UNDERSTANDING U.S. SIRE PROOFS

VI "Used free of CMA PH3F HH4F HH3F HH4F HH4F HH4F HH4F HH4F H	GENETIC CODES BD Bulldog* BL Bovine Leukocyte Adhesion Deficiency (BLAD)* TL Tested free of BLAD BY Brachyspina* TY Tested free of Brachyspina CD Cholesterol Deficiency* TC Tested free of Cholesterol Deficiency CV Complex Veterbral Malformation (CVM)*	Total Performance Index (T Combines genetic proofs for production, type, longevity, fertility into a single value. Higher is better. GTPI = Genomic TPI value GTPI 2698		(PI) and Daughters and Herds with production data Reliability accuracy (increases with more daughters)			through early embryo losses. If an animal inherits a copy of this haplotype from each parent, that embryo will not survive to become a calf, so fertility is affected.		causes calves to have no cholesterol in the homozygous state. Calves who produce no cholesterol will die at several months of age. The economic impact of this haplotype is quite large, due to the costs of raising the calf for months before it dies. Origin of Production proof CDCB = Domestic proof; HA = Domestic Proof		
Market Berling van der Berling van der Status Beg. #: Hodelog 193020021 Aax: 322156 DMS: 346.135 The Identifier (°C) indicates Market Berling van der Status Bom: 08/022015 Bom: 08/022015 <td>TV Tested free of CVM</td> <td colspan="2">EX-90-CAN TR TL TY TV</td> <td colspan="5">HH1F HH2F HH3F HH4F HH5F HH6F HCDF</td> <td>MACE = Interbull MACE Proof</td>	TV Tested free of CVM	EX-90-CAN TR TL TY TV		HH1F HH2F HH3F HH4F HH5F HH6F HCDF					MACE = Interbull MACE Proof		
10) Decked Files of DUMPS Wildoot Wil	Synthase (DUMPS)*	Reg. #: HO840013130920421		aAa: 342156 DMS: 345			IS: 345,135	135		The letter "G" indicates	
Predicted Multiclot Productive Life Somatic Cell Score 2.75 Baughter Average (ME) Multication Productive Life Somatic Cell Score So	TD Tested free of DUMPS	Born: 08/02/2015		Kappa Casein: BE		Bet	Beta Casein: A1A2		information		
P0 Observed Polled*** Mik the Fait the Fait the Fait the Protein the	TM Tested free of Mulefoot	PRODUCTION 53 Herds 169 Dtrs 94% Rel MACE-G / 12-19							\leftarrow	format: proof month/voar	
PL elste intercograve Field 278 106 40.35 28 40.07 PL elste intercograve Field MNS 878 CMS 915 FMS 801 GMS 843 DWPS 1021 PL elste intercograve field MS 878 CMS 915 FMS 801 GMS 843 DWPS 1021 IN Bit elste intercograve field Daughter Average (ME) MK 82, for Ibs Field 11600 Duaghter Average (ME) MK 82, for Ibs Field 11600 Higher 1160 <	PO Observed Polled**	Milk lbs	Fat % Proteir			in lbs Protein %		ionnat, proor nionan year			
TP Tested free of the Shield Condition former NMS 878 CMS 915 FMS 801 GMS 843 DWPS 1021 RC carter fore for hair colour Daughter Average (ME) Milk 29,167 lbs Fat 1,166 lbs Protein 910 lbs If Elected for the robust Daughter Average (ME) Milk 29,167 lbs Fat 1,166 lbs Protein 910 lbs If Elected for the robust FMS 801 Sire Calving Ease 7.5% 99% Rel Daughter Pregnancy Rate 2.4 Sire Stillbirth 5.3% Feed Efficiency 186 Productive Life Daughter Pregnancy Rate 2.4 Sire Stillbirth 5.3% Feed Efficiency 186 Productive Life Daughter Pregnancy Rate 2.5 Feed Efficiency 186 Daughter Pregnancy Rate (DR) Udder Composite 2.5 Feed Efficiency 186 Daughter Pregnancy Rate (DR) Udder Composite 2.06 Vider Composite 2.48 Dairy Composite 0.06 Udder Composite 0.06 Udder Composite 0.06 Udder Composite 0.08 Prot 4.0.6 Udder Composite 0.08 Prot 4.0.6 Udder Composite 0.08 Prot 4.1.219 Udder Composite 0.08 <td>PC Tested Heterozygous Polled** PP Tested Homozygous Polled**</td> <td>278</td> <td>106</td> <td></td> <td>+0.35</td> <td>28</td> <td>3</td> <td>+0.07</td> <td></td> <td>Productive Life (PL)</td>	PC Tested Heterozygous Polled** PP Tested Homozygous Polled**	278	106		+0.35	28	3	+0.07		Productive Life (PL)	
