

# THE JOURNAL'S GUIDE TO THE NEW HOLSTEIN TYPE MERIT FORMULA

**National Bovine Data Centre Geneticist, Darren Todd, explains the weightings in the new Type Merit formula for the December 2017 proof run, the expected effects on the Holstein population and how to use TM**

The new formula has been agreed by the Holstein UK Science Committee, which consists of; Mark Nutsford (*Riverdane*), David Jones (*Wiltor*), Iwan Morgan (*Erie*), Michael Smale (*Glebewin*) and Holstein UK Chairman Andrew Birkle (*Whinchat*).

As of December 2017, the Holstein Type Merit formula is:

$$\text{Type Merit} = (0.85 \times \text{Mammary PTA}) + (0.70 \times \text{Legs \& Feet PTA}) - (0.45 \times \text{Stature PTA}) + (0.20 \times \text{Chest Width PTA}) + (0.20 \times \text{Rear Leg Side PTA}) + (0.20 \times \text{Teat Length PTA}) + (0.10 \times \text{Rump Angle PTA})$$

\*for animals with a Stature PTA less than zero, the weighting is (0.0 x Stature PTA)

## THE EFFECT OF THE FORMULA

The new Type Merit (TM) should continue to improve both Mammary and Feet & Legs within the UK Holstein population. The PTA for these traits are calculated using the genetic version of the overall classification scores for Mammary and Legs & Feet respectively, as recorded by the NBDC classifiers.

Teat Length (TL) is being positively weighted so that the use of TM does not make teats any shorter within the population as a whole. Similarly, the Rear Leg Side (RLS) weighting is intended to balance the effect of strong Mammary selection, which tends to straighten rear legs.



Mounfield SSI DCV Mogul was the top UK daughter proven bull for Type Merit in August 2017

## USING THE NEW TM

Stature is negatively weighted for animals that have a Stature PTA greater than zero, whilst Chest Width (CW) now receives a positive weighting. This should result in a more balanced selection for body traits, as well as greater numbers of moderate Stature bulls appearing at the top of TM rankings.

The correlation between TM and Stature is now weaker (see Table 1) and more in line with that seen in classification. Rump Angle (RA) continues to have a small positive weighting, to offset the effect of strong selection for genetic Mammary, which tends to make pins slightly higher. As a result of using TM, RA should not change in the population.

should continue to be used with caution.

When considering the effect of TM on production and health traits, the new index has positive correlations with Lifespan and Milk kg in the current bull population (Table 1).

Therefore we would expect that selection for TM alone would also improve these traits. However, selection for TM by itself will not improve Fertility Index or Direct Calving Ease. TM should therefore continue to be used in conjunction with other key production and health traits to suit individual breeder goals.

Table 1

Correlations between the New and old Type Merit with trait PTA of genomic tested Holstein bulls born since 2007.

	TM old	TM new
Mammary	0.96	0.83
Legs & Feet	0.72	0.78
Stature	0.47	0.25
Chest Width	0.09	0.20
Rump Angle	-0.01	0.03
Rear Leg Side	-0.13	0.01
Teat Length	-0.14	0.02
PLI	0.36	0.36
Direct Calving Ease	-0.16	-0.13
Fertility Index	0.06	0.00
Lifespan	0.29	0.34
Milk Kg	0.21	0.23
Fat %	0.03	0.04
Protein %	-0.02	-0.04
PLI	0.36	0.36

**For further details or explanation of the new Type Merit Index please contact Darren Todd on 01923 695275 or email darrentodd@nbdc.uk**