of investment is used for calculating the return to equity, and for determining the equity position of the dairy operation.

5. **Operator and family labour:** The operator's actual labour may vary from almost none on some dairy farms to the total input of labour on other farms. The procedure used in this study to put a value to operator labour is to multiply the operator's labour hours times the average hourly wage rate paid for dairy labour reported by the participants on the study. (All type of paid labour is included in this category from strictly feeding, to all general chores, to relief milking.) Assigning a value to operator labour is preferred over leaving it as unpaid labour because of the great variability in labour time between operators. Family labour is evaluated similar to the above, but a lower wage rate is applied to family members under the age of 16. Partners, spouses and other family members (16 years of age or older) receive the same wage rate as the operator.

6. **Interest on capital:** The actual interest paid on existing liabilities is included in the capital cost. To obtain this value, participating producers were asked to report their outstanding liabilities (excluding quota) and the interest rates charged. This method is more accurate than reporting the total annual interest paid. When both the total variable cost and the capital

cost for the dairy enterprise are subtracted from gross income, the bottom line residual is the return to equity and management. When this residual is expressed as a percentage of the equity capital, then the percent return to equity can be compared with the returns from alternative investment opportunities such as Canada Savings Bonds or term deposits.

7. **Rent:** Rent charges are included in the cost of capital. The capital cost in this context represents the cost of ownership of resources. If resources are rented, there is a charge for their use. If, on the other hand, resources are owned, the owner must bear the cost of depreciation and interest on debt.

## Dairy Enterprise Economic Overview

Tables 2 through 4 provide a summary of the costs and returns for dairy producers in Alberta. (More detailed results are presented in Appendices A, B, and C.) In Table 2, the average results for the entire survey sample are listed in the centre column. Costs and returns are provided for two sub-groups of dairy producers based on their total production costs. The bottom 1/3 are the highest cost producers and the top 1/3 the lowest cost producers. The total cost for the top 1/3 group was 27 percent or $25.31 per hL lower than the bottom 1/3. This has increased 2.5 percent from 2012. A significant cost difference was evident for feed at $7.16 per hL. The higher cost of the complete feed (dairy ration and calf feed) was offset by the lower cost of the grain component. On a percentage basis, labour was a bigger factor at 29 percent ($5.15 per hL) higher for the bottom 1/3 group. There is little variance in gross income between the two groups at only $1.30 per hL. In 2013, the higher cost producers received the higher gross income which was opposite to 2012.

Table 3 compares the average costs and returns for 2012 and 2013. In 2013, total cost of production was $78.19 per hL, an increase of 5 percent or $3.89 per hL compared to 2012. This increase was primarily due to a rise in the cost of labour of 8 percent (average wage being $22.00 per hour.) As well, the depreciation value increased by 12 percent. This reflects the higher investment of almost $1,200 per cow compared to 2012 (see pg. 23). Although total costs increased by 5 percent, milk price also increased 5 percent. Therefore return to equity remained stable.

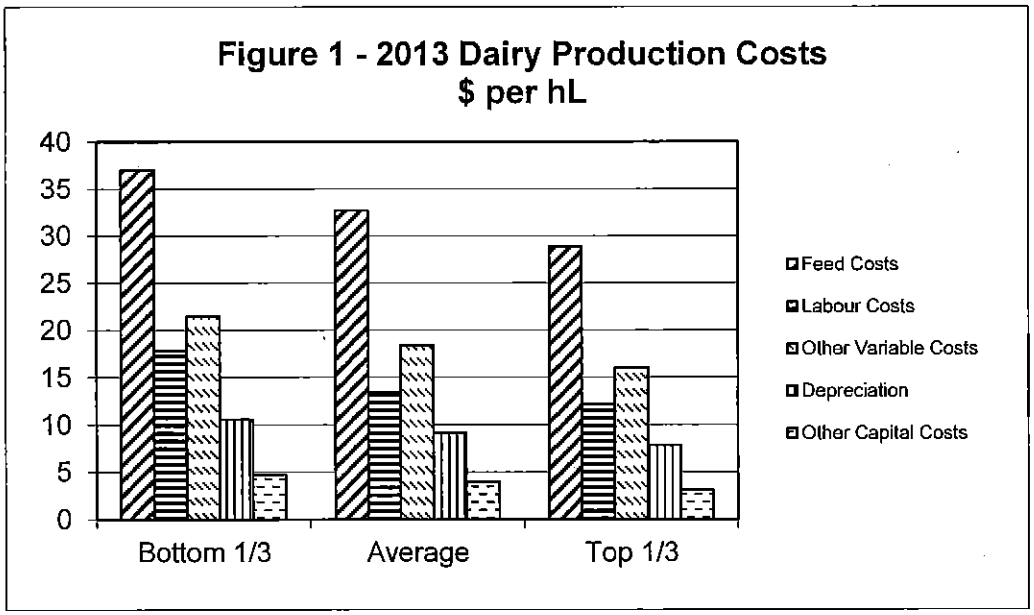
Finally, Table 4 compares average costs and returns for Northern and Southern Alberta.

**Table 2**

**Dairy Enterprise Costs and Returns - $ Per hL Sold**

**Bottom 1/3 (Highest Cost Producers), Average Cost, Top 1/3 (Lowest Cost Producers)**

| | Bottom 1/3 | Average | Top 1/3 |
|---|---|---|---|
| Milk Sales | 83.39 | 81.85 | 82.02 |
| **Gross Income** | **88.17** | **88.22** | **86.87** |
| Feed Cost | 37.03 | 32.72 | 29.87 |
| Main Feed Components: | | | |
| Grain | 2.32 | 5.19 | 6.10 |
| Complete Feed | 16.38 | 12.58 | 10.57 |
| Roughage | 11.83 | 10.24 | 9.39 |
| Labour Costs | 17.85 | 13.41 | 12.70 |
| Other Variable Costs | 23.70 | 18.91 | 15.36 |
| Depreciation | 10.53 | 9.17 | 7.59 |
| Other Capital Costs | 4.73 | 3.98 | 3.00 |
| **Total Production Costs** | **93.83** | **78.19** | **68.52** |
| Total Cash Costs | 66.84 | 58.96 | 50.11 |
| **Gross Margin** | **21.32** | **29.26** | **36.76** |
| **Contribution Margin** | **9.60** | **23.19** | **28.93** |
| **Return to Investment** | **-3.33** | **12.16** | **19.39** |
| **Return to Equity** | **-5.66** | **10.04** | **18.35** |
| **Return to Investment (%)** | **-1.7** | **7.3** | **14.9** |
| **Return to Equity (%)** | **-4.8** | **8.3** | **17.0** |

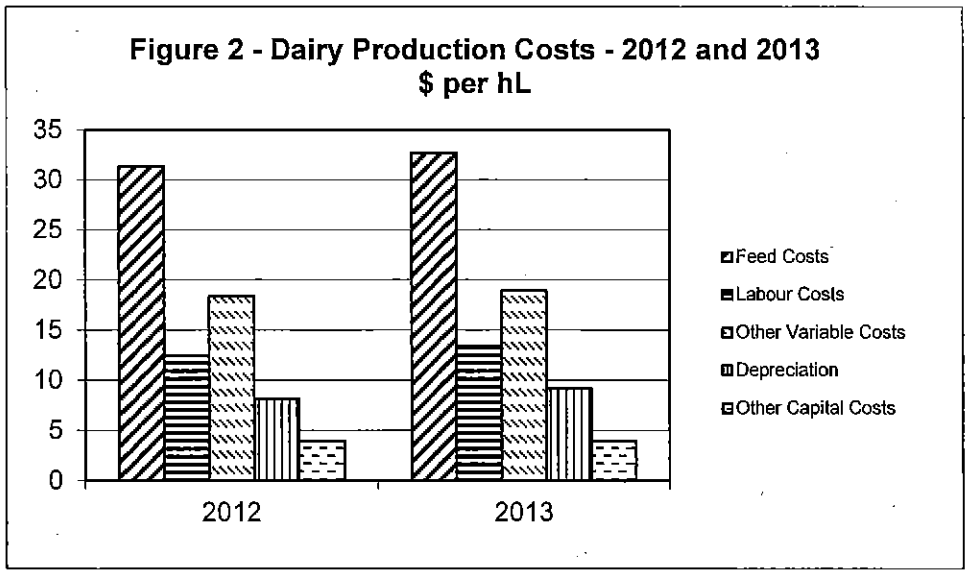


## Table 3

## Dairy Enterprise Costs and Returns - $ Per hL Sold

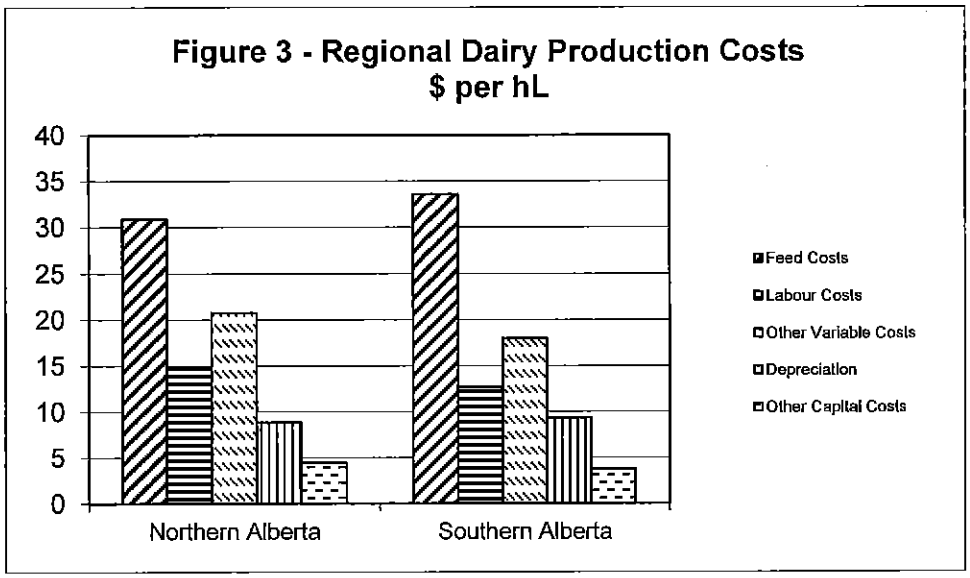
## 2012 and 2013

| | 2012 (55 producers) | 2013 (50 producers) |
|---|---|---|
| Milk Sales | 79.14 | 81.85 |
| **Gross Income** | **83.14** | **88.22** |
| Feed Costs | 31.32 | 32.72 |
| Main Feed Components: | | |
| Grain | 4.80 | 5.19 |
| Complete Feed | 12.14 | 12.58 |
| Roughage | 10.21 | 10.24 |
| Labour Costs | 12.44 | 13.41 |
| Other Variable Costs | 18.40 | 18.91 |
| Depreciation | 8.16 | 9.17 |
| Other Capital Costs | 3.97 | 3.98 |
| **Total Production Costs** | **74.30** | **78.19** |
| Total Cash Costs | 56.88 | 58.96 |
| **Gross Margin** | **26.25** | **29.26** |
| **Contribution Margin** | **20.97** | **23.19** |
| **Return to Investment** | **11.05** | **12.16** |
| **Return to Equity** | **8.42** | **10.04** |
| **Return to Investment (%)** | **7.5** | **7.3** |
| **Return to Equity (%)** | **8.8** | **8.3** |



## Table 4
## Average Dairy Enterprise Costs and Returns - $ Per hL Sold
## Northern and Southern Alberta

| | Northern Alberta (19 Producers) | Southern Alberta (31 Producers) |
|---|---|---|
| Milk Sales | 81.14 | 82.20 |
| **Gross Income** | **90.03** | **87.33** |
| Feed Costs | 30.90 | 33.61 |
| Main Feed Components: | | |
| Grain | 6.02 | 4.78 |
| Complete Feed | 9.95 | 13.86 |
| Roughage | 9.64 | 10.54 |
| Labour Cost | 14.79 | 12.73 |
| Other Variable Costs | 20.78 | 18.00 |
| Depreciation | 8.84 | 9.34 |
| Other Capital Costs | 4.46 | 3.74 |
| **Total Production Costs** | **79.77** | **77.42** |
| Total Cash Costs | 59.82 | 58.54 |
| **Gross Margin** | **30.22** | **28.79** |
| **Contribution Margin** | **23.57** | **22.99** |
| **Return to Investment** | **12.43** | **12.02** |
| **Return to Equity** | **10.26** | **9.91** |
| **Return to Investment (%)** | **7.6** | **7.2** |
| **Return to Equity (%)** | **9.5** | **7.9** |



# Definitions for the Dairy Cost Study

Net Cattle Sales - revenues associated with the purchase and sale of dairy livestock (milking / dry cows, replacement heifers, bulls and young stock).

Gross Income - the value of what was produced by the dairy enterprise over the course of the production year. Includes cash and non-cash values of:

- milk sales,
- revenues from miscellaneous sources eg. colostrum sales, BSE test cow payments, environmental compliance and a milk quality bonus (if applicable),
- inventory adjustments relating to changes in the number & value of stock included in the enterprise, and
- net cattle sales.

Feed Costs - the cost of all feed used by the dairy enterprise, purchased or homegrown. (Homegrown feed is valued on the market value of the feed, **not** the cost of growing the feed.)

Complete Feed - includes all feed values given under dairy ration, calf feed and milk replacer.

Labour Costs - the sum of paid and contributed labour, as allocated to the dairy enterprise. Paid labour is valued at cost, while unpaid labour is valued at a standard or base cost per hour.

Other Variable Costs - total variable costs (such as bedding and supplies, veterinary and medicine, utilities, fuel, repairs) less feed and labour costs.

Depreciation - sum of depreciation and machinery/equipment/building lease payments on assets allocated to the dairy enterprise.

Other Capital Costs - total cash overheads, as allocated to the dairy enterprise (rent, property taxes, insurances, licences and term loan interest).

Total Cash Costs - total production costs less depreciation and family labour.

Total Production Costs - sum of all variable and capital production costs.

Contribution Margin - gross income less variable costs.

Gross Margin - gross income less total cash costs.

Return to Equity ($) - gross income less total production costs.

Investment - sum of assets allocated to the enterprise. Includes: dairy livestock, machinery, equipment, buildings/facilities and building site.

Return to Investment ($) - gross income less total production costs plus capital interest.

Debt/Capital Ratio - measures the extent of external financing on dairy farms and is calculated as the farm's debt divided by its total capital.

Median - the value of the middle item of a data set that has been arranged in an increasing order (lowest to highest).

Total Production Quota (TPQ) - single quota system (effective August, 2008).

Dry Matter Equivalent - conversion to dry matter from silage at 60% moisture and haylage at 56% moisture.

# Production Factor Analysis

This section provides a detailed analysis of the survey group based on six specific production factors:

- herd size
- milk production
- gross income
- total cost
- investment
- labour

For each analysis, the survey group was sorted into three separate classes (bottom 1/3, middle 1/3, top 1/3) based on the production factor being evaluated. For instance, on the next page the survey group was divided into three sub-groups based on herd size. The bottom 1/3 group consists of the smallest dairy enterprises while the top 1/3 group consists of the largest producers. Production and management results are shown for each sub-group in the accompanying table and figures.

## Dairy Characteristics by Herd Size Class

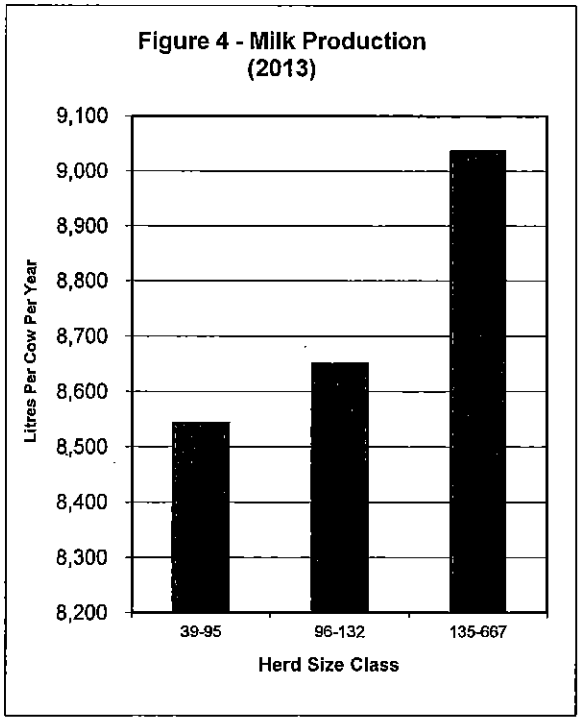
Herd Size ranged from 39 to 667 milking cows. For this analysis, the sample group was split into the following three size classes:

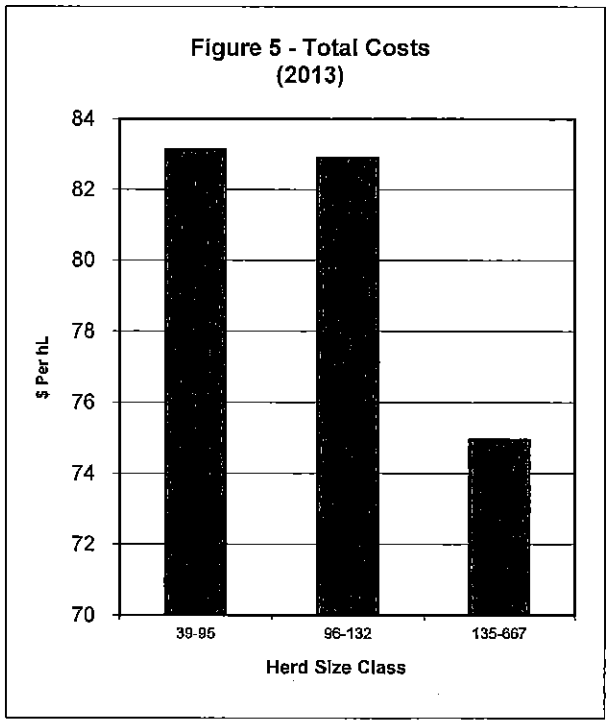
| | |
|---|---|
| Bottom 1/3 | 39 - 95 |
| Middle 1/3 | 96 - 132 |
| Top 1/3 | 135 - 667 |

**Table 5 - Dairy Enterprise Characteristics by Herd Size Class**

| | Bottom 1/3 39-95 | Middle 1/3 96-132 | Top 1/3 135-667 |
|---|---|---|---|
| Years in Dairy | 20.44 | 29.41 | 21.47 |
| **Milk Production (litres/yr)** | **8,542.68** | **8,649.82** | **9,035.79** |
| Home Grown Feed (%) | 79.7 | 61.9 | 84.1 |
| Butterfat Test (kg/hL) | 3.97 | 3.93 | 3.93 |
| Gross Income ($/hL) | 86.78 | 88.11 | 87.28 |
| **Total Costs ($/hL)** | **83.13** | **82.89** | **74.95** |
| Feed Costs ($/hL) | 29.70 | 36.50 | 32.00 |
| Labour (hrs/cow) | 69.28 | 56.87 | 45.96 |
| Investment ($/cow) | 13,392.10 | 13,722.03 | 14,854.50 |
| Return to Equity (%) | 5.6 | 4.0 | 11.5 |
| Return to Investment (%) | 4.7 | 4.0 | 8.6 |
| Debt/Capital Ratio | 0.22 | 0.15 | 0.27 |

Figures 4 and 5 illustrate Milk Production and Total Costs results for the bottom, middle and top 1/3 groups (sorted by Herd Size Class).



