DNA sampling
Can you afford to get it wrong?

Steps to successful sampling
Time and money can be saved by taking a good quality sample for parentage verification and genetic defects testing.

At present, the failure rates are 5% to 8% for hair samples and 1% to 1.5% for ear notch samples, with re-tests causing additional cost for breeders.

Tail hair root follicles are an excellent source of DNA for genomic and routine parentage testing but the performance of samples processed and the reliability of the genomic results are dependent upon sample quality.

Are you taking the following steps to ensure successful sampling?:

• Pull at least 60 tail hairs from the tail switch. DO NOT CUT hair. If the sample is missing the follicle (root), it will not contain DNA. Also if not enough hair is taken, there will not be enough DNA for genotyping
• Grasp the hairs tightly (as close to the skin as possible) with hands or pliers. As an animal ages, the hairs become harder to remove so the use of pliers often aids removal
• Do not collect shed hair for sampling
• Ensure hair is completely dry and as clean as possible, otherwise the DNA will degrade before extraction
• When more than one animal is sampled, take extreme care to avoid contamination of hair roots between animals
• Be sure there is no substance on the sample, such as sprays, detergents or other cleaning agents
• Avoid prolonged exposure to direct sunlight
• Keep different animals’ samples separate in different bags
• Only take hair samples from live animals
• Label the packet with the animal details etc.
• Once the hair is placed in the bag, seal it tightly ready for return
• If sending semen samples, thaw and place one straw in the packet provided, seal and send immediately to the Society

Examples of good hair samples taken from the tail switch, showing plenty of good roots/follicles
Pull the hair slowly and firmly away from the tail making sure roots are intact

Keep samples out of direct sunlight. Use the envelope provided and send samples to:

Tracey Thomas, The Hereford Cattle Society, Hereford House, 3 Offa Street, Hereford HR1 2LL

<table>
<thead>
<tr>
<th>Costs</th>
<th>£</th>
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<tbody>
<tr>
<td>DNA profile</td>
<td>30</td>
</tr>
<tr>
<td>DNA profile + hypotrichosis</td>
<td>40</td>
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<tr>
<td>DNA profile + hypotrichosis + poll genotyping</td>
<td>47</td>
</tr>
<tr>
<td>DNA profile + 3 genetic defects (hypotrichosis, idiopathic epilepsy + dilutor) - required for all exports, AI bulls and embryo transfers</td>
<td>57</td>
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<tr>
<td>DNA profile + 3 genetic defects + poll genotyping</td>
<td>64</td>
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In the event of re-test due to no result, the above fees will be charged again

PV= parentage verified   SV= sire verified   PVF= parentage verified free (all 3 traits)   PHVF= parentage verified hypotrichosis free

Examples of poor hair samples which failed to produce a result
Tissue sampling

Weatherbys will continue to accept hair samples but highlight that ear tissue samples have a higher success rate. They recommend the use of Caisley or Allflex, with both companies offering Society members a discount if a HCS membership number is quoted when placing an order.

Advantages of using tissue samples:

- Tissue tags can be stored at Weatherbys Scientific for up to 10 years at no additional cost to members.
- Samples would only be analysed at members request. (There would be no cost for retrieving samples from storage).
- Tissue samples are more reliable and thus have a lower failure rate than hair samples - especially when sampling young animals where immature hair follicles are of poor quality.
- If a tissue sample is held in storage for an animal entered in an official show and sale, then the sample can be instantly retrieved and analysed in a timely manner.

Both Caisley and Allflex advise a tissue tag is applied when taking a sample, even if an identification tag has already been inserted, so samples can be traced back to the correct animal. The tissue tag can then be removed from the ear at a later date.

Both companies advise that a liquid desiccant sampling unit is used.

Caisley offer to HCS members:
15% discount on the list price for all tag combinations
Free applicator worth £17.50
Contact Hugh Pocock on 07789 171378

Allflex offer to HCS members:
Any size combination for DNA and BVD testing at £2.85 per pair
Visual tags plus DNA of any size combination at £3.15 per pair
Contact Helen Shepherd on 07766 112126

For any further queries telephone 01432 272057