

# CSA Cow Herd DNA Project

The Cow Herd DNA project is designed to allow position members to take advantage of rapidly advancing DNA technology. DNA samples provided on cows will not be used for parentage verification of the cow. Samples will be stored and used for determination of parentage of calves in the future.

CSA will pay for DNA extraction and storage on the cow sample. The member pays for DNA extraction and parentage on future progeny. CSA will pay for the parentage panel on the original dam when replacement females are submitted for parentage.

## Advantages

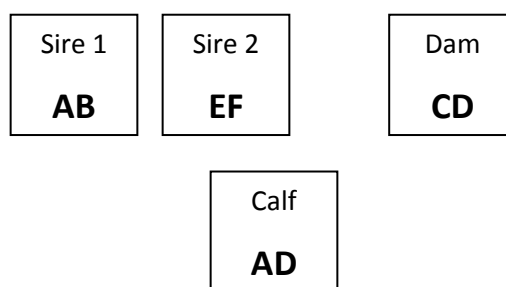
1. DNA is stored on the cowherd – this allows members to take advantage of future DNA tests and prevents any problems such as difficulty in parentage verifying an AI sire if its' mother dies.
2. Genetic resource – CSA members would be able to leverage their samples to participate in research and development as the DNA bank and corresponding pedigree and performance information represent a valuable research dataset.
3. High integrity herdbook – members are positioned to have a herdbook with the highest possible integrity in the world.
4. Empowers multi-sire pastures – positions cowherds to use multi sire pastures and guarantee parentage on the resulting calves
5. CSA membership would be on a new lower cost SNP DNA technology for genetic testing and parentage verification.

## How Parentage Verification Works

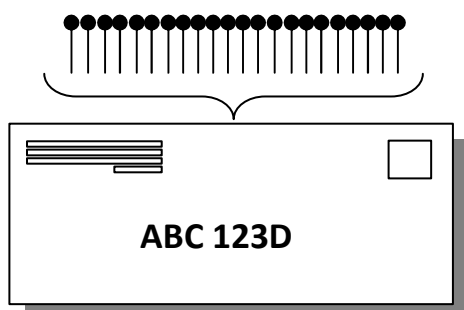
Parentage verification works through a process of exclusion. The parentage markers are matched between calf and potential sires / dams. The calf receives ½ of its' genes from the sire and ½ from the dam. Therefore if the calf has markers that are not present in a potential parent then the parent is excluded. A simple example is shown, however the SNP parentage panel includes over 100 markers and guarantees a high degree of accuracy.

### Example:

The calf in the example would have Sire 2 excluded since it does not contain either an E or F marker in its' SNP panel results.



## DNA Collection



Collect 15 to 25 hairs from each female and store in individual envelopes, marked with the animal's identification (tattoo). Be sure the hairs have the root bulbs attached. The easiest place to collect hairs is to pull them from the tail switch of the cow. Ensure that your hands/gloves are free of hair between animal's to prevent cross contamination of DNA samples.

DNA forms must be obtained from the CSA, and completed forms and samples can be sent to GenServe Laboratories™ in Saskatoon through regular mail. The Cow Herd DNA Project ends February 1<sup>st</sup>, 2009.

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