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 Conversion Factors For Production Traits. Source: INTERBULL 2004
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = PCORR2*Foreign Reliability

breed	country2	amilk	bmilk	afat	bfat	aprot	bprot	pcorr2
MSH	AUS	839.50	0.9110	60.400	1.2240	28.800	0.8370	0.6241
MSH	CAN	645.20	0.6610	39.800	0.7580	18.100	0.5060	0.7921
MSH	DEU	995.10	0.6200	73.800	0.8550	34.100	0.5160	0.7921
MSH	DFS	-2790.30	40.4710	-116.200	1.9400	-54.600	0.9750	0.7921
MSH	EST	1171.20	0.8670	65.700	1.0870	37.700	0.7060	0.7921
MSH	GBR	446.90	1.7250	29.000	2.5350	14.500	1.6350	0.7921
MSH	IRL	1065.85	2.3025	58.649	2.6595	33.228	1.8537	0.6889
MSH	LTU	75.50	1.3880	25.800	1.4080	9.100	1.1890	0.7921
MSH	LVA	949.90	1.4130	57.700	1.6910	31.300	1.2210	0.7921
MSH	NLD	1737.15	0.5349	93.744	0.6960	51.072	0.3708	0.7921
MSH	NOR	-2279.00	34.3280	-104.900	1.6990	-48.100	0.8740	0.7921
MSH	NZL	462.70	1.2980	61.900	1.4820	25.700	1.1000	0.5776
MSH	USA	488.20	0.6790	27.200	0.8570	14.200	0.5540	0.8649
MSH	ZAF	458.27	0.6992	25.200	1.0394	12.830	0.6438	0.7921

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 Conversion Factors For SCS Traits. Source: INTERBULL 2004
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = SCORR2*Foreign Reliability

breed	country2	a	b	scorr2
MSH	AUS	100.800	-21.7640	0.8836
MSH	CAN	-4.800	1.0840	0.8836
MSH	DEU	60.100	0.4320	0.8836
MSH	DFS	58.600	0.4720	0.8836
MSH	EST	51.600	0.5100	0.8836
MSH	GBR	103.100	-0.5320	0.8836
MSH	LTU	100.400	-15.9430	0.8649
MSH	LVA	99.700	-13.9440	0.8649
MSH	NLD	-43.445	1.4984	0.8836
MSH	NOR	61.000	0.4280	0.8649
MSH	NZL	96.900	-15.4180	0.7921
MSH	USA	180.900	-26.2060	0.8100
MSH	ZAF	103.472	-0.2422	0.8649

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 Conversion Factors For Type. Source = INTERBULL MACE 2004
 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	4.274	6.6482	0.5
MSH	FET AND LEGS	AUS	OVERALL FEET & LEG	-51.623	0.5333	
MSH	MAMMARY SYSTEM	AUS	OVERALL UDDER SCORE	5.406	7.0329	
MSH	STATURE	AUS	STATURE	0.493	9.0228	
MSH	CHEST WIDTH	AUS	CHEST WIDTH	3.734	13.4267	
MSH	BODY DEPTH	AUS	BODY DEPTH	1.869	9.3817	
MSH	PIN WIDTH	AUS	RUMP WIDTH	2.149	14.0790	
MSH	RUMP ANGLE	AUS	RUMP ANGLE	-1.685	12.3897	
MSH	FOOT ANGLE	AUS	FOOT ANGLE	1.193	19.7829	
MSH	REAR LEGS SIDE VIEW	AUS	REAR LEG SET	0.306	20.7601	
MSH	REAR LEG REAR VIEW	AUS	REAR LEG REAR VIEW	3.002	17.4257	
MSH	UDDER DEPTH	AUS	UDDER DEPTH	0.147	8.7352	
MSH	MEDIAN SUSPENSORY	AUS	MEDIAN SUSPENSORY	1.482	12.7553	
MSH	FORE ATTACHMENT	AUS	FORE UDDER	4.318	11.7748	
MSH	TEAT PLACEMENT	AUS	FRONT TEAT PLACEMENT	2.067	11.1004	
MSH	TEAT LENGTH	AUS	TEAT LENGTH	0.051	14.7902	
MSH	REAR ATTACHMENT HEIGHT	AUS	REAR UDDER HEIGHT	0.725	9.8290	
MSH	REAR TEAT PLACEMENT	AUS	REAR TEAT PLACEMENT	0.315	14.5311	
MSH	ANGULARITY	AUS	ANGULARITY	3.004	11.2841	

