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 Conversion Factors For Production Traits. Source: INTERBULL 2108
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = PCORR2*Foreign Reliability

breed	country2	amilk	bmilk	afat	bfat	aprot	bprot	pcorr2
MSH	AUS	625.90	0.8820	46.200	1.2970	20.800	0.8240	0.5929
MSH	CAN	504.40	0.6050	34.600	0.7180	15.500	0.4650	0.7225
MSH	DEU	883.90	0.5520	69.200	0.7970	30.900	0.4570	0.7225
MSH	DFS	-2465.10	35.8200	-108.000	1.8300	-45.100	0.8440	0.7225
MSH	EST	947.60	0.7520	60.300	0.9920	31.700	0.6140	0.7396
MSH	GBR	225.40	1.5430	20.300	2.3540	9.600	1.5150	0.7225
MSH	IRL	905.14	2.0384	52.987	2.4472	28.802	1.6146	0.6400
MSH	LTU	29.80	1.2460	23.300	1.3100	7.900	1.0510	0.7225
MSH	LVA	765.40	1.2890	52.300	1.6290	26.800	1.1100	0.7225
MSH	NLD	1519.70	0.4749	88.448	0.6627	46.685	0.3521	0.7225
MSH	NOR	-2035.90	31.0010	-96.900	1.6170	-41.300	0.7820	0.7396
MSH	NZL	336.30	1.1230	53.400	1.3360	22.000	0.9830	0.5184
MSH	USA	373.90	0.6010	23.200	0.7990	11.800	0.4960	0.8281
MSH	ZAF	384.81	0.6219	26.212	0.9804	11.955	0.5755	0.7396

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 Conversion Factors For SCS Traits. Source: INTERBULL 2108
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = SCORR2*Foreign Reliability

breed	country2	a	b	scorr2
MSH	AUS	100.700	-21.7870	0.8464
MSH	CAN	1.200	1.0230	0.8464
MSH	DEU	62.100	0.4120	0.8464
MSH	DFS	60.600	0.4500	0.8464
MSH	EST	73.000	0.3100	0.8464
MSH	GBR	102.700	-0.5140	0.8464
MSH	LTU	100.900	-15.6210	0.8281
MSH	LVA	99.900	-13.1410	0.8281
MSH	NLD	-32.654	1.3875	0.8464
MSH	NOR	63.000	0.4080	0.8464
MSH	NZL	97.300	-14.7650	0.7744
MSH	USA	176.200	-24.7050	0.7569
MSH	ZAF	104.284	-0.2295	0.8281

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 Conversion Factors For Type. Source = INTERBULL MACE 2108
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = TCORR2*Foreign Reliability

country2=AUS

c c f
 a o o
 n u r a b t

b	t	n	t	v	v	c
r	r	t	r	a	a	o
e	a	r	a	l	l	r
e	i	y	i	u	u	r
d	t	2	t	e	e	2

MSH	CONFORMATION	AUS	CONFORMATION	3.855	4.0161	0.5
5						
MSH	FEET AND LEGS	AUS	OVERALL FEET & LEG	3.628	7.9622	
MSH	MAMMARY SYSTEM	AUS	OVERALL UDDER SCORE	4.478	3.4379	
MSH	STATURE	AUS	STATURE	0.006	7.9953	
MSH	CHEST WIDTH	AUS	CHEST WIDTH	3.285	12.8008	
MSH	BODY DEPTH	AUS	BODY DEPTH	1.326	7.9469	
MSH	PIN WIDTH	AUS	RUMP WIDTH	1.969	12.5467	
MSH	RUMP ANGLE	AUS	RUMP ANGLE	-1.749	12.4762	
MSH	FOOT ANGLE	AUS	FOOT ANGLE	2.990	21.1036	
MSH	REAR LEGS SIDE VIEW	AUS	REAR LEG SET	-0.952	23.0679	
MSH	REAR LEG REAR VIEW	AUS	REAR LEG REAR VIEW	3.334	28.1822	
MSH	UDDER DEPTH	AUS	UDDER DEPTH	-0.944	7.7658	
MSH	MEDIAN SUSPENSORY	AUS	MEDIAN SUSPENSORY	1.560	14.0272	
MSH	FORE ATTACHMENT	AUS	FORE UDDER	3.750	13.9354	
MSH	TEAT PLACEMENT	AUS	FRONT TEAT PLACEMENT	2.395	11.6916	
MSH	TEAT LENGTH	AUS	TEAT LENGTH	-2.042	13.0402	
MSH	REAR ATTACHMENT HEIGHT	AUS	REAR UDDER HEIGHT	0.603	10.9484	
MSH	REAR TEAT PLACEMENT	AUS	REAR TEAT PLACEMENT	0.700	14.7606	
MSH	ANGULARITY	AUS	ANGULARITY	2.074	11.9661	