## Dairy Characteristics by Milk Production Class

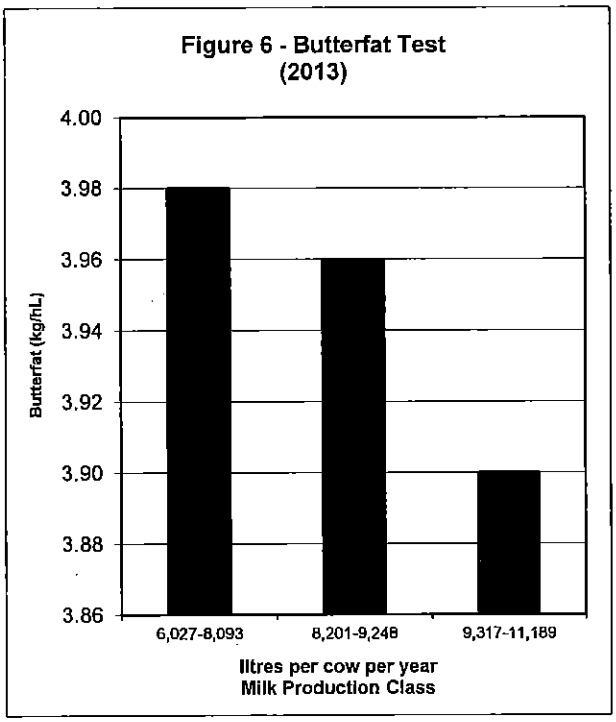
Milk Production ranged between 6,027 and 11,189 litres per cow per year. For this analysis, the sample group was split into the following three classes:

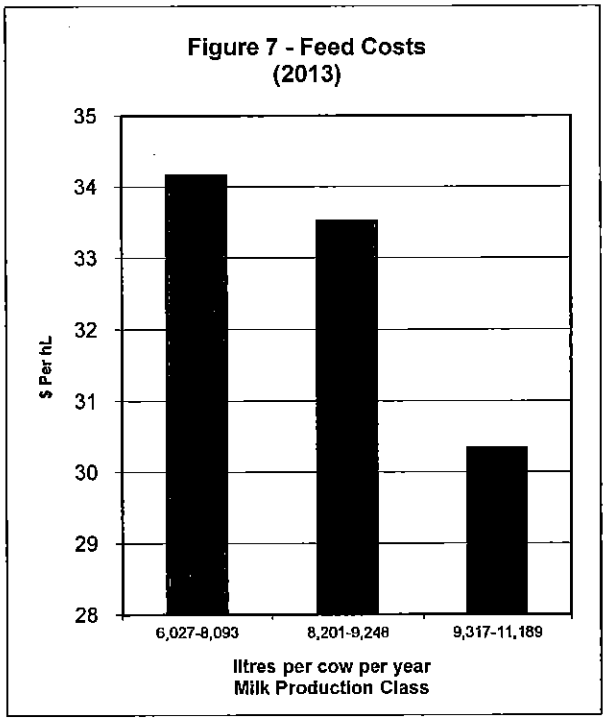
| | |
|---|---|
| Bottom 1/3 | 6,027 - 8,093 |
| Middle 1/3 | 8,201 - 9,248 |
| Top 1/3 | 9,317 - 11,189 |

**Table 6 - Dairy Enterprise by Milk Production Class**

| | Bottom 1/3<br>6,027-8,093 | Middle 1/3<br>8,201-9,248 | Top 1/3<br>9,317-11,189 |
|---|---|---|---|
| Years in Dairy | 24.56 | 23.13 | 23.26 |
| Herd Size | 150.40 | 119.27 | 146.20 |
| Home Grown Feed (%) | 77.3 | 78.8 | 70.6 |
| **Butterfat Test (kg/hL)** | **3.98** | **3.96** | **3.90** |
| Gross Income ($/hL) | 87.36 | 87.18 | 87.58 |
| Total Costs ($/hL) | 84.35 | 80.11 | 76.35 |
| **Feed Costs ($/hL)** | **34.16** | **33.52** | **30.34** |
| Labour (hrs/cow) | 54.92 | 60.99 | 56.45 |
| Investment ($/cow) | 13,010.02 | 13,571.90 | 15,377.88 |
| Return to Equity (%) | 3.0 | 5.3 | 12.9 |
| Return to Investment (%) | 2.5 | 4.7 | 10.1 |
| Debt/Capital Ratio | 0.17 | 0.15 | 0.31 |

Figures 6 and 7 illustrate Butterfat Test and Feed Costs results for the bottom, middle and top 1/3 groups (sorted by Milk Production Class).



## Dairy Characteristics by Gross Income Class

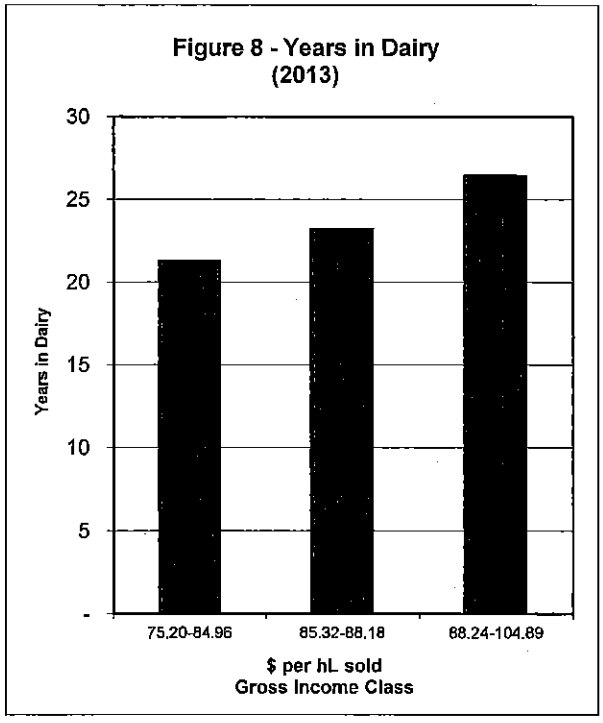
Gross Income ranged between $75.20 and $104.89 per hL sold. For this analysis, the sample group was split into the following three classes:

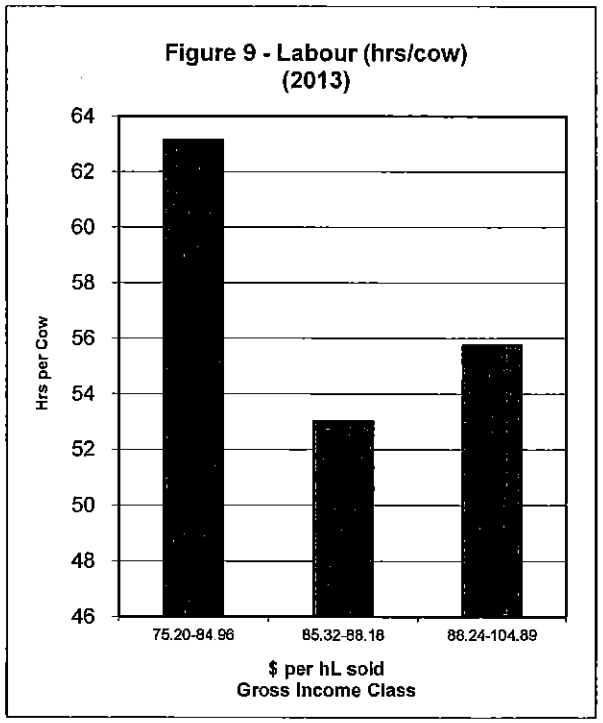
| | |
|---|---|
| Bottom 1/3 | 75.20 - 84.96 |
| Middle 1/3 | 85.32 - 88.18 |
| Top 1/3 | 88.24 - 104.89 |

**Table 7 - Dairy Enterprise by Gross Income Class**

| | Bottom 1/3<br>75.20-84.96 | Middle 1/3<br>85.32-88.18 | Top 1/3<br>88.24-104.89 |
|---|---|---|---|
| **Years in Dairy** | **21.29** | **23.22** | **26.44** |
| Herd Size | 125.27 | 145.36 | 146.76 |
| Milk Production (litres/yr) | 8,904.75 | 8,669.24 | 8,655.44 |
| Home Grown Feed (%) | 82.2 | 74.7 | 69.5 |
| Butterfat Test (kg/hL) | 3.86 | 3.91 | 4.07 |
| Total Costs ($/hL) | 77.93 | 83.29 | 79.78 |
| Feed Costs($/hL) | 31.74 | 34.07 | 32.24 |
| **Labour (hrs/cow)** | **63.13** | **53.00** | **55.75** |
| Investment ($/cow) | 14,406.43 | 13,596.40 | 13,958.41 |
| Return to Equity (%) | 3.7 | 5.9 | 11.6 |
| Return to Investment (%) | 4.2 | 4.8 | 8.2 |
| Debt/Capital Ratio | 0.12 | 0.30 | 0.22 |

Figures 8 and 9 illustrate Years in Dairy and Labour results for the bottom, middle and top 1/3 groups (sorted by Gross Income Class).



## Dairy Characteristics by Total Cost Class

Total Cost ranged between $57.80 and $117.57 per hL sold. For this analysis, the sample group was split into the following three classes:

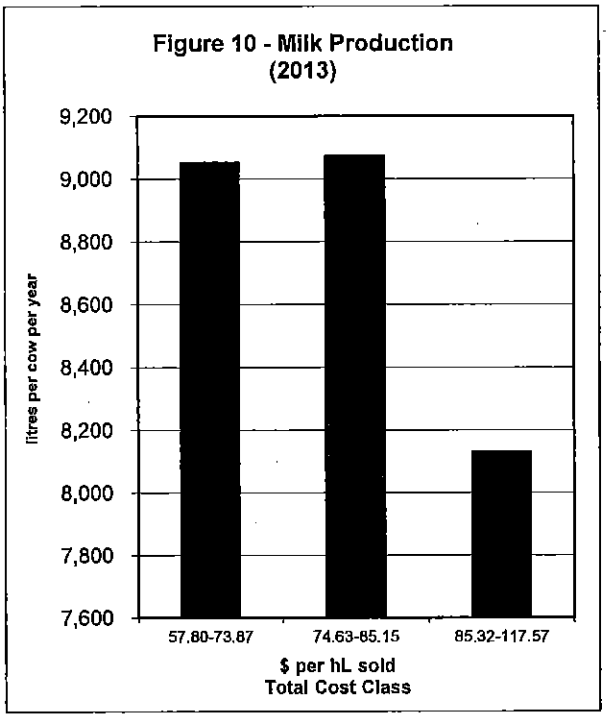
| | |
|---|---|
| Top 1/3 | 57.80 - 73.87 |
| Middle 1/3 | 74.63 - 85.15 |
| Bottom 1/3 | 85.32 - 117.57 |

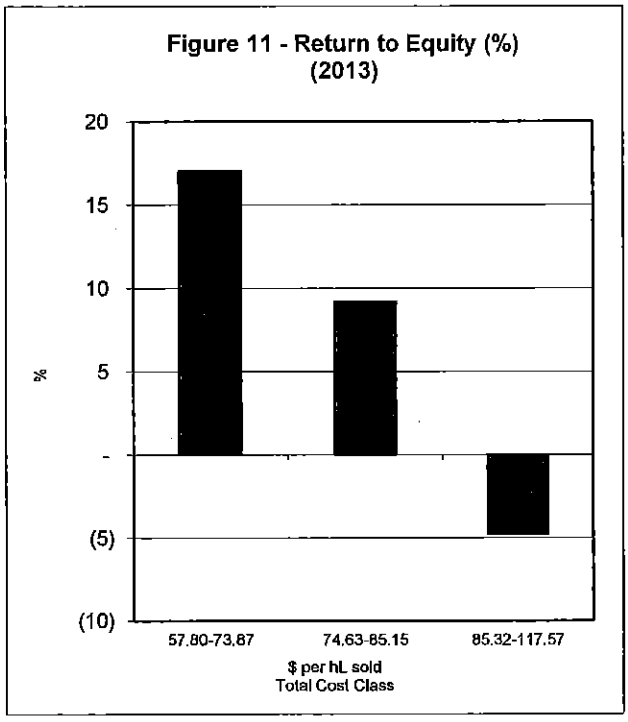
In this situation the top 1/3 are the lower cost producers and the bottom 1/3 are the higher cost producers.

**Table 8 - Dairy Enterprise by Total Cost Class**

| | Top 1/3<br>57.80-73.87 | Middle 1/3<br>74.63-85.15 | Bottom 1/3<br>85.32-117.57 |
|---|---|---|---|
| Years in Dairy | 22.44 | 26.06 | 22.62 |
| Herd Size | 154.92 | 160.22 | 103.13 |
| **Milk Production (litres/yr)** | **9,051.65** | **9,072.00** | **8,129.48** |
| Home Grown Feed (%) | 89.2 | 75.1 | 62.1 |
| Butterfat Test (kg/hL) | 3.92 | 3.91 | 4.00 |
| Gross Income ($/hL) | 86.87 | 87.07 | 88.17 |
| Feed Costs ($/hL) | 29.87 | 30.97 | 37.03 |
| Labour (hrs/cow) | 49.16 | 58.89 | 64.18 |
| Investment ($/cow) | 12,225.99 | 14,621.41 | 15,174.14 |
| **Return to Equity (%)** | **17.0** | **9.2** | **(4.8)** |
| Return to Investment (%) | 14.2 | 6.1 | (3.0) |
| Debt/Capital Ratio | 0.14 | 0.20 | 0.29 |

Figures 10 and 11 illustrate Milk Production and Return to Equity results for the top, middle and bottom 1/3 groups (sorted by Total Cost Class).



## Dairy Characteristics by Investment Class

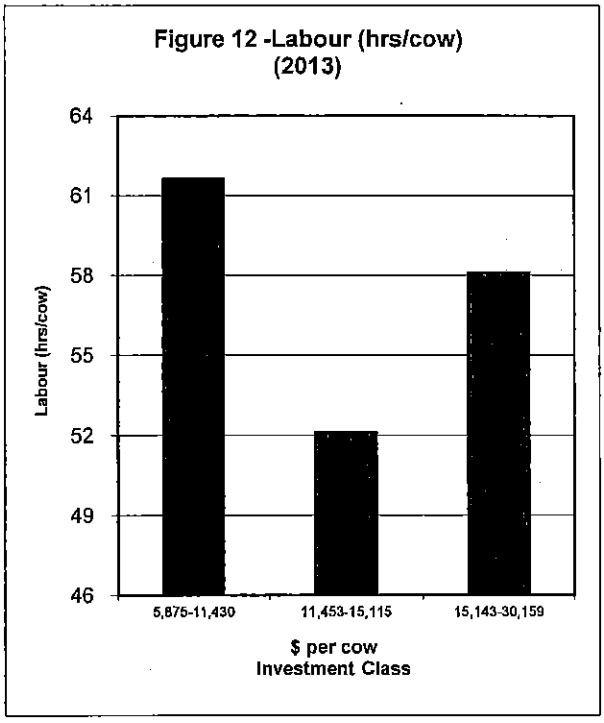
Investment per cow ranged between $5,875 and $30,159. For this analysis, the sample group was split into the following three classes:

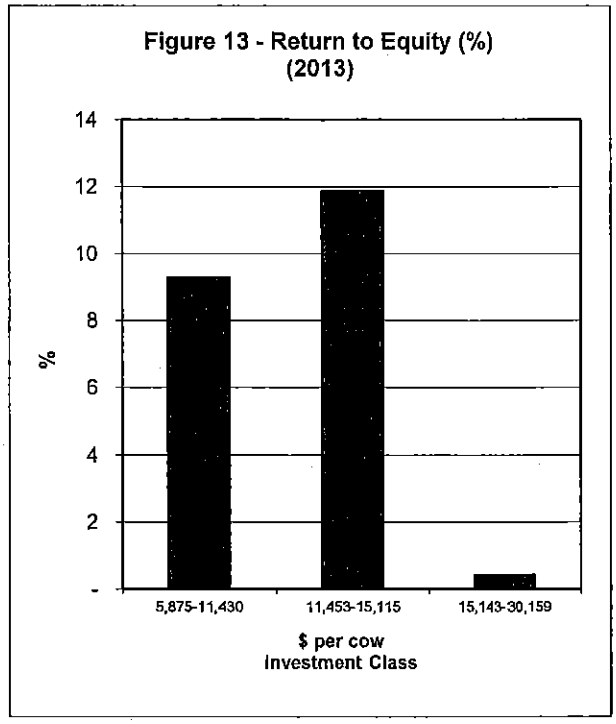
| | |
|---|---|
| Bottom 1/3 | 5,875 - 11,430 |
| Middle 1/3 | 11,453 - 15,115 |
| Top 1/3 | 15,143 - 30,159 |

**Table 9 - Dairy Enterprise by Investment Class**

| | Bottom 1/3<br>5,875-11,430 | Middle 1/3<br>11,453-15,115 | Top 1/3<br>15,143-30,159 |
|---|---|---|---|
| Years in Dairy | 24.88 | 22.78 | 23.26 |
| Herd Size | 142.63 | 160.20 | 115.45 |
| Milk Production (litres/yr) | 8,450.65 | 8,981.63 | 8,815.53 |
| Home Grown Feed (%) | 76.5 | 73.3 | 76.5 |
| Butterfat Test (kg/hL) | 3.90 | 3.98 | 3.96 |
| Gross Income ($/hL) | 86.83 | 87.93 | 87.39 |
| Total Costs ($/hL) | 77.79 | 76.06 | 86.72 |
| Feed Costs ($/hL) | 33.33 | 31.09 | 33.46 |
| **Labour (hrs/cow)** | **61.64** | **52.10** | **58.09** |
| **Return to Equity (%)** | **9.3** | **11.9** | **0.4** |
| Return to Investment (%) | 8.8 | 8.1 | 0.6 |
| Debt/Capital Ratio | 0.11 | 0.30 | 0.23 |

Figures 12 and 13 illustrate Labour and Return to Equity results for the bottom, middle and top 1/3 groups (sorted by Investment Class).



