Jersey JARGON

Genetic evaluations calculated by the Council on Dairy Cattle Breeding yielded genomic evaluations for dairy cattle with ancestry from multiple breeds for the first time in April 2019.

Genomic evaluations for dairy cattle with genetic influence from a single breed—Jersey in our case—will be identified with an "S" for single-breed influence. Genomic evaluations for Jerseys with genetic influence from other dairy breeds (Ayrshire, Brown Swiss, Guernsey and/or Holstein) will be identified with an "M" for multiple-breed influence.

Jersey breeders will find these designations on performance pedigrees and progeny reports from the American Jersey Cattle Association (AJCA). Separate listings for the breed's top bulls, cows and heifers will be included in the Green Book as well.

In this month's Jersey Jargon, we'll illustrate how the "S" and "M" designations will be displayed in sample pedigrees and let you know where you can find genetic listings for each group of animals in the Green Book.

Basic Background

Breed Base Representation (BBR) is the basis for determining whether an animal receives a single-breed "S" or multi-breed "M" genetic evaluation. BBR is an estimate of the percentage of DNA contributed by each of the five dairy breeds evaluated. It is expressed as percentages, 85% Jersey and 15% Holstein, for example.

In most cases, the highest percentage determines from which population, or group, an animal will be compared. In our above example, the animal would receive a Jersey genetic evaluation.

Animals with BBRs of 94 and higher will be evaluated as the breed's reference population for calculation of Predicted Transmitting Abilities (PTAs) and for determining SNP effects. These BBRs will be reported as BBR 100 and receive a single-breed genetic evaluation. In other words, a BBR threshold of 94 is required to be included in the breed's reference population.

Animals with BBRs of 90-93 will receive a single-breed "S" genetic evaluation but will not contribute to the Jersey PTA reference population.

Animals with BBRs under 90 will be included in the multi-group for blended "M" crossbred evaluations. These animals will receive a genetic evaluation weighted to the percentage of BBR contributed from each breed. In our above example, the animal would receive a genetic evaluation that was weighted as 85% Jersey and 10% Holstein. As with BBRs of 90-93, information from multi-group animals will not contribute to the Jersey PTA reference population.

Pedigrees and Progeny Reports

Sample pedigrees are shown to distinguish genomic information from a cow that received an "S" genetic evaluation and one with an "M" evaluation. Genomic Jersey Performance Index (GJPI) values for multi-breed evaluations will include an "M" suffix. By default, GJPIs for single-breed evaluations will carry no suffix. Note that GJPIs for progeny will also be identified as being single-breed or multi-breed in nature when available.

Green Book Listings

Separate lists for the breed's top "S" and "M" animals can be found in the Green Book. In addition to the bull lists with which most Jersey breeders are familiar are new lists for A (Active), Foreign (F) and Genomic (G) Code bulls with multi-breed blended evaluations and a list of all summarized bulls with "M" evaluations.

The top 100 females, cows and heifers ranked by "M" evaluations can be found only in the online Green Book at https://greenbook.usjersey.com/CowsHeifers.aspx.

Further Information

For further information on the impact of the first multi-breed evaluations, view the "April 2019 Genetic Evaluations" video on the AJCA YouTube channel. Or find it direct at https://www.youtube.com/watch?v=2jcVPujew0o&feature=youtu.be.

The performance pedigree of an animal with a single-breed genetic evaluation can be distinguished by a BBR of 100, an "S" to accompany the GPTA and a GJPI with no suffix. Note that GJPIs and JPIs for progeny will also be included when available and identified as single-breed or multi-breed evaluations.

The performance pedigree of a cow with a multi-breed genetic evaluation can be distinguished by a BBR less than 100, an "M" to accompany the GPTA and a GJPI with an "M" suffix. Note that GJPIs and JPIs for progeny will also be included when available and identified as single-breed or multi-breed evaluations.