

CANADIAN DAIRY COMMISSION

COST OF PRODUCTION

DRAFT RESULT BASED ON 2016 SURVEY DATA

INDEXED TO 3RD QUARTER OF 2017

November 2017

Policy and Economics

2016 COP Highlights

Results

- The cost of production for one standard hectolitre of milk in 2016 was \$76.55, a decrease of -1.9% compared to the 2015 cost of production (COP). The table below shows that the \$1.45/hL decrease in the total COP in 2016 is mainly attributable to decreases in labour costs of \$1.04/hL, although capital costs show significant decreases (\$0.60/hL), as well.

| | 2016 COP | 2015 COP | % change |
|------------------|--------------|--------------|--------------|
| Cash Costs | 42.90 | 42.61 | 0.7% |
| Capital Costs | 14.45 | 15.05 | -4.0% |
| Labour Costs | 19.34 | 20.38 | -5.1% |
| Total COP | 76.55 | 78.00 | -1.9% |

Highlights

- Most of the cash cost components decreased from last year's costs, with the most significant decreases seen in the purchase and sale of animals, seed and plant costs, and fuel and lubricants.
- Purchased feed and artificial insemination were the most significant cash cost components showing an increase in comparison with the previous year.
- Capital costs decreased, with interest paid and return on equity being the main drivers of this decrease.
- Overall producer labour costs decreased significantly compared to the previous year.
- An average increase in production per farm across Canada is the main reason for the decrease in capital and labour costs.

Indexation

- Indexed to the 3rd quarter of 2017, the estimated COP is \$75.71 per hectolitre. This represents a decrease of -2.2% over the 2015 COP indexed to 3rd quarter of 2016.
- Statistics Canada indices have contributed to a lower COP after indexation. Purchased feed costs, a large element of cash costs, were indexed downward, as well as hydro, phone, and transportation costs.

Methodology

Sample

- The sample is selected to be representative of the dairy farm population at the Canadian level only.
- Producers in the sample are randomly selected. For the year 2016, a total of 228 farms were sampled.

Calculation and efficiency measures

- Reported costs cover the milking herd plus replacement animals.
- Any farm with a COP that is outside of two standard deviations is considered an outlier, and is therefore excluded from the final sample. For the year 2016, 5 farms were excluded. The data and information collected from the remaining 223 farms were used to calculate the national COP.
- A COP for each region was calculated by weighting the cost of each producer against their share of regional production in the sample. This regional production cost was adjusted by a strata correction factor. The national COP was then calculated by weighting each regional COP against regional shares of total P9 production.

Indexation

The following components are used to index the 2016 COP to the 3rd quarter of 2017:

- a) Cash costs are indexed to the 3rd quarter of 2017 using Statistics Canada indices (see Appendix 1);
- b) The interest component is indexed using the Bank of Canada five-year mortgage rate (see Appendix 1);
- c) Producer labour and remaining components of the capital costs are not indexed.

Standardization

- The cost of production data is provided to the CDC based on actual figures. Individual farm data are not available in standard hectolitres. Standardization is only performed at the end of the process using the most recent component standards.
- The following standards were used in the 2016 COP calculations:

| | Butterfat | SNF |
|--|-------------|--------------|
| Allocation of costs ⁽¹⁾ | 38% | 62% |
| Milk standard composition | 3.6 kg/hl | 8.9177 kg/hl |
| Sample milk composition ⁽²⁾ | 4.071 kg/hl | 9.093 kg/hl |

⁽¹⁾ The allocation between butterfat and SNF is determined by the share of the estimated producer returns at P10 target prices.

⁽²⁾ Weighted average composition of all eligible farms.

- It is important to note that the CDC support price is no longer used to determine the allocation of revenue between BF and SNF. Due to the decoupling of support prices from producer target revenue on February 1, 2017, the P10 target price is used to determine a more accurate reflection of the share of revenue between components.

