



DNA Profiling and Parentage Verification

DNA testing is an important element in both breed genetic transparency and maintaining accurate flock and registry records. The data gathered can be useful from a genomics perspective but also effective in authenticating breeding and parentage which acts as a guarantee when breeders sell their stock.

Current Society Rules

Mandatory DNA testing is already a requirement for the registrations of lambs in the instances outlined below:

- Donor ewes and service rams being used for embryo transfer must be DNA profiled.
- Lambs produced by embryo transfer in 2020 and beyond must be profiled prior to registration
- All rams must be DNA tested as part of registration from 2021
- Any Valais Blacknose ewe or ram may be DNA profiled at the request of the owner
- Any Valais lamb may be DNA profiled and parentage verified at the request of the breeder

**Please note that sheep entered in Society shows and sales must be fully registered. DNA samples (whereby applicable) need to be submitted well in advance to guarantee pedigree registration and entry.*

Testing Methods

Grassroots offer breeders 2 testing kit options:

1. Neogen Genomics Sheep Sampling Kit

This is a pin-prick test where you puncture the sheep's upper lip with a lancet. You then use the Neogen blood card to collect a sample by positioning the card on the blood droplet.

2. Ovine Nasal Swab Collection

This test requires you to rub the nasal swab inside the animal's nostril for up to 5 seconds.

How to Order Test Kits

VBS Gold Members can purchase DNA kits directly from their online Grassroots account.

- Simply go to 'Manage My Animals'
- Select 'DNA Profile and Parentage verification'
- Tick the box next to the animal/s you wish to test.

**Please note that when ordering DNA kits, the default option is the 'Neogen Genomics Sheep Sampling Kit' at £28.80. If you wish to upgrade to the nasal swab option at an additional charge of £3 per test, please place your order online and then email or call grassroots expressing your wish to upgrade the test/s who will then update your order accordingly and collect any outstanding fees.*

Tel: 01392 270 421

Email: valais@grassroots.co.uk

Results

Once you've sent your samples back to Grassroots, they will be forwarded to the laboratory for processing. Results can take between 4-6 weeks but once received Grassroots will update the online breed registry accordingly.

- Sheep which have been DNA profiled will have the note 'DNA profiled' displayed in their online record.
- Sheep which have a positive DNA parentage verification will have the note 'DNA Parentage Verified' displayed in their online record.

What Happens if the DNA Sample Fails?

There are several common reasons why samples fail DNA testing therefore it's imperative that you read the testing instructions carefully and take all necessary precautions when collecting samples from your flock to avoid the need for costly re-testing.

General Issues

- Biological contamination
- Cross contamination between samples/animals
- Chemical contamination
- Dye/pigment from animal markers
- Insect repellent
- Cleaning agents
- Improper storage
- Heat exposure including leaving samples in vehicle or sunlight
- Extended sample storage – DNA degrades over time
- Insufficient sample
- Improper shipping

Neogen Blood Card Issues

- Insufficient blood spotted on card – ensure the circle is filled and the blood is visible on both sides of the paper
- When spotting cards from stored blood, make sure to invert the tubes 4-5 times before spotting – blood settles/separates over time
- Do NOT speed-dry the card using a hairdryer as heat can damage the DNA

The picture on the left would be the best example of an ideal sample. The card in the middle is ok and should contain enough blood to test the sample twice (if the test fails on the first run). The card on the right is an example of a bad sample, and the lab would only be able to run testing on the sample once. If the sample failed, there would not be enough to retest the sample, and a new sample would be required.