## Dairy Characteristics by Labour (hrs/cow) Class

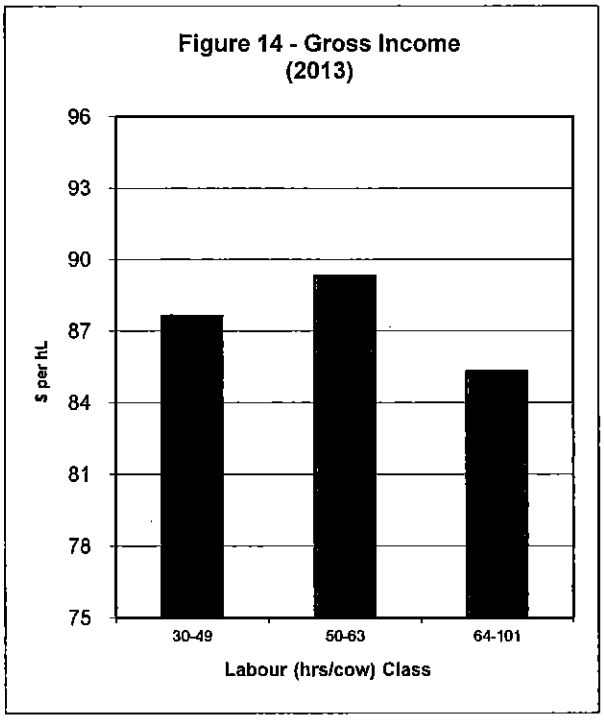
Labour (hrs/cow) ranged between 30 and 101.
For this analysis, the sample group was split into the following three classes:

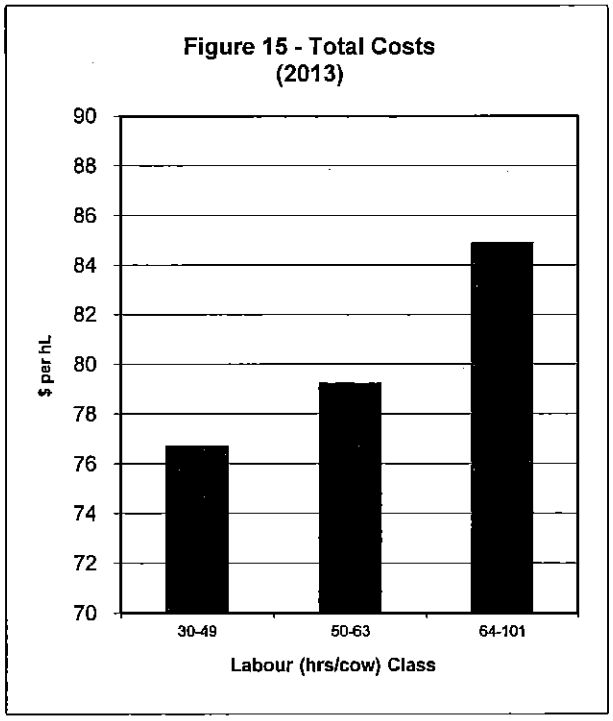
| | |
|---|---|
| Bottom 1/3 | 30- 49 |
| Middle 1/3 | 50 - 63 |
| Top 1/3 | 64 - 101 |

**Table 10 - Dairy Enterprise by Labour (hrs/cow) Class**

| | Bottom 1/3<br>30-49 | Middle 1/3<br>50-63 | Top 1/3<br>64-101 |
|---|---|---|---|
| Years in Dairy | 24.65 | 25.00 | 21.41 |
| Herd Size | 206.15 | 117.95 | 91.69 |
| Milk Production (litres/yr) | 8,747.66 | 8,831.21 | 8,660.09 |
| Home Grown Feed (%) | 79.1 | 67.7 | 79.3 |
| Butterfat Test (kg/hL) | 3.93 | 4.02 | 3.89 |
| **Gross Income ($/hL)** | **87.64** | **89.30** | **85.30** |
| **Total Costs ($/hL)** | **76.68** | **79.20** | **84.88** |
| Feed Costs ($/hL) | 32.55 | 31.85 | 33.52 |
| Investment ($/cow) | 15,272.66 | 14,658.58 | 12,092.48 |
| Return to Equity (%) | 9.3 | 10.9 | 1.4 |
| Return to Investment (%) | 6.8 | 8.1 | 2.5 |
| Debt/Capital Ratio | 0.28 | 0.21 | 0.15 |

Figures 14 and 15 illustrate Gross Income and Total Costs results for the bottom, middle and top 1/3 groups (sorted by Labour hrs/cow Class).



## Detailed Management Factors, Northern and Southern Alberta

Table 11 provides a further examination of regional differences from a management perspective.

**Table 11**

**Detailed Management Factors, Northern and Southern Alberta, 2013**

| | Northern Alberta | Southern Alberta |
|---|---|---|
| Herd Size | 126 | 147 |
| Milk Production (litres/cow/year) | 8273.10 | 8,954.65 |
| Feed Conversion (litres/kg concentrates) | 2.00 | 2.07 |
| Labour Productivity (litres/hr) | 151.46 | 179.85 |
| Labour Hours/Cow (hrs) | 54.62 | 49.79 |
| Investment/Cow ($/cow) | 13,058.69 | 14,455.18 |
| Milk Production/$ Invest (litres/$) | 0.63 | 0.62 |
| Feed Costs ($/cow) | 2,463.76 | 2,894.85 |
| Purchased Barley ($/tonne) | 229.09 | 285.33 |
| Cost of Purchased Hay ($/tonne) | 111.24 | 127.42 |
| Home Grown Roughage (%) | 50.3 | 80.0 |
| Butterfat Test (kg/hL) | 3.96 | 3.94 |
| Protein (kg/hL) | 3.34 | 3.29 |
| LOS (kg/hL) | 5.71 | 5.71 |
| Total Costs ($/hL) | 79.77 | 77.42 |
| Contribution Margin ($/hL) | 23.57 | 22.99 |
| Return to Investment (%) | 7.6 | 7.2 |
| Return to Equity ($/hL) | 10.26 | 9.91 |
| Return to Equity (%) | 9.5 | 7.9 |
| Debt to Asset Ratio | 0.34 | 0.25 |

# Historical Economic Trends

**Figure 16 - Average Milk Price**
**($ per hL)**

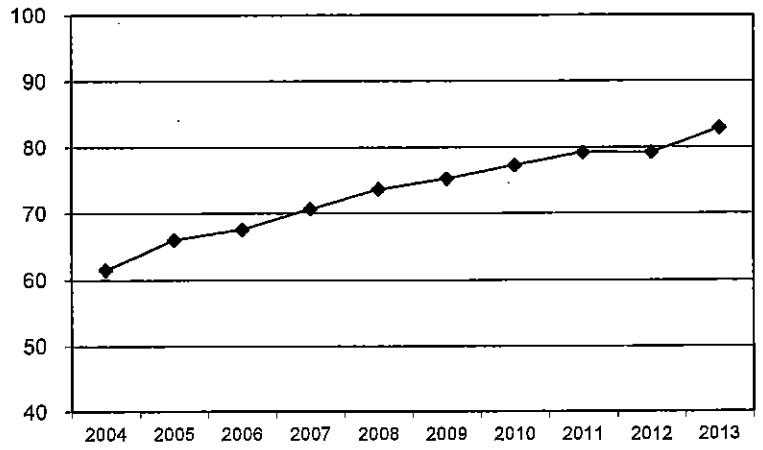



**Figure 17 - Feed Cost**
**($ per hL)**

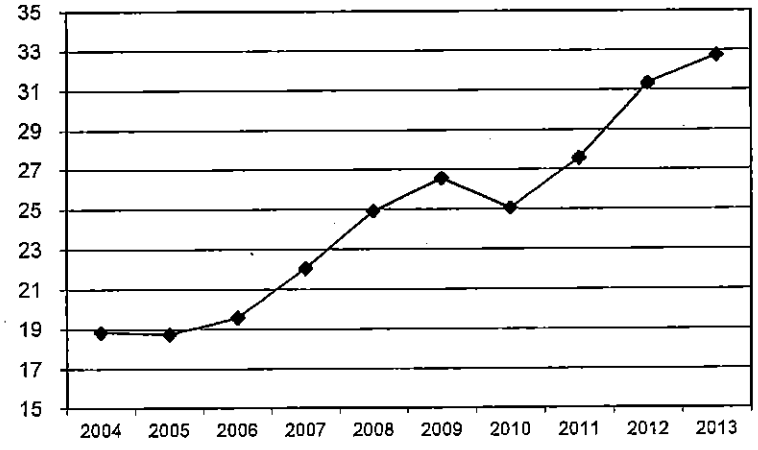



**Figure 18 - Total Cost**
**($ per hL)**

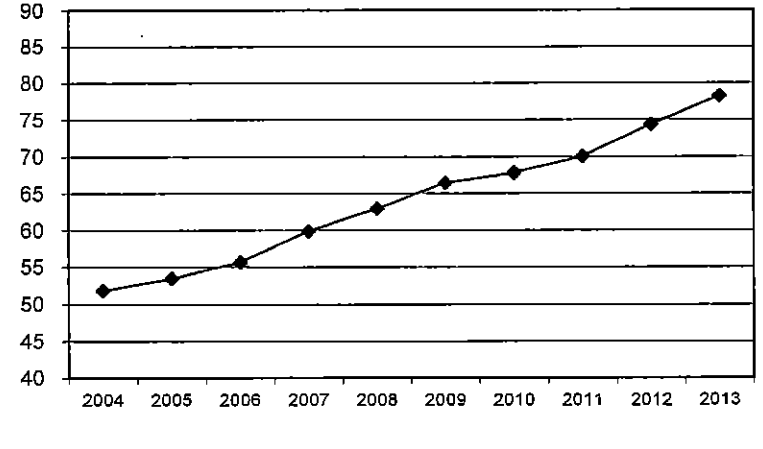



**Figure 19 - Return to Equity**
**(%)**

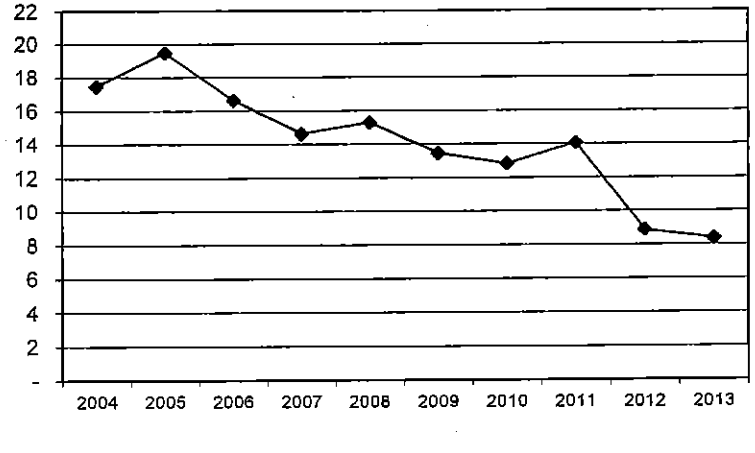


**Figure 20 - Median Size of Dairy Herd**

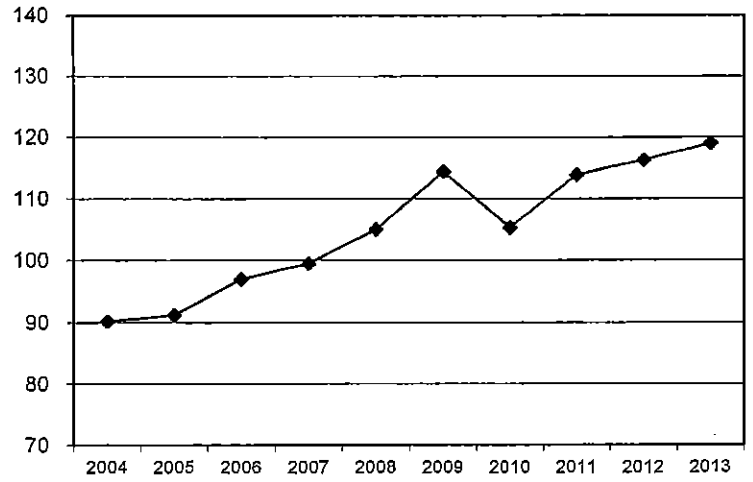



**Figure 21 - Milk Production (litres/cow per year)**

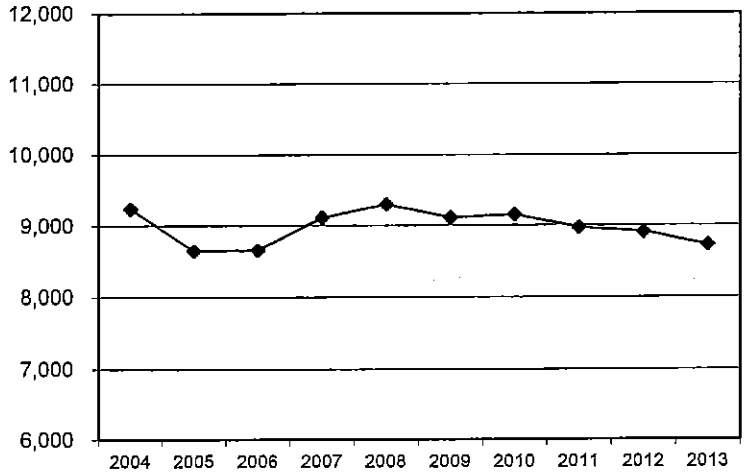



**Figure 22 - Purchased Barley Cost ($ per tonne)**

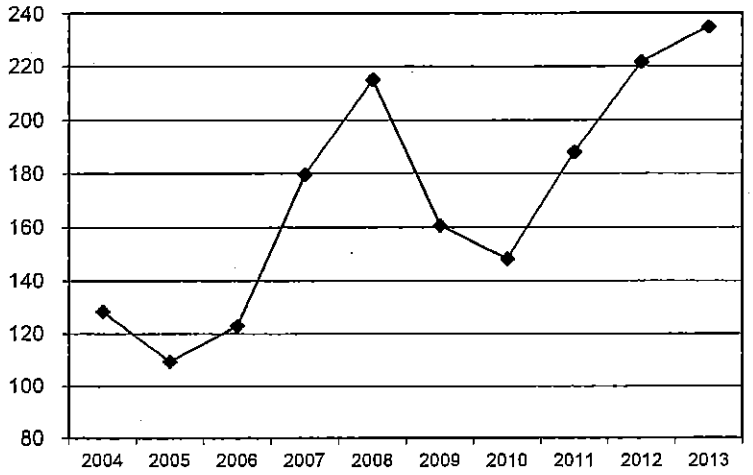
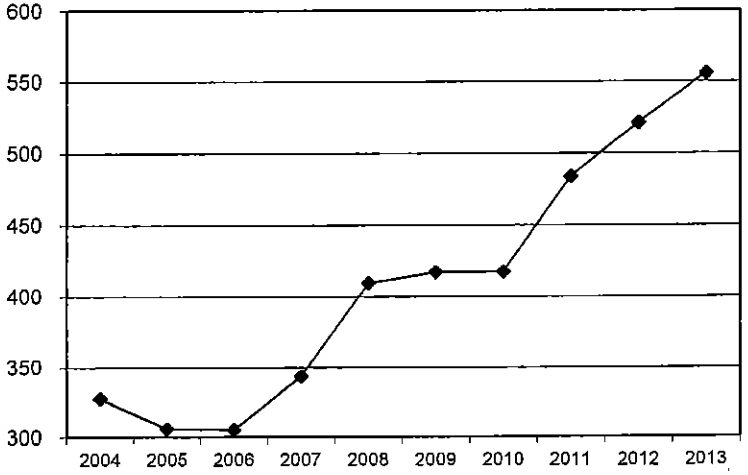


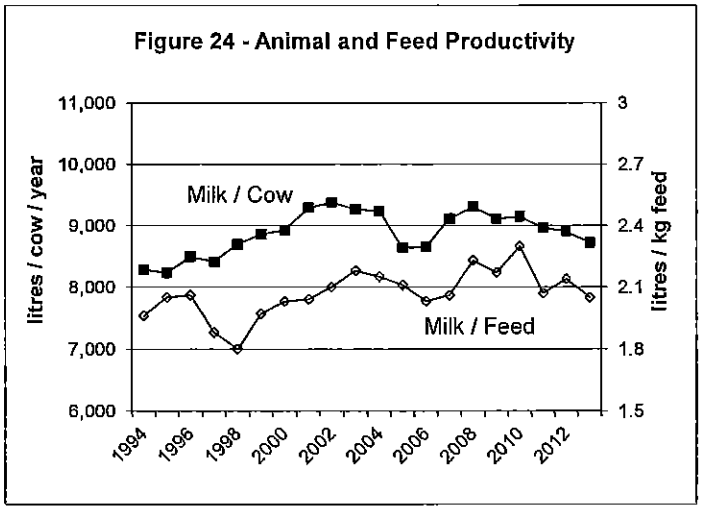

**Figure 23 - Cost of Dairy Ration ($ per tonne)**



# Milk Productivity Factors

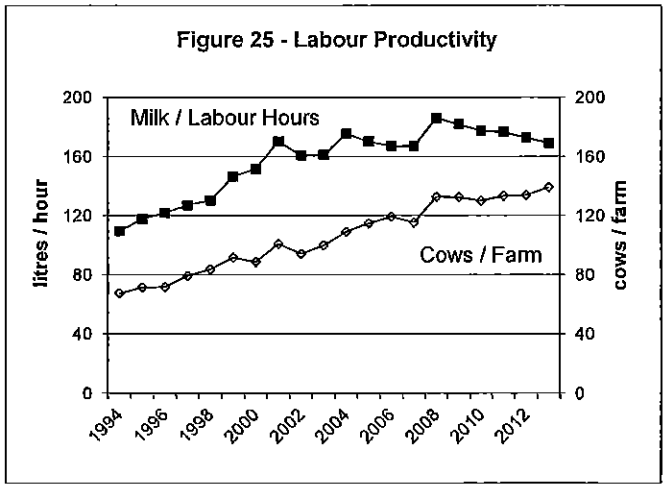
A number of management factors related to milk production are reported in Table 3 of Appendix A. They relate the amount of milk produced to three management inputs: feed, labour and capital. While these results reflect the participants in the study group, which changes over time, they are a fair representation of provincial averages.

Figure 24 shows that milk productivity per cow increased steadily from 1994 to 2001, with a total gain of 17 percent. After levelling off for four years, productivity dipped in 2005, rebounding in 2007. Many factors can affect milk productivity, including poor feed quality, housing changes, temperature/weather fluctuations, and cow stress. A decrease in quota allotment or adjusting to the daily quota system could also lead to management decisions to lower production for a period of time.




The feed conversion rates (or productivity) have varied over time. In previous Dairy Cost Study reports, feed conversion rates appeared to generally improve over the 20-year assessment period, resulting in slightly higher milk production per unit of feed. However, the current feed conversion profile can be interpreted differently; that feed conversion rates have been fairly flat around 2.1 litres per kg of feed, with two big exceptions – a decline in the rate between 1997 and 1999, and an increase in the rate between 2008 and 2010.

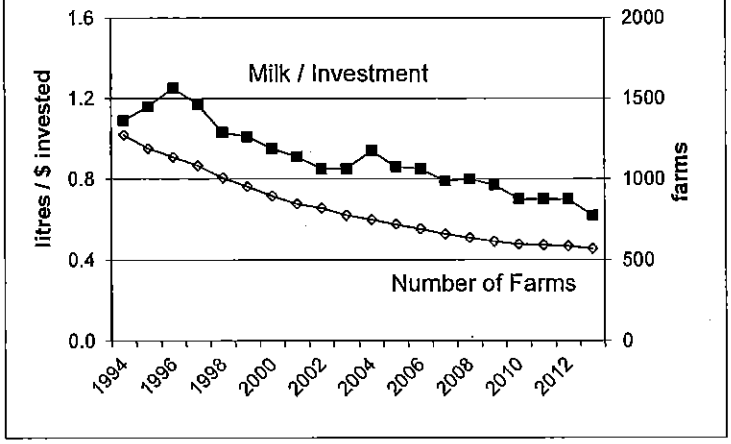
Figure 25 shows the amount of milk produced for each hour of labour on dairy farms. Labour productivity increased dramatically from 1994 to 2001. The figure also shows how the scale of dairy farms has increased. As farm size increased, each



employee was able to manage a larger number of dairy cows. However, between 2001 and 2013, labour productivity rates have been relatively flat.

During the 1994 to 2001 period, labour intensity was gradually traded for capital intensity (Figure 26). While labour productivity increased through 2001, capital productivity declined. Dairy producers were investing in more capital equipment, which allowed them to handle greater herd sizes per employee. Between 2001 and 2009, capital investment rates were more stable. In recent years, capital intensity has again increased.

