Holstein Fitness conversions

December 2024

When to use these formulas

These conversions should only be used for converting cow evaluations and bulls which do not have an Interbull evaluation. Please check with AHDB Dairy if in doubt.

The formulae provide a guide only to the expected evaluations of the relevant bull or cow in the UK.

How to convert a foreign proof using figures in the table below

Approximate UK PTA = a + (b * Foreign proof)

How to adjust the converted reliability

To take into account the loss of accuracy when converting a foreign proof into a UK equivalent, Interbull guidelines recommend that the foreign reliabilities should be adjusted by the squared correlations between the foreign and UK genetic evaluations.

Somatic Cell Count (SCC)

The foreign SCC reliability must therefore be multiplied by 0.90 (i.e. **UK reliability = 0.90 * Foreign reliability**)

		a		b		
GBR	=	14.91	+	45.587	*	AUS
GBR	=	−66.26	+	23.326	*	BEL
GBR	=	228.31	+	−2.305	*	CAN
GBR	=	108.83	+	−1.066	*	CHE
GBR	=	80.4	+	−0.793	*	CZE
GBR	=	97.61	+	−1.001	*	DEU
GBR	=	102.53	+	−1.07	*	DFS
GBR	=	116.37	+	−1.117	*	ESP
GBR	=	70.47	+	−0.666	*	EST
GBR	=	−1.72	+	−11.398	*	FRA
GBR	=	92.6	+	−0.864	*	HRV
GBR	=	2.86	+	8.775	*	HUN
GBR	=	15.24	+	94.746	*	IRL
GBR	=	6.03	+	42.75	*	ISR
GBR	=	210.88	+	−2.104	*	ITA
GBR	=	−49.8	+	27.612	*	JPN
GBR	=	3.99	+	34.655	*	KOR
GBR	=	4.73	+	29.995	*	LTU
GBR	=	6.58	+	0.026	*	LVA
GBR	=	278.75	+	−2.817	*	NLD
GBR	=	13.69	+	27.412	*	NZL

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GBR  =      115.33  +     -1.105  *  POL
GBR  =        5.16  +     26.916  *  PRT
GBR  =      -74.14  +     26.833  *  SVK
GBR  =      117.68  +     -1.085  *  SVN
GBR  =        6.37  +     50.275  *  URY
GBR  =     -178.43  +     59.904  *  USA
GBR  =        2.47  +      0.443  *  ZAF
```

Mastitis

The foreign Mastitis reliability must therefore be multiplied by 0.75 (i.e. **UK reliability = 0.75 * Foreign reliability**)

```
              a              b
GBR  =        1.22  +     11.864  *  AUS
GBR  =       -9.69  +      3.444  *  BEL
GBR  =       29.61  +     -0.294  *  CAN
GBR  =       18.83  +     -0.185  *  CHE
GBR  =       12.83  +     -0.124  *  CZE
GBR  =       21.13  +     -0.213  *  DEU
GBR  =       16.22  +     -0.168  *  DFS
GBR  =       16.13  +     -0.152  *  ESP
GBR  =        9.99  +     -0.093  *  EST
GBR  =        -0.1  +     -1.821  *  FRA
GBR  =       16.44  +     -0.154  *  HRV
GBR  =        0.84  +      1.222  *  HUN
GBR  =        0.33  +     14.903  *  IRL
GBR  =       -0.18  +      6.142  *  ISR
GBR  =       29.22  +     -0.286  *  ITA
GBR  =       -6.71  +       3.91  *  JPN
GBR  =        0.65  +      5.364  *  KOR
GBR  =        0.74  +      5.036  *  LTU
GBR  =        1.11  +      0.004  *  LVA
GBR  =       38.45  +     -0.387  *  NLD
GBR  =        0.21  +      3.582  *  NZL
GBR  =       17.39  +     -0.166  *  POL
GBR  =        0.85  +      3.283  *  PRT
GBR  =      -13.09  +      4.687  *  SVK
GBR  =       17.49  +      -0.16  *  SVN
GBR  =        1.05  +      8.121  *  URY
GBR  =        0.39  +     -0.741  *  USA
GBR  =        0.37  +      0.071  *  ZAF
```

Lifespan (LS)

The foreign LS reliability must therefore be multiplied by 0.70 (i.e. **UK reliability = 0.70 * Foreign reliability**)