Conversion Factors For Type. Source = INTERBULL MACE 2108
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = TCORR2*Foreign Reliability

country2=CAN

	c	c	f			
	a	o	o			
	n	u	r	a	b	t
b	t	n	t	v	v	c
r	r	t	r	a	a	o
e	a	r	a	l	l	r

e d	i t	y 2	i t	u e	u e	r 2
MSH	CONFORMATION	CAN	CONFORMATION	7.112	0.7426	0.6
6						
MSH	FEET AND LEGS	CAN	OVERALL FEET & LEG	7.991	0.8732	
MSH	MAMMARY SYSTEM	CAN	OVERALL UDDER SCORE	10.238	0.8961	
MSH	STATURE	CAN	STATURE	4.338	0.7869	
MSH	CHEST WIDTH	CAN	CHEST WIDTH	0.937	0.7395	
MSH	BODY DEPTH	CAN	BODY DEPTH	1.311	0.6483	
MSH	PIN WIDTH	CAN	RUMP WIDTH	5.554	0.9802	
MSH	RUMP ANGLE	CAN	RUMP ANGLE	0.196	0.8738	
MSH	FOOT ANGLE	CAN	FOOT ANGLE	5.209	0.9687	
MSH	REAR LEGS SIDE VIEW	CAN	REAR LEG SET	-1.857	0.7574	
MSH	REAR LEG REAR VIEW	CAN	REAR LEG REAR VIEW	4.606	0.7109	
MSH	UDDER DEPTH	CAN	UDDER DEPTH	3.224	0.7597	
MSH	MEDIAN SUSPENSORY	CAN	MEDIAN SUSPENSORY	4.503	0.8091	
MSH	FORE ATTACHMENT	CAN	FORE UDDER	7.977	0.8986	
MSH	TEAT PLACEMENT	CAN	FRONT TEAT PLACEMENT	3.313	1.0941	
MSH	TEAT LENGTH	CAN	TEAT LENGTH	-3.700	1.3901	
MSH	REAR ATTACHMENT HEIGHT	CAN	REAR UDDER HEIGHT	8.061	0.9132	
MSH	REAR TEAT PLACEMENT	CAN	REAR TEAT PLACEMENT	2.541	0.9101	
MSH	ANGULARITY	CAN	ANGULARITY	6.775	0.6997	

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Converted Proof Reliability = TCORR2*Foreign Reliability