RC Carlier for red hair colour RC Carlier for red hair colour RC Back/Red Main Colour RC Back	TP Tested free of the Polled Condition (horned)		CM\$ 915		FM\$ 801	GM\$	843	DWP\$ 1021		Measurement of longevity,	
HEALTH & REPRODUCTION Productive Life 5.9 Sire Calving Ease 7.5% 99%, Rel Productive Life 5.9 Sire Calving Ease 7.5% 99%, Rel Somatic Cell Score SCS) Anditional net port Somatic Cell Score 2.75 Daughter Calving Ease 5.2% 73% Rel Med Net	RC Carrier for red hair color	Daughter Average (ME) Milk 28,167 lbs Fat 1,166 lbs Protein 910 lbs								including yield information. Higher is better.	
DBI Testel Heterozygous for Dominant Ref Productive Life * Becask desc Grade * Conserving Case in Strong Het Merk (ND) Additional net profit the offspring will produce werk her lifetime. Expressed in SUS. Predicted Transmitting Ability - Type (PTAT) Average: 0 Higher is better. Body Depth Data Legs Rear View Fact Test Placement * Fact Test Placement * Fact Legs Rear View Fact Test Legs Rear View Fact Legs Rear View Fact Test Placement * Fact Test Legs Rear View Fact Test Legs Rear View	TR Tested free to red hair colour	HEALTH & REPRO	DUCTION								
UNC lessed informative In indicator trait for masting Noteward feet (New) Somatic Cell Score 2.75 Daughter Caiving Ease 52% 73% Rel Noteward feet (New) Additional net profit Somatic Cell Score 2.75 Daughter Stillbirth 5.3% Feet Net (New) Additional net profit Body Composite 2.5 Feed Efficiency 186 milk samples. Lower's better. Predicted Transmitting CoNFORMATION 32 Herds 70 Dirs 91% Rel MACE / 12.19 The percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during each 22.49 period. A list does percentage of non-pregnant, during	DR1 Tested Heterozygous for Dominant Red*	Productive Life		59	Sire Calving	Fase	7 5%	99% Rel	- I	Somatic Cell Score (SCS)	
** Domain Cere Care Additional net profit the offspring will aughter Pregnancy Rate Daughter Preg	* Recessive Gene Carrier	Somatic Cell Score	۵	2 75	Daughter Ca	lving Fase	5.2%	73% Rel		An indicator trait for mastitis resistance based on the direct	
Net Kerit (NP) Daughine Y role 2.4 One Gundani 1.2.4 milk samples. Lower is better. Additional net profit Livability 3.0 Daughier Stillioth 5.3% Perdicted Yansmitting PTAT 2.24 Body Composite -0.06 Dird Gundary Feet & Legs Composite 0.79 -0.06 -0.06 Average: 0 Strong +0.27 -0.06 -0.06 -0.06 Body Depth Deep -0.05 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.07 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.06 -0.0	** Dominant Gene Carrier	Daughter Pregnancy Rate		2.10	Sire Stillbirth	Tring Eddo	7.2%	10/01/01		measure of somatic cells in	
Livedinity 33 December 2004 0.074 The difficing will provide over her lifetime. Fedility Index 2.5 Feed Efficiency 186 Expressed in SUS. PTAT 2.24 Body Composite 0.06 0.06 Udder Composite 2.89 Dairy Composite 1.21 The percentage of non-pregnant during each 21-day period. A built with a DPC of Dires of 1.021 Note that become pregnant during each 21-day period. A built with a DPC of Dires of 1.021 Predicted Transmitting Ability - Type (PTAT) 2.48 Dedy Composite 1.21 The percentage of non-pregnant during each 21-day period. A built with a DPC of Dires of 1.021 Average: 0 Feet & Legs Composite 0.79 Tall +1.16 Strong +0.27 Body Depth Deep +1.42 Dairy Form Deep 0.052 Open Rib +1.42 Rump Angle * Posty 0.17 Rear Legs Side View * Posty 0.17 Rear Legs Side View * Posty 0.17 Rear Legs Rear View Strong +1.42 F& L Score High High +1.38 Average: 0 Higher is better. * or these traits, 0 is ideal. Rear Udder Height	Net Merit (NM)			3.0	Daughter Stil	lbirth	5.3%		-	milk samples. Lower is better.	