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 Conversion Factors For Type. Source = INTERBULL MACE 2004
 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 4	CONFORMATION	CAN	CONFORMATION	7.472	0.7812	0.7
MSH	FEET AND LEGS	CAN	OVERALL FEET & LEG	6.418	0.8764	
MSH	MAMMARY SYSTEM	CAN	OVERALL UDDER SCORE	10.948	0.9477	
MSH	STATURE	CAN	STATURE	5.560	0.8614	
MSH	CHEST WIDTH	CAN	CHEST WIDTH	0.834	0.7652	
MSH	BODY DEPTH	CAN	BODY DEPTH	1.685	0.6533	
MSH	PIN WIDTH	CAN	RUMP WIDTH	5.319	0.9462	
MSH	RUMP ANGLE	CAN	RUMP ANGLE	-0.289	0.8782	
MSH	FOOT ANGLE	CAN	FOOT ANGLE	3.629	0.9331	
MSH	REAR LEGS SIDE VIEW	CAN	REAR LEG SET	-1.307	0.8265	
MSH	REAR LEG REAR VIEW	CAN	REAR LEG REAR VIEW	5.065	0.7631	
MSH	UDDER DEPTH	CAN	UDDER DEPTH	4.037	0.8006	
MSH	MEDIAN SUSPENSORY	CAN	MEDIAN SUSPENSORY	5.100	0.8498	
MSH	FORE ATTACHMENT	CAN	FORE UDDER	8.392	0.9126	
MSH	TEAT PLACEMENT	CAN	FRONT TEAT PLACEMENT	3.176	1.0737	
MSH	TEAT LENGTH	CAN	TEAT LENGTH	-1.707	1.3957	
MSH	REAR ATTACHMENT HEIGHT	CAN	REAR UDDER HEIGHT	7.982	0.9242	
MSH	REAR TEAT PLACEMENT	CAN	REAR TEAT PLACEMENT	2.949	0.9337	
MSH	ANGULARITY	CAN	ANGULARITY	7.003	0.7030	

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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 e r a g e	t c o r r e c t i o n
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MSH	FEET AND LEGS	DEU	OVERALL FEET & LEG	-25.580	0.3307
MSH	MAMMARY SYSTEM	DEU	OVERALL UDDER SCORE	-25.113	0.3433
MSH	STATURE	DEU	STATURE	-35.215	0.4125
MSH	CHEST WIDTH	DEU	CHEST WIDTH	-45.708	0.4883
MSH	BODY DEPTH	DEU	BODY DEPTH	-39.689	0.4291
MSH	PIN WIDTH	DEU	RUMP WIDTH	-50.542	0.5741
MSH	RUMP ANGLE	DEU	RUMP ANGLE	-60.924	0.5690
MSH	FOOT ANGLE	DEU	FOOT ANGLE	-34.658	0.4171
MSH	REAR LEGS SIDE VIEW	DEU	REAR LEG SET	-62.855	0.5827
MSH	REAR LEG REAR VIEW	DEU	REAR LEG REAR VIEW	-41.264	0.4867
MSH	UDDER DEPTH	DEU	UDDER DEPTH	-32.199	0.3616
MSH	MEDIAN SUSPENSORY	DEU	MEDIAN SUSPENSORY	-36.152	0.3999
MSH	FORE ATTACHMENT	DEU	FORE UDDER	-39.187	0.4553
MSH	TEAT PLACEMENT	DEU	FRONT TEAT PLACEMENT	-43.121	0.4557
MSH	TEAT LENGTH	DEU	TEAT LENGTH	-54.004	0.4940
MSH	REAR ATTACHMENT HEIGHT	DEU	REAR UDDER HEIGHT	-30.525	0.3553
MSH	REAR TEAT PLACEMENT	DEU	REAR TEAT PLACEMENT	-38.871	0.3868
MSH	ANGULARITY	DEU	ANGULARITY	-34.135	0.4218