country2=DEU

b r e e d	c a n t r y 2	c o u n t r y 2	f o r e i g n c o u n t r y 2	a v e r a g e	b v a r i a n c e	t c o r r e c t i o n
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MSH	FEET AND LEGS	DEU	OVERALL FEET & LEG	-25.136	0.3499
MSH	MAMMARY SYSTEM	DEU	OVERALL UDDER SCORE	-23.712	0.3282
MSH	STATURE	DEU	STATURE	-32.384	0.3736
MSH	CHEST WIDTH	DEU	CHEST WIDTH	-41.377	0.4478
MSH	BODY DEPTH	DEU	BODY DEPTH	-37.979	0.4090
MSH	PIN WIDTH	DEU	RUMP WIDTH	-51.102	0.5861
MSH	RUMP ANGLE	DEU	RUMP ANGLE	-60.417	0.5705
MSH	FOOT ANGLE	DEU	FOOT ANGLE	-33.695	0.4294
MSH	REAR LEGS SIDE VIEW	DEU	REAR LEG SET	-62.084	0.5654
MSH	REAR LEG REAR VIEW	DEU	REAR LEG REAR VIEW	-39.931	0.4868
MSH	UDDER DEPTH	DEU	UDDER DEPTH	-30.889	0.3415
MSH	MEDIAN SUSPENSORY	DEU	MEDIAN SUSPENSORY	-35.071	0.3876
MSH	FORE ATTACHMENT	DEU	FORE UDDER	-38.285	0.4439
MSH	TEAT PLACEMENT	DEU	FRONT TEAT PLACEMENT	-45.675	0.4798
MSH	TEAT LENGTH	DEU	TEAT LENGTH	-56.232	0.4992
MSH	REAR ATTACHMENT HEIGHT	DEU	REAR UDDER HEIGHT	-29.872	0.3529
MSH	REAR TEAT PLACEMENT	DEU	REAR TEAT PLACEMENT	-39.244	0.3908
MSH	ANGULARITY	DEU	ANGULARITY	-36.136	0.4358

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Converted Proof Reliability = TCORR2*Foreign Reliability

country2=DFS

	c	c	f			
	a	o	o			
	n	u	r	a	b	t
b	t	n	t	v	v	c
r	r	t	r	a	a	o
e	a	r	a	l	l	r
e	i	y	i	u	u	r
d	t	2	t	e	e	2
MSH	CONFORMATION	DFS	CONFORMATION	-46.454	0.4831	0.6
6						
MSH	FEET AND LEGS	DFS	OVERALL FEET & LEG	-34.228	0.4067	
MSH	MAMMARY SYSTEM	DFS	OVERALL UDDER SCORE	-44.272	0.5306	

MSH	STATURE	DFS	STATURE	-55.839	0.5824
MSH	CHEST WIDTH	DFS	CHEST WIDTH	-37.234	0.4002
MSH	BODY DEPTH	DFS	BODY DEPTH	-35.764	0.3469
MSH	PIN WIDTH	DFS	RUMP WIDTH	-51.107	0.5521
MSH	RUMP ANGLE	DFS	RUMP ANGLE	-51.684	0.5254
MSH	FOOT ANGLE	DFS	FOOT ANGLE	-63.118	0.6787
MSH	REAR LEGS SIDE VIEW	DFS	REAR LEG SET	-55.842	0.5629
MSH	REAR LEG REAR VIEW	DFS	REAR LEG REAR VIEW	-39.001	0.4440
MSH	UDDER DEPTH	DFS	UDDER DEPTH	-36.080	0.4031
MSH	MEDIAN SUSPENSORY	DFS	MEDIAN SUSPENSORY	-33.323	0.3410
MSH	FORE ATTACHMENT	DFS	FORE UDDER	-39.311	0.4592
MSH	TEAT PLACEMENT	DFS	FRONT TEAT PLACEMENT	-50.020	0.5370
MSH	TEAT LENGTH	DFS	TEAT LENGTH	-70.474	0.6575
MSH	REAR ATTACHMENT HEIGHT	DFS	REAR UDDER HEIGHT	-44.945	0.4833
MSH	REAR TEAT PLACEMENT	DFS	REAR TEAT PLACEMENT	-44.665	0.4468
MSH	ANGULARITY	DFS	ANGULARITY	-59.019	0.6128

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Converted Canadian Proof = A + (B* Foreign Proof)
Converted Proof Reliability = TCORR2*Foreign Reliability

country2=GBR

	c	c	f			
	a	o	o			
	n	u	r	a	b	t
b	t	n	t	v	v	c
r	r	t	r	a	a	o
e	a	r	a	l	l	r
e	i	y	i	u	u	r
d	t	2	t	e	e	2
MSH	FEET AND LEGS	GBR	OVERALL FEET & LEG	6.787	3.7869	
MSH	MAMMARY SYSTEM	GBR	OVERALL UDDER SCORE	10.245	3.6160	
MSH	STATURE	GBR	STATURE	1.690	3.9858	
MSH	CHEST WIDTH	GBR	CHEST WIDTH	4.430	3.2212	

