



PROS AND CONS OF DNA SAMPLING

What is DNA profiling?

DNA profiling relies on specific characteristics within an individual's genetic code. While human DNA is largely identical across individuals, certain segments exhibit considerable variation. These variable regions, known as Short Tandem Repeats (STRs), consist of short sequences of DNA bases that are repeated multiple times. The number of these repetitions differs significantly from person to person.

Every individual inherits two copies of each STR region, one from each parent. The length of these STRs, determined by the number of repeated units, creates a distinctive pattern for each person. This unique combination of STR lengths across several specific locations on the DNA forms a genetic fingerprint. This inherent variability in STRs provides the foundation for individual identification through DNA profiling.



First thoughts automatically think of parental DNA when it is mentioned and this can be a good way to find out the accuracy or inaccuracy of an animal's pedigree, but it will need the DNA of an animal's parents to confirm. This comes at considerable cost, somewhere between £15 and £25 for each sample unless there is a full database of the breed.

The DSS breed has many bloodlines based on imports from Europe for which the Society cannot guarantee the authenticity of pedigrees, and would have no idea what DNA would find for these animals' parentage.

At present the breeder is responsible and signs a declaration confirming verification of parentage at time of registration. If the Society made DNA parentage mandatory would the responsibility of accuracy, then fall on the Society?

Some breeds of both cattle and sheep have gone down the route of Sire DNA while others have backed away from it due to complications. With responsibility there would come claims, counter claims, compensation claims and deregistration calls. Is the Society prepared to go down that route?

As well as parental DNA we also have genetic profiling where samples can be searched for traits which we consider detrimental or preferred.

Genomics include resistance or susceptibility to several health traits, not a full list but the ones that come to mind include Scrapie, Mastitis, and MV. Other traits include prolificacy, muscling, mothering ability and only last week results were announced from the Breed4Change trials that show that there is a wide range in performance and methane emissions between animals.

To allow genomics to be meaningful and useful the sampling comes with a cost and requires a third party to interpret and disseminate these results.

At present our breed have three breeders on the books as performance recording with Signet Breeding Services which is negligible and collecting genomic information would mean a lot more commitment.

To be useful and successful to the breed it would take a high number of breeders to be involved and committed.

