A Review on Sire Ratings for Defective Type Characteristics

- May 26th, 2026

The Canadian classification system not only evaluates structural and functional traits but also tracks the occurrence of defective characteristics. This information provides valuable insight into how frequently certain defects appear within a breed and helps identify sires whose daughters may be prone to these defects. While not genetic evaluations, these measures can support more informed breeding decisions when used appropriately.

Defective Type Characteristics

Canada’s type classification system offered by Holstein Canada evaluates 27 descriptive type traits alongside 25 defective characteristics. Cows exhibiting either a minor or severe degree of a defective characteristic receive a deduction in their classification score for the related major

scorecard trait, and therefore their overall Final Score. Table 1 lists the defective characteristics currently recorded as part of the Canadian Multi-Breed Classification system along with their observed frequency per 1,000 animals classified.

Table 1: Frequency of Defective Characteristics Recorded via Type Classifications for Animals born between 2021 and 2024

(traits with blanks are not recorded for the respective breed)

Defective Characteristic	Observed Frequency per 1000 Animals				
	HO	AY	JE	BS	GU
Mammary System					
Short Fore Udder			12		
Short Rear Udder	30	37	16	32	16
Lacks Udder Shape	36	37	48	60	52
Unbalanced Quarter	50	61	72	76	104
Blind Quarter	17	16	22	15	16
Webbed Teat	1	1	1	<1	16
Front Teats Back			2		
Rear Teats Back	4	7	9	4	3
Feet & Legs					
Abnormal Claw	3	6	3	6	3
Weak Pasterns	10	13	23	<1	36
Boggy Hocks			3		

Defective Characteristic	Observed Frequency per 1000 Animals				
	HO	AY	JE	BS	GU
Lacks Bone			<1		
Crampy	4	3	<1	<1	<1
Rear Legs Back	41	42	38	14	42
Toes Out Front	85	88	133	75	36
Dairy Strength					
Shallow Fore Rib	27	31	28	25	16
Weak Crops	31	61	33	50	88
Weak Back	10	4	40	18	19
Not Well Sprung			1		
Lacks Balance			7		
Undesirable Head			3		
Rump					
Advanced Anus	49	22	16	58	49
Advanced Tailhead			8		
Recessed Tailhead			1		
High Tailhead			17		95

Sire Ratings

Using the records, Lactanet calculates the relative frequency for each defective recorded in each sire’s classified daughters compared to the overall breed frequency. Individual results are available on a sire’s “Type” page on LactanetGen.ca and help identify specific sires that

produce daughters with higher or lower frequencies of the defective characteristics.

- Negative values represent higher, undesired frequencies in daughters compared to breed average.
- Positive values represent less frequent defects in daughters relative to the overall breed frequency.
- Ratings marked with an asterisk (*) indicate scores that are one standard deviation different than the average for the specific defective characteristic. Since the mean and standard deviation varies from one defect to another, the * helps highlight those that considerably deviate from the breed average. This is the case for Abnormal Claw and Crampy in the below Holstein example.

Defective Characteristics

Mammary System		Feet & Legs		Dairy Strength		Rump	
Short Rear	1	Abnormal Claw	-2 *	Shallow Fore Rib	-1	Advanced Anus	-2
Lacks Udder Shape	2	Weak Pasterns	-1	Weak Crops	1		
Unbalanced Quarter	4	Crampy	-1 *	Weak Back	-1		
Blind Quarter	0	Rear Legs Back	0				
Webbed Teat	0	Toes Out Front	4				
Rear Teats Back	0						

The numerical value represents the expected percentage of daughters relative to breed average that will be double-ticked (severe presence) for the defective characteristic. This can also be interpreted as half the expected percentage of daughters relative to breed average that would receive a single tick (minor presence). For example, the sire above with a -2 for Abnormal Claw would have 2% more daughters compared to average with a severe presence. Alternatively, this sire would have 4% more daughters compared to average with a minor presence.

It is important to recognize that published sire ratings for the defective characteristics are not genetic evaluations. They are comparisons based on the observed daughter frequencies and are not adjusted for factors such as pedigree, age at classification, stage of lactation at classification, lactation number or herd management. Moreover, these defects are not used in genetic evaluations for the four major conformation traits. For the

past five years, genetic evaluations for conformation have used composite indexes that combine the evaluations for all descriptive traits within each of the four major scorecard sections rather than using the actual scorecard scores and overall Final Score. Genetic evaluations are therefore not affected by defect characteristics.

Important note on Crampy:

For certain defective characteristics, such as Crampy, caution is required when interpreting sire ratings. Crampy typically expresses later in life, on average around five years of age, while most cows are classified during their first lactation. As a result, the recorded frequency for this defect may be underestimated, and sire ratings may not fully reflect the true incidence in daughters.

Emphasis and Use

These sire ratings for defective characteristics are intended to be supplementary information to the bull proofs published for the list of descriptive type traits. They are not meant to receive major consideration in sire selection since they are calculations of daughter frequency deviations rather than true genetic evaluations. All detailed information related to each bull's type evaluation is accessible through its "Type" page on LactanetGen.ca. Sire analysts and keen breeders may wish to consider this information for specific matings or for avoiding problems that may already exist in the herd.

Partager





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