SEMEX®
Genetics for Life®

Immunity♀

# FEMALE GENOMICS ARE HERE

**Semex is now offering female genomic testing for all commercial traits. Along with every genomic test, clients will also receive Immune genomics estimates for every tested female. Females will be classified as High, Average or Low Immune genomic status, and those animals classified as High will receive the IMMUNITY designation. Female Immune Genomics have been validated in commercial herds in the United States.**

## HOW ARE GENOMIC VALUES CALCULATED?

Single-step methodology is used to combine genotypes and phenotypes of thousands of animals to estimate genomic values for Anti-body mediated and Cell-mediated Immune Response. Using All animals who have been tested for Immune response using the University of Guelph's patented High Immune Response™ test as a reference population, genomic values for any genotyped Holstein animal can be calculated. Immune Response is highly heritable, and so genomic selection with a moderate size reference population is highly accurate. Animals who exceed 1 standard deviation above population mean are classified as High, and animals less than 1 standard deviation beow the population mean are classified as Low.

## WHAT IS THE IMPACT OF IMMUNITY ON FARM?

15 large commercial herds in the United states were analyzed to assess the impact of female Immune Genomics on disease incidence. Mastitis, Lameness and Total disease frequency (any case of routinely recorded disease) were analyzed as the most prevalent and consistently well recorded traits on farm. Disease frequencies are reflective of the average of the current population, which included some animals in early lactation. A model was fit to determine the effect of High Immune Genomic females compared to herdmates, after fixed effects for Herd, Age, and Parity. All traits investigated were found to be significant ($p<0.05$) (Table 1). Semex will continue to validate the effect of Immune genomics in commercial herds as more and more animals are Genotyped with Elevate™ in the coming years, to ensure we are delivering true herd health.

Table 1 - Disease Frequency by Immune Response Category

| | MASTITIS | PERSISTENT MASTITIS | LAMENESS | TOTAL DISEASE |
|---|---|---|---|---|
| **High** | **7.2%** | **0.5%** | **12.6%** | **18.5%** |
| Average | 8.7% | 1.6% | 22.6% | 27.1% |
| Low | 10.0% | 2.4% | 19.5% | 27.0% |

Elevate™

*Learn more at www.semex.com/elevate*