

CANADIAN DAIRY COMMISSION

COST OF PRODUCTION

DRAFT RESULT BASED ON 2020 SURVEY DATA

INDEXED TO THREE MONTHS ENDING AUGUST 2021

October 2021

Policy and Economics

2020 COP Highlights

Results

- The cost of production for one standard hectolitre of milk in 2020 was \$85.42, an increase of 2.8% compared to the 2019 cost of production (COP). The table below shows that the \$2.29/hl increase in the total COP in 2020 is mainly attributable to increases in cash costs (\$2.36/hl). Other component changes had limited impact on the COP.

	2020 COP	2019 COP	\$/hl change	% change
Cash Costs	49.45	47.09	2.36	5.0%
Capital Costs	16.32	16.18	0.13	0.8%
Labour Costs	20.22	20.27	-0.05	-0.2%
Gov't Rebates & Others	-0.57	-0.42	-0.15	36.4%
Total COP	85.42	83.13	2.29	2.8%

Highlights

- Most cash cost components increased from last year's costs. The largest contributors to the increase in cash costs include purchased feed, custom work, land and building (repairs and maintenance), and hired labour.
- Purchased feed increased by \$1.39/hl when standardized.
- Costs for fuel and lubricants, transportation fees and promotion, purchase/sale of animals, artificial insemination, and professional fees decreased.
- Capital costs modestly increased by \$0.13/hl. The anticipated increase in capital costs due to significant investments made over the last few years to meet growing demand was mostly offset by low interest rates.
- Overall producer labour costs decreased over the previous year by -0.2%. Direct labour remained the same, while return to management decreased by -\$0.05/hl. In 2020, increases in labour productivity offset the increase in labour rates.
- Effects of COVID-19 impacted the COP in several ways:
 - Depressing some costs (e.g., fuel and lubricants, interest) and
 - Inflating others (e.g., custom work, land and building repairs and maintenance, hired labour).
 - Labour shortages and staffing challenges across Canada were reported for several months of 2020.

Indexation for pricing purposes

- Given that the result of the COP study is used to calculate milk component prices in 2022, the 2020 COP is indexed using more recent figures to more accurately reflect today's reality.

The period of the most recent three months ending August 2021 was used, according to industry decision taken in 2019.

- Once indexed to the most recent three months ending August 2021, the estimated COP reaches \$92.20 per hectolitre.
- Statistics Canada indices overall have been indexed upward, contributing to a higher COP after indexation. Purchased feed and fuel and oil increased significantly; most other indices have seen marginal to significant increases (see Appendix 1). Environmental events and rising inflation during the COVID-19 crisis were main drivers for the increase in indices for the period of June to August 2021.
- **2020 COP indexed to August 2021 represents an increase of 13.4%** when compared to 2018 COP indexed to August 2019.¹

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 2020, a total of 224 farms were sampled.

Calculation and efficiency measures

- Reported costs cover the milking herd plus replacement animals. It excludes cost related to any other activities on the farm (crops, etc.)
- 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 2020, 7 farms were excluded. The data and information collected from the remaining 217 farms were used to calculate the national COP.
- Each farm is given a weight that ensures that it accurately reflects its stratum, based on size (S, M, L, XL) and region.

Indexation

The following components are used to index the 2020 COP to the most recent three months ending August 2021:

- a) Cash costs are indexed 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 capital costs are not indexed.

¹2020 results are compared to the 2018 COP results as indicated by the Exceptional Circumstances decision taken for 2021 pricing. P5 and WMP decisions P5-32-2020 / WMP-29-2020, Dec 2020.

Standardization

- The use of a standard milk composition allows for year-over-year, international, and interprovincial comparisons. Actual figures are converted to standardized figures using milk standard compositions.
- The Cost of Production data is provided to the CDC based on actual figures. Standardization is only performed at the end of the process using the most recent component standards.
- The following standards were used in the 2020 COP calculations:

	Butterfat	SNF
Allocation of COP ¹	43%	57%
Milk standard composition	3.6 kg/hl	8.9177 kg/hl
Sample milk composition ²	4.113 kg/hl	8.999 kg/hl

⁽¹⁾ The allocation between butterfat and SNF is determined by the rolling three-year average share of butterfat portion of total revenues and SNF portion of total revenues, which together equal 100% of revenues.