provide over her lifetime. Expressed in SUS. CONFORMATION 32 Herds 7 OUrs 91% Ref MACE / 12:19 The percentage of non-pregnant during each 2:4g period. A built with a DPR of 1 indicates that his daughters have 1% high reet & Legs Composite 0.06 Predicted Transmitting Ability - Type (PTAT) 2:89 Body Composite 0.06 Dairy Composite 1.21 Feet & Legs Composite 0.79 Stature Tail +1.16 Strength 0 Storog +0.27 Body Depth 0 Open Rib +1.38 Rump Angle * 0 Straight 0.06 Rump Angle * 0 Straight 0.02 Rear Legs Rear View 0 Straight +1.03 Fore Atachment 0 Strong +1.30 High + 1.03 Fore Atachment Strong +3.02 Fore Teat Depth 0 Strong +1.40 Udder Cleft 0 Strong +1.40 <tr< td=""><td>the offspring will</td><td colspan="2">Fertility Index</td><td>2.5</td><td>Eeed Efficien</td><td></td><td>186</td><td></td><td></td><td>Daughter Pregnancy Rate (DPR)</td></tr<>	the offspring will	Fertility Index		2.5	Eeed Efficien		186			Daughter Pregnancy Rate (DPR)	
Statue CONFORMATION 32 Herds 70 Dtrs 91% Rel MACE / 12:19 Predicted Transmitting Ability - Type (PTAT) Average: 0 Higher is better. PTAT 2.24 Body Composite -0.06 Nerage: 0 Higher is better. Statue 0.79 Tall +1.16 Strength 0.79 Deep 10.52 Deiny Composite 1.21 Body Depth 0 Strong +0.27 Deep 10.53 Dairy Form 0 0 Straight 1.53 High 1.53 Rump Angle * 0 0 Straight 10.23 Foot Angle Nite Nerage: 0 Rear Legs Side View * 0 0 Strong 4.04 Nite Nerage: 0 High High Nerage: 0 Rear Udder Height 0 0 Strong 4.04 Nite Nerage: 0 Higher is better. * * * Nerage: 0 Higher is better. Nerage: 0	provide over her					100			The percentage of non-pregnant		
PTAT 2.24 Body Composite -0.06 Udder Composite 2.89 Dairy Composite 1.21 Feet & Legs Composite 0.79 Stature Strong +0.26 Stature Strong +0.27 Body Depth Deep +0.52 Dairy Form Deep +0.52 Dairy Form Deep +0.52 Rump Angle * High +1.53 Rump Midth Deep +0.52 Foet Alachment Strong +0.17 Foet Alachment Strong +0.14 Rear Legs Rear View Strong +1.42 Fore Attachment Strong +1.42 Rear Udder Height Strong +1.42 Udder Cleft Strong +1.40 These traits include Rump Angle, Fore Teat Placement * Close +0.64	lifetime.	- CONFORMATION	32 Herds 70	Dtrs 9	1% Rel			MACE / 12-19 🚽	\leftarrow	cows that become pregnant	
Predicted Transmitting Ability - Type (PTAT) Average: 0 Higher is better. Udder Composite 2.89 Dairy Composite 1.21 Stature 0.79 Stature Tall +1.16 Strength 0 <td rowspan="2"></td> <td colspan="2">PTAT</td> <td>2.24</td> <td colspan="2">2.24 Body Composite</td> <td>-0.06</td> <td></td> <td></td> <td>bull with a DPR of 1 indicates that</td>		PTAT		2.24	2.24 Body Composite		-0.06			bull with a DPR of 1 indicates that	
Feed & Legs Composite 0.79 Ability - Type (PTAT) Stature Tall +1.16 Higher is better. Strong +0.27 Body Depth Deep +0.52 Dairy Form Dairy Form Open Rib +1.42 Higher is better. High - 1.53 Rump Angle * Open Rib High -1.53 Open Rib +1.42 Rump Vidth Open Rib Vide +0.60 Open Rib +1.42 Rump Vidth Open Rib Strong +0.23 Open Rib +1.42 Rear Legs Rear View Strong 0.01 Open Rib +1.42 Rear Legs Rear View Strong +1.88 F & L Score Nitight +1.03 Fore Attachment Strong +3.02 High High High Udder Cleft Strong +1.40 Mide Mide Merage: 0 Higher Rear Legs Side View, Fore Teat Vider Cleft Strong +1.40 Strong +1.40 Higher Kear Teat Placement and Fore Teat Length.		Udder Composite		2.89	2.89 Dairy Composite 1		1.21			his daughters have 1% higher	
Average 0 Higher is better. Stature Tall +1.16 Strength Strong +0.27 Body Depth Deep +0.52 Dairy Form Open Rib +1.42 Rump Angle * High -1.53 Rump Width Posty 0.17 Rear Legs Side View * Posty 0.17 Rear Legs Rear View Streep +1.88 F & L Score Strong +3.02 Fore Attachment Strong +3.02 Rear Udder Height High +4.12 Rear Udder Height Strong +1.42 Udder Clepth Strong +3.02 Higher is better. *for these traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal. These traits, 0 is ideal.	Predicted Transmitting ———	Feet & Legs Composite		0.79				pregnancy rate than a bull with DPR of 0.			