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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	-47.464	0.5012	0.7
4						
MSH	FEET AND LEGS	DFS	OVERALL FEET & LEG	-35.236	0.3990	
MSH	MAMMARY SYSTEM	DFS	OVERALL UDDER SCORE	-46.876	0.5521	

MSH	STATURE	DFS	STATURE	-61.685	0.6488
MSH	CHEST WIDTH	DFS	CHEST WIDTH	-43.516	0.4617
MSH	BODY DEPTH	DFS	BODY DEPTH	-36.518	0.3618
MSH	PIN WIDTH	DFS	RUMP WIDTH	-51.378	0.5512
MSH	RUMP ANGLE	DFS	RUMP ANGLE	-52.749	0.5264
MSH	FOOT ANGLE	DFS	FOOT ANGLE	-63.458	0.6702
MSH	REAR LEGS SIDE VIEW	DFS	REAR LEG SET	-57.409	0.5846
MSH	REAR LEG REAR VIEW	DFS	REAR LEG REAR VIEW	-42.706	0.4657
MSH	UDDER DEPTH	DFS	UDDER DEPTH	-38.098	0.4243
MSH	MEDIAN SUSPENSORY	DFS	MEDIAN SUSPENSORY	-38.772	0.4036
MSH	FORE ATTACHMENT	DFS	FORE UDDER	-39.265	0.4646
MSH	TEAT PLACEMENT	DFS	FRONT TEAT PLACEMENT	-47.976	0.5170
MSH	TEAT LENGTH	DFS	TEAT LENGTH	-68.433	0.6502
MSH	REAR ATTACHMENT HEIGHT	DFS	REAR UDDER HEIGHT	-45.329	0.4818
MSH	REAR TEAT PLACEMENT	DFS	REAR TEAT PLACEMENT	-44.538	0.4535
MSH	ANGULARITY	DFS	ANGULARITY	-54.990	0.5784

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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	4.799	3.5079	
MSH	MAMMARY SYSTEM	GBR	OVERALL UDDER SCORE	10.915	3.7488	
MSH	STATURE	GBR	STATURE	2.587	4.3813	
MSH	CHEST WIDTH	GBR	CHEST WIDTH	4.265	3.4820	

MSH	BODY DEPTH	GBR	BODY DEPTH	3.196	2.5674
MSH	PIN WIDTH	GBR	RUMP WIDTH	4.456	4.1278
MSH	RUMP ANGLE	GBR	RUMP ANGLE	-2.153	3.2995
MSH	FOOT ANGLE	GBR	FOOT ANGLE	1.235	3.6103
MSH	REAR LEGS SIDE VIEW	GBR	REAR LEG SET	-2.105	3.3335
MSH	UDDER DEPTH	GBR	UDDER DEPTH	3.753	2.4126
MSH	MEDIAN SUSPENSORY	GBR	MEDIAN SUSPENSORY	4.365	2.8067
MSH	FORE ATTACHMENT	GBR	FORE UDDER	9.488	3.3529
MSH	TEAT PLACEMENT	GBR	FRONT TEAT PLACEMENT	5.775	3.8086
MSH	TEAT LENGTH	GBR	TEAT LENGTH	-2.796	4.8303
MSH	REAR ATTACHMENT HEIGHT	GBR	REAR UDDER HEIGHT	6.584	3.7545
MSH	ANGULARITY	GBR	ANGULARITY	3.717	4.0910

