Genetic Traits and Colour Codes

Gene Name	Description	Gene and Expression Code
Muscle Weakness MW	*Newborn calves are weak and unable to stand up or walk shortly after birth resulting in calves becoming weaker over time & typically will succumb to other health issues*	MWF = tested non-carrier / free of Early Onset Muscle Weakness MWC = tested carrier of Early Onset Muscle Weakness (heterozygous) MWS = tested true carrier of Early Onset Muscle Weakness (homozygous)
Brachyspina BY	*Causes abortion & stillborn, shortened spinal cord, long legs & abnormal organs*	BYC = tested carrier of Brachyspina BYF = tested non-carrier of Brachyspina
Complex Vertebral Malformation CVM	*Causes still-born calves, abortions, and early embryonic losses*	CVC = tested carrier of CVM CVF = tested non-carrier of CVM
Bovine Leucocyte Adhesion Deficiency BLAD	*Deficiency of a normally occurring protein needed for white blood cells or leukocytes, which are body's infection fighters*	BLC = tested carrier of BLAD BLF = tested non-carrier of BLAD
Mulefoot MF	*Toes of foot are joined, giving animal a single hoof, instead of cloven ones*	MFC = tested carrier of MULEFOOT MFF = tested non-carrier of MULEFOOT
Deficiency of Uridine Monophosphate Synthase DUMPS	*One of many enzymes contributing to normal metabolic processes*	DPC = tested carrier of DUMPS DPF = tested non-carrier of DUMPS
Cholesterol Deficiency CD	*Cholesterol Deficiency*	CDF =Tested Free of Cholesterol Deficiency CDC = Tested Carrier of Cholesterol Deficiency CDS = Tested True Cholesterol Deficiency
Beta Casein A2	***Beta Casein***	A2A2 = Beta Casein A2A2 A1A1 = Beta Casein A1A1 A1A2 = Beta Casein A1A2
Factor XI XI	*Blood clotting disorder*	XIC = tested carrier of FACTOR XI XIF = tested non-carrier of FACTOR XI
Citrullinemia CIT	*Accumulation of ammonia and other toxics in blood in baby calves*	CNC = tested carrier of CIT CNF = tested non-carrier of CIT

Polled & Transmitting Codes

Gene Name	Description	Gene and Expression Code
Polled PO	**Animals without horns** *(Reported born hornless – Not tested)*	POR = code
Polled PO *(Current-Indirect test)*	**Indirect Test**	POS = tested true polled (homozygous PP) POC = tested carrier of polled (heterozygous Pp) POF = tested free of polled

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Birth Codes (Secondary)

Code	Description
MB	Multiple Birth
ET	Embryo Transfer *(regular)*
ETA	Embryo Transfer Adult Clone
ETM	Embryo Transfer Manipulation *(Clone, Divided, Nuclear Transfer, Split)*

Coat/Hair Colour Codes

Code	Description
AB	All Black
AR	All Red
AW	All White
B/R	Black/red *(primarily B&W although exhibits reddish peculiar hair patterns-- muzzles, ears, dorsal stripe, etc.)*
B&W	Black and White
IC	Irregular or other colour *(non-typical animals)*
R&W	Red and White
LB	Lineback (animal having a distinct white stripe along the spine)

Coat/Hair Colour Transmitting Codes

Gene Name	Description	Gene and Expression Code
Homozygous Black (ED / ED)	B&W – black & white	RDF – Tested non-carrier of red gene
Red Carrier (ED / e)	B&W – black & white	RDC – Carrier of red gene
Homozygous Red (e / e)	R&W – red & white	
Heterozygous Wildtype (e / E+)[1]	B/R – black/red colour pattern R&W – red & white	RDC – Carrier of red gene
Heterozygous Black/Wildtype (ED / E+)[1]	B&W – black & white B&W – black & white	BRC – Carrier of black/red gene RDC – Carrier of red gene
Homozygous Wildtype (E+ / E+)[1]	R&W – red & white B/R – black/red colour pattern B&W – black & white	RDC – Carrier of red gene RDC – Carrier of red gene BRC – Carrier of black/red gene

		VRR – Not tested / determined by lineage[2]
Confirmation test not available	R&W – red & white	BKC – Carrier of black gene[2]

GT Codes

Code	Description
GTM	*Genotype on file from DNA Micro-satellite Test*
GTS	*Genotype on file from SNP Genomic Test*
GT	*Indicates on the animal info sheet (AIS) that the animal has been genotyped*

*If both tests have been done, the code GTSM will be displayed

All results are made public, published on official documents and the Animal Inquiry page of the Holstein Canada website.

LEGEND
[1]   E+ can be black, black/red or red based on pedigree.
[2]   Confirmation test not available (at this time).