MSH	BODY DEPTH	GBR	BODY DEPTH	2.688	2.5740
MSH	PIN WIDTH	GBR	RUMP WIDTH	4.456	4.1525
MSH	RUMP ANGLE	GBR	RUMP ANGLE	-1.603	3.4021
MSH	FOOT ANGLE	GBR	FOOT ANGLE	2.593	3.8088
MSH	REAR LEGS SIDE VIEW	GBR	REAR LEG SET	-2.734	3.0619
MSH	UDDER DEPTH	GBR	UDDER DEPTH	2.781	2.3424
MSH	MEDIAN SUSPENSORY	GBR	MEDIAN SUSPENSORY	3.946	2.6708
MSH	FORE ATTACHMENT	GBR	FORE UDDER	8.753	3.5122
MSH	TEAT PLACEMENT	GBR	FRONT TEAT PLACEMENT	5.890	4.0893
MSH	TEAT LENGTH	GBR	TEAT LENGTH	-4.538	4.9780
MSH	REAR ATTACHMENT HEIGHT	GBR	REAR UDDER HEIGHT	6.420	3.7655
MSH	ANGULARITY	GBR	ANGULARITY	3.334	4.0813

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Conversion Factors For Type. Source = INTERBULL MACE 2108
Converted Canadian Proof = A + (B* Foreign Proof)
Converted Proof Reliability = TCORR2*Foreign Reliability

country2=NLD

	c	c	f			
	a	o	o		a	b
	n	u	r		v	v
b	t	n	t		a	a
r	r	t	r		l	l
e	a	r	a		u	u
e	i	y	i		e	e
d	t	2	t			2
MSH	CONFORMATION	NLD	CONFORMATION	-151.433	1.7059	0.6
7						
MSH	FEET AND LEGS	NLD	OVERALL FEET & LEG	-71.175	0.8117	
MSH	MAMMARY SYSTEM	NLD	OVERALL UDDER SCORE	-120.372	1.4000	
MSH	STATURE	NLD	STATURE	-92.381	1.0718	
MSH	CHEST WIDTH	NLD	CHEST WIDTH	-102.272	1.1362	
MSH	BODY DEPTH	NLD	BODY DEPTH	-82.551	0.9497	
MSH	PIN WIDTH	NLD	RUMP WIDTH	-83.012	0.9496	
MSH	RUMP ANGLE	NLD	RUMP ANGLE	-89.984	0.8987	
MSH	FOOT ANGLE	NLD	FOOT ANGLE	-116.453	1.2721	

MSH	REAR LEGS SIDE VIEW	NLD	REAR LEG SET	-103.689	0.9713
MSH	REAR LEG REAR VIEW	NLD	REAR LEG REAR VIEW	-93.750	1.0230
MSH	UDDER DEPTH	NLD	UDDER DEPTH	-91.976	1.0050
MSH	MEDIAN SUSPENSORY	NLD	MEDIAN SUSPENSORY	-94.118	1.0093
MSH	FORE ATTACHMENT	NLD	FORE UDDER	-115.550	1.2794
MSH	TEAT PLACEMENT	NLD	FRONT TEAT PLACEMENT	-122.740	1.3300
MSH	TEAT LENGTH	NLD	TEAT LENGTH	-132.844	1.3167
MSH	REAR ATTACHMENT HEIGHT	NLD	REAR UDDER HEIGHT	-102.648	1.1918
MSH	REAR TEAT PLACEMENT	NLD	REAR TEAT PLACEMENT	-99.454	1.0542
MSH	ANGULARITY	NLD	ANGULARITY	-97.485	1.1692

