



Jersey breeders can now incorporate disease resistance in the breeding program with the introduction of six health traits and an overall Health Trait Index (HTI) in genetic evaluations calculated by the Council on Dairy Cattle Breeding (CDCB).

Predicted Transmitting Abilities (PTAs) for the traits became available with the April 2020 genetic evaluations and are now published on official performance pedigrees and progeny reports from the American Jersey Cattle Association (AJCA).

In this month's Jersey Jargon, we will identify the traits and explain where they can be found on AJCA reports.

What are the New Health Traits?

Along with HTI, the health traits now receiving genetic evaluations and their accompanying three letter acronyms include: milk fever (MFV), displaced abomasum (DAB), ketosis (KET), mastitis (MAS), metritis (MET) and retained placenta (RPL).

PTAs for each trait are the predicted daughter difference for resistance above or below the Jersey breed average, with zero representing average. When selecting

Jersey Health Traits			
Trait	Frequency Disorder %	Resistance Rate %	Genetic Heritability
DAB	1.3	98.7	1.1
MFV	1.2	98.8	0.6
KET	2.6	97.4	1.2
MAS	10.4	89.6	3.1
MET	5.0	95.0	1.4
RPL	1.9	98.1	1.0

The six health disorders that are now receiving genetic evaluations are displaced abomasum (DAB), milk fever (MFV), ketosis (KET), mastitis (MAS), metritis (MET) and retained placenta (RPL). Resistance rate % is defined as 100% minus frequency of the health disorder.

service sires and managing cows and heifers, keep in mind the larger the positive value, the more favorable it is for disease resistance.

It should be noted that HTI is also included in the formula for Jersey Performance Index (JPI), accounting for 4.6% of the new JPI released in April 2020. Of that 4.6%, weightings for each trait follow: mastitis 1.9%; milk fever 1.0%; displaced abomasum 1.0%; ketosis

0.4%; metritis 0.2%; and retained placenta 0.1%.

Where Can They be Found?

The new health trait evaluations can be found along with other PTA or Genomic PTA evaluations on the fourth line of the genetic evaluation block on pedigrees and progeny reports. Information is also provided for the animal and its sire and dam and paternal and maternal grandparents.

Jersey breeders can also sort sires for the new health traits in real time using BullsEye at <https://infojersey.usjersey.com/publictools/bullseye/bullseye1.aspx>. BullsEye includes Active A.I. (A) Bulls, Foreign (F) Bulls and Genomically Tested (G) Bulls without milking daughters.

Health trait evaluations for the bulls currently included in BullsEye range as follows: -0.5 to 0.4 for MFV with an average of 0.1; -0.5 to 0.8 for DAB with an average of 0.2; -1.1 to 0.8 for KET with an average of 0.0; -4.4 to 2.6 for MAS with an average of -0.4; -2.2 to 1.3 for MET with an average of -0.1; -0.5 to 0.5 for RPL with an average of 0.0; and -9.53 to 9.12 for HTI with an average of .97.

The heritability of traits ranges from 0.6% for milk fever to 3.1% for mastitis. The four other individual traits fall between 1.0% and 1.4%.

Practical Application

PTA values for the health traits can be used to compare the costs associated with using certain bulls or developing certain cow families in the herd.

Comparisons can be made by considering the trait resistance rate for the disorder along with its genetic evaluation value. Trait resistance rate is defined as 100% minus frequency of the health disorder. In the case of mastitis, the resistance rate is 89.6% (100 - 10.4). In other words, 89.6% of the milking herd is resistant to mastitis. Metritis occurs in about 5% of the milking string, so its resistance is 95% (100 - 5).

To calculate an example, let us assume Jersey Bull A has a PTA for mastitis of +3.0. His daughters are expected to have an average resistance rate to clinical mastitis of 92.6% (89.6 + 3.0). Conversely, daughters of Jersey Bull B, with a PTA of mastitis of -3.0 are expected to have an average resistance of 86.6% (89.6 - 3.0).

In another way of thinking, about

HILLVIEW LISTOMEL-P	
USA 06733440	GT99K EBR 100 3H1F 2003E1
BORN 02/01/2015	
AMERICAN ID EARTAG 3440 / 3440	GFI 9.2%
CDCB GPTA 04/01/2020 1226DAUS 100HRDS 63NRIP	
999R 1261W -0.04E 52F 97XLE	
999R 0.03% 52P 551CMS 520MS 459FMS 422CMS	
4.8PL 1.5LTV -1.1DPR 0.7CCR 1.6GCR 2.63SCS	
0.1MFV 0.3DAB -0.1KET 2.3MAS 0.2MET 0.0RPL 6.32HTI	
AJCA 04/01/2020 619DAUS	
GPTAT 989R 0.5 63NE -1.3 61PE 939R 162	
ST SR DF RA RW RL FA FU	
-2.1 0.0 0.8 0.0 -0.3 50.0 0.6 -0.6	
RH RM UC UD TP TL RTR RTS	
0.0 0.7 -0.1 02.0 CL.4 51.7 00.6	

Genetic evaluations for health traits, highlighted in green, can be found with evaluations for other traits in the PTA or GPTA block on an animal's pedigree.

7.4% (100 - 92.6) of the daughters sired by Jersey Bull A can be expected to be diagnosed with clinical mastitis. About 13.4% (100 - 86.6) of the daughters sired by Jersey Bull B can be expected to contract mastitis.

For more information on the update for JPI, visit the Green Book (Official Sire Summaries) online at greenbook.usjersey.com.