**Figure 26 - Capital Productivity**

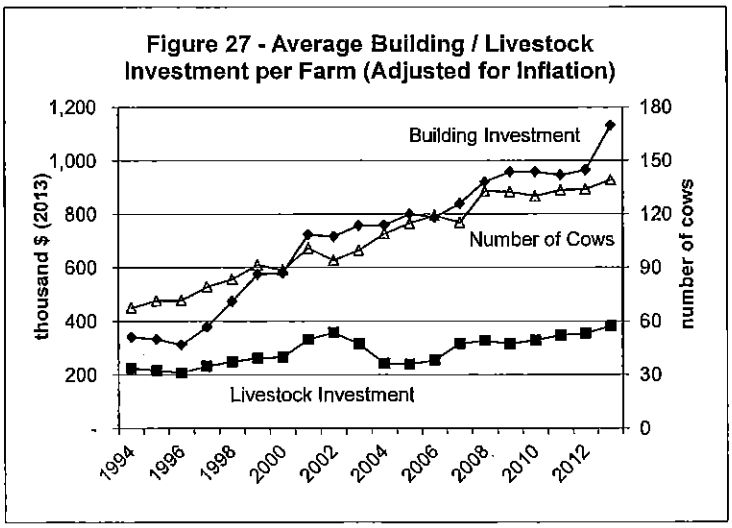



## Capital Investment Trends

**Per Farm**

Trends in capital intensity are shown more directly in Figures 27 and 28. The average value of dairy buildings (adjusted for inflation) was very stable in the early years. Then, between 1996 and 2001, total investment climbed dramatically, increasing by 132 percent.

**Figure 27 - Average Building / Livestock Investment per Farm (Adjusted for Inflation)**



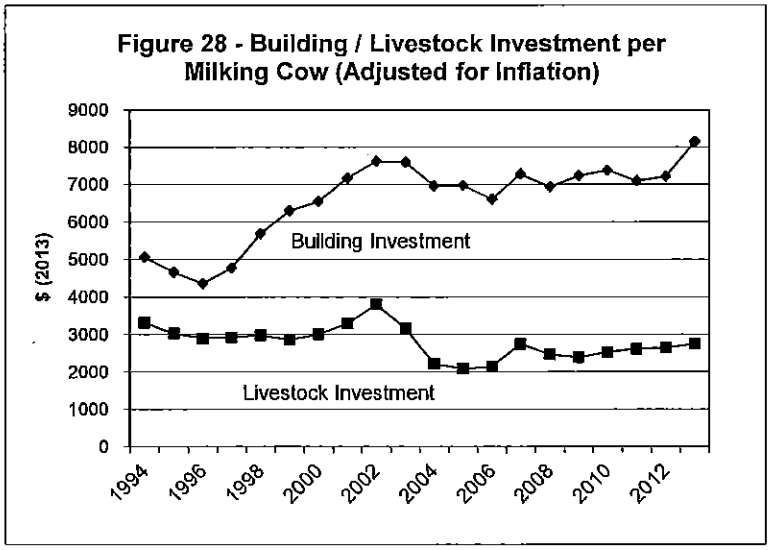

During this time, there was an increase in construction of new facilities, either by those already in Alberta or by those moving to the province from abroad. This was also the time of the first installation of robotic milkers on Alberta farms. This period coincided with a slightly higher rate

in the expansion of herd sizes. After 2001, the average value of dairy buildings rose more slowly, in line with continued growth in the average herd size. Total building values rose again from 2007 to 2009, partly due to a significant jump in the Dairy Cost Study average herd size in 2008.

The total value of livestock per farm (adjusted for inflation) was flat during the mid 1990s. Livestock inventory values grew significantly through 2002. However, they dropped by one-third in the wake of the BSE crisis despite an increase in cows per farm. They rebounded in 2007 and 2008 and have remained fairly stable.

**Per Milking Cow**

Figure 28 shows average building and livestock investments per milking cow. It clearly shows how average building values per cow increased dramatically in the middle years, while remaining quite flat in for the past 12 years.




Between 1994 and 2001, livestock values (adjusted for inflation) were generally flat. They gained in value briefly in 2002. However, after the appearance of BSE in 2003, livestock values, especially for cull cows and replacement heifers, dropped dramatically. Livestock values increased in 2007 but continue to be slightly lower than the previous decade.

# Dairy Enterprise Investment and Debt Levels

Total dairy farm investment (excluding quota) remained relatively stable at $1,942,209 per farm in 2013, compared to an average of $1,709,692 in 2012. On a per cow basis, this works out to $13,972 (Table 12). Of this total amount, 74 percent was comprised of buildings and equipment investment, 20 percent referred to livestock investment, the remaining 6 percent being invested in land and supplies.

**Table 12**

**Annual Investment and Debt on Dairy Farms**

| | 2011 | 2012 | 2013 |
|---|---|---|---|
| | --- $ Per Cow --- | | |
| Land | 589 | 662 | 749 |
| Buildings and Equipment | 9,331 | 9,317 | 10,369 |
| Livestock | 2,694 | 2,687 | 2,746 |
| Supplies | 115 | 115 | 110 |
| **TOTAL** | **12,729** | **12,779** | **13,972** |
| Debt | 4,128 | 4,070 | 3,876 |
| Equity | 8,601 | 8,709 | 10,093 |
| **TOTAL** | **12,729** | **12,779** | **13,972** |

The debt/capital ratio measures the extent of external financing on dairy farms in Alberta. This ratio has decreased 2013 to 28 percent from 31 percent in 2012. Total investment per cow increased substantially in 2013, with an increase of almost $1,200 per cow compared to 2012. Much of the increase in 2013 came from investment in new barns or additions/improvements to existing facilities. Other large investment items were robotic milkers, ventilation fans, and manure system upgrades. For cow productivity management, purchases included a heat seeker system and ultrasound scanners. There was less investment in machinery, but these items are typically used only in part by the dairy enterprise.

# Debt Repayment Capacity

The acceptable debt load or repayment capacity of a dairy enterprise can be measured by the contribution margin. Contribution margin is the difference between gross income and variable costs. Therefore, it represents the amount of money available to pay for capital assets - rent, mortgage payments (principle and interest), and taxes. The amount of cash remaining after capital assets payments is the producer's return to owner equity, or profit. A summary of contribution margins for the dairy years 2011, 2012, and 2013 is presented in Table 13.

**Table 13**

**Summary of Average Costs and Returns in Alberta**
**2011 - 2013**

| | 2011 | 2012 | 2013 | 2011-2013 |
|---|---|---|---|---|
| | | ------ $ Per Cow ------ | | |
| **A. Gross Income** | 7310 | 7174 | 7404 | 7296 |
| **B. Feed Costs** | 2397 | 2703 | 2746 | 2615 |
| **C. Variable Costs** | 2632 | 2663 | 2714 | 2670 |
| **Contribution Margin (A - B - C)** | 2281 | 1808 | 1944 | 2011 |

The contribution margin can be used to determine the amount of debt load that a farm enterprise can carry. Table 14 shows the total debt load that a farm enterprise can carry on a per cow basis at various interest rates and various cow productivity levels. It is based on the average costs and returns between 2011 and 2013. The assumptions behind the analysis are that feed costs vary directly with the level of production and market values. The market value for grains/oilseeds increased in 2012 which is reflected in the higher feed costs compared to 2011.

**Table 14**

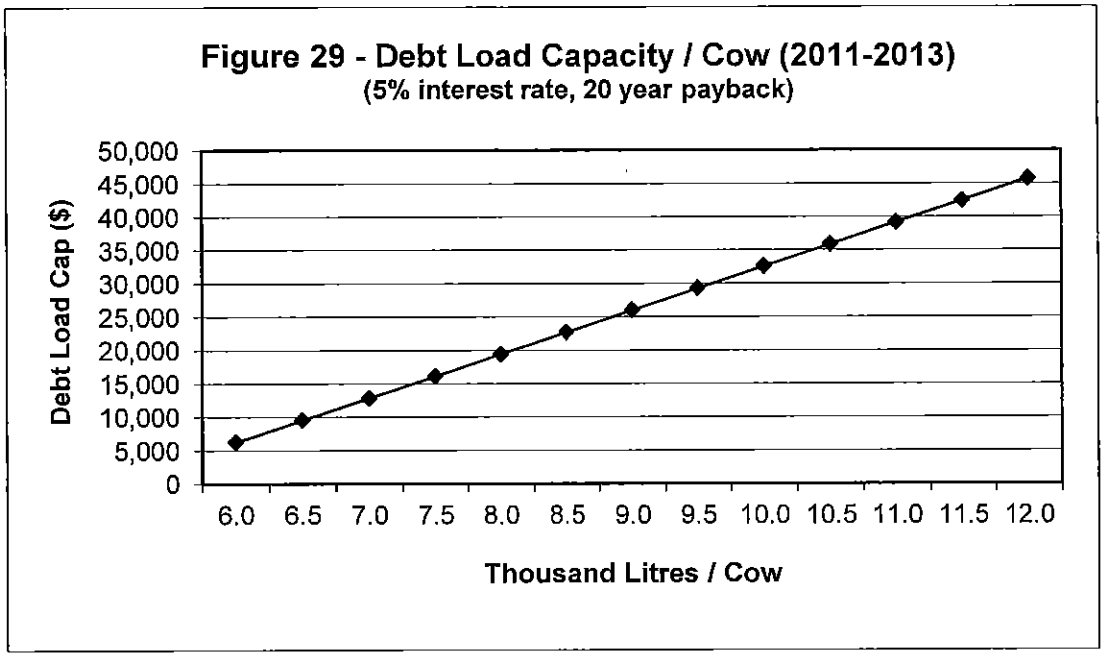
**Acceptable Total Debt-Load per Cow in Alberta, 2011-2013**

| Milk Productivity (litres/cow) | Interest Rates 3% | 4% | 5% | 6% | 7% | 8% |
|---|---|---|---|---|---|---|
| 6000 | 7,431 | 6,788 | 6,224 | 5,729 | 5,291 | 4,904 |
| 6500 | 11,360 | 10,377 | 9,516 | 8,758 | 8,089 | 7,497 |
| 7000 | 15,289 | 13,966 | 12,807 | 11,787 | 10,887 | 10,089 |
| 7500 | 19,218 | 17,555 | 16,098 | 14,816 | 13,684 | 12,682 |
| 8000 | 23,146 | 21,144 | 19,389 | 17,845 | 16,482 | 15,275 |
| 8500 | 27,075 | 24,733 | 22,680 | 20,874 | 19,280 | 17,868 |
| 9000 | 31,004 | 28,322 | 25,971 | 23,903 | 22,078 | 20,461 |
| 9500 | 34,933 | 31,911 | 29,262 | 26,932 | 24,875 | 23,054 |
| 10000 | 38,862 | 35,500 | 32,553 | 29,961 | 27,673 | 25,646 |
| 10500 | 42,791 | 39,089 | 35,844 | 32,990 | 30,471 | 28,239 |
| 11000 | 46,720 | 42,678 | 39,135 | 36,019 | 33,268 | 30,832 |
| 11500 | 50,649 | 46,267 | 42,426 | 39,048 | 36,066 | 33,425 |
| 12000 | 54,578 | 49,856 | 45,717 | 42,077 | 38,864 | 36,018 |

* With a 20 year repayment period

For example, at a milk production level of 8,000 litres per cow, the contribution margin would be $1,556 per cow. This margin, if amortized over 20 years at 5 percent interest, results in a debt carrying capacity of $19,389 per cow.

Figure 29 shows the impact of milk productivity on the debt load carrying capacity of dairy enterprises given an interest rate of 5 percent. As productivity declines, the debt carrying capacity of each cow also declines. Conversely, the debt carrying capacity rises as productivity increases.




Another way to use this information is to measure the minimum level of productivity required to carry a given debt load at a specific interest rate. As an example, if a farm has a debt of $20,000 per cow, then at an interest rate of 5 percent, this amount of debt per cow would be supported at production levels of about 8,100 litres per cow and above (Table 14). In general, as productivity increases and/or interest rates fall, debt repayment or financing capacity increases.

To this point, the value of quota has not been included in the analysis. If externally financed quota valued at $38,803 per cow (the average value of total production quota for one cow in the 2013 Dairy Cost Study) is added to current debt of $3,876 per cow, the total amount of debt load per cow would be $42,679. The ability to carry this amount of debt per cow depends upon the prevailing interest rate and the productivity of each cow carrying debt. As illustrated in Table 14, this level of debt would require a production level of around 11,500 litres per cow, assuming an interest rate of 5 percent.

# Impact of Quota Values on Dairy Returns

The cost and return analysis in this study does not include any value for milk quota. However, new entrants into the dairy business would have to purchase quota. When the financing of these quota purchases (at 2013 Dairy Cost Study total production quota average price) is taken into account, the average rate of return for new entrants would be a negative 6.9 percent (Table 15). This means that the borrowing costs of capital used to purchase quota exceeded the financial returns obtained from producing milk. The assumption in this analysis was that all funds needed to purchase quota were borrowed at 4.6 percent, the average interest rate in the study.

**Table 15**

**Impact of Quota Value on Dairy Returns, 2013**

| | 2013 Study Average | Including Quota Value* |
|---|---|---|
| | **- - - $ per Farm - - -** | |
| Dairy Investment | 1,942,210 | 6,598,194 |
| Debt | 538,735 | 5,194,719 |
| Equity | 1,403,475 | 1,403,475 |
| | **- - - $ per hL Sold - - -** | |
| Equity | 120.30 | 120.30 |
| Gross Income | 88.22 | 82.22 |
| Production Costs | 78.22 | 78.22 |
| Interest Cost for Quota | | 18.36 |
| Potential Total Cost | 78.22 | 96.58 |
| Return to Equity($ per hL) | 10.00 | -8.36 |
| Return to Equity (%) | 8.3 | -6.9 |

*Applicable to new entrants who borrow 100 percent of funds needed to purchase total production quota at the average value from the 2013 Dairy Cost Study of $38,803 per kg/day.

# APPENDIX A

## 2013 Dairy Cost Study

## Provincial Average

Alberta
2013 Dairy Cost Study - Business Analysis
50 Participants
Table 1 Dairy Enterprise Costs and Returns

| | TOTAL ENTERPRISE | PER COW | PER HL SOLD | PERCENT FROM INCOME |
|---|---|---|---|---|
| **INCOME:** | | | | |
| MILK SALES | 954,884.00 | 6,869.26 | 81.85 | |
| POOL ADJUSTMENTS (+ -) | 11,751.51 | 84.54 | 1.01 | |
| MISCELLANEOUS RECEIPTS | 5,678.45 | 40.85 | .49 | |
| NET CATTLE SALES ( + - ) | 42,792.12 | 307.84 | 3.67 | |
| NET INVENTORY CHANGE ( + - ) | 14,133.38 | 101.67 | 1.21 | |
| **GROSS INCOME** | **1,029,239.47** | **7,404.16** | **88.22** | **100.00** |
| **EXPENSES:** | | | | |
| GRAIN | 60,530.92 | 435.45 | 5.19 | |
| COMPLETE FEED | 146,752.37 | 1,055.71 | 12.58 | |
| SUPPLEMENT | 42,688.46 | 307.09 | 3.66 | |
| MINERALS & VITAMINS | 9,919.98 | 71.36 | .85 | |
| ROUGHAGE | 119,506.92 | 859.71 | 10.24 | |
| PROCESSING COSTS | 2,302.68 | 16.57 | .20 | |
| **TOTAL FEED COSTS** | **381,701.33** | **2,745.89** | **32.72** | **37.09** |
| BEDDING AND SUPPLIES | 31,850.21 | 229.12 | 2.73 | |
| BREEDING | 11,218.22 | 80.70 | .96 | |
| VET. AND MEDICINE | 20,833.84 | 149.87 | 1.79 | |
| MILK HAULING | 34,136.79 | 245.57 | 2.93 | |
| PRODUCER'S FEES | 23,414.25 | 168.44 | 2.01 | |
| UTILITIES | 21,205.94 | 152.55 | 1.82 | |
| FUEL, OIL, LUBE | 17,774.24 | 127.86 | 1.52 | |
| BLDG. & MACH. REPAIRS | 25,780.77 | 185.46 | 2.21 | |
| MISCELLANEOUS | 34,418.53 | 247.60 | 2.95 | |
| **TOTAL OTHER VARIABLE COSTS** | **220,632.77** | **1,587.19** | **18.91** | **21.44** |
| HIRED LABOUR | 39,102.30 | 281.29 | 3.35 | |
| FAMILY LABOUR | 117,302.77 | 843.85 | 10.06 | |
| **TOTAL LABOUR COSTS** | **156,405.07** | **1,125.15** | **13.41** | **15.20** |
| **TOTAL VARIABLE COSTS** | **758,739.17** | **5,458.23** | **65.04** | **73.72** |
| RENT | 1,433.38 | 10.31 | .12 | |
| TAXES AND INSURANCE | 20,179.21 | 145.17 | 1.73 | |
| DEPRECIATION | 107,019.83 | 769.88 | 9.17 | |
| INTEREST ( CAP.DEBT) | 24,789.50 | 178.33 | 2.12 | |
| **TOTAL CAPITAL COSTS** | **153,421.92** | **1,103.69** | **13.15** | **14.91** |
| **TOTAL PRODUCTION COSTS** | **912,161.09** | **6,561.92** | **78.19** | **88.62** |
| CONTRIBUTION MARGIN ($) | 270,500.30 | 1,945.93 | 23.19 | |
| RETURN TO EQUITY ($) | 117,078.38 | 842.24 | 10.04 | 11.38 |
| MILK PRICE | | | 82.86 | |
| INVENTORY ADJUSTMENT | | | 5.37 | |
| RETURN TO EQUITY (%) | | | 8.34 | |
| AVERAGE CAP. DEBT INTEREST RATE (%) | | | 4.60 | |

Alberta
2013 Dairy Cost Study - Business Analysis
50 Participants
Table 2 Statement of Investment

| LAND BUILDINGS & EQUIPMENT | AGE | DEPRECIATION | DAIRY INVESTMENT |
|---|---|---|---|
| DAIRY BUILDINGS | 11.73 | 45,722.80 | 1,131,492.50 |
| POWER MACHINERY | 8.11 | 21,516.94 | 143,927.48 |
| DAIRY EQUIPMENT | 10.87 | 26,567.47 | 106,828.07 |
| OTHER EQUIPMENT | 8.13 | 13,212.62 | 59,175.73 |
| TOTAL EQUIPMENT | 9.02 | 61,297.03 | 309,931.28 |
| LAND | | | 104,180.25 |
| SUPPLIES | | | 14,928.76 |
| ** SUBTOTAL ** | | 107,019.83 | 1,560,532.79 |

| DAIRY LIVESTOCK | --- BEGIN YEAR --- NUMBER | VALUE | --- END OF YEAR --- NUMBER | VALUE | AVERAGE VALUE |
|---|---|---|---|---|---|
| COWS | 138.90 | 250,390.13 | 140.92 | 254,031.51 | 252,210.82 |
| BRED HEIFERS | 39.22 | 62,752.00 | 40.02 | 64,032.00 | 63,392.00 |
| OPEN HEIFERS | 49.64 | 49,640.00 | 59.18 | 59,180.00 | 54,410.00 |
| HEIFER CALVES | 40.54 | 8,108.00 | 41.86 | 8,372.00 | 8,240.00 |
| BULL CALVES | 12.90 | 1,290.00 | 6.08 | 608.00 | 949.00 |
| BULLS | 1.62 | 2,430.00 | 1.68 | 2,520.00 | 2,475.00 |
| ** SUBTOTAL ** | 282.82 | 374,610.13 | 289.74 | 388,743.51 | 381,676.82 |

| | |
|---|---|
| TOTAL DAIRY INVESTMENT | 1,942,209.60 |
| CAPITAL LOANS | 538,734.58 |
| OPERATOR EQUITY | 1,403,475.02 |
| INVESTMENT PER COW | 13,971.89 |
| DEBT/CAPITAL RATIO | .28 |
| CAPITAL TURNOVER ( YR ) | 1.89 |

| HERD SIZE | Average | Median |
|---|---|---|
| NUMBER OF DAIRY COWS | 139.01 | 118.96 |
| NUMBER OF ANIMAL UNITS | 222.80 | 181.92 |
| DRY COWS ( % ) | 20.80 | |
| CALF CROP ( % ) | 104.76 | |
| PASTURE PER COW ( AC. ) | .34 | |

| CATTLE SALES & PURCHASES | NUMBER SOLD | SELLING PRICE | NUMBER PURCHASED | PURCHASE PRICE |
|---|---|---|---|---|
| COWS | 45.62 | 937.54 | 2.04 | 1,690.09 |
| BRED HEIFERS | .88 | 1,116.99 | .40 | 1,615.00 |
| OPEN HEIFERS | .94 | 1,000.56 | .32 | 534.38 |
| HEIFER CALVES | .16 | 226.88 | .00 | .00 |
| BULL CALVES | 37.50 | 88.75 | .00 | .00 |
| BULLS | 1.04 | 1,443.69 | .90 | 2,780.80 |
| TOTAL VALUE | | 49,559.62 | | 6,767.50 |