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Conversion Factors For Type. Source = INTERBULL MACE 2108
Converted Canadian Proof = A + (B* Foreign Proof)
Converted Proof Reliability = TCORR2*Foreign Reliability

country2=NOR

	c	c	f			
	a	o	o		a	b
	n	u	r		v	v
b	t	n	t		a	a
r	r	t	r		l	l
e	a	r	a		u	u
e	i	y	i		e	e
d	t	2	t			2
MSH	CONFORMATION	NOR	CONFORMATION	-41.223	0.4196	0.6
6						
MSH	FEET AND LEGS	NOR	OVERALL FEET & LEG	-31.549	0.3373	
MSH	MAMMARY SYSTEM	NOR	OVERALL UDDER SCORE	-46.442	0.4737	
MSH	STATURE	NOR	STATURE	-40.094	0.3777	
MSH	CHEST WIDTH	NOR	CHEST WIDTH	-28.240	0.3469	
MSH	BODY DEPTH	NOR	BODY DEPTH	-27.210	0.2659	
MSH	PIN WIDTH	NOR	RUMP WIDTH	-34.725	0.4119	
MSH	RUMP ANGLE	NOR	RUMP ANGLE	-41.277	0.4301	
MSH	FOOT ANGLE	NOR	FOOT ANGLE	-37.777	0.4116	
MSH	REAR LEGS SIDE VIEW	NOR	REAR LEG SET	-37.651	0.3768	

MSH	REAR LEG REAR VIEW	NOR	REAR LEG REAR VIEW	-28.131	0.3136
MSH	UDDER DEPTH	NOR	UDDER DEPTH	-36.329	0.3482
MSH	MEDIAN SUSPENSORY	NOR	MEDIAN SUSPENSORY	-35.743	0.3371
MSH	FORE ATTACHMENT	NOR	FORE UDDER	-39.493	0.4135
MSH	TEAT PLACEMENT	NOR	FRONT TEAT PLACEMENT	-53.796	0.5241
MSH	TEAT LENGTH	NOR	TEAT LENGTH	-59.094	0.5370
MSH	REAR ATTACHMENT HEIGHT	NOR	REAR UDDER HEIGHT	-41.061	0.3850
MSH	REAR TEAT PLACEMENT	NOR	REAR TEAT PLACEMENT	-37.835	0.3848
MSH	ANGULARITY	NOR	ANGULARITY	-45.084	0.4002

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Conversion Factors For Type. Source = INTERBULL MACE 2108
Converted Canadian Proof = A + (B* Foreign Proof)
Converted Proof Reliability = TCORR2*Foreign Reliability

country2=NZL

	c	c	f			
	a	o	o		a	b
	n	u	r		v	v
b	t	n	t		a	a
r	r	t	r		l	l
e	a	r	a		u	u
e	i	y	i		e	e
d	t	2	t			2
MSH	CONFORMATION	NZL	CONFORMATION	1.643	14.8196	0.5
5						
MSH	MAMMARY SYSTEM	NZL	OVERALL UDDER SCORE	0.384	14.7010	
MSH	STATURE	NZL	STATURE	-6.572	10.0337	
MSH	CHEST WIDTH	NZL	CHEST WIDTH	3.871	13.5480	
MSH	BODY DEPTH	NZL	BODY DEPTH	1.514	10.9865	
MSH	PIN WIDTH	NZL	RUMP WIDTH	-0.013	17.6623	
MSH	RUMP ANGLE	NZL	RUMP ANGLE	-4.710	18.2652	
MSH	REAR LEGS SIDE VIEW	NZL	REAR LEG SET	0.959	38.3580	
MSH	MEDIAN SUSPENSORY	NZL	MEDIAN SUSPENSORY	-0.466	13.7619	
MSH	FORE ATTACHMENT	NZL	FORE UDDER	0.151	13.7536	
MSH	TEAT PLACEMENT	NZL	FRONT TEAT PLACEMENT	-3.410	24.5189	
MSH	REAR ATTACHMENT HEIGHT	NZL	REAR UDDER HEIGHT	1.051	16.3181	

