Canadian Gelbvieh Association DNA Regulations

Effective January 1, 2014

1) All Gelbvieh sires must have a DNA genotype on file prior to the registration of any offspring born after January 1, 1997 (CGA By-Law Requirement). The preferred DNA profile is the GGP-HD (90K) SNP Panel.

2) All Gelbvieh sires with semen for sale in Canada MUST BE Parentage Verified and MUST ALSO have a DNA genotype on file (CGA By-Law Requirement).

- For AI Sires, it is recommended that members (or AI firms) submit a new sample to the CGA office for a GGP-HD (90K) SNP Panel. Note: To avoid duplication, please contact the CGA office or check out the CGA website for a list of AI Sires with SNP DNA Genotype records on file.

- For imported semen, Parentage Verification from the country of origin is permissible. However, a SNP DNA genotype must also be on file with the CGA office.

3) Every Gelbvieh animal entered into a Canadian Gelbvieh Association sanctioned National Gelbvieh Sale, MUST BE parentage verified. Also, the Gelbvieh Association of Alberta/BC has announced that all animals in GAA/BC Association sales, such as the "Wish List" sale must also be Parentage Verified.

- Parentage Verified means that a DNA is required on the individual animal, the sire and the dam.

4) All Gelbvieh animals propagated by embryo transplant MUST BE parentage verified prior to registration (CGA By-Law Requirement).

- For donor dams which are still alive, it is highly recommended that a new sample (hair or tissue punch) be collected and submitted to the CGA office for a GGP-HD (90K) SNP Panel.

- For AI sires which are no longer alive, a tissue sample, in the form of a straw of semen must be submitted to the CGA office for a GGP-HD (90K) SNP Panel. Note: To avoid duplication, please contact the CGA office or check out the CGA website for a list of AI Sires with SNP DNA Genotype records on file.

- For donor dams which are no longer alive, and do NOT have a DNA SNP genotype on file, parentage verification will be available by Microsatellite DNA for a limited time while the technology is still available. (Embryos in storage which have been recorded with the CGA office prior to December 31, 2003 will be eligible for registration under the approved sunset clause.)

5) All Fullblood Gelbvieh animals MUST BE parentage verified prior to registration. A Fullblood animal which is not Parentage Verified will be classified as Purebred (CGA By-Law Requirement).
6) Every 200th Gelbvieh animal, selected at random, MUST BE parentage verified (CGA By-Law Requirement).

7) All imported Gelbvieh animals must have a DNA genotype on file prior to registration (CGA By-Law Requirement).

DNA Testing

In July 2008, the Canadian Gelbvieh Association was the first beef breed organization in Canada to switch to Single-nucleotide polymorphism, better known as SNP DNA for parentage verification of Gelbvieh cattle.

In 2012, the Canadian Gelbvieh Association became involved in a project initiated by Delta Genomics and supported by Agriculture and Agri-Food Canada. This program is critical to improving the health, efficiency, and ultimately the profitability of the Canadian Beef Industry. Documented and verified parentage is the cornerstone of the pedigreed seedstock industry. First with Red Blood Cell testing, moving up to Microsatellite DNA testing and now SNP DNA Technology which has opened up a whole new era of genetic selection within the beef industry. Through all of this, the Canadian Gelbvieh Association has maintained one of the highest standards for parentage verification in the industry.

Accurate pedigree information is a critical component in genetic evaluations as any errors can have a significantly negative impact on the reliability of the evaluation.

While the Delta Genomics project was designed to facilitate the transition from micro-satellite to SNP parentage, the Canadian Gelbvieh Association has been able to utilize the program to obtain the higher density 50K SNP panels on Canadian Gelbvieh animals to be included in the Gelbvieh Genomically Enhanced EPDs (Expected Progeny Differences). Gelbvieh GE-EPDs are based on an international cattle evaluation in partnership with the American Gelbvieh Association, and includes Gelbvieh cattle from Canada, Mexico, New Zealand and the USA.

By partnering with Delta Genomics and the AAFP AIP program, the Canadian Gelbvieh Association has been able to provide its members with the higher density 50K SNP panels for the similar price as the standard SNP parentage. Most importantly, the Canadian Gelbvieh Association has provided a significant number of high density 50K SNP panels to provide an adequate representation of Canadian genetics in the new North American Gelbvieh GE-EPDs.

Genomic-Enhanced EPDs:

Gelbvieh breeders are encouraged to invest in the GGP-HD SNP Chip (90K) or GGP-LD SNP Chip (19K), which include the standard Parentage DNA Panel and will also be used to generate genomic-enhanced EPDs.

Geneseek/Igenity Agrigenomics Testing

Starting in December 2013, with the exception of the Igenity Horned/Polled Test, samples will be tested at Delta Genomics, when the GGP-HD or GGP-LD panel is complete it will be emailed

to Neogen/Geneseek in Nebraska. Neogen/Geneseek will then email the Igenity results directly to the CGA office.

Delta Genomics also has an export certificate to send actual DNA samples down to Neogene/Geneseek in Nebraska. Extracted DNA for the Igenity Horned/Polled Test and the few other tests which cannot be taken off the GGP-HD/LD panels will be sent directly to Neogene/Geenseek for processing. Again, these results will be emailed back directly to the CGA office to speed up processing.

Genetic Conditions

Effective October 1, 2013, all new Gelbvieh and Balancer® AI sire and all new Gelbvieh and Balancer® donor females in Canada must be tested for relevant genetic conditions.

The current genetic conditions being monitored by the Canadian Gelbvieh Association are: CA (Contractural Arachnodactyly), AM (Arthrogryposis), MA (Alpha-mannosidosis), NH (Nueropathic Hydrocephalus), OS (Osteopetrosis), and DD (Developmental Duplication).

Contact the Canadian Gelbvieh Association office for information or assistance with your parentage verification, Igenity, genetic condition or other DNA testing.

Hair Root Collection Procedure

1. Select 5 – 10 tail hairs near the base of the tail switch and quickly pull hairs upward (against the grain of the roots). Visually inspect to ensure that hooked or bulbous roots are attached. Repeat until 50 to 75 hairs with roots have been pulled.

2. Trim the ends opposite to the roots to remove dirty, wet and excess hair. **(Note: feces and urine in the hair can degrade the sample and make it unfit for testing)**

3. Place the hair sample in a plain white envelope. Use a separate envelope for each animal. Clearly lable the envelope with the unique identity of the animal.

Repeat steps 1 – 3 for each individual animal. When all samples are collected, place the envelopes in an executive/business envelope or courier package and send to the Canadian Gelbvieh Association office.

The Canadian Gelbvieh Association recommends that producers collect a hair root sample on every animal. Samples from animals on which testing is not required at the present time, can be kept on file with the producer until needed. DNA in these stored samples, if kept dry, will keep indefinitely.

Revised: Wednesday, December-18-13