National Cost of Production Calculation

2016 Results

| | 2016 COP | 2016 COP Indexed to 2017 Q3 | 2015 COP Indexed to Q3 2016 | % change 2017 Q3/Q3 2016 |
|--------------------------------------|--------------|--------------------------------|--------------------------------|-----------------------------|
| CASH COSTS | \$/hl | \$/hl | \$/hl ⁽²⁾ | |
| Purchased feed | 17.61 | 16.40 | 16.15 | 1.5% |
| Artificial insemination* | 3.17 | 3.17 | 2.98 | 6.7% |
| Transportation, fees & promoti | 5.09 | 5.02 | 5.09 | -1.4% |
| Machinery, equipment repairs | 2.87 | 2.95 | 2.98 | -0.8% |
| Fuel & oil | 1.49 | 1.64 | 1.66 | -1.3% |
| Custom work | 2.38 | 2.42 | 2.56 | -5.6% |
| Fertilizer & herbicides | 1.93 | 1.92 | 1.96 | -1.9% |
| Seed & plants* | 1.05 | 1.05 | 1.30 | -19.7% |
| Other (Misc): Professionnal fees | 0.67 | 0.68 | 0.76 | -9.9% |
| Other (Misc): Animal costs | 1.97 | 2.01 | 2.08 | -3.5% |
| Other (Misc): Crops costs | 0.82 | 0.83 | 0.89 | -6.3% |
| Land & building repairs | 2.42 | 2.44 | 2.39 | 2.2% |
| Property taxes & insurance | 2.01 | 2.05 | 2.20 | -6.5% |
| Hydro & telephone | 1.72 | 1.61 | 1.86 | -13.7% |
| Hired labour | 2.94 | 2.98 | 3.23 | -7.6% |
| Purchase/sale of animals* | -3.29 | -3.29 | -4.23 | -22.2% |
| Dairy Inventory Value adjust | -1.97 | -1.97 | -1.81 | 8.7% |
| Total Cash Costs | 42.90 | 41.92 | 42.04 | -0.3% |
| CAPITAL COSTS | | | | |
| Interest paid | 3.20 | 3.34 | 3.49 | -4.2% |
| Building depreciation* | 2.82 | 2.82 | 2.85 | -1.0% |
| Machinery & equipment depr* | 4.52 | 4.52 | 4.55 | -0.6% |
| Return on equity* | 3.90 | 3.90 | 4.14 | -5.9% |
| Total Capital Costs | 14.45 | 14.58 | 15.03 | -3.0% |
| PRODUCER LABOUR | | | | |
| Direct labour* | 14.09 | 14.09 | 15.04 | -6.3% |
| Return to management* ⁽¹⁾ | 5.25 | 5.25 | 5.34 | -1.7% |
| Total Producer Labour | 19.34 | 19.34 | 20.38 | -5.1% |
| GOV'T REBATES & OTHERS | -0.13 | -0.13 | -0.05 | -144.8% |
| RESULT OF COP FORMULA | 76.55 | 75.71 | 77.41 | -2.2% |

* Not indexed

(1) The rate of \$44.69 per hour was used. It represents the mid-range AG3 salary in 2016.

Appendix 1

Description of indices used to update cash costs and interest component

| COST COMPONENTS | 2016 | 2017 Q3 | % change 2017 Q3 / 2016 |
|---------------------------------|-------|---------|----------------------------|
| Dairy Ration | 107.8 | 100.3 | -6.9% |
| Transportation,fees & promotion | 2.57 | 2.5 | -1.4% |
| Mach,Equip Repairs | 121.8 | 125.0 | 2.7% |
| Fuel &Oil | 95.9 | 105.4 | 9.9% |
| Custom Work | 128.4 | 130.6 | 1.7% |
| Fertilizer & Herbicides | 126.5 | 125.6 | -0.7% |
| Other (Misc) | 110.1 | 112.3 | 2.0% |
| Land & Building Repairs | 135.6 | 136.5 | 0.6% |
| Property Taxes & Insurance | 153.8 | 156.9 | 2.0% |
| Hydro & Phone | 145.5 | 135.8 | -6.7% |
| Hired Labour | 35.1 | 35.6 | 1.5% |
| Interest | 4.7 | 4.9 | 4.3% |

| | | |
|----------------------------|-----------|--|
| Dairy Ration | v79309229 | Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Complete cattle feed |
| Transportation | | P5 Transportation Pooling Figures/Chiffres du pooling P5 pour le transport |
| Mach,Equip Repairs | v79309850 | Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Agricultural, lawn and garden machinery and equipment |
| Fuel &Oil | v79309138 | Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Energy and petroleum products |
| Custom Work | v41690973 | Table 326-0020 Consumer price index, 2005 basket; Canada; All-items (2002=100) |
| Fertilizer & Herbicides | v79309411 | Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Fertilizers, pesticides and other chemical products |
| Other (Misc) | v79309137 | Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Total, Industrial product price index (IPPI) |
| Land & Building Repairs | v41691060 | Table 326-0020 Consumer price index (CPI), 2005 basket; Canada; Homeowners' maintenance and repairs (2002=100 unless otherwise noted) |
| Property Taxes & Insurance | v41691058 | Table 326-0020: Consumer price index (CPI), 2005 basket, Property taxes (including special charges) , monthly (2002=100 unless otherwise noted) |
| Electricity | v41691063 | Table 326-0020: Consumer price index (CPI), 2005 basket, Electricity, monthly (2002=100 unless otherwise noted). The indice accounts for 80% in the indexation of the Hydro and Phone. |
| Telephone | v41691070 | Table 326-0020: Consumer price index (CPI), 2005 basket,Telephone services, monthly (2002=100 unless otherwise noted). The indice accounts for 20% in the indexation of the Hydro and Phone. |
| Hired Labour | v1602417 | Table 281-0035: Average hourly earnings for salaried employees (paid a fixed salary) (SEPH); Canada; Industrial aggregate excluding unclassified (Dollars) |
| Interest | | The interest component is indexed using the Bank of Canada 5-year mortgage rate. |

Appendix 2

Farms number and total production share

| | # of farms ⁽¹⁾ | National production share (litres) |
|-----------|---------------------------|------------------------------------|
| | | 2016 |
| Maritimes | 16 | 5.50% |
| Quebec | 98 | 36.63% |
| Ontario | 62 | 34.36% |
| West | 47 | 23.50% |
| Canada | 223 | 100.00% |

⁽¹⁾ Excluding outliers