

# UNDERSTANDING CANADIAN SIRE PROOFS

## PRODUCTION **A**

Based on the Canadian Test Day Model using Estimated Breeding Values for Milk, Fat and Protein yield which are blended together to achieve one published rating. A Rolling Genetic Base is used to express Production EBVs. In 2020, this base includes all cows born during a 3-year period centered 7 years ago (2012-2014) having test day records in the CTDM genetic evaluation analysis.

**Classification Score** (VG-CAN-EXTEND) designated by the breed association

**Lifetime Production Index**  
 40% Production  
 40% Durability  
 20% Health & Fertility

Daughters and Herds with production data

Reliability accuracy (increases with more daughters)

Indicates the source and date of the proof. The letter "G" indicates genomic information.

**GLPI +3431 PROS 2310**

VG-CAN POF RDF BLF BYF CVF HH1F HH2F HH3F HH4F HH5F HH6F HCDF

Reg. #: HOCANM12283183 aAa: 213465 DMS: 123,234  
 Born: 05/07/2015 Kappa Casein: AB Beta Casein: A1A2

**PRODUCTION** 194 Herds 321 Daughters 95% Rel **GEBV 19\*DEC**

## GENETIC CODES

- BYC** Tested carrier of Brachyspina
- BYF** Tested free of Brachyspina
- CVC** Tested carrier of Complex Venteral Malformation (CVM)
- CVF** Tested free of CVM
- BLC** Tested carrier of Bovine Lecocyte Adhesion Deficiency (BLAD)
- BLF** Tested non-carrier of BLAD
- MFC** Tested carrier of Mulefoot
- MFF** Tested non-carrier of Mulefoot
- DPC** Tested carrier Deficiency of Uridine Monophosphate Synthase (DUMPS)\*
- DPF** Tested free of DUMPS
- CDF** Tested free of Cholesterol Deficiency
- CDC** Tested Carrier of Cholesterol Deficiency
- CDS** Tested True Cholesterol Deficiency
- XIC** Tested carrier of Factor XI
- XIF** Tested non-carrier of Factor XI
- CNC** Tested carrier of CIT
- CNF** Tested non-carrier of CIT
- POS** Tested true polled (homozygous PP)
- POC** Tested carrier of polled (heterozygous Pp)
- POF** Tested free of polled
- MB** Multiple Birth
- ET** Embryo Transfer
- ETA** Embryo Transfer Adult Clone
- ETM** Embryo Transfer Manipulation
- AB** All Black
- AR** All Red
- AW** All White
- B/R** Black/Red
- B&W** Black and White
- IC** Irregular or other colour
- R&W** Red and White
- RDF** Tested non-carrier of red gene
- RDC** Carrier of red gene
- BRC** Carrier of black/red gene

**A**

Milk kg	2059	Fat kg	73	Fat %	-0.04	Protein kg	69	Protein %	0.00
Daughter Average (ME) Milk 13,450 kg Fat 532 kg Protein 433 kg									

**D**

HEALTH & REPRODUCTION			
Herd Life	106	Calving Ability	106
Somatic Cell Score	111	Daughter Calving Ability	108
Daughter Fertility	103	Milking Speed	93
Body Condition Score	104	Milking Temperament	109
Mastitis Resistance	111	Metabolic Disease Resistance	108

**B**

CONFORMATION		156 Herds	238 Daughters	92% Rel	GEBV 19*DEC
Conformation	12	Dairy Strength	13		
Mammary System	9	Rump	9		
Feet & Legs	10	GP or Better %	79		

**C**

Udder Depth		Shallow	3S
Udder Texture		Soft	9
Median Suspensory		Strong	5
Fore Attachment		Strong	8
Fore Teat Placement		Close	7C
Rear Attachment Height		High	7
Rear Attachment Width		Wide	8
Rear Teat Placement		Close	9C
Teat Length		Short	2S
Foot Angle		Steep	3
Heel Depth		Deep	12
Bone Quality		Flat	6
Rear Legs Side View		Posty	3S
Rear Legs Rear View		Straight	9
Stature		Tall	4
Chest Width		Wide	9
Body Depth		Shallow	0
Angularity		Angular	7
Loin Strength		Strong	5
Rump Angle		Sloped	4L
Pin Width		Wide	13

