

# KC BAER HEALTH SCHEME



Joint Dalmatian Clubs' Health Seminar  
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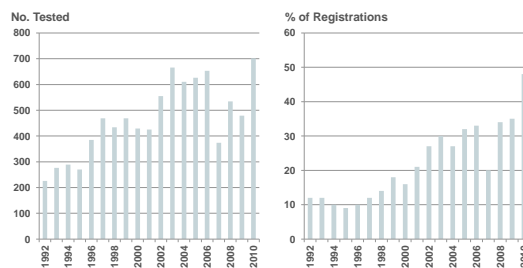
## UK BAER TESTING - HISTORY

- BAER testing began during 1991 (AHT)
- Other testing locations followed over the years
- Now some 9 test centres available
- 10231 Dalmatians tested 1992-2013

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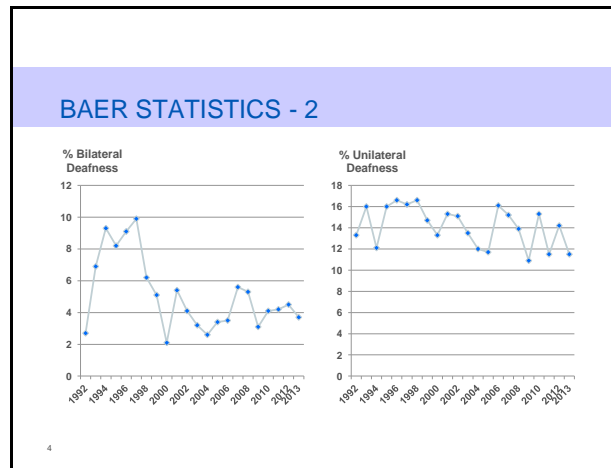
The availability of BAER testing in the UK was initially viewed with some caution and/or apprehension, and its uptake was slow to begin with. As confidence and acceptance improved in the early years, testing became the norm for most Club Members. Today they regard it as routine. The total number Dalmatians tested since 1991 actually approximates to the UK population of KC registered Dalmatians at any one time.

## BAER STATISTICS - 1



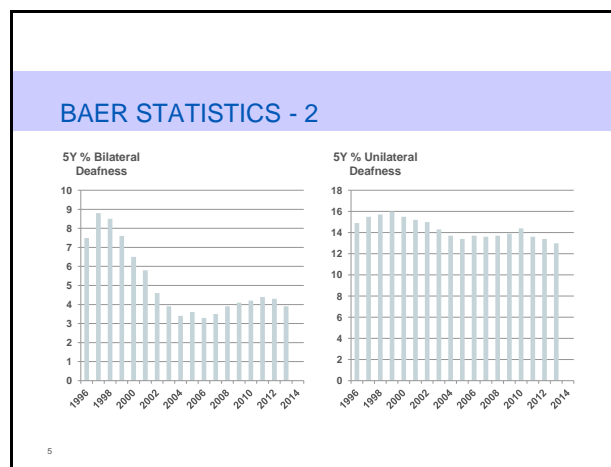
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The graph on the left side shows the growth in the absolute number of Dalmatians tested each year. However, the progressive increase in the proportion of dogs tested, and the acceptance of BAER testing as an important health test requirement, is demonstrated more convincingly in the right hand graph. This shows the variation by year of the percentage of all registered Dalmatians which have been BAER tested, and illustrates that today approaching 40% of all registered Dalmatians are tested. This clearly represents more Dalmatians than those owned/bred by Breed Club Members, and it is encouraging to see that those outside the influence of Breed Clubs are beginning to accept the need for BAER screening.



Well documented scientific studies in both the USA and UK have clearly demonstrated that breeding only from bilaterally-hearing Dalmatians results in a decrease in the incidence of hearing deficiency in the puppies produced. For this reason, Breed Club members have adhered for many years now to the practice of breeding only from bilaterally-hearing parents. The key question is ‘Has this practice made any difference to the incidence of deafness in UK Dalmatians?’