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Conversion Factors For Type. Source = INTERBULL MACE 2004
 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	-154.067	1.7461	0.7
4						
MSH	FEET AND LEGS	NLD	OVERALL FEET & LEG	-71.447	0.7999	
MSH	MAMMARY SYSTEM	NLD	OVERALL UDDER SCORE	-124.228	1.4510	
MSH	STATURE	NLD	STATURE	-108.112	1.2632	
MSH	CHEST WIDTH	NLD	CHEST WIDTH	-101.295	1.1182	
MSH	BODY DEPTH	NLD	BODY DEPTH	-84.705	0.9787	
MSH	PIN WIDTH	NLD	RUMP WIDTH	-84.910	0.9655	
MSH	RUMP ANGLE	NLD	RUMP ANGLE	-89.997	0.8915	
MSH	FOOT ANGLE	NLD	FOOT ANGLE	-119.560	1.2946	

MSH	REAR LEGS SIDE VIEW	NLD	REAR LEG SET	-110.095	1.0395
MSH	REAR LEG REAR VIEW	NLD	REAR LEG REAR VIEW	-101.701	1.0929
MSH	UDDER DEPTH	NLD	UDDER DEPTH	-92.900	1.0265
MSH	MEDIAN SUSPENSORY	NLD	MEDIAN SUSPENSORY	-105.375	1.1365
MSH	FORE ATTACHMENT	NLD	FORE UDDER	-116.818	1.3061
MSH	TEAT PLACEMENT	NLD	FRONT TEAT PLACEMENT	-120.114	1.3072
MSH	TEAT LENGTH	NLD	TEAT LENGTH	-125.837	1.2616
MSH	REAR ATTACHMENT HEIGHT	NLD	REAR UDDER HEIGHT	-103.318	1.2064
MSH	REAR TEAT PLACEMENT	NLD	REAR TEAT PLACEMENT	-96.775	1.0329
MSH	ANGULARITY	NLD	ANGULARITY	-95.227	1.1589

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Conversion Factors For Type. Source = INTERBULL MACE 2004
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	-42.709	0.4419	0.7
4						
MSH	FEET AND LEGS	NOR	OVERALL FEET & LEG	-31.874	0.3284	
MSH	MAMMARY SYSTEM	NOR	OVERALL UDDER SCORE	-49.236	0.5058	
MSH	STATURE	NOR	STATURE	-44.243	0.4208	
MSH	CHEST WIDTH	NOR	CHEST WIDTH	-31.451	0.3781	
MSH	BODY DEPTH	NOR	BODY DEPTH	-28.096	0.2812	
MSH	PIN WIDTH	NOR	RUMP WIDTH	-35.407	0.4127	
MSH	RUMP ANGLE	NOR	RUMP ANGLE	-42.158	0.4318	
MSH	FOOT ANGLE	NOR	FOOT ANGLE	-37.959	0.4022	
MSH	REAR LEGS SIDE VIEW	NOR	REAR LEG SET	-38.439	0.3945	

MSH	REAR LEG REAR VIEW	NOR	REAR LEG REAR VIEW	-30.884	0.3299
MSH	UDDER DEPTH	NOR	UDDER DEPTH	-37.902	0.3674
MSH	MEDIAN SUSPENSORY	NOR	MEDIAN SUSPENSORY	-39.625	0.3805
MSH	FORE ATTACHMENT	NOR	FORE UDDER	-39.835	0.4255
MSH	TEAT PLACEMENT	NOR	FRONT TEAT PLACEMENT	-51.793	0.5074
MSH	TEAT LENGTH	NOR	TEAT LENGTH	-56.707	0.5340
MSH	REAR ATTACHMENT HEIGHT	NOR	REAR UDDER HEIGHT	-41.185	0.3834
MSH	REAR TEAT PLACEMENT	NOR	REAR TEAT PLACEMENT	-37.909	0.3904

