

Genomics-enhanced whole herd genetic management trial

Would you like to participate?



Whole herd genetic management in beef cattle:

Beef cattle performance is determined in part by genetics. The best genetics comes from mating bulls and cows with superior Expected Progeny Differences (EPDs) for your traits of interest and from optimizing their gene combinations, i.e. retained hybrid vigor (RHV). **Whole herd genetic management** provides the best method to maximize both EPD and RHV or genetic potential in beef cattle herds.

Current barriers to practise whole herd genetic management in commercial herds

- EPDs for expensive or difficult-to-measure traits such as feed efficiency and fertility are seldom available.
- EPDs for feed efficiency, carcass, and fertility traits for replacement heifers are rarely predicted.
- Optimized RHV requires careful records of pedigree and breeding history, which do not always exist.

What can the genomics-enhanced whole herd genetic management platform do?

- Predict genomic EPDs (gEPD) for a variety of individual beef performance traits including: growth, feed efficiency, carcass merit, and fertility traits for bulls, replacement heifers and cows without pedigree or phenotype data from producers.
- Calculate multiple trait selection indexes for feedlot profitability (i.e. Feeder Profit Index), replacement heifer profitability (i.e. Replacement Heifer Index), as well as customized indexes for traits you most desire.
- Predict genomic breed composition (gBC) of each animal without pedigree or breeding records, and consequently the genomic retained heterozygosity (gRHET), a linear predictor of RHV.
- Assign bulls to replacement heifers/cows via a mating selection tool to maximize gEPDs and RHV and to achieve the best genetic potential in a herd.

What is needed?

- We need producers to send in samples (hair, tissue, semen or blood) from their animals. We will genotype each sample on Bovine GGP-100K single nucleotide polymorphisms (SNP) chip and analyze genomic profiles of the animals via the Platform.
- **The project offers a special discounted price of \$15 per test** (vs. \$45), thanks to financial support from Emissions Reduction Alberta (ERA) and Beef Cattle Research Council (BCRC).
- The team at Livestock Gentec (AAFC and University of Alberta) aims to demonstrate the Platform on 10,000 beef cattle (replacement heifers, cows, and candidate bulls) from Alberta beef producers.

What will participants receive?

You will receive predicted gEPDs for all the performance traits and selection indexes of your choice, parentage testing if requested, gBC, and gRHET of each animal, and a recommendation of bulls to use on replacement heifers/cows to maximize the genetic potential in your herd.

To express your interest to participate, please email michael.vinsky@ualberta.ca or lsgentec@ualberta.ca. For more information on the genomics enhanced whole herd genetic management platform and on how to participate in the demonstration, please also visit <https://www.beefgenomicprediction.ca/>