Alberta
2013 Dairy Cost Study - Business Analysis
50 Participants
Table 3 Labour and Management

| LABOUR | HOURS | VALUE | HOURLY RATE |
|---|---|---|---|
| OPERATOR LABOUR | 3,002.24 | 66,049.28 | 22.00 |
| HIRED LABOUR | 1,777.86 | 39,102.30 | 21.99 |
| FAMILY UNPAID LABOUR | 2,373.09 | 51,253.49 | 21.60 |
| **TOTAL** | **7,153.19** | **156,405.07** | **21.87** |
| RETURN TO FAMILY LABOUR | 14.88 | | |
| MAN EQUIVALENTS | 2.86 | | |
| LABOUR HOURS PER COW | 51.46 | | |
| YEARS FARMING | 23.66 | | |

| MILK PRODUCTION | HL. | % OF TOTAL | VALUE | AVERAGE PRICE / HL |
|---|---|---|---|---|
| MILK SALES | 11,666.10 | 96.25 | 954,884.00 | 81.85 |
| OTHER MILK PRODUCED | 454.25 | 3.75 | | |
| **TOTAL** | **12,120.34** | **100.00** | | |

| | | AVERAGE COMPONENT PRICES ($ / KG) |
|---|---|---|
| BUTTERFAT TEST | 3.95 KG / HL | 11.47 |
| PROTEIN | 3.31 KG / HL | 4.53 |
| L.O.S. | 5.71 KG / HL | 3.88 |
| MILK PRODUCTION PER COW | 8,719.15 LITRES / YEAR | |

| QUOTA INFORMATION | |
|---|---|
| TPQ HOLDINGS | 119.99 KG / DAY |
| TPQ PRICE | 38,803.10 $ / KG / DAY |
| CREDIT PRICE | 11.29 $ / KG |

| MANAGEMENT FACTORS | |
|---|---|
| COST PER HL | 78.19 |
| MILK/FEED (KG) RATIO | 2.05 LITRES |
| MILK/LABOUR (HR) RATIO | 169.44 LITRES |
| MILK/CAPITAL ($) RATIO | .62 LITRES |

Alberta
2013 Dairy Cost Study - Business Analysis
50 Participants
Table 4 Feed Report

| | — PURCHASED — | | — HOMEGROWN— | |
|---|---|---|---|---|
| **CONCENTRATES** | QUANTITY (TONNES) | PRICE | QUANTITY (TONNES) | PRICE |
| OATS | .55 | 120.95 | 6.35 | 215.24 |
| BARLEY | 55.51 | 234.80 | 121.79 | 226.12 |
| WHEAT | .00 | .00 | 3.66 | 278.77 |
| MIXED GRAIN | .00 | .00 | .00 | .00 |
| BREW GRAIN (DRY EQ. ) | 12.67 | 186.39 | | |
| BEET PULP | 7.88 | 134.44 | | |
| OTHER PURCHASED | 36.09 | 390.29 | | |
| DAIRY RATION | 241.27 | 555.68 | | |
| CALF FEED | 19.27 | 525.73 | | |
| MILK REPLACER | .80 | 3,194.79 | | |
| SUPPLEMENT | 70.82 | 582.34 | | |
| MOLASSES | 5.24 | 275.95 | | |
| SALT | .70 | 490.61 | | |
| MINERALS & VITAMINS | 8.99 | 1,065.80 | | |
| **SUBTOTAL - - - - - - - - -** | **459.78** | **229,967.00** | **131.79** | **29,924.73** |
| **ROUGHAGE** | | | | |
| ALFALFA HAY | 147.68 | 121.62 | 165.27 | 129.90 |
| ALFALFA PELLETS | .00 | .00 | | |
| STRAW FED | 2.63 | 55.53 | 21.22 | 49.57 |
| GREENFEED | .77 | 22.98 | 9.75 | 98.44 |
| SILAGE/HAYLAGE (DRY EQ.) | 152.55 | 124.12 | 504.16 | 116.96 |
| **SUBTOTAL - - - - - - - - -** | **303.62** | **37,058.21** | **700.40** | **82,448.71** |
| GRINDING & PROCESSING | | 2,302.68 | | |
| **GRAND TOTAL FEED COSTS - - - - - - - - -** | | **269,327.88** | | **112,373.45** |
| BEDDING | 125.67 | 59.45 | 85.13 | 45.74 |

| | | |
|---|---|---|
| AV. PRICE: | CONCENTRATE | 439.32 $/TONNE |
| | ROUGHAGE | 119.03 $/TONNE |
| FED PER COW: | CONCENTRATE | 4.26TONNES |
| | ROUGHAGE | 7.22 TONNES |
| % HOME GROWN: | CONCENTRATE | 22.28 % |
| | ROUGHAGE | 69.76 % |

# APPENDIX B

## 2013 Dairy Cost Study

## Northern Alberta

Northern Alberta
2013 Dairy Cost Study - Business Analysis
19 Participants
Table 1 Dairy Enterprise Costs and Returns

| | TOTAL ENTERPRISE | PER COW | PER HL SOLD | PERCENT FROM INCOME |
|---|---|---|---|---|
| INCOME: | | | | |
| MILK SALES | 817,830.56 | 6,470.00 | 81.14 | |
| POOL ADJUSTMENTS (+ -) | 10,107.56 | 79.96 | 1.00 | |
| MISCELLANEOUS RECEIPTS | 5,314.97 | 42.05 | .53 | |
| NET CATTLE SALES ( + - ) | 43,302.88 | 342.58 | 4.30 | |
| NET INVENTORY CHANGE ( + - ) | 30,876.38 | 244.27 | 3.06 | |
| **GROSS INCOME** | **907,432.34** | **7,178.85** | **90.03** | **100.00** |
| EXPENSES: | | | | |
| GRAIN | 60,708.54 | 480.28 | 6.02 | |
| COMPLETE FEED | 100,318.45 | 793.64 | 9.95 | |
| SUPPLEMENT | 41,913.53 | 331.59 | 4.16 | |
| MINERALS & VITAMINS | 5,688.26 | 45.00 | .56 | |
| ROUGHAGE | 97,154.63 | 768.61 | 9.64 | |
| PROCESSING COSTS | 5,644.94 | 44.66 | .56 | |
| **TOTAL FEED COSTS** | **311,428.34** | **2,463.76** | **30.90** | **34.32** |
| BEDDING AND SUPPLIES | 31,595.69 | 249.96 | 3.13 | |
| BREEDING | 11,156.94 | 88.26 | 1.11 | |
| VET. AND MEDICINE | 20,720.03 | 163.92 | 2.06 | |
| MILK HAULING | 30,058.53 | 237.80 | 2.98 | |
| PRODUCER'S FEES | 20,329.64 | 160.83 | 2.02 | |
| UTILITIES | 19,128.54 | 151.33 | 1.90 | |
| FUEL, OIL, LUBE | 13,366.19 | 105.74 | 1.33 | |
| BLDG. & MACH. REPAIRS | 23,516.88 | 186.05 | 2.33 | |
| MISCELLANEOUS | 39,546.51 | 312.86 | 3.92 | |
| **TOTAL OTHER VARIABLE COSTS** | **209,418.95** | **1,656.75** | **20.78** | **23.08** |
| HIRED LABOUR | 37,048.16 | 293.09 | 3.68 | |
| FAMILY LABOUR | 111,981.74 | 885.91 | 11.11 | |
| **TOTAL LABOUR COSTS** | **149,029.89** | **1,179.00** | **14.79** | **16.42** |
| **TOTAL VARIABLE COSTS** | **669,877.19** | **5,299.51** | **66.46** | **73.82** |
| RENT | 1,736.69 | 13.74 | .17 | |
| TAXES AND INSURANCE | 21,442.13 | 169.63 | 2.13 | |
| DEPRECIATION | 89,123.60 | 705.07 | 8.84 | |
| INTEREST ( CAP.DEBT) | 21,797.92 | 172.45 | 2.16 | |
| **TOTAL CAPITAL COSTS** | **134,100.34** | **1,060.89** | **13.31** | **14.78** |
| **TOTAL PRODUCTION COSTS** | **803,977.53** | **6,360.41** | **79.77** | **88.60** |
| CONTRIBUTION MARGIN ($) | 237,555.15 | 1,879.34 | 23.57 | |
| RETURN TO EQUITY ($) | 103,454.81 | 818.45 | 10.26 | 11.40 |
| MILK PRICE | | | 82.15 | |
| INVENTORY ADJUSTMENT | | | 7.89 | |
| RETURN TO EQUITY (%) | | | 9.48 | |
| AVERAGE CAP. DEBT INTEREST RATE (%) | | | 3.89 | |

Northern Alberta
2013 Dairy Cost Study - Business Analysis
19 Participants
Table 2 Statement of Investment

| LAND BUILDINGS & EQUIPMENT | AGE | DEPRECIATION | DAIRY INVESTMENT |
|---|---|---|---|
| DAIRY BUILDINGS | 11.76 | 38,571.66 | **954,713.45** |
| POWER MACHINERY | 9.64 | 15,639.25 | 102,219.17 |
| DAIRY EQUIPMENT | 9.36 | 24,793.65 | 105,957.61 |
| OTHER EQUIPMENT | 9.04 | 10,119.03 | 43,788.26 |
| TOTAL EQUIPMENT | **9.43** | **50,551.93** | **251,965.04** |
| LAND | | | 88,168.29 |
| SUPPLIES | | | 16,522.11 |
| ** SUBTOTAL ** | | **89,123.60** | **1,311,368.88** |

| DAIRY LIVESTOCK | --- BEGIN YEAR --- NUMBER | VALUE | --- END OF YEAR --- NUMBER | VALUE | AVERAGE VALUE |
|---|---|---|---|---|---|
| COWS | 126.53 | 222,440.83 | 131.11 | 230,490.89 | 226,465.86 |
| BRED HEIFERS | 28.63 | 45,810.53 | 31.89 | 51,031.58 | 48,421.05 |
| OPEN HEIFERS | 42.95 | 42,947.37 | 61.05 | 61,052.63 | 52,000.00 |
| HEIFER CALVES | 45.63 | 9,126.32 | 51.47 | 10,294.74 | 9,710.53 |
| BULL CALVES | 24.26 | 2,426.32 | 6.79 | 678.95 | 1,552.63 |
| BULLS | .74 | 1,105.26 | .79 | 1,184.21 | 1,144.74 |
| ** SUBTOTAL ** | **268.74** | **323,856.62** | **283.11** | **354,732.99** | **339,294.80** |

| | |
|---|---|
| **TOTAL DAIRY INVESTMENT** | **1,650,663.69** |
| CAPITAL LOANS | 559,734.84 |
| OPERATOR EQUITY | 1,090,928.85 |
| INVESTMENT PER COW | 13,058.69 |
| DEBT/CAPITAL RATIO | .34 |
| CAPITAL TURNOVER ( YR ) | 1.82 |

| HERD SIZE | Average | Median |
|---|---|---|
| NUMBER OF DAIRY COWS | 126.40 | 88.75 |
| NUMBER OF ANIMAL UNITS | 208.58 | 126.83 |
| DRY COWS ( % ) | 22.69 | |
| CALF CROP ( % ) | 106.05 | |
| PASTURE PER COW ( AC. ) | .53 | |

| CATTLE SALES & PURCHASES | NUMBER SOLD | SELLING PRICE | NUMBER PURCHASED | PURCHASE PRICE |
|---|---|---|---|---|
| COWS | 41.89 | 1,041.91 | 2.89 | 1,592.09 |
| BRED HEIFERS | .53 | 1,280.38 | .37 | 1,714.29 |
| OPEN HEIFERS | 1.32 | 1,157.07 | .26 | 500.00 |
| HEIFER CALVES | .21 | 362.50 | .00 | .00 |
| BULL CALVES | 36.05 | 89.26 | .00 | .00 |
| BULLS | .68 | 1,456.86 | .58 | 2,527.27 |
| TOTAL VALUE | | **50,137.88** | | **6,835.00** |

Northern Alberta
2013 Dairy Cost Study - Business Analysis
19 Participants
Table 3 Labour and Management

| LABOUR | HOURS | VALUE | HOURLY RATE |
|---|---|---|---|
| OPERATOR LABOUR | 3,072.55 | 67,596.16 | 22.00 |
| HIRED LABOUR | 1,760.92 | 37,048.16 | 21.04 |
| FAMILY UNPAID LABOUR | 2,070.76 | 44,385.58 | 21.43 |
| **TOTAL** | **6,904.24** | **149,029.89** | **21.59** |
| RETURN TO FAMILY LABOUR | 18.56 | | |
| MAN EQUIVALENTS | 2.76 | | |
| LABOUR HOURS PER COW | 54.62 | | |
| YEARS FARMING | 24.45 | | |

| MILK PRODUCTION | HL. | % OF TOTAL | VALUE | AVERAGE PRICE / HL |
|---|---|---|---|---|
| MILK SALES | 10,078.93 | 96.38 | 817,830.56 | 81.14 |
| OTHER MILK PRODUCED | 378.56 | 3.62 | | |
| **TOTAL** | **10,457.49** | **100.00** | | |

| | | AVERAGE COMPONENT PRICES ($ / KG) |
|---|---|---|
| BUTTERFAT TEST | 3.96 KG / HL | 11.48 |
| PROTEIN | 3.34 KG / HL | 4.44 |
| L.O.S. | 5.71 KG / HL | 3.82 |
| MILK PRODUCTION PER COW | 8,273.10 LITRES / YEAR | |

| QUOTA INFORMATION | |
|---|---|
| TPQ HOLDINGS | 104.02 KG / DAY |
| TPQ PRICE | 38,816.54 $ / KG / DAY |
| CREDIT PRICE | 11.70 $ / KG |

| MANAGEMENT FACTORS | |
|---|---|
| COST PER HL | 79.77 |
| MILK/FEED (KG) RATIO | 2.00 LITRES |
| MILK/LABOUR (HR) RATIO | 151.46 LITRES |
| MILK/CAPITAL ($) RATIO | .63 LITRES |

## Northern Alberta
## 2013 Dairy Cost Study - Business Analysis
## 19 Participants
## Table 4 Feed Report

| | — PURCHASED — | | --- HOMEGROWN— | |
|---|---|---|---|---|
| CONCENTRATES | QUANTITY (TONNES) | PRICE | QUANTITY (TONNES) | PRICE |
| OATS | .87 | 67.72 | .59 | 193.53 |
| BARLEY | 131.24 | 229.09 | 86.55 | 205.91 |
| WHEAT | .00 | .00 | .00 | .00 |
| MIXED GRAIN | .00 | .00 | .00 | .00 |
| BREW GRAIN (DRY EQ. ) | 12.72 | 195.53 | | |
| BEET PULP | 3.76 | 221.73 | | |
| OTHER PURCHASED | 22.53 | 413.87 | | |
| DAIRY RATION | 169.89 | 557.92 | | |
| CALF FEED | 7.61 | 560.09 | | |
| MILK REPLACER | .39 | 3,253.93 | | |
| SUPPLEMENT | 78.56 | 523.47 | | |
| MOLASSES | 2.80 | 282.00 | | |
| SALT | .70 | 601.44 | | |
| MINERALS & VITAMINS | 4.32 | 1,219.19 | | |
| **SUBTOTAL - - - - - - - - -** | **435.41** | **190,693.98** | **87.14** | **17,934.80** |
| ROUGHAGE | | | | |
| ALFALFA HAY | 139.33 | 111.24 | 109.99 | 99.14 |
| ALFALFA PELLETS | .00 | .00 | | |
| STRAW FED | 4.33 | 62.67 | 2.13 | 40.96 |
| GREENFEED | 2.01 | 22.98 | .00 | .00 |
| SILAGE/HAYLAGE (DRY EQ.) | 305.83 | 129.09 | 344.78 | 89.52 |
| **SUBTOTAL - - - - - - - - -** | **451.51** | **55,296.97** | **456.90** | **41,857.66** |
| GRINDING & PROCESSING | | 5,644.94 | | |
| **GRAND TOTAL FEED COSTS - - - - - - - - -** | | **251,635.88** | | **59,792.46** |
| BEDDING | 127.53 | 75.38 | 108.01 | 41.15 |

| | | |
|---|---|---|
| AV. PRICE: | CONCENTRATE | 399.26 $/TONNE |
| | ROUGHAGE | 106.95 $/TONNE |
| FED PER COW: | CONCENTRATE | 4.13TONNES |
| | ROUGHAGE | 7.19 TONNES |
| % HOME GROWN: | CONCENTRATE | 16.68 % |
| | ROUGHAGE | 50.30 % |

