DNA Sampling

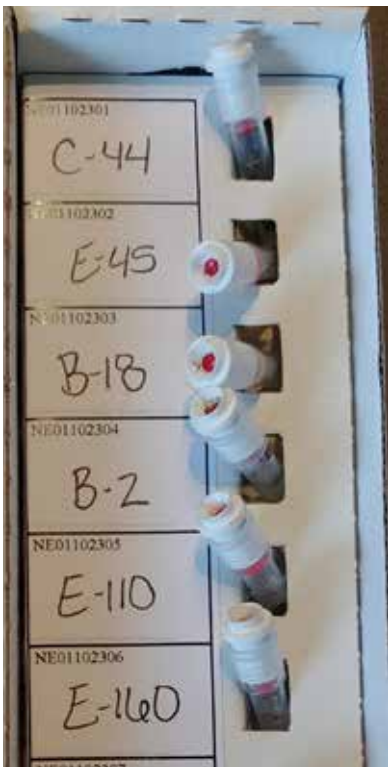
I'm confident we've all heard the common phrase "just pull hair" when someone is asking about how to collect a DNA sample on an animal. Well, it's time to ask around the barn again, because there are three common methods used to collect and submit DNA on beef cattle and we encourage you to use the one that works best for your operation.

Tissue Sampling Units

Tissue Sampling Units or "TSUs" as they're commonly referred to in the industry, are quickly taking over as the DNA sampling method of choice. If you haven't heard of TSUs yet, or even if you're a current user, here's some tips, tricks and information you may find useful.

- You will need to order an Applicator and TSUs. Contact a Neogen territory manager or visit www.neogen.com to place an order.
- Read or watch a video with the instructions on how to properly collect a TSU sample.
- If calf has been freshly tattooed, avoid the tattoo ink when collecting the sample.
- Verify there's tissue present in the TSU before releasing the animal. When in doubt, take another sample.
- If sampling the calf at birth, make sure to wipe the ear with a dry towel to ensure there's no DNA transference from the dam.
- Make sure you are noting down which animal was sampled. If you order the 10 count TSU boxes you're able to write the tag number on the box insert.
- When you get back to the office, check each TSU and ensure the tissue is submerged in to the buffer solution (liquid) inside the tube. You can tap it lightly on a table or flick the tube with your finger so the tissue will fall into the liquid. This preserves the sample for testing.
- You can store TSUs up to one year at room temperature. Do not refrigerate or put in the family freezer. For optimal long-term storage consult with an Allflex representative or NEOGEN.

Applicator



Tissue Sampling Units

Blood Card

Blood cards are a great option if you're already bleeding animals in the chute and can easily grab a sample. A few key items to note when using blood cards are the following:

- DO NOT USE on twins or animals suspected of being a twin. They could have shared the same blood source in-utero and most blood samples from twins end in a No Results (NR).
- Fill the circle completely with blood but try not to saturate the entire card. "More" is not necessarily better in this case.
- Allow blood to dry before closing the lid on the card.
- Do not place blood cards into a Ziploc bag until they're completely dry, otherwise they may mold and potentially be contaminated for testing because of the spore growth.
- Write the animal ID, registration number (if available) and animal name on the card.

Blood Card

– What's Your Type?

Hair Card

Hair cards are a last resort option if your animals are readily accessible or you get stuck needing a DNA sample and do not have sampling materials available.

- Pull 25-30 follicles out of the tail switch by jerking straight down. Be careful not to touch the root bulbs on the end of the hair.
- Place root bulbs (contains the DNA) under the clear plastic film and close top flap. Trim the excess hair sticking out of the card.
- Label the card with the animal ID, registration number (if available) and animal name.

Considerations

Lastly, here's a few more considerations to take in to account when ordering DNA sampling materials so you'll be able to make the best decision for your operation.

- All three sampling types mentioned are relatively easy for a producer to collect.
- TSUs are currently the most efficient sample type for the lab to process, followed by blood cards because they're mostly automated. Hair samples are extremely inefficient for the lab to process since they require a human to punch the follicles, therefore, an additional fee is invoiced on all hair sample submissions.
- Blood samples are not recommended for twins since they typically result in a sample failure, requiring the producer to submit another sample for testing. The producer would be invoiced for all costs associated with testing, not to mention the additional time required to collect and submit the new sample. Make sure to use TSUs or hair samples on twins.
- TSUs and blood cards can be collected at birth. If you wish to use hair, it is recommended to wait for the calf to be at least 90 days of age.

Now that you are more aware and comfortable with the different sampling options you can move forward confidently into this calving season. Being prepared and armed with knowledge along with sampling equipment when the time comes to collect DNA samples will set you up for success. Therefore, to avoid getting yourself into a pickle, place an order for your DNA testing materials today so you can have them on hand and at the ready when you need them this summer. For more information or to order supplies, please reach out to AICA, a NEOGEN territory manager or visit www.NEOGEN.com.

NOTE TO CHAROLAIS BREEDERS

- DNA Kits (forms) are specific to the animal being tested and the lab uses them as a manifest for what they are receiving.
  After collecting DNA samples, contact the AICA Registration Department to request forms. Please send the Registration/P number, Barcode (if applicable), and desired testing.
  The AICA DNA form must accompany each animal's sample being sent to NEOGEN.
- ALL AI Sires and ALL Donor Dams must be DNA tested before calves can be registered.
- The GGP100K test is currently being utilized for a fee of $50(hair samples $55.) This test includes Genomics utilized in the National Cattle Evaluation and parentage. (Horned/Polled test is an additional $20 and Bovine Progressive Ataxia is $5.

Sample Type	Easy to Collect (producer)	Efficient to Process (lab)	Able to Use on Twins	Sample at birth	Average TAT	% Success	% Redo
Allflex Tissue Sampling Units(TSUs)	✓	✓	✓	✓	25	99.3	1.00%
Blood Cards	✓	✓	✗	✓	34	98.4	12.55%
Hair Cards	✓	✗	✓	✗	37	99.1	0.62%
Total					28	99.1	2.83%

**Sample failure rates may vary based upon individual collection proficiency*