

# **CANADIAN DAIRY COMMISSION**

COST OF PRODUCTION

FINAL RESULT BASED ON 2014 SURVEY DATA

INDEXED TO 3<sup>RD</sup> QUARTER OF 2015

October 2015

Policy and Economics

## 2014 COP Highlights

### Changes to the COP calculation methodology

- On September 24, 2014, the CDC Board decided to improve the statistical validity of the COP results by weighting the 2014 COP based on regions and strata instead of provinces.
- Once the improvements were made to the calculation, the CDC Board decided to re-base the 2013 COP in order to facilitate a valid comparison with the 2014 COP.

### Results

- The cost of production for one standard hectolitre of milk in 2014 was \$79.24, an increase of 2.5% compared to the 2013 COP that was at \$77.29/hl. The table below shows that the increase in the total COP in 2014 is mainly attributable to increases in capital and labour costs.

	2013 COP	2014 COP	% change
Cash Costs	43.72	43.61	-0.3%
Feed	16.62	16.42	-1.2%
Capital Costs	13.97	15.18	+8.7%
Labour Costs	19.69	20.60	+4.6%
<b>Total COP</b>	<b>\$77.29/hl</b>	<b>\$79.24/hl</b>	<b>+2.5%</b>

- Feed costs did not decrease as much as anticipated in 2014. In addition, capital costs increased significantly in 2014 compared to 2013. It seems that farmers enjoyed a profitable year in 2013 and decided to invest in their farms through the purchase of equipment and machinery. With this hypothesis, the COP is expected to decrease in the coming years as farmers use that equipment to grow and harvest feed more efficiently than purchasing it through a third party.
- Once indexed to the 3<sup>rd</sup> quarter of 2015, the estimated COP is \$79.18 per hectolitre. This represents an increase of 3.11% over the 2013 COP indexed to 3<sup>rd</sup> quarter of 2014.
- Statistics Canada indices have contributed to a higher COP after indexation mainly due to higher indices for purchased feed (+1.3%), machinery & equipment repairs (8.7%) and fertilizer & herbicides (+6.1%).

## 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 2014, a total of 234 farms were sampled.

### Calculation and efficiency measures

- Reported costs cover the milking herd plus replacement animals.
- Any farm with a COP that falls two standard deviations away from the mean is considered an outlier, and is therefore excluded from the final sample. For the year 2014, 10 farms were excluded. The data and information collected from the remaining 224 farms were used to calculate the national COP for 2014.
- A COP for each region was calculated by weighting the cost of each producer against his share of regional production in the sample. This regional production cost was then 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 2014 COP to the 3<sup>rd</sup> quarter of 2015:

- a) Cash costs are indexed to the 3<sup>rd</sup> quarter of 2015 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 2014 COP 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 2014 COP calculations:

	Butterfat	Solids Non-fat
Allocation of costs <sup>(1)</sup>	37%	63%
Milk standard composition	3.6 kg/hl	8.9177 kg/hl
Sample milk composition <sup>(2)</sup>	4.05 kg/hl	9.09 kg/hl

<sup>(1)</sup> The allocation between butterfat and solids non-fat is determined by the share of the butter and skim milk powder in total market returns.

<sup>(2)</sup> Weighted average composition of all eligible farms.

## **Appendices**

Appendix 1 contains the different indices used to index cash costs and interest components to the 3<sup>rd</sup> quarter of 2015.

Appendix 2 shows the number of farms in the final sample and the total production share for each region.

## National Cost of Production Calculation

### 2014 Results

	2014 COP	2014 COP Indexed to 2015 Q3	2013 COP Indexed to Q3 2014	% change 2015 Q3/Q3 2014
CASH COSTS	\$/hl	\$/hl	\$/hl <sup>(2)</sup>	
Purchased feed	16.42	16.63	15.37	8.16%
Artificial insemination*	3.13	3.13	3.08	1.65%
Transportation, fees & promoti	5.29	5.02	5.00	0.39%
Machinery, equipment repairs	2.80	3.04	2.53	20.19%
Fuel & oil	2.30	1.82	2.14	-15.08%
Custom work	2.50	2.54	2.22	14.48%
Fertilizer & herbicides	1.98	2.10	1.86	12.83%
Seed & plants*	1.17	1.17	1.16	1.60%
Other (Misc): Professionnal fees	0.80	0.80	0.77	4.60%
Other (Misc): Animal costs	2.07	2.07	2.03	1.79%
Other (Misc): Crops costs	0.98	0.98	0.82	19.16%
Land & building repairs	2.51	2.59	2.39	8.46%
Property taxes & insurance	2.18	2.22	2.05	8.33%
Hydro & telephone	1.83	1.91	1.72	11.31%
Hired labour	3.00	3.04	3.03	0.36%
Purchase/sale of animals*	-4.16	-4.16	-3.11	33.72%
Dairy Inventory Value adjust	-1.20	-1.20	-0.08	1471.58%
<b>Total Cash Costs</b>	<b>43.61</b>	<b>43.71</b>	<b>42.99</b>	<b>1.69%</b>
CAPITAL COSTS				
Interest paid	3.27	3.11	2.77	12.21%
Building depreciation*	2.67	2.67	2.38	11.99%
Machinery & equipment depr*	4.88	4.88	4.50	8.44%
Return on equity*	4.36	4.36	4.17	4.61%
<b>Total Capital Costs</b>	<b>15.18</b>	<b>15.01</b>	<b>13.82</b>	<b>8.65%</b>
PRODUCER LABOUR				
Direct labour*	15.95	15.95	15.51	2.81%
Return to management* <sup>(1)</sup>	4.65	4.65	4.55	2.20%
<b>Total Producer Labour</b>	<b>20.60</b>	<b>20.60</b>	<b>20.06</b>	<b>2.67%</b>
GOV'T REBATES & OTHERS	-0.14	-0.14	-0.07	-95.37%
<b>RESULT OF COP FORMULA</b>	<b>79.24</b>	<b>79.18</b>	<b>76.79</b>	<b>3.11%</b>

\* Not indexed

(1) The rate of \$33.63 per hour was established in 2009. It represents about 80% of a mid-range AG3 salary in 2014.

(2) The displayed COP has been re-calculated with the strata weighting methodology. The COP used as a reference for the March 01, 2015 CDC support price adjustment was \$76.13/hl.

## Appendix 1: Description of indices used to update cash costs and interest component

COST COMPONENTS	2014	2015 Q3	% change 2015 Q3 / 2014
Dairy Ration	112.1	113.5	1.3%
Transportation,fees & promotion	2.74	2.6	-5.1%
Mach,Equip Repairs	108.1	117.5	8.7%
Fuel &Oil	135.8	107.4	-20.9%
Custom Work	125.2	127.2	1.7%
Fertilizer & Herbicides	123.4	130.9	6.1%
Other (Misc)	111.3	111.3	0.0%
Land & Building Repairs	128.4	132.3	3.0%
Property Taxes & Insurance	145.9	148.3	1.6%
Hydro & Phone	134.8	140.6	4.3%
Hired Labour	34.0	34.5	1.5%
Interest	4.9	4.6	-4.9%

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 <sup>(1)</sup>	National production share (litres) 2014 production year
Maritimes	18	5.50%
Quebec	96	37.31%
Ontario	62	33.94%
West	48	23.25%
Canada	224	100.00%

<sup>(1)</sup> Excluding outliers