

Guidance Notes for DNA Testing

1. Collection and storage protocols will vary according to the laboratory, therefore it is important to find out whether they have any specific requirements.
2. Samples requiring immediate analysis may need a different sampling method to samples that will be stored.
3. It is important that high levels of hygiene are maintained throughout the sampling process to prevent contamination.
4. Frozen storage should avoid the use of glass vessels as these can crack.

| Sample | Advantages | Disadvantages | Practical Guidance | Storage | Length of Storage |
|-------------------------|--|--|---|---|--|
| Whole Blood | Good source of genomic DNA | <p>Must be carried out by a vet</p> <p>The correct method and anti- coagulant must be used to prevent clotting</p> <p>Storage and transportation can be difficult</p> | It is recommended that blood is drawn from the tail or the coccygeal vein of the neck | Must be rapidly stored in a chilled environment; ideally frozen | <p>Short term</p> <p>Storage life can be extended by centrifugation and storing the “buffy coat”</p> |
| Blood- FTA Paper | <p>Paper contains a chemical which prevents bacterial growth and protects the DNA</p> <p>Can be collected by incising the ear and smearing the blood on the card</p> | <p>Syringe collection has the same drawbacks as whole blood sampling</p> <p>Blood smearing can result in contamination from recent ear tattoos or an improperly cleaned incision</p> | It is very important to maintain strict standards of hygiene | Can be stored at room temperature | >8 years |

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| Whole Saliva | Painless and non-invasive | Potential for protein contamination | Use appropriate animal restraints | Room temperature | >30 months |
| Buccal Swabs | Painless and non-invasive | | Buccal swabs are normally taken from the inside of the cheek and then allowed to dry before being placed in a sealed plastic tube Buccal samples can be transferred onto an FTA card | FTA cards must be protected from UVA radiation | >10 years for FTA cards Up to five days for buccal swabs |
| Hair | Requires relatively little time, skill or expertise Large numbers of animals can be sampled quickly | DNA yields are generally lower than those of blood or tissue Young animals may be difficult to sample as the hair follicle tends to be under-developed | It is recommended that 20- 25 hairs are taken The hair follicle must be included (the DNA is found here and not in the hair shaft) Care must be taken to avoid manure and dirt contamination | Cool and dry condition- do not freeze | Long term |
| Tissue | Ear tissue sample tag fits in with other tasks Tissue Sampling Unit (TSU) is an alternative if animal already tagged | Suitable for farmer use If an animal has already been tagged it would be better to use the | Farmers are legally obliged to ear tag their animals, therefore the process is already practiced | Depends on the method, non- tag samples may be freeze dried or stored in ethanol. | Ear tag samples should be returned to the supplier within a week |

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| | Individually labelled, sterile container minimises the risk of contamination | TSU leaving only a small hole in the ear | | Ear tag samples should be stored in a cool location away from direct sunlight. | |
| Semen | Good source of DNA when a ram or bull has died | Male animals only | Only recommended as a last option (i.e. animal is dead but has frozen semen stored) | Chilled or frozen in liquid Nitrogen | Long term, frozen sample can be thawed for sending to lab for analysis |