• Based on daughter's classification in their first lactations

• Standard deviation of 5 with an upper range of 15

• Average is set at 0 based on all proven bulls born in the most recent complete 10-year period (2005-2014)

## FUNCTIONAL TRAITS

Range: 85 - 115  
 Average: 100  
 Higher is better

Daughters & Herds with conformation data (Reliable accuracy increases with more daughters)

## CONFORMATION **B**

Conformation proofs are expressed as Estimated Breeding Values (EBVs) displayed using a -15 to +15 scale, with a standard deviation of 5. A rolling Genetic Base is used to express Conformation EBVs. In 2020, this base includes all proven bulls born in the most recent 10-year period (2005-2014). A sire's conformation proof is based on all classifications of his first lactation daughters using a linear type classification system. Daughter scores provide the basis for EBVs for major type and descriptive traits. Major traits can be used to narrow down the field of sires (e.g. feet and legs.) Descriptive traits can be used to focus on specific traits (e.g. correct foot angle).

## DESCRIPTIVE TRAITS **C**

Descriptive traits are evaluated using the same method as the Conformation but focuses on specifics with the greater number being preferable except for the Mid-Scoring traits that are circled. For the Mid-Scoring traits the higher the number the greater the tendency to exhibit the trait as noted by the letter (e.g. 9S - very high tendency to transmit Straight for Rear Leg Side View). A value of 0 is considered the most correct.

## HEALTH & REPRODUCTION TRAITS **D**

A collection of genetic evaluations to be used as herd management tools. By avoiding sires significantly below breed average for these traits, breeders can augment the effectiveness of their overall breeding program.

**LIFETIME PRODUCTION INDEX** - The LPI provides a single rating of the overall genetic merit of a sire based on the production, conformation and auxiliary traits known to affect longevity, durability and profitability of its daughters. If the sire has been genotyped for the 50K SNP panel, a GLPI is provided instead of an LPI.

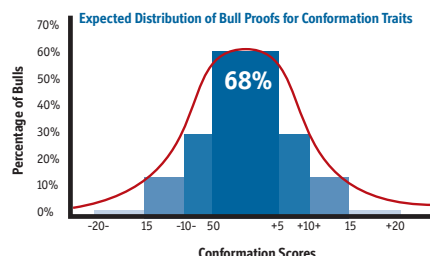
**ESTIMATED BREEDING VALUE** - Production proofs are expressed as Estimated Breeding Values (EBVs), which are measured in Mature Equivalent Kilograms, for Milk, Fat and Protein Yield. The single EBV published for Milk, Fat and Protein Yield is the average of the first three lactations. EBVs are also provided for Fat and Protein Percentages.

**CANADIAN TEST DAY MODEL** - The Canadian Dairy Network (CDN) is responsible for calculating production proofs for sires and cows using the Canadian Test Day Model (CTDM), which compares the progeny of each sire to their contemporaries using data from each test day. A unique feature of the CTDM is that separate EBVs are available for Milk, Fat and Protein yield, as well as Persistency and Somatic Cell Score, for each of the first three lactations.

**ROLLING PRODUCTION BASE** - Production and conformation EBVs are calculated relative to a rolling base which is updated in April each year. In 2020, the rolling base includes all cows born during a 3-year period (2012-2014) having test day records in the CTDM evaluation. Active sires tend to have higher production EBVs, since their proofs are expressed relative to this cow base. Conversely, the EBVs of older sires tend to decline as the rolling base is adjusted.

**STANDARD DEVIATIONS** - Simply put, the standard deviation tells us how far a bull is from the mean (average) value of all the bulls. The graph on the right shows the normal distribution of bull proofs for conformation traits with 68% of bull ranging from -5 to +5, 95% from -10 to +10, 99% from -15 to +15, etc.).

For most bulls their scores will be close to the average of all the bulls, while fewer bulls will score at the high end or at the low end. Very few bulls reach scores as high as +16 or +17 as compared with over 99% of bulls falling in the range of +15 to -15.



For more information on Canadian Proving System visit the Lactanet website at <https://cdn.ca>