MSH REAR TEAT PLACEMENT NZL REAR TEAT PLACEMENT -2.823 17.3783

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 Conversion Factors For Type. Source = INTERBULL MACE 2108
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = TCORR2*Foreign Reliability

country2=USA

	c	c	f			
	a	o	o		a	b
	n	u	r		v	v
b	t	n	t		a	a
r	r	t	r		l	l
e	a	r	a		u	u
e	i	y	i		e	e
d	t	2	t			2
MSH CONFORMATION 7		USA CONFORMATION		8.110	8.8811	0.6
MSH FEET AND LEGS		USA OVERALL FEET & LEG		6.851	4.0516	
MSH MAMMARY SYSTEM		USA OVERALL UDDER SCORE		10.272	5.5172	
MSH STATURE		USA STATURE		3.993	2.1298	
MSH CHEST WIDTH		USA CHEST WIDTH		3.289	4.1301	
MSH BODY DEPTH		USA BODY DEPTH		3.154	3.0781	
MSH PIN WIDTH		USA RUMP WIDTH		5.929	4.0866	
MSH RUMP ANGLE		USA RUMP ANGLE		-1.471	3.1176	
MSH FOOT ANGLE		USA FOOT ANGLE		3.642	5.8071	
MSH REAR LEGS SIDE VIEW		USA REAR LEG SET		-3.893	5.6167	
MSH REAR LEG REAR VIEW		USA REAR LEG REAR VIEW		5.181	-5.3164	
MSH UDDER DEPTH		USA UDDER DEPTH		3.348	3.1957	
MSH MEDIAN SUSPENSORY		USA MEDIAN SUSPENSORY		2.689	3.8581	
MSH FORE ATTACHMENT		USA FORE UDDER		7.768	3.5316	
MSH TEAT PLACEMENT		USA FRONT TEAT PLACEMENT		3.421	4.3282	
MSH TEAT LENGTH		USA TEAT LENGTH		-2.839	4.1883	
MSH REAR ATTACHMENT HEIGHT		USA REAR UDDER HEIGHT		7.828	3.6680	
MSH REAR TEAT PLACEMENT		USA REAR TEAT PLACEMENT		2.911	3.9775	
MSH ANGULARITY		USA ANGULARITY		7.214	4.5311	

CALCULATION OF FAT% AND PROTEIN% FOR AUGUST 2021

BREED	BMILK	BFAT	BPRT
AYS	7972	333	273
BSW	8455	361	303
CN	5795	255	210
GUE	7049	327	249
JER	6987	360	271
HOL	10720	424	350
MS	7100	281	235

$$\text{EBVFAT\%} = 200 * [(\text{BFAT} + \text{EBVFAT} * 0.5) / (\text{BMILK} + \text{EBVMILK} * 0.5) - (\text{BFAT} / \text{BMILK})]$$

$$\text{EBVPROT\%} = 200 * [(\text{BPRT} + \text{EBVPRT} * 0.5) / (\text{BMILK} + \text{EBVMILK} * 0.5) - (\text{BPRT} / \text{BMILK})]$$

EXAMPLE:

A HOLSTEIN bull has EBV MILK=+1000, EBVFAT=+50, EBVPROT=+40

$$\begin{aligned} \text{EBVFAT\%} &= 200 * [(424 + 50 * 0.5) / (10720 + 1000 * 0.5) - (424 / 11130)] \\ &= 200 * [(424 + 25) / (10720 + 500) - (0.03955)] \\ &= 200 * [0.04002 - 0.03955] \\ &= 200 * 0.00047 \\ &= 0.09 \end{aligned}$$

$$\begin{aligned} \text{EBVPROT\%} &= 200 * [(350 + 40 * 0.5) / (10720 + 1000 * 0.5) - (350 / 11130)] \\ &= 200 * [(350 + 20) / (10720 + 500) - (0.03265)] \\ &= 200 * [0.03298 - 0.03265] \\ &= 200 * 0.00033 \\ &= 0.07 \end{aligned}$$