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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	2.017	16.6849	0.6
4						
MSH	MAMMARY SYSTEM	NZL	OVERALL UDDER SCORE	0.720	12.7240	
MSH	STATURE	NZL	STATURE	-6.181	11.7520	
MSH	CHEST WIDTH	NZL	CHEST WIDTH	3.681	15.9296	
MSH	BODY DEPTH	NZL	BODY DEPTH	1.524	11.7546	
MSH	PIN WIDTH	NZL	RUMP WIDTH	0.300	17.8754	
MSH	RUMP ANGLE	NZL	RUMP ANGLE	-5.857	18.6866	
MSH	REAR LEGS SIDE VIEW	NZL	REAR LEG SET	1.752	41.0029	
MSH	MEDIAN SUSPENSORY	NZL	MEDIAN SUSPENSORY	0.005	15.5774	
MSH	FORE ATTACHMENT	NZL	FORE UDDER	1.133	15.0635	
MSH	TEAT PLACEMENT	NZL	FRONT TEAT PLACEMENT	-2.420	22.5647	
MSH	REAR ATTACHMENT HEIGHT	NZL	REAR UDDER HEIGHT	1.252	15.1975	
MSH	REAR TEAT PLACEMENT	NZL	REAR TEAT PLACEMENT	-2.382	17.1569	

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 Conversion Factors For Type. Source = INTERBULL MACE 2004
 Converted Canadian Proof = A + (B* Foreign Proof)
 Converted Proof Reliability = TCORR2*Foreign Reliability

country2=USA

	c	c	f			
	a	o	o		a	b
b	n	u	r		v	v
r	t	r	t		a	a
e	r	t	r		l	l
e	a	y	a		u	u
d	i	2	i		e	e
	t		t			2
MSH	CONFORMATION	USA	CONFORMATION	8.886	9.2635	0.7
6						
MSH	FEET AND LEGS	USA	OVERALL FEET & LEG	5.426	3.8467	
MSH	MAMMARY SYSTEM	USA	OVERALL UDDER SCORE	11.501	5.8099	
MSH	STATURE	USA	STATURE	5.290	2.3535	
MSH	CHEST WIDTH	USA	CHEST WIDTH	3.013	4.4456	
MSH	BODY DEPTH	USA	BODY DEPTH	3.648	3.1750	
MSH	PIN WIDTH	USA	RUMP WIDTH	5.721	4.0568	
MSH	RUMP ANGLE	USA	RUMP ANGLE	-2.039	3.1175	
MSH	FOOT ANGLE	USA	FOOT ANGLE	2.320	5.5819	
MSH	REAR LEGS SIDE VIEW	USA	REAR LEG SET	-3.288	5.8789	
MSH	REAR LEG REAR VIEW	USA	REAR LEG REAR VIEW	4.497	-5.6520	
MSH	UDDER DEPTH	USA	UDDER DEPTH	4.437	3.3634	
MSH	MEDIAN SUSPENSORY	USA	MEDIAN SUSPENSORY	3.422	4.2491	
MSH	FORE ATTACHMENT	USA	FORE UDDER	8.879	3.6472	
MSH	TEAT PLACEMENT	USA	FRONT TEAT PLACEMENT	3.623	4.1454	
MSH	TEAT LENGTH	USA	TEAT LENGTH	-1.022	4.1891	
MSH	REAR ATTACHMENT HEIGHT	USA	REAR UDDER HEIGHT	8.145	3.6461	
MSH	REAR TEAT PLACEMENT	USA	REAR TEAT PLACEMENT	3.213	4.0093	
MSH	ANGULARITY	USA	ANGULARITY	8.463	4.5025	

CALCULATION OF FAT% AND PROTEIN% FOR APRIL 2020

BREED	BMILK	BFAT	BPRT
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AYS	7954	332	270
BSW	8543	365	305
CN	6174	262	221
GUE	6981	334	244
JER	6880	354	267
HOL	10563	416	343
MS	7056	274	233

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

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

EXAMPLE:

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

$$\begin{aligned} EBVFAT\% &= 200 * [(416+50*0.5) / (10563+1000*0.5) - (416/10563)] \\ &= 200 * [(416+25) / (10563+500) - (0.03938)] \\ &= 200 * [0.03986 - 0.03938] \\ &= 200 * 0.00048 \\ &= 0.10 \end{aligned}$$

$$\begin{aligned} EBVPROT\% &= 200 * [(343+40*0.5) / (10563+1000*0.5) - (343/10563)] \\ &= 200 * [(343+20) / (10563+500) - (0.03247)] \\ &= 200 * [0.03281 - 0.03247] \\ &= 200 * 0.00034 \\ &= 0.07 \end{aligned}$$