



## Pro\$: Canada's Profit-Based Genetic Selection Index - April 2023 Update -

### Annual Update to Pro\$

Pro\$ is the Canadian economic selection index that maximizes genetic response for cow lifetime profitability. Selection for Pro\$ will lead to a herd that excels for production, is long-lasting with good functional conformation, and has a greater resistance to various diseases. If your herd generates essentially all its revenue from the sale of milk and its components, Pro\$ is designed to be your primary selection index tool.

The formula details for Pro\$ are not published so as to focus on the expected response per trait rather than the list of traits included in the formula and their relative weight. The correlation of Pro\$ with proofs for the key traits in each breed are shown below.

Trait	Ayrshire	Holstein	Jersey
Milk	0.74	0.54	0.72
Fat	0.89	0.76	0.85
Protein	0.87	0.79	0.85
Conformation	0.36	0.43	0.10
Mammary System	0.31	0.49	0.16
Feet & Legs	0.40	0.27	-0.16
Dairy Strength	0.27	0.09	0.12
Rump	0.00	-0.03	-0.03
Methane Efficiency		0.06	
Feed Efficiency		0.06	
Body Maintenance Requirements		-0.22	
Herd Life	0.29	0.57	0.00
Mastitis Resistance	-0.09	0.35	-0.02
Metabolic Disease Resistance	-0.09	0.30	0.02
Lactation Persistency	0.28	0.19	0.42
Daughter Fertility	-0.09	0.41	0.20
Milking Speed	0.07	0.06	0.29
Milking Temperament	0.17	0.20	0.20
Calving Ability	0.19	0.38	-0.09
Daughter Calving Ability	0.11	0.61	0.22
Body Condition Score	-0.20	0.17	-0.30

Pro\$ is expressed as an animal's average daughter profit deviated from the national average daughter profit. With each Pro\$ update and new economic values, daughter profits will change to some extent, resulting in changes in published Pro\$ values. Coupled with the April 2023 genetic base update, the top 100 proven Pro\$ sires from December see their Pro\$ change by an average of 20, 134, and 109 for Ayrshire, Holstein, and Jersey, respectively.

The table below provides some key statistics related to the cows with actual profit data used to develop the Pro\$ formula in each breed for 2023. Changes in the pricing of milk and its components affect each cow's revenue and other economic values, including feed and maintenance costs, affect expenses for lactating and dry cows as well as the rearing costs to first lactation. To reflect a measure of lifetime profitability, the Pro\$ calculations consider each cow's revenue and expenses accumulated to 6 years of age or disposal if removed from the herd earlier.

Breed	Birth Years	Number of Cows	Average Up to 6 Years of Age or Disposal				
			Age at First Calving (d)	Rearing Cost (to 1 <sup>st</sup> calving)	Total Milk (kg)	Total Fat (kg)	Total Protein (kg)
Ayrshire	2006-16	40,277	829	\$3,841	18,332	765	625
Holstein	2010-16	1,043,397	776	\$3,758	24,965	993	817
Jersey	2006-16	50,350	782	\$3,544	17,144	864	658