Higher is better. Stature Tail +1.10 Biddy Depth Strong +0.27 Body Depth Deep +0.52 Dairy Form Open Rib +1.42 Rump Angle \star High -1.53 Rump Width Posty -0.17 Rear Legs Side View \star Posty -0.17 Rear Legs Rear View Straight +0.23 Fot Angle Strong +1.88 F & L Score Strong +1.42 Rear Udder Height Strong +1.03 Rear Udder Height Strong +1.42 Udder Cleft Strong +1.42 Udder Depth Strong +1.42 For Teat Placement \star Strong +1.40 Rear Teat Placement \star Close +0.56 For Teat Length \star Long +0.34	Average: 0	Otations					T -0			Higher is better.	
Body Depth Deep +0.52 Dairy Form Open Rib +1.42 Rump Angle * High -1.53 Rump Width Posty -0.17 Rear Legs Side View * Posty -0.17 Rear Legs Rear View Straight +0.23 Foot Angle Streep +1.88 F & L Score High +1.03 Fore Attachment Strong +3.02 Udder Vidth Strong +3.02 Udder Cleft Strong +1.40 Udder Depth Strong +1.40 Fore Teat Placement * Close +0.63 Rear Teat Placement * Close +0.63 Fore Teat Length * Long +0.34	Higher is better.	Stature					Tall Strong	+1.10			
Dody DepthDep Nile10.32Dairy FormOpen Rib11.42Rump Angle *High1.53Rump WidthMVide40.60Rear Legs Side View *Posty0.17Rear Legs Side View *Posty0.17Rear Legs Rear ViewStraight40.23Foot AngleSteep11.88F & L ScoreHigh+1.03Fore AttachmentStrong+3.02Rear Udder HeightHigh+4.12Rear Udder WidthStrong+1.40Udder CleftStrong+1.40Udder CleftStrong+1.40Udder DepthStrong+1.40Fore Teat Placement *Close+0.63Rear Teat Placement *Close+0.63Fore Teat Length *Long+0.34		Body Depth			_		Deen	+0.27			
Rump Angle * High -1.53 Rump Width Posty -0.17 Rear Legs Side View * Posty -0.17 Rear Legs Rear View Straight +0.23 Foot Angle Straight +0.23 Foot Angle Strong +1.42 Fore Attachment Strong +3.02 Rear Udder Height High +4.12 Rear Udder Width Wide +3.79 Udder Cleft Strong +1.40 Udder Depth Strong +1.40 Fore Teat Placement * Close +0.63 Rear Teat Placement * Close +0.63 Fore Teat Length * Long +0.34		Dairy Form					Onen Rib	+1 42			
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F & L ScoreHigh+1.03Based on daughter classification.Fore AttachmentStrong+3.02Rear Udder HeightHigh+4.12Rear Udder WidthWide+3.79Udder CleftStrong+1.40Udder DepthStrong+1.40Fore Teat Placement *Close+0.63Rear Teat Placement *Close+0.63Fore Teat Length *Long+0.34		Foot Angle					Steep	+1.88			
Fore AttachmentStrong+3.02Rear Udder HeightHigh+4.12Rear Udder WidthWide+3.79Udder CleftStrong+1.40Udder DepthShallow+2.27Fore Teat Placement *Close+0.63Rear Teat Placement *Long+0.36Fore Teat Length *Close+0.56		F & L Score			High		High	+1.03		Based on daughter classification.	
Rear Udder Height High +4.12 Rear Udder Width Wide +3.79 Udder Cleft Strong +1.40 Udder Depth Shallow +2.27 Fore Teat Placement * Close +0.63 Rear Teat Placement * Long +0.36 Fore Teat Length * Long +0.34		Fore Attachment			Strong +3.0 High +4.1 Wide +3.7 Strong +1.4 Strong +1.4 Shallow +2.2 Close +0.6 Close +0.5		Strong	+3.02		Average: 0	
Rear Udder WidthWide+3.79Udder CleftStrong+1.40Udder DepthShallow+2.27Fore Teat Placement *Close+0.63Rear Teat Placement *Close+0.63Fore Teat Length *Long+0.34		Rear Udder Height					High	+4.12	Higher is better.		
Udder Cleft Strong +1.40 Udder Depth Shallow +2.27 Fore Teat Placement * Close +0.63 Rear Teat Placement * Close +0.56 Fore Teat Length * Long +0.36		Rear Udder Width					Wide	+3.79		*For these traits, 0 is ideal.	
Udder Depth Shallow +2.27 Fore Teat Placement * Close +0.63 Rear Teat Placement * Close +0.56 Fore Teat Length * Long +0.34		Udder Cleft					Strong	+1.40		These traits include Rump Angle, Rear Legs Side View, Fore Teat	
Fore Teat Placement * Close +0.63 Rear Teat Placement * Close +0.56 Fore Teat Length * Long +0.34		Udder Depth					Shallow	+2.27		Placement, Rear Teat Placement and Fore Teat Length.	
Rear Teat Placement * Close +0.56 Fore Teat Length * Long +0.34		Fore Teat Placement *					+0.63				
Fore Teat Length *		Rear Teat Placemen	ear Teat Placement 🛪				Close	+0.56			
		Fore Teat Length 🛪					Long	+0.34]	