# APPENDIX C

## 2013 Dairy Cost Study

## Southern Alberta

Southern Alberta
2013 Dairy Cost Study - Business Analysis
31 Participants
Table 1 Dairy Enterprise Costs and Returns

| | TOTAL ENTERPRISE | PER COW | PER HL SOLD | PERCENT FROM INCOME |
|---|---|---|---|---|
| INCOME: | | | | |
| MILK SALES | 1,038,884.50 | 7,080.06 | 82.20 | |
| POOL ADJUSTMENTS (+ -) | 12,759.09 | 86.95 | 1.01 | |
| MISCELLANEOUS RECEIPTS | 5,901.23 | 40.22 | .47 | |
| NET CATTLE SALES ( + - ) | 42,479.08 | 289.50 | 3.36 | |
| NET INVENTORY CHANGE ( + - ) | 3,757.00 | 25.60 | .30 | |
| **GROSS INCOME** | **1,103,780.91** | **7,522.33** | **87.33** | **100.00** |
| EXPENSES: | | | | |
| GRAIN | 60,422.06 | 411.78 | 4.78 | |
| COMPLETE FEED | 175,211.87 | 1,194.08 | 13.86 | |
| SUPPLEMENT | 43,163.42 | 294.16 | 3.42 | |
| MINERALS & VITAMINS | 12,513.61 | 85.28 | .99 | |
| ROUGHAGE | 133,206.71 | 907.81 | 10.54 | |
| PROCESSING COSTS | 254.19 | 1.73 | .02 | |
| **TOTAL FEED COSTS** | **424,771.86** | **2,894.85** | **33.61** | **38.48** |
| BEDDING AND SUPPLIES | 32,006.20 | 218.12 | 2.53 | |
| BREEDING | 11,255.78 | 76.71 | .89 | |
| VET. AND MEDICINE | 20,903.59 | 142.46 | 1.65 | |
| MILK HAULING | 36,636.37 | 249.68 | 2.90 | |
| PRODUCER'S FEES | 25,304.81 | 172.45 | 2.00 | |
| UTILITIES | 22,479.18 | 153.20 | 1.78 | |
| FUEL, OIL, LUBE | 20,475.95 | 139.54 | 1.62 | |
| BLDG. & MACH. REPAIRS | 27,168.32 | 185.15 | 2.15 | |
| MISCELLANEOUS | 31,275.57 | 213.14 | 2.47 | |
| **TOTAL OTHER VARIABLE COSTS** | **227,505.76** | **1,550.47** | **18.00** | **20.61** |
| HIRED LABOUR | 40,361.29 | 275.06 | 3.19 | |
| FAMILY LABOUR | 120,564.05 | 821.65 | 9.54 | |
| **TOTAL LABOUR COSTS** | **160,925.34** | **1,096.72** | **12.73** | **14.58** |
| **TOTAL VARIABLE COSTS** | **813,202.96** | **5,542.03** | **64.34** | **73.67** |
| RENT | 1,247.48 | 8.50 | .10 | |
| TAXES AND INSURANCE | 19,405.16 | 132.25 | 1.54 | |
| DEPRECIATION | 117,988.50 | 804.10 | 9.34 | |
| INTEREST ( CAP.DEBT) | 26,623.06 | 181.44 | 2.11 | |
| **TOTAL CAPITAL COSTS** | **165,264.18** | **1,126.29** | **13.08** | **14.97** |
| **TOTAL PRODUCTION COSTS** | **978,467.15** | **6,668.31** | **77.42** | **88.65** |
| CONTRIBUTION MARGIN ($) | 290,577.94 | 1,980.31 | 22.99 | |
| RETURN TO EQUITY ($) | 125,313.76 | 854.02 | 9.91 | 11.35 |
| MILK PRICE | | | 83.21 | |
| INVENTORY ADJUSTMENT | | | 4.13 | |
| RETURN TO EQUITY (%) | | | 7.86 | |
| AVERAGE CAP. DEBT INTEREST RATE (%) | | | 5.06 | |

Southern Alberta
2013 Dairy Cost Study - Business Analysis
31 Participants
Table 2 Statement of Investment

| LAND BUILDINGS & EQUIPMENT | AGE | DEPRECIATION | DAIRY INVESTMENT |
|---|---|---|---|
| DAIRY BUILDINGS | 11.72 | 50,105.76 | 1,239,840.99 |
| POWER MACHINERY | 7.45 | 25,119.40 | 169,691.50 |
| DAIRY EQUIPMENT | 11.70 | 27,654.65 | 107,390.59 |
| OTHER EQUIPMENT | 7.75 | 15,108.68 | 68,608.30 |
| TOTAL EQUIPMENT | 8.83 | 67,882.74 | 345,690.39 |
| LAND | | | 113,994.03 |
| SUPPLIES | | | 13,952.19 |
| ** SUBTOTAL ** | | 117,988.50 | 1,713,477.61 |

| DAIRY LIVESTOCK | --- BEGIN YEAR --- NUMBER | VALUE | --- END OF YEAR --- NUMBER | VALUE | AVERAGE VALUE |
|---|---|---|---|---|---|
| COWS | 146.48 | 267,511.10 | 146.94 | 268,335.84 | 267,923.47 |
| BRED HEIFERS | 45.71 | 73,135.48 | 45.00 | 72,000.00 | 72,567.74 |
| OPEN HEIFERS | 53.74 | 53,741.94 | 58.03 | 58,032.26 | 55,887.10 |
| HEIFER CALVES | 37.42 | 7,483.87 | 35.97 | 7,193.55 | 7,338.71 |
| BULL CALVES | 5.94 | 593.55 | 5.65 | 564.52 | 579.03 |
| BULLS | 2.16 | 3,241.94 | 2.23 | 3,338.71 | 3,290.32 |
| ** SUBTOTAL ** | 291.45 | 405,707.87 | 293.81 | 409,464.87 | 407,586.37 |

| | |
|---|---|
| TOTAL DAIRY INVESTMENT | 2,121,063.98 |
| CAPITAL LOANS | 525,863.45 |
| OPERATOR EQUITY | 1,595,200.52 |
| INVESTMENT PER COW | 14,455.18 |
| DEBT/CAPITAL RATIO | .25 |
| CAPITAL TURNOVER ( YR ) | 1.92 |

| HERD SIZE | Average | Median |
|---|---|---|
| NUMBER OF DAIRY COWS | 146.73 | 126.58 |
| NUMBER OF ANIMAL UNITS | 231.52 | 218.00 |
| DRY COWS ( % ) | 19.81 | |
| CALF CROP ( % ) | 104.07 | |
| PASTURE PER COW ( AC. ) | .24 | |

| CATTLE SALES & PURCHASES | NUMBER SOLD | SELLING PRICE | NUMBER PURCHASED | PURCHASE PRICE |
|---|---|---|---|---|
| COWS | 47.90 | 881.59 | 1.52 | 1,804.77 |
| BRED HEIFERS | 1.10 | 1,068.93 | .42 | 1,561.54 |
| OPEN HEIFERS | .71 | 822.72 | .35 | 550.00 |
| HEIFER CALVES | .13 | 91.25 | .00 | .00 |
| BULL CALVES | 38.39 | 88.45 | .00 | .00 |
| BULLS | 1.26 | 1,439.30 | 1.10 | 2,862.82 |
| TOTAL VALUE | | 49,205.21 | | 6,726.13 |

Southern Alberta
2013 Dairy Cost Study - Business Analysis
31 Participants
Table 3 Labour and Management

| LABOUR | HOURS | VALUE | HOURLY RATE |
|---|---|---|---|
| OPERATOR LABOUR | 2,959.15 | 65,101.19 | 22.00 |
| HIRED LABOUR | 1,788.25 | 40,361.29 | 22.57 |
| FAMILY UNPAID LABOUR | 2,558.39 | 55,462.85 | 21.68 |
| **TOTAL** | **7,305.78** | **160,925.34** | **22.03** |
| RETURN TO FAMILY LABOUR | 12.76 | | |
| MAN EQUIVALENTS | 2.92 | | |
| LABOUR HOURS PER COW | 49.79 | | |
| YEARS FARMING | 23.18 | | |

| MILK PRODUCTION | HL. | % OF TOTAL | VALUE | AVERAGE PRICE / HL |
|---|---|---|---|---|
| MILK SALES | 12,638.88 | 96.19 | 1,038,884.50 | 82.20 |
| OTHER MILK PRODUCED | 500.63 | 3.81 | | |
| **TOTAL** | **13,139.51** | **100.00** | | |

| | | AVERAGE COMPONENT PRICES ($ / KG) |
|---|---|---|
| BUTTERFAT TEST | 3.94 KG / HL | 11.47 |
| PROTEIN | 3.29 KG / HL | 4.57 |
| L.O.S. | 5.71 KG / HL | 3.90 |
| MILK PRODUCTION PER COW | 8,954.65 LITRES / YEAR | |

| QUOTA INFORMATION | |
|---|---|
| TPQ HOLDINGS | 129.78 KG / DAY |
| TPQ PRICE | 38,782.87 $ / KG / DAY |
| CREDIT PRICE | 11.01 $ / KG |

| MANAGEMENT FACTORS | |
|---|---|
| COST PER HL | 77.42 |
| MILK/FEED (KG) RATIO | 2.07 LITRES |
| MILK/LABOUR (HR) RATIO | 179.85 LITRES |
| MILK/CAPITAL ($) RATIO | .62 LITRES |

Southern Alberta
2013 Dairy Cost Study - Business Analysis
31 Participants
Table 4 Feed Report

| | — PURCHASED — | | — HOMEGROWN— | |
|---|---|---|---|---|
| **CONCENTRATES** | QUANTITY (TONNES) | PRICE | QUANTITY (TONNES) | PRICE |
| OATS | .36 | 200.95 | 9.86 | 216.03 |
| BARLEY | 9.09 | 285.33 | 143.39 | 233.60 |
| WHEAT | .00 | .00 | 5.90 | 278.77 |
| MIXED GRAIN | .00 | .00 | .00 | .00 |
| BREW GRAIN (DRY EQ. ) | 12.63 | 180.74 | | |
| BEET PULP | 10.40 | 115.09 | | |
| OTHER PURCHASED | 44.40 | 382.96 | | |
| DAIRY RATION | 285.02 | 554.86 | | |
| CALF FEED | 26.42 | 519.66 | | |
| MILK REPLACER | 1.05 | 3,181.31 | | |
| SUPPLEMENT | 66.08 | 625.23 | | |
| MOLASSES | 6.73 | 274.40 | | |
| SALT | .70 | 422.72 | | |
| MINERALS & VITAMINS | 11.85 | 1,031.50 | | |
| **SUBTOTAL - - - - - - - - -** | **474.72** | **254,037.56** | **159.16** | **37,273.40** |
| **ROUGHAGE** | | | | |
| ALFALFA HAY | 152.80 | 127.42 | 199.14 | 140.32 |
| ALFALFA PELLETS | .00 | .00 | | |
| STRAW FED | 1.59 | 43.61 | 32.92 | 49.92 |
| GREENFEED | .00 | .00 | 15.73 | 98.44 |
| SILAGE/HAYLAGE (DRY EQ.) | 58.60 | 108.21 | 601.85 | 126.60 |
| **SUBTOTAL - - - - - - - - -** | **212.98** | **25,879.61** | **849.65** | **107,327.10** |
| GRINDING & PROCESSING | | 254.19 | | |
| **GRAND TOTAL FEED COSTS - - - - - - - - -** | | **280,171.36** | | **144,600.50** |
| BEDDING | 124.53 | 49.46 | 71.10 | 50.01 |

| | | |
|---|---|---|
| AV. PRICE: | CONCENTRATE | 459.56 $/TONNE |
| | ROUGHAGE | 125.36 $/TONNE |
| FED PER COW: | CONCENTRATE | 4.32TONNES |
| | ROUGHAGE | 7.24 TONNES |
| % HOME GROWN: | CONCENTRATE | 25.11 % |
| | ROUGHAGE | 79.96 % |

# APPENDIX D

## Dairy Cost Study

## Alberta 5 Year Average

## (2009 - 2013)

## Alberta Dairy Cost Study
## Business Analysis (2009 - 2013)
## Average 51 Participants
## Table 1 Dairy Enterprise Costs and Returns

| | TOTAL ENTERPRISE | PER COW | PER HL SOLD | PERCENT FROM INCOME |
|---|---|---|---|---|
| **INCOME:** | | | | |
| MILK SALES | 908,996.86 | 6,801.00 | 78.42 | |
| POOL ADJUSTMENTS (+ -) | 3,226.56 | 23.78 | .28 | |
| MISCELLANEOUS RECEIPTS | 6,515.41 | 48.87 | .56 | |
| NET CATTLE SALES ( + - ) | 28,472.30 | 211.84 | 2.45 | |
| NET INVENTORY CHANGE ( + - ) | 11,422.81 | 85.26 | .99 | |
| **GROSS INCOME** | **958,633.93** | **7,170.74** | **82.70** | **100.00** |
| **EXPENSES:** | | | | |
| GRAIN | 46,401.02 | 345.93 | 4.00 | |
| COMPLETE FEED | 123,690.03 | 923.12 | 10.67 | |
| SUPPLEMENT | 39,030.02 | 291.95 | 3.37 | |
| MINERALS & VITAMINS | 7,400.08 | 55.16 | .64 | |
| ROUGHAGE | 112,975.08 | 845.41 | 9.75 | |
| PROCESSING COSTS | 2,298.32 | 17.21 | .20 | |
| **TOTAL FEED COSTS** | **331,794.54** | **2,478.78** | **28.62** | **34.55** |
| BEDDING AND SUPPLIES | 29,267.41 | 218.91 | 2.52 | |
| BREEDING | 10,752.70 | 80.47 | .93 | |
| VET. AND MEDICINE | 19,969.29 | 149.44 | 1.72 | |
| MILK HAULING | 31,896.80 | 238.55 | 2.75 | |
| PRODUCER'S FEES | 21,742.33 | 162.61 | 1.88 | |
| UTILITIES | 19,132.15 | 143.03 | 1.65 | |
| FUEL, OIL, LUBE | 14,405.67 | 107.51 | 1.24 | |
| BLDG. & MACH. REPAIRS | 27,135.49 | 203.35 | 2.34 | |
| MISCELLANEOUS | 35,175.23 | 263.46 | 3.04 | |
| **TOTAL OTHER VARIABLE COSTS** | **209,477.06** | **1,567.33** | **18.07** | **21.86** |
| HIRED LABOUR | 39,813.92 | 298.29 | 3.44 | |
| FAMILY LABOUR | 100,369.44 | 749.80 | 8.66 | |
| **TOTAL LABOUR COSTS** | **140,183.36** | **1,048.08** | **12.09** | **14.61** |
| **TOTAL VARIABLE COSTS** | **681,454.97** | **5,094.19** | **58.78** | **71.02** |
| RENT | 1,476.13 | 11.05 | .13 | |
| TAXES AND INSURANCE | 18,925.35 | 141.70 | 1.63 | |
| DEPRECIATION | 97,126.27 | 726.52 | 8.38 | |
| INTEREST ( CAP.DEBT) | 27,672.61 | 207.48 | 2.39 | |
| **TOTAL CAPITAL COSTS** | **145,200.36** | **1,086.75** | **12.53** | **15.17** |
| **TOTAL PRODUCTION COSTS** | **826,655.33** | **6,180.94** | **71.31** | **86.18** |
| CONTRIBUTION MARGIN ($) | 277,178.97 | 2,076.56 | 23.91 | |
| RETURN TO EQUITY ($) | 131,978.61 | 989.81 | 11.39 | 13.82 |
| MILK PRICE | | | 78.69 | |
| INVENTORY ADJUSTMENT | | | 4.00 | |
| RETURN TO EQUITY (%) | | | 11.77 | |
| AVERAGE CAP. DEBT INTEREST RATE (%) | | | 4.81 | |

## Alberta Dairy Cost Study
## Business Analysis (2009 - 2013)
## Average 51 Participants
## Table 2 Statement of Investment

| LAND BUILDINGS & EQUIPMENT | AGE | DEPRECIATION | DAIRY INVESTMENT |
|---|---|---|---|
| DAIRY BUILDINGS | 11.07 | 39,532.19 | 973,218.15 |
| POWER MACHINERY | 7.68 | 19,472.16 | 131,039.58 |
| DAIRY EQUIPMENT | 9.81 | 25,640.30 | 107,742.91 |
| OTHER EQUIPMENT | 7.62 | 12,481.61 | 56,931.99 |
| **TOTAL EQUIPMENT** | **8.40** | **57,594.08** | **295,714.47** |
| LAND | | | 77,028.53 |
| SUPPLIES | | | 15,291.67 |
| ** SUBTOTAL ** | | 97,126.27 | 1,361,252.82 |

| DAIRY LIVESTOCK | --- BEGIN YEAR --- NUMBER | VALUE | --- END OF YEAR --- NUMBER | VALUE | AVERAGE VALUE |
|---|---|---|---|---|---|
| COWS | 133.90 | 245,795.53 | 136.20 | 250,055.64 | 247,925.59 |
| BRED HEIFERS | 36.47 | 58,350.63 | 38.14 | 250,055.64 | 59,686.42 |
| OPEN HEIFERS | 39.29 | 39,287.42 | 43.46 | 250,055.64 | 41,371.66 |
| HEIFER CALVES | 39.78 | 7,955.25 | 42.34 | 250,055.64 | 8,211.92 |
| BULL CALVES | 7.73 | 445.85 | 5.94 | 250,055.64 | 367.77 |
| BULLS | 1.37 | 2,051.95 | 1.34 | 250,055.64 | 2,034.69 |
| ** SUBTOTAL ** | 258.53 | 353,886.64 | 267.42 | 250,055.64 | 359,598.04 |

| | |
|---|---|
| TOTAL DAIRY INVESTMENT | 1,720,850.86 |
| CAPITAL LOANS | 574,352.31 |
| OPERATOR EQUITY | 1,146,498.55 |
| INVESTMENT PER COW | 12,866.74 |
| DEBT/CAPITAL RATIO | .34 |
| CAPITAL TURNOVER ( YR ) | 1.79 |

| HERD SIZE | Average | Median |
|---|---|---|
| NUMBER OF DAIRY COWS | 133.64 | 113.71 |
| NUMBER OF ANIMAL UNITS | 205.47 | 171.26 |
| DRY COWS ( % ) | 17.66 | |
| CALF CROP ( % ) | 100.20 | |
| PASTURE PER COW ( AC. ) | .23 | |

| CATTLE SALES & PURCHASES | NUMBER SOLD | SELLING PRICE | NUMBER PURCHASED | PURCHASE PRICE |
|---|---|---|---|---|
| COWS | 37.72 | 798.95 | 2.60 | 1,915.07 |
| BRED HEIFERS | 1.12 | 1,363.17 | .66 | 2,003.49 |
| OPEN HEIFERS | .54 | 940.96 | .19 | 1,392.96 |
| HEIFER CALVES | .70 | 226.09 | .09 | 215.02 |
| BULL CALVES | 38.86 | 72.40 | .00 | .00 |
| BULLS | .93 | 1,534.44 | .81 | 2,439.95 |
| TOTAL VALUE | | 36,858.86 | | 8,386.56 |

Alberta Dairy Cost Study
Business Analysis (2009 - 2013)
Average 51 Participants
Table 3 Labour and Management

LABOUR

| | HOURS | VALUE | HOURLY RATE |
|---|---|---|---|
| OPERATOR LABOUR | 2,951.27 | 61,112.90 | 20.70 |
| HIRED LABOUR | 1,942.15 | 39,813.92 | 20.56 |
| FAMILY UNPAID LABOUR | 1,938.44 | 39,256.54 | 20.12 |
| **TOTAL** | **6,831.86** | **140,183.36** | **20.50** |

| | |
|---|---|
| RETURN TO FAMILY LABOUR | 22.05 |
| MAN EQUIVALENTS | 2.73 |
| LABOUR HOURS PER COW | 51.12 |
| YEARS FARMING | 21.58 |

MILK PRODUCTION

| | HL. | % OF TOTAL | VALUE | AVERAGE PRICE / HL |
|---|---|---|---|---|
| MILK SALES | 11,591.26 | 96.74 | 908,996.86 | 78.42 |
| OTHER MILK PRODUCED | 390.01 | 3.25 | | |
| **TOTAL** | **11,981.51** | **100.00** | | |

| | | AVERAGE COMPONENT PRICES ($ / KG) |
|---|---|---|
| BUTTERFAT TEST | 3.88 KG / HL | 11.53 |
| PROTEIN | 3.29 KG / HL | 3.96 |
| L.O.S. | 5.68 KG / HL | 3.67 |