⁽²⁾ Weighted average composition of all eligible farms.

National Cost of Production Calculation

2020 Results

	2020 COP	2020 COP Indexed to August 2021	2018 COP Indexed to August 2019	% change August 2021/August 2019
	\$/hl	\$/hl	\$/hl ⁽²⁾	
CASH COSTS				
Purchased feed	20.19	25.04	19.70	27.1%
Artificial insemination*	3.29	3.29	3.24	1.6%
Transportation, fees & promotion	5.00	5.07	5.23	-3.1%
Machinery, equipment repairs	3.22	3.42	2.86	19.5%
Fuel & oil	1.54	2.24	1.71	30.5%
Custom work	2.96	3.08	2.63	16.8%
Fertilizer & herbicides	1.90	2.21	1.73	28.1%
Seed & plants*	1.31	1.31	1.09	20.1%
Other (Misc): Professional fees	0.76	0.88	0.67	31.0%
Other (Misc): Animal costs	1.76	2.02	1.88	7.6%
Other (Misc): Crops costs	0.52	0.60	0.50	19.7%
Land & building repairs	3.18	3.25	2.87	13.2%
Property taxes & insurance	2.27	2.30	1.96	17.5%
Hydro & telephone	1.63	1.63	1.58	3.7%
Hired labour	3.55	3.64	3.53	3.1%
Purchase/sale of animals*	-3.34	-3.34	-2.79	19.6%
Dairy Inventory Value adjustme	-0.31	-0.31	-0.93	-67.0%
Total Cash Costs	49.45	56.34	47.46	18.7%
CAPITAL COSTS				
Interest paid	3.46	3.35	3.44	-2.5%
Building depreciation*	3.28	3.28	3.22	2.1%
Machinery & equipment depr*	4.72	4.72	4.48	5.3%
Return on equity*	4.85	4.85	4.47	8.5%
Total Capital Costs	16.32	16.21	15.61	3.8%
PRODUCER LABOUR				
Direct labour*	14.75	14.75	13.49	9.3%
Return to management* ⁽¹⁾	5.48	5.48	5.18	5.8%
Total Producer Labour	20.22	20.22	18.67	8.3%
GOV'T REBATES & OTHERS*	-0.57	-0.57	-0.45	-26.4%
RESULT OF COP FORMULA	85.42	92.20	81.29	13.4%

* Not indexed

(1) The rate of \$48.27 per hour was used. It represents the mid-range AG-3 salary in 2020 .

(2) 2018 COP results revised using 3-year average BF and SNF shares. Published standardized results were \$80.73, indexed results were \$81.63.

Appendix 1

Description of indices used to update cash costs and interest component

COST COMPONENTS	2020	August 2021	% change August 2021 / 2020
Dairy Ration	102.2	126.8	24.0%
Transportation,fees & promotion	2.75	2.8	1.2%
Mach,Equip Repairs	101.4	107.6	6.1%
Fuel &Oil	74.8	108.2	44.8%
Custom Work	137.0	142.1	3.8%
Fertilizer & Herbicides	100.4	117.2	16.8%
Other (Misc)	99.6	114.7	15.1%
Land & Building Repairs	142.8	145.8	2.1%
Property Taxes & Insurance	168.0	170.3	1.4%
Hydro & Phone	138.4	139.0	0.4%
Hired Labour	39.0	40.0	2.5%
Interest	4.9	4.8	-3.2%

Dairy Ration	181121	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	v1230996240	Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Agricultural, lawn and garden machinery and equipment
Fuel &Oil	v1230996147	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	v1230996090	Table 329-0075: IPPI, by North American Product Classification System (NAPCS); Canada; Fertilizers, pesticides and other chemical products
Other (Misc)	v1230996007	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) 2020
Maritimes	14	5.28%
Quebec	95	35.72%
Ontario	60	34.28%
West	48	24.72%
Canada	217	100.00%

⁽¹⁾ Excluding outliers