```
              a              b
GBR  =  (    -0.5  +      5.189  *  AUS  )  *  305
GBR  =  (    -0.2  +      0.746  *  BEL  )  *  305
GBR  =  (   -5.02  +      0.049  *  CAN  )  *  305
GBR  =  (    -2.3  +      0.023  *  CHE  )  *  305
GBR  =  (   -1.46  +      0.013  *  CZE  )  *  305
```

```
GBR  =  (    -2.03  +       0.021  *   DEU  ) * 305
GBR  =  (    -2.03  +       0.022  *   DFS  ) * 305
GBR  =  (    -2.93  +       0.027  *   ESP  ) * 305
GBR  =  (    -0.18  +        0.25  *   FRA  ) * 305
GBR  =  (    -0.09  +       0.169  *   HUN  ) * 305
GBR  =  (    -0.11  +       0.112  *   IRL  ) * 305
GBR  =  (     0.06  +       0.002  *   ISR  ) * 305
GBR  =  (    -4.63  +       0.045  *   ITA  ) * 305
GBR  =  (    -0.28  +         0.2  *   JPN  ) * 305
GBR  =  (     0.05  +       0.001  *   NLD  ) * 305
GBR  =  (    -0.09  +       0.099  *   NZL  ) * 305
GBR  =  (    -2.26  +       0.022  *   POL  ) * 305
GBR  =  (    -1.27  +       0.011  *   SVN  ) * 305
GBR  =  (    -0.07  +       0.109  *   USA  ) * 305
GBR  =  (    -1.06  +       0.009  *   ZAF  ) * 305
```

Fertility Index (FI)

The foreign FI reliability must therefore be multiplied by 0.60 (i.e. **UK reliability = 0.60 * Foreign reliability**)

```
GBR  =    -4.4   +    -0.4914  *  AUS CI trait  +        0  *  AUS NR trait
GBR  =    -1.2   +     1.2164  *  BEL CI trait  +        0  *  BEL NR trait
GBR  =  -146.3   +     0.9299  *  CAN CI trait  +   0.5052  *  CAN NR trait
GBR  =   -30.9   +          0  *  CHE CI trait  +   0.3031  *  CHE NR trait
GBR  =   -17.4   +          0  *  CZE CI trait  +   0.1588  *  CZE NR trait
GBR  =   -68.4   +     0.4456  *  DEU CI trait  +    0.231  *  DEU NR trait
GBR  =   -58.3   +     0.4449  *  DFS CI trait  +   0.2021  *  DFS NR trait
GBR  =   -55.7   +     0.5202  *  ESP CI trait  +        0  *  ESP NR trait
GBR  =    -3.7   +     5.3928  *  FRA CI trait  +   2.5838  *  FRA NR trait
GBR  =      2    +    -1.4456  *  IRL CI trait  +        0  *  IRL NR trait
GBR  =    2.1    +          0  *  ISR CI trait  +   0.9238  *  ISR NR trait
GBR  =    -6.5   +    -2.4099  *  ITA CI trait  +   1.6744  *  ITA NR trait
GBR  =    23.8   +    -0.3425  *  JPN CI trait  +   0.4186  *  JPN NR trait
GBR  =  -183.9   +     1.2806  *  NLD CI trait  +   0.5774  *  NLD NR trait
GBR  =      4    +    68.6916  *  NZL CI trait  +        0  *  NZL NR trait
GBR  =     -68   +     0.4936  *  POL CI trait  +   0.1588  *  POL NR trait
GBR  =   -31.7   +     0.2739  *  SVN CI trait  +        0  *  SVN NR trait
GBR  =    -0.3   +     3.0673  *  URY CI trait  +        0  *  URY NR trait
GBR  =    -0.2   +     2.0502  *  USA CI trait  +   0.9671  *  USA NR trait
GBR  =    -1.2   +    -0.3258  *  ZAF CI trait  +        0  *  ZAF NR trait
```