MILK PRODUCTION PER COW 8,968.94 LITRES / YEAR

QUOTA INFORMATION

| | |
|---|---|
| TPQ HOLDINGS | 118.81 KG / DAY |
| TPQ PRICE | 35,858.27 $ / KG / DAY |
| CREDIT PRICE | 8.79 $ / KG |

MANAGEMENT FACTORS

| | |
|---|---|
| COST PER HL | 71.31 |
| MILK/FEED (KG) RATIO | 2.15 LITRES |
| MILK/LABOUR (HR) RATIO | 175.48 LITRES |
| MILK/CAPITAL ($) RATIO | .70 LITRES |

Alberta Dairy Cost Study
Business Analysis (2009 - 2013)
Average 51 Participants
Table 4 Feed Report

| | — PURCHASED — | | — HOMEGROWN— | |
|---|---|---|---|---|
| **CONCENTRATES** | QUANTITY (TONNES) | PRICE | QUANTITY (TONNES) | PRICE |
| OATS | 2.24 | 180.75 | 2.35 | 178.87 |
| BARLEY | 63.30 | 190.79 | 86.87 | 190.13 |
| WHEAT | 1.33 | 81.86 | 2.29 | 146.83 |
| MIXED GRAIN | .07 | 57.60 | .00 | .00 |
| BREW GRAIN (DRY EQ. ) | 9.17 | 183.20 | | |
| BEET PULP | 3.60 | 209.96 | | |
| OTHER PURCHASED | 48.53 | 285.07 | | |
| DAIRY RATION | 233.06 | 479.31 | | |
| CALF FEED | 20.25 | 453.84 | | |
| MILK REPLACER | .64 | 3,123.82 | | |
| SUPPLEMENT | 74.89 | 518.50 | | |
| MOLASSES | 1.51 | 264.95 | | |
| SALT | .63 | 520.32 | | |
| MINERALS & VITAMINS | 6.80 | 1,053.88 | | |
| **SUBTOTAL ---------** | **466.03** | **198,337.32** | **91.51** | **18,183.83** |
| **ROUGHAGE** | | | | |
| ALFALFA HAY | 133.98 | 132.16 | 136.00 | 121.48 |
| ALFALFA PELLETS | .01 | 55.00 | | |
| STRAW FED | 7.26 | 55.85 | 16.99 | 49.18 |
| GREENFEED | .15 | 4.60 | 3.93 | 87.69 |
| SILAGE/HAYLAGE (DRY EQ.) | 197.46 | 120.21 | 480.38 | 111.51 |
| **SUBTOTAL ---------** | **338.85** | **41,723.26** | **637.30** | **71,251.82** |
| GRINDING & PROCESSING | | 2,298.32 | | |
| **GRAND TOTAL FEED COSTS ---------** | | **242,358.90** | | **89,435.65** |
| BEDDING | 138.86 | 59.62 | 66.99 | 47.02 |

| | | |
|---|---|---|
| AV. PRICE: | CONCENTRATE | 386.83 $/TONNE |
| | ROUGHAGE | 115.73 $/TONNE |
| FED PER COW: | CONCENTRATE | 4.17TONNES |
| | ROUGHAGE | 7.30 TONNES |
| % HOME GROWN: | CONCENTRATE | 16.24 % |
| | ROUGHAGE | 65.21 % |

# APPENDIX E

## 2013 Dairy Cost Study

## Individual Results

## (50 Participants)

# Dairy Cost Study 2013

## Individual Results (50 Participants)

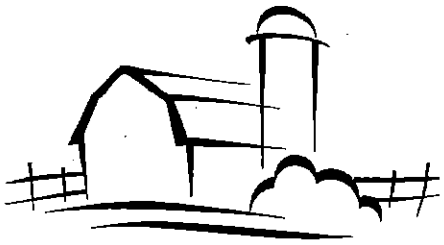
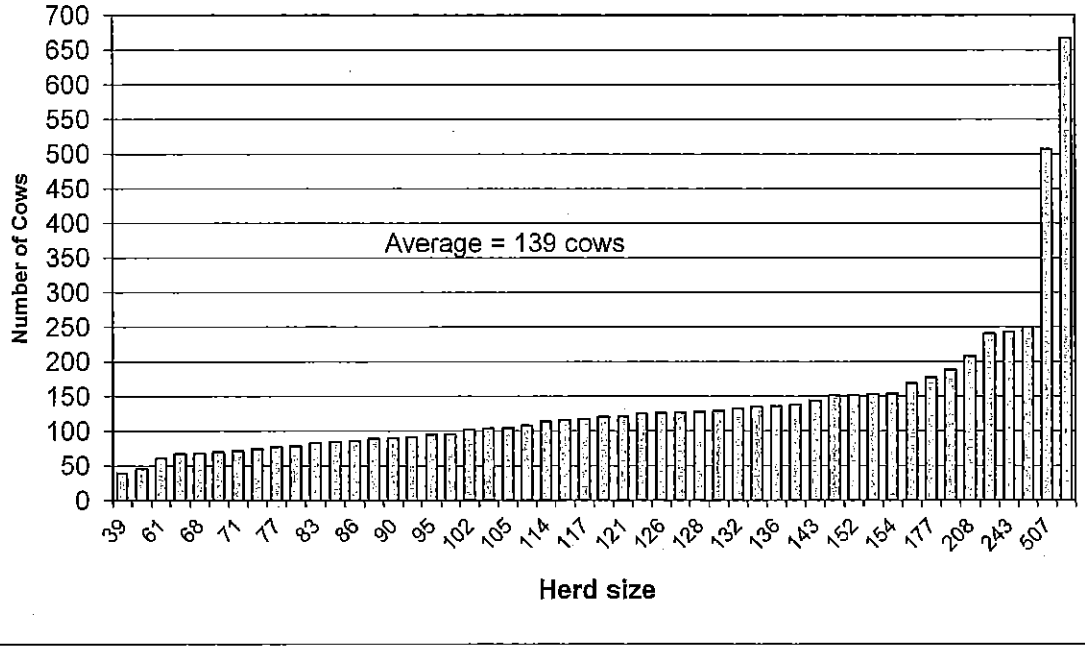


**Figure 1 - Herd Size**



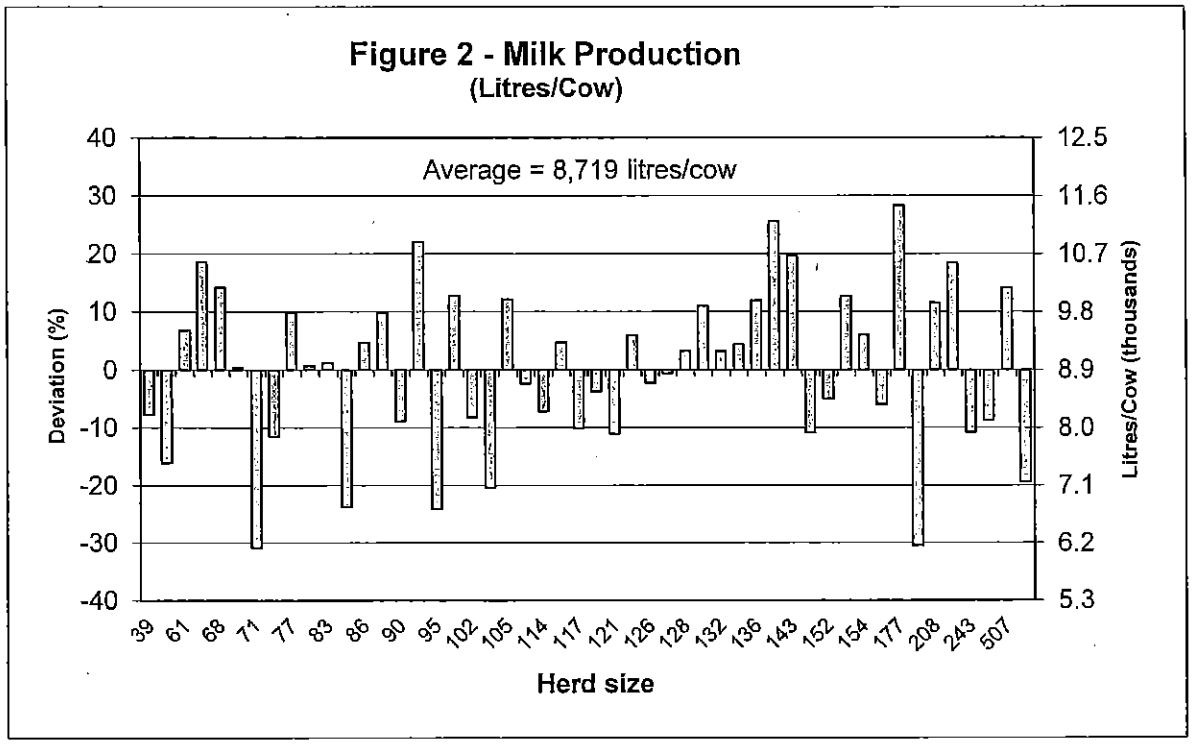


Figure 2 - Milk Production
(Litres/Cow)
Average = 8,719 litres/cow
Deviation (%)
Litres/Cow (thousands)
40
30
20
10
0
-10
-20
-30
-40
12.5
11.6
10.7
9.8
8.9
8.0
7.1
6.2
5.3
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507
Herd size

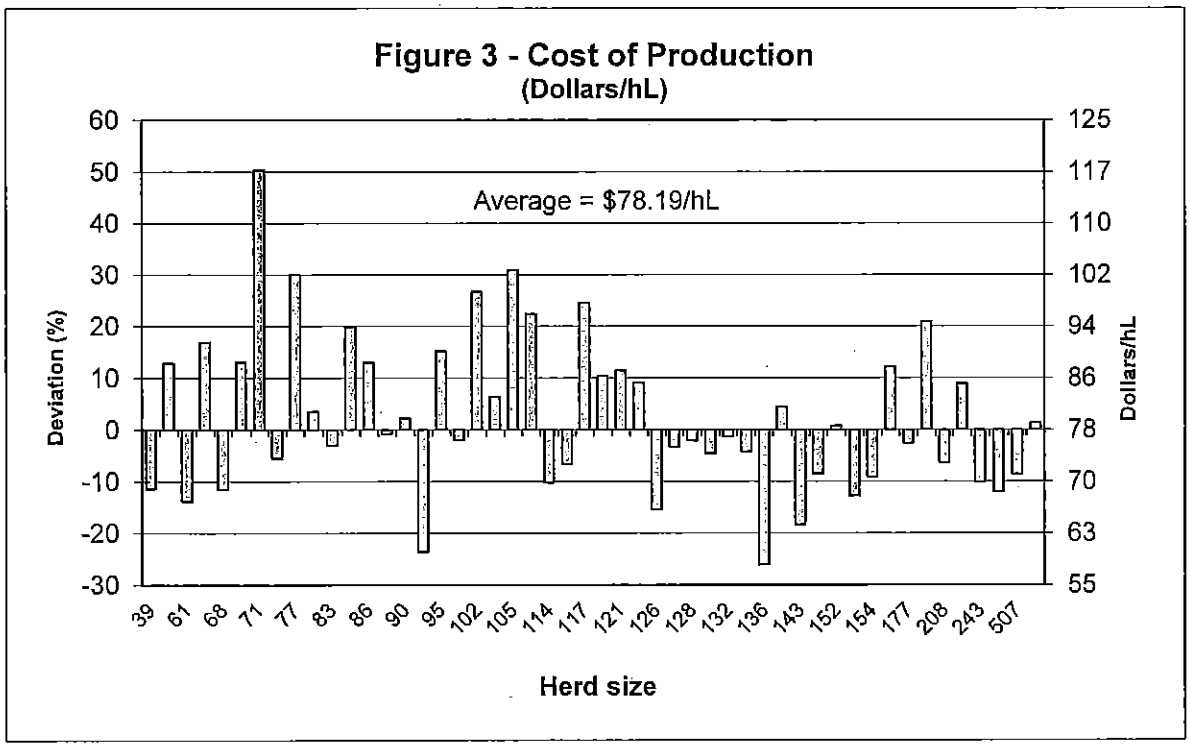


Figure 3 - Cost of Production
(Dollars/hL)
Average = $78.19/hL
Deviation (%)
Dollars/hL
60
50
40
30
20
10
0
-10
-20
-30
125
117
110
102
94
86
78
70
63
55
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507
Herd size

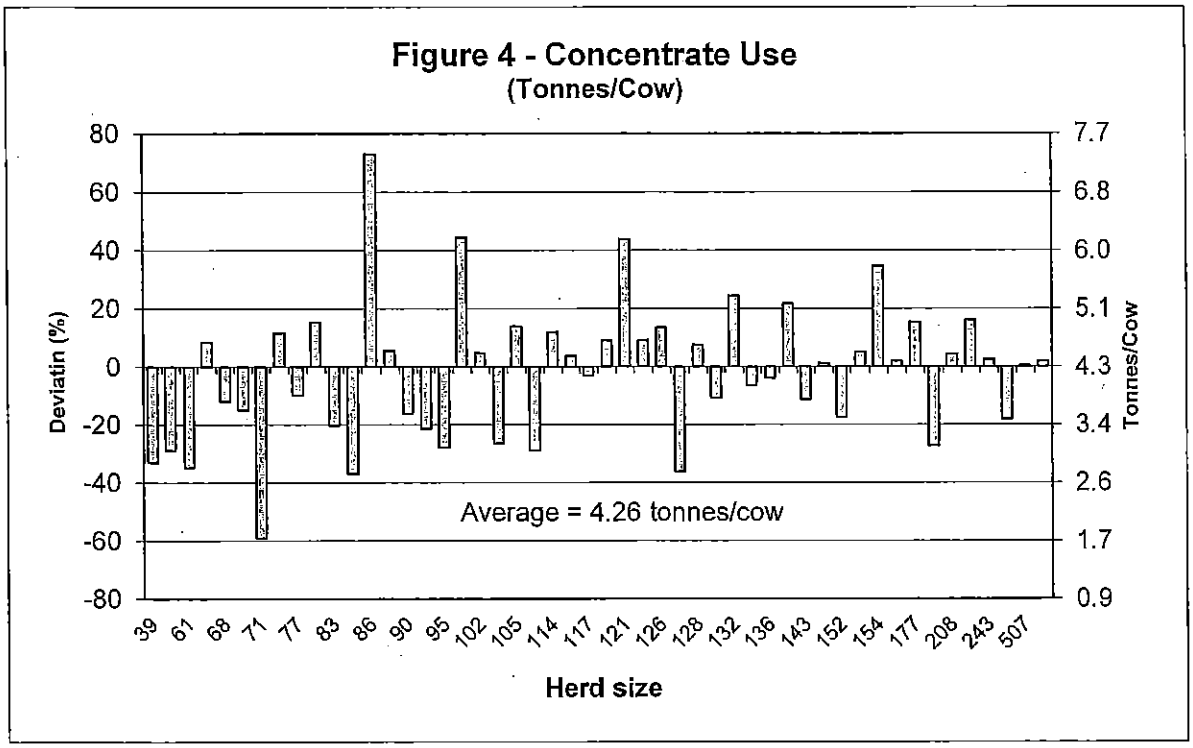


Figure 4 - Concentrate Use
(Tonnes/Cow)
Deviatin (%)
Tonnes/Cow
Average = 4.26 tonnes/cow
Herd size
80
60
40
20
0
-20
-40
-60
-80
7.7
6.8
6.0
5.1
4.3
3.4
2.6
1.7
0.9
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507

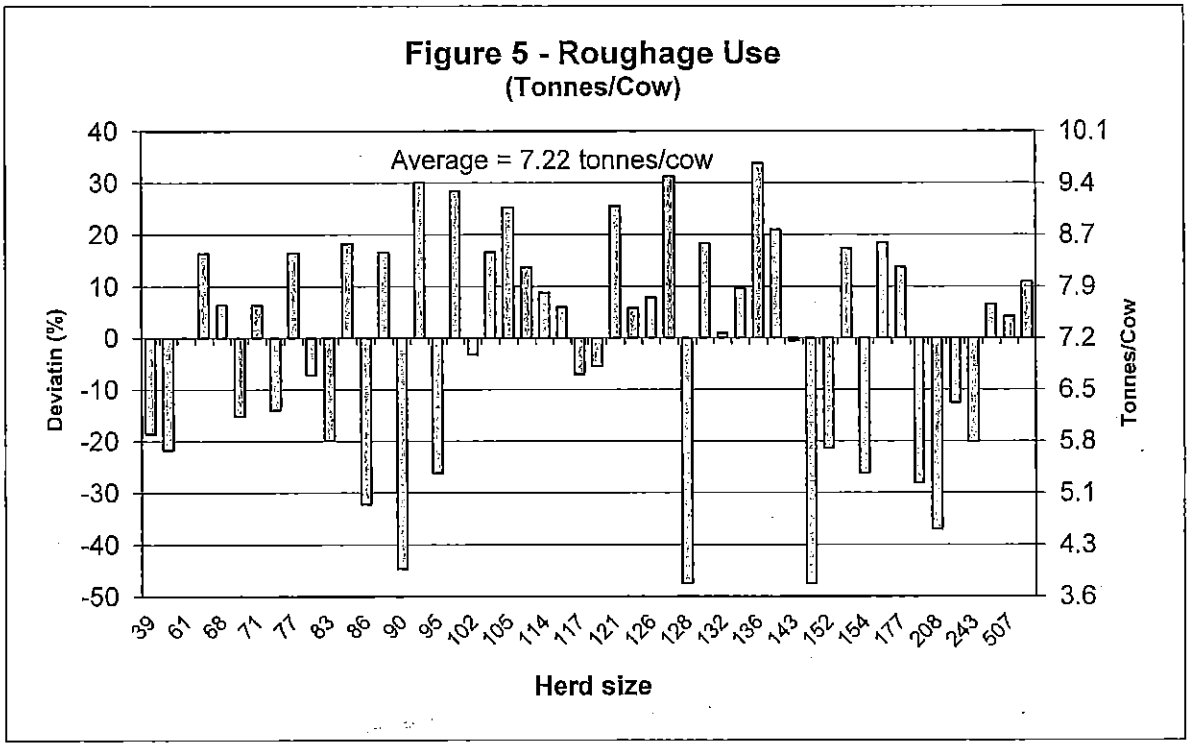


Figure 5 - Roughage Use
(Tonnes/Cow)
Deviatin (%)
Tonnes/Cow
Average = 7.22 tonnes/cow
Herd size
40
30
20
10
0
-10
-20
-30
-40
-50
10.1
9.4
8.7
7.9
7.2
6.5
5.8
5.1
4.3
3.6
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507

