



Greater Genetic Progress from Improved Reliability

More accurate selection and mating decisions equate to more profit potential for dairy producers. New genomic technology will allow producers to have appreciably more dependable information for understanding genetic potential earlier in the life of replacement heifers.

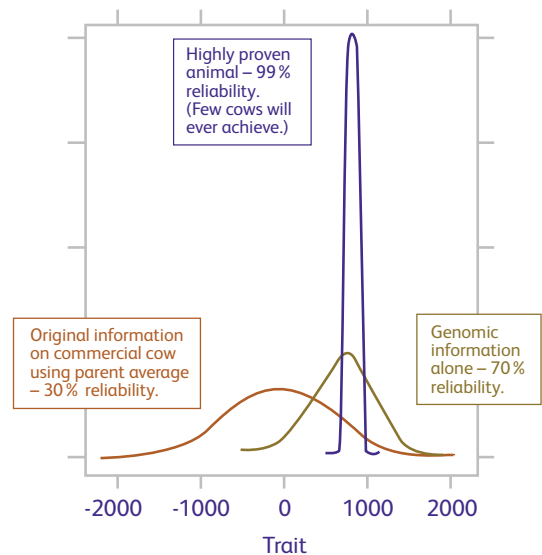
In dairy cattle genetics the term reliability quantifies the relationship between predicted and actual genetic merit. Reliabilities range from zero to 99 percent. The higher the reliability, the better the chance the animal's predicted genetic merit will match her future performance.

Demonstrating Reliability

The adjacent graph illustrates that as reliability increases, so does your ability to fully understand an animal's true genetic potential.

- The orange curve represents the information commonly available on a female replacement. The wider curve shows that how the animal actually performs can vary widely.
- The gold curve illustrates reliability with genomics. The curve becomes narrower and the predictions become closer to the animal's true genetic potential.
- The purple curve illustrates the highest degree of reliability. At this point we can more easily predict how the animal

will perform. This information is rarely attainable for females using traditional progeny testing methods.



Reliability Improves with Genomics

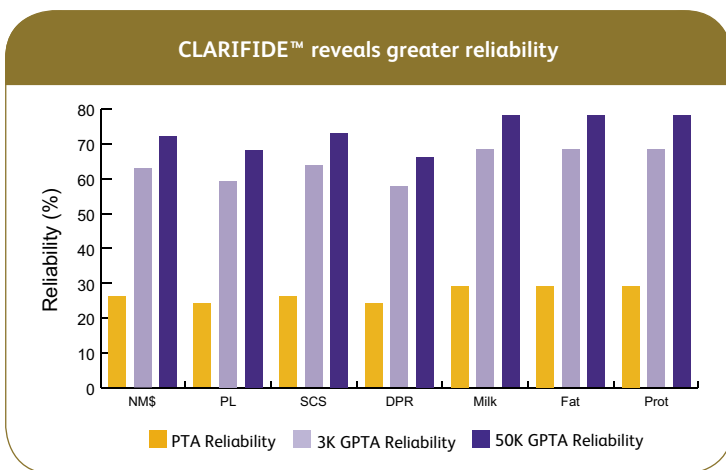
Using current genetic evaluation methods, even the best available genetic information for commercial females has low reliability (around 30 percent for most traits). This means that a heifer's actual performance might be quite different from the prediction. In contrast, reliabilities are higher for artificial insemination (A.I.) sires with hundreds of daughters' production records included in the genetic evaluation.

Enter CLARIFIDE™, a 3,000-marker panel (3K) that delivers genomic predictions for as many as 30 production, health and type traits, and nine composite indexes. CLARIFIDE technology utilizes DNA markers to help generate Genomic Predicted Transmitting Abilities (GPTA) with reliabilities as high as 60 to 70 percent, even for commercial females with limited or no available pedigree information. This improvement in reliability means that the predictions can be used to make more dependable selection and mating decisions for enhanced profit.

Revolutionizing Decision-Making with Reliability

Improved reliability promises to revolutionize how decisions are made in the selection, breeding and management of dairy females. Increased reliability helps producers more confidently identify:

- Possible replacement females to serve as the next generation of dams in the herd
- Genetic strengths and weaknesses of individual females for strategic mating to complementary sires, as well as for application of reproductive technologies such as sexed semen
- Females that:
 - o Possess elite genetics to propagate through embryo transfer
 - o Have inferior genetic merit, identified early in life, to minimize costs associated with heifer development and breeding



Based on 3K and 50K Genotypes in Holstein Cattle, Pfizer Animal Genetics, data on file.

CLARIFIDE Redefines Reliability

CLARIFIDE offers approximately 60 to 70 percent reliability for up to 30 core production, health and type traits. For the majority of traits, the number of progeny and production records required to achieve the levels of reliability available from CLARIFIDE exceeds what can be achieved in a dairy cow's lifetime. The reliability levels revealed by CLARIFIDE are approaching those provided by a 50K product, but available at a more affordable price, making it a cost-effective option for large-scale use.



Predict the future now.