DNA Sampling — What's Your Type?

Learn which DNA sampling method works best for your operation.

*by **Leoma Wells***

We have all heard, "just pull hair," when asking about how to collect a DNA sample on an animal. It may come as a surprise, but there are three recommended methods used to collect and submit DNA on beef cattle. We encourage you to use the one that works best for your operation.

Comparing DNA Sample Types

Sample Type	Sample Failure Rate	Easy to Collect (producer)	Efficient to Process (lab)	Able to Use on Twins	Sample at Birth
Allflex Tissue Sampling Units (TSUs)	*1.2%	✔	✔	✔	✔
Blood Cards	*2.5%	✔	✔	✖	✔
Hair Cards	*2.5%	✔	✖	✔	✖

* Sample failure rates may vary based upon individual collection proficiency

Tissue Sampling Units

Allflex Tissue Sampling Units, or TSUs, as they're commonly referred to in the industry, have taken over as the DNA sampling method of choice for beef cattle. If you haven't heard of TSUs yet, or even if you are a current user, here are some useful tips, tricks and information.

- To get started, you will need an applicator and TSUs. Contact the American Hereford Association (AHA), a NEOGEN territory manager or visit *neogen.com* to place an order.
- Read the instructions or watch a short video on how to properly collect a TSU sample.
- If a calf has been freshly tattooed, avoid the tattoo ink when collecting the sample.
- Verify there is 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 is no DNA transfered from its dam.
- Note which animal was sampled. If you order the 10-count TSU boxes, you will be able to write the tag number on the box insert.
- Check each TSU and ensure the tissue is submerged in 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 freeze. For optimal long-term storage consult with an Allflex or NEOGEN representative.

Blood cards

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

- 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 "No Results," or (NR).
- Fill the circle completely with blood, but do not saturate the entire card. More is not necessarily better.
- Allow blood to dry before closing the lid on the card.
- Do not place blood cards into a zip-close bag until they're completely dry; otherwise, they may mold and potentially be contaminated for testing because of spore growth.
- Write the animal ID, registration number (if available) and animal name on the card.

Hair cards

Hair cards are a last-resort option, if your animals are readily accessible and you need a DNA sample but you do not have other 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 the 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.

Highlighting sample types

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

- All three sampling types mentioned — TSUs, blood cards and hair cards — are relatively easy for a producer to collect.
- TSUs are currently the most efficient for the lab to process, followed by blood cards since the system is more automated for these sample types. Hair samples are inefficient for the lab to process since they require a more manual process. Therefore, an additional fee is invoiced on all hair sample submissions.
- Blood samples are not recommended for twins, since they result in a sample failure most of the time. This requires 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.
- It should be mentioned, semen straws can be submitted for testing if the bull is unavailable. However, there is an additional fee for all semen straw submissions.

Now that you are more aware and comfortable with the different sampling options you can move forward confidently to collect this year's samples. Being prepared and armed with knowledge along with sampling equipment sets your operation up for success when it is time to collect DNA samples. Therefore, 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 the AHA, a NEOGEN territory manager or visit *neogen.com*. HW

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