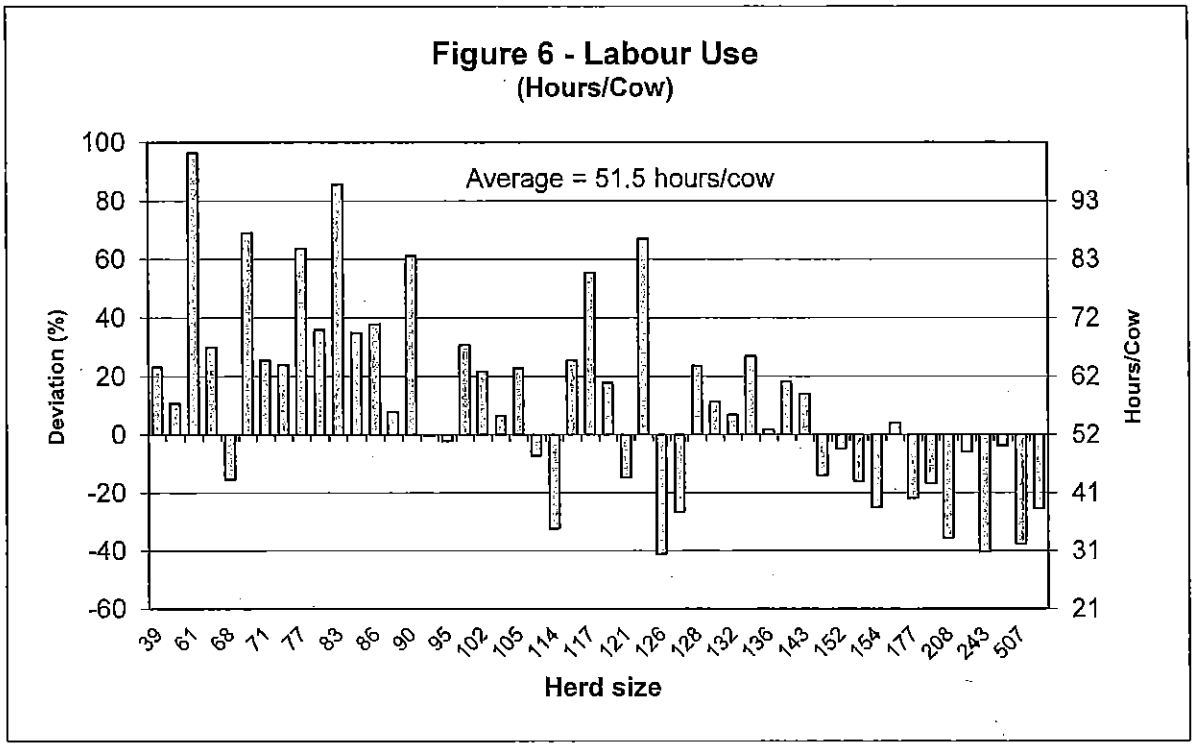


Figure 6 - Labour Use
(Hours/Cow)
Average = 51.5 hours/cow
Deviation (%)
Hours/Cow
100
80
60
40
20
0
-20
-40
-60
93
83
72
62
52
41
31
21
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507
Herd size

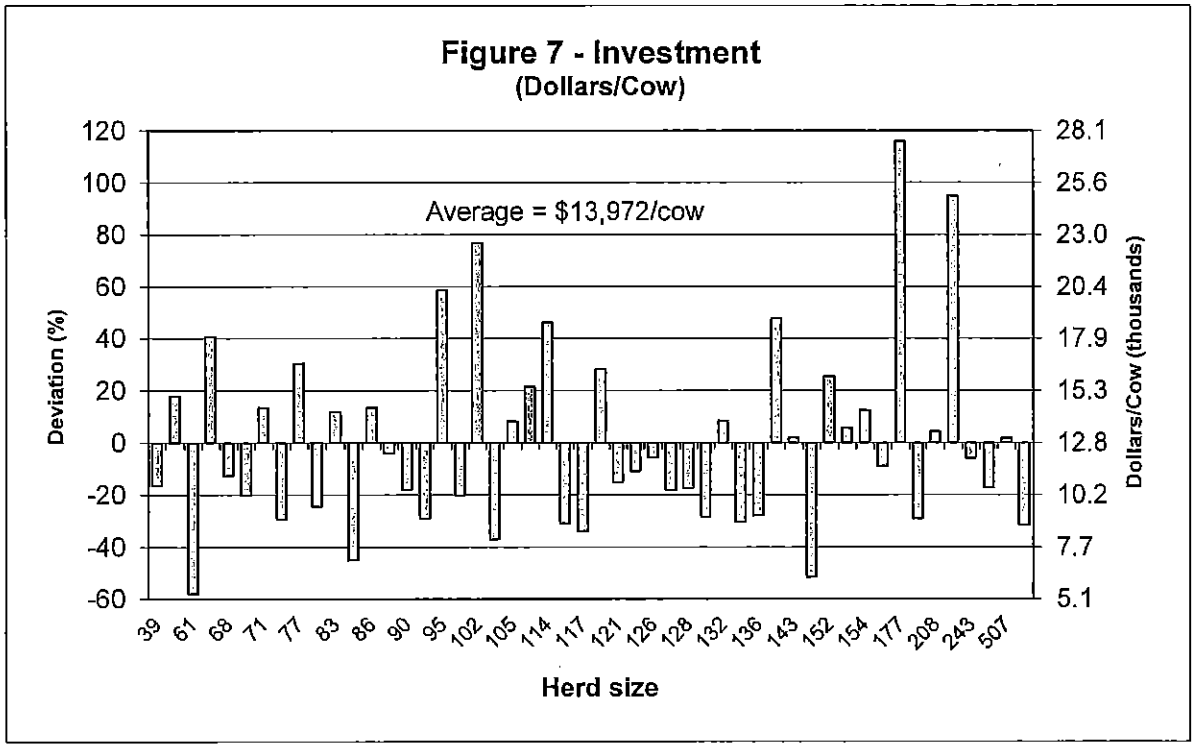


Figure 7 - Investment
(Dollars/Cow)
Average = $13,972/cow
Deviation (%)
Dollars/Cow (thousands)
120
100
80
60
40
20
0
-20
-40
-60
28.1
25.6
23.0
20.4
17.9
15.3
12.8
10.2
7.7
5.1
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507
Herd size

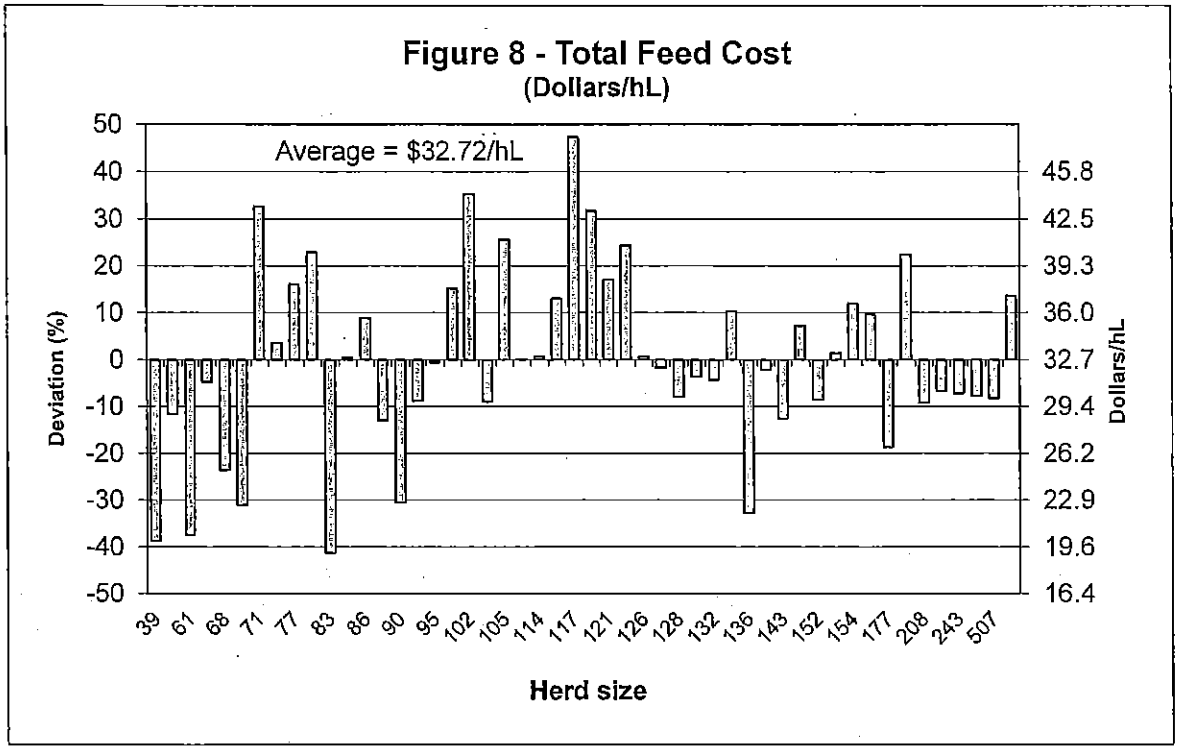


Figure 8 - Total Feed Cost
(Dollars/hL)
Average = $32.72/hL
Deviation (%)
Dollars/hL
50
40
30
20
10
0
-10
-20
-30
-40
-50
45.8
42.5
39.3
36.0
32.7
29.4
26.2
22.9
19.6
16.4
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507
Herd size

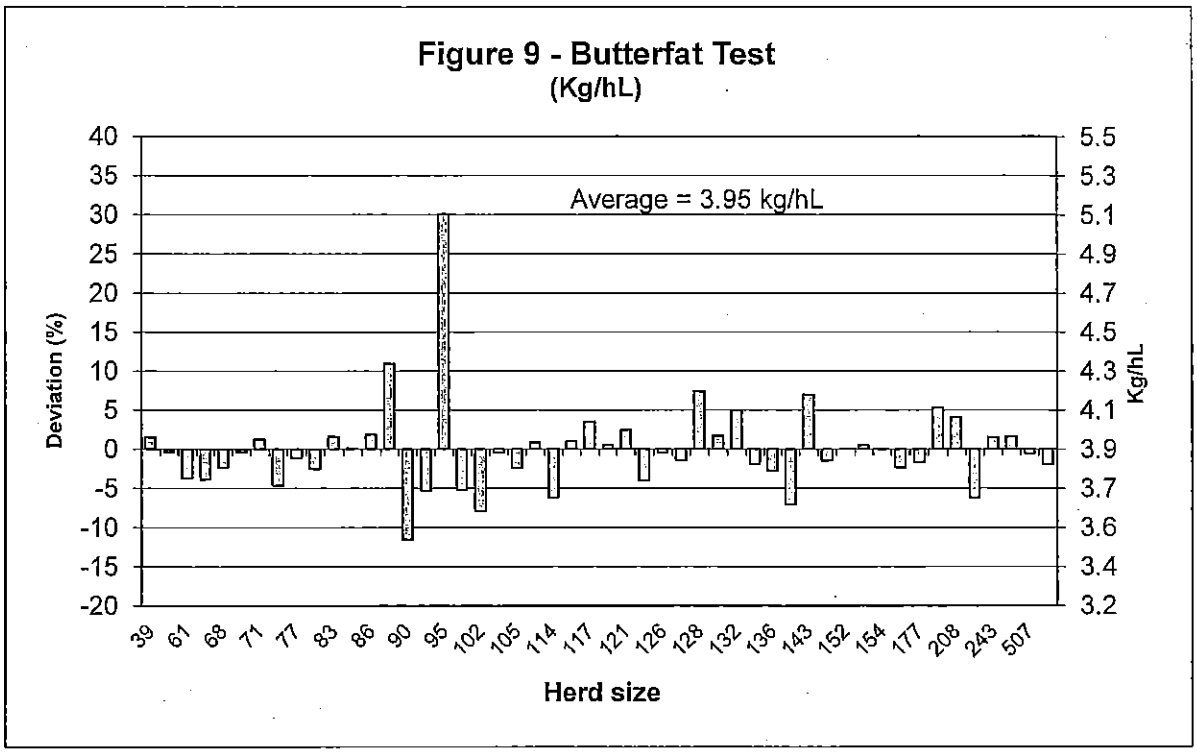


Figure 9 - Butterfat Test
(Kg/hL)
Average = 3.95 kg/hL
Deviation (%)
Kg/hL
40
35
30
25
20
15
10
5
0
-5
-10
-15
-20
5.5
5.3
5.1
4.9
4.7
4.5
4.3
4.1
3.9
3.7
3.6
3.4
3.2
39 61 68 71 77 83 86 90 95 102 105 114 117 121 126 128 132 136 143 152 154 177 208 243 507
Herd size

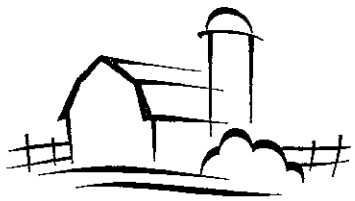
# APPENDIX F

## 2013 Dairy Cost Study

## Data Collection Forms

# DAIRY COST STUDY, 2013

## Investments and Liabilities



**Confidential**

### General Information

| | | | |
|---|---|---|---|
| Name: | | TPQ Holdings kg/day: (January 2013) | |
| E-Mail: | | Number of Years in Dairy | |
| Fax: | | | |

### Land Information

| | Total Acres | $ per Acre | % to Dairy | % to Other Farm |
|---|---|---|---|---|
| Building Site | | | | |
| Pasture | | | | |
| Crop / Hay Land | | | | |

### Farm Loans

| | | Balance: Jan. 1, 2013 | Interest Rate | % to Dairy | % to Other Farm |
|---|---|---|---|---|---|
| 1 | Land: | | | | |
| 1 | | | | | |
| 2 | Building: | | | | |
| 2 | | | | | |
| 3 | Livestock: | | | | |
| 3 | | | | | |
| 4 | Machinery: | | | | |
| 4 | | | | | |
| 5 | Other: | | | | |

### Supplies Inventory

| | | Value: Jan. 1, 2013 | % to Dairy | % to Other Farm |
|---|---|---|---|---|
| 1 | Gas, Oil & Grease | | | |
| 2 | Vet., Semen, Etc | | | |
| 3 | Bedding | | | |
| 4 | Dairy Livestock Supplies (ie. pails) | | | |
| 5 | Rations & Supplements | | | |
| 6 | Other Supplies (ie. filters, soaps, etc.) | | | |

If you have any questions, please call Pauline Van Biert at 780-415-2153, toll free by first dialing 310-0000

# DAIRY COST STUDY, 2013

**Machinery and Buildings on Jan.1, 2013** Name: _____

| Buildings Used for Dairy: | | Purchased Price | Year Purchased | % to Dairy | % to Other Farm |
|---|---|---|---|---|---|
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |
| 1 | | | | | |

Examples: barns, machine shed, hay sheds, bunkers, shop, calf hutches, corrals

**Tractors & Trucks Used for Dairy:**

| | | | | | |
|---|---|---|---|---|---|
| 2 | | | | | |
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| 2 | | | | | |

**Dairy Equipment:**

| | | | | | |
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| 3 | | | | | |
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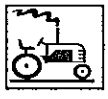
| 3 | | | | | |

Examples: bulk tank, pipeline, milk meters, washer, vacuum pump, generator, buckets






see over

| | Other Equipment Used for Dairy: | Purchased Price | Year Purchased | % to Dairy | % to Other Farm |
|---|---|---|---|---|---|
| 4 | | | | | |
| 4 | | | | | |
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| 4 | | | | | |

Examples: manure spreader, barn cleaner, manure pump, cattle trailer, quad, bale feeders, silo unloader, scraper, feed mixers, sawdust blowers, semen tank, fencers, fans, crowd gate, small tools (table saw, drill press, welder, power tools), fuel tanks, wheel barrows, computer feeding system, home computer

# DAIRY COST STUDY, 2013

## Monthly Reporting Sheet

**Confidential**

**Name:** _____

**Month:** _____

If you have any questions, please call Pauline Van Biert at 780-415-2153, toll free by first dialing 310-0000

## Dairy Herd

| | | Beginning No. | Purchases No. | Purchases Total Value | No. Born | Died or Trans/Out | Sales No. | Sales Total Value | End No. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Milking Cows | | | | | | | | |
| 2 | Dry Cows | | | | | | | | |
| 3 | Bred Heifers | | | | | | | | |
| 4 | Open Heifers | | | | | | | | |
| 5 | Heifer Calves | | | | | | | | |
| 6 | Bull Calves* | | | | | | | | |
| 7 | Herd Bulls | | | | | | | | |

***less than 6 months**

## Capital Purchases

| | | | Specify | Total Value ($) | % to Dairy | % to Other Farm |
|---|---|---|---|---|---|---|
| 1 | Equipment | *Purchases:* | | | | |
| 2 | | *Sales:* | | | | |
| 3 | Tractor/Truck | *Purchases:* | | | | |
| 4 | | *Sales:* | | | | |
| 5 | Buildings | *Purchases/Const:* | | | | |
| 6 | | *Sales:* | | | | |
| 13 | TPQ | *Purchased:* | (kgs/day) | | | |
| 14 | | *Sold:* | (kgs/day) | | | |
| 16 | Credit Transfers | | ($/kg) | | | |

## Milk Produced / Sold *

| | | Litres | Total $ Value |
|---|---|---|---|
| 2 | Milk Fed To Livestock | | |
| 3 | Milk Used in the Home | | |
| 4 | Unuseable Milk (dumped) | | |
| 5 | Miscellaneous Dairy Income (i.e. colostrum sales, BSE program pmts.) | | |
| | | | |

*** All Plant Sales will be recorded from Milk Statement provided by Alberta Milk**

| FEED Used by Dairy Herd | | Office Use | Unit Type* | Bale Weight | Amount Used | Unit Price (if purchased) | Cd | | Office Use | Unit Type * | Amount Used | Unit Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Barley | | | | | | 21 | Dairy Ration | | | | |
| 2 | Oats | | | | | | 22 | Supplement | | | | |
| 3 | Wheat | | | | | | 23 | Brew Grain | | | | |
| 5 | Hay (homegrown) | | | | | | 24 | Beet Pulp | | | | |
| 6 | Hay (purchased) | | | | | | 25 | Alfalfa Pellets | | | | |
| 7 | Silage | | | | | | 26 | Calf Feed | | | | |
| 8 | Haylage | | | | | | 27 | Milk Replacer | | | | |
| 9 | Greenfeed | | | | | | 28 | Salt | | | | |
| 10 | Straw - Fed | | | | | | 29 | Min. & Vit. | | | | |
| 11 | Straw-Bedding | | | | | | | | | | | |
| 11 | Sawdust | | | | | | | | | | | |
| 12 | Other: | | | | | | 31 | Grinding & Processing | | | | |

* T = Imperial Ton, t = Metric tonne, bu = bushels, kg = kilograms,
ba = bales (please provide bale weight), bags (20 or 25 kg)

| LABOUR for Dairy Activities * | | | Total Hours | |
|---|---|---|---|---|
| 1 | Operator | | | |
| 2 | Wife, Partner, 2nd Operator | | | |
| 3 | Family Labour | *16 yrs and Over* | | |
| 4 | | *Under 16* | | Wages & Board |
| 5 | Hired Labour | *1* | | |
| 5 | | *2* | | |

* do not include hours doing fieldwork

| EXPENSES | | Total Farm ($) | % to Dairy | % Other Farm |
|---|---|---|---|---|
| 1 | Veterinary and Medicine | | | |
| 1 | Breeding | | | |
| 2 | Livestock & Barn Supplies | | | |
| 3 | Building & Fence Repair | | | |
| 4 | Machinery & Equipment Repair | | | |
| 5 | Fuel, Oil, Lube (for equipment, not heating) | | | |
| 13 | Natural Gas | | | |
| 14 | Electricity | | | |
| 15 | Other Utilities (phone, propane, heating oil, etc.) | | | |
| 7 | Insurance, Licences & Taxes | | | |
| 8 | Cash Rental (pasture, equipment, leases, etc.) | | | |
| 9 | Operating Loan Interest | | | |
| 10 | Custom Work (i.e. manure hauling, parlour cleaning) | | | |
| 11 | Silage Bags (hay tarps, plastic, etc.) | | | |
| 12 | Misc. (legal, acct, D.H.I., hooftrimming, etc) | | | |

Confidential when Completed