HAPLOTYPES AFFECTING FERTILITY

Researchers have identified 5 haplotypes

HAPLOTYPE FOR CHOLESTEROL DEFICIEN

CY (HCD)

ANIMAL MODEL – The animal model represents proven methodology for calculating Predicted Transmitting Abilities (PTAs). Evaluations are based on the animal and its relationship to other animals being evaluated. Information from the animal itself, its ancestors, and its progeny are incorporated, with all known relationships among the animals considered.

PRODUCTION TRAITS – Production traits are expressed in predicted transmitting ability, which is an estimate of the genetic superiority or inferiority that an animal will transmit to the offspring.

TYPE TRAITS – Type Traits are expressed as Standardized Transmitting Abilities (STAs). This allows you to easily compare different traits of the same bull and see which traits have the most extreme values. The graph below illustrates normal distribution of bull proofs for conformation traits.

STANDARD DEVIATIONS – Simply put, the standard deviation tells us how far a bull is from the mean (average) value of all the bulls in the breed. The graph below shows the normal distribution of bull proofs for type traits with 68% of bulls ranging from -1 to +1, 95% from -2 to +2, 99% from -3 to +3, 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 3.2 as compared with over 99% of bulls that fall in the range of +3 to -3.

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For more information on the American Proving System visit: Council of Dairy Cattle Breeding (CDCB) at https://www.uscdcb.com