The slide above plots separately the percentages of bilaterally- and unilaterally-deaf Dalmatians by year. The two graphs each suggest some level of decrease, though there is significant scatter between individual years. In some case, especially the early years when test numbers tested were relatively small, substantial scatter could be expected as 1 or 2 more or less bilaterally-deaf dogs would have a substantial effect on the percentage incidence. Even when higher annual test numbers are achieved, the absolute number is still prone to distortion by, for example, a single litter with a poor BAER outcome. Is it too subjective, therefore, to suggest that these data do indeed demonstrate a definite and positive decrease?



One way to minimise the effect of year on year scatter, and to enable a genuine trend to be seen more clearly is to take a so-called rolling average. In the graph above, this has been done by averaging the first five years’ percentages (1992-1996), and recording this as the rolling 5-year average for 1996. For the next year, the numbers for 1997 are added in, and those for 1992 removed, to obtain a new average for 1997; and so on to the current year.

This is not a manipulation of the statistics, but is simply a way of increasing the sample size, and eliminating the effects of transient variations. The result is very clear. There has been a significant decline in the incidence of bilateral deafness, in broad terms from about 8% to about 4%, **i.e. bilateral deafness has been halved**. This is a very substantial and commendable improvement.

The decrease in the incidence of unilateral deafness is less obvious, though there does appear to have been a definite reduction from the peak in early years of about 20%, and in absolute terms a decrease of about 3%. It must be remembered, also, that a unilaterally deaf Dalmatian is a hearing Dalmatian!

## KC BAER SCHEME – WHY?

Why do we need one?

- Need published central record of results
- Must unequivocally link result to dog
- Must include ALL results
- Must be independent of owners/breeders
- Invaluable record for future use and research

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At the present time, there is no independently maintained, reliably authentic, register of BAER test results. Without such a register, how can any purchaser have total confidence that the BAER test certificate handed to them with a Dalmatian puppy is the genuine test result for that puppy. How does the purchaser know whether or not he/she has fallen victim to an unscrupulous breeder who has simply photocopied a ‘good’ test certificate. Surely, we would be naïve to suggest that this deceit has never taken place in the past?

Even with an independently-maintained register, it is vital that there is an irrefutable and unequivocal association between a test certificate, the identity of the puppy to which it relates, and to its KC registration.

Accordingly, it is a prerequisite that any test scheme and register of results employs a protocol in order to ensure the authenticity and relevance of a BAER test certificate in relation to an individual puppy.

## KC BAER SCHEME - STATUS

- Scheme given GC approval
- Protocol established
- IT systems in place
- Press release imminent
- Up and running thereafter

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A KC Scheme for BAER testing has been under discussion for some years now, and achieved approval from the Kennel Club in 2013. Subsequently, a protocol for Scheme has been approved and is supported by the Breed Clubs. IT systems are being put in place to capture and record the test data, and it is anticipated that the Scheme will be up and running by the year-end.

## KC BAER SCHEME - PROTOCOL

- Dogs must be KC registered and microchipped.
- Microchip of dog verified prior to testing
- Actual screening protocol determined by test centre
- Test certificate signed by veterinary surgeon
- Test centres send copies of all test certificates to KC
- Result added to registration record
- Results published in BRS

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KC registration and microchip identification will be required before a test is undertaken. Although the actual BAER testing protocol will be a matter for the individual test centre, it will be a requirement that the microchip number for each puppy (or adult) presented for testing under the Scheme will be checked and recorded on the test certificate along with the registration details for the dog in question. This creates an association between the registration, the microchip number, and the test result for that individual Dalmatian, which cannot be subsequently changed. A copy of the test certificate is always sent directly to the KC which will record and publish the results in the Breed Records Supplement.

## KC BAER SCHEME – THE FUTURE?

### Current position:-

- Know hearing status of sire/dam
- Much more data available for ancestors
- ...but we can't access it! What would we do if we could?
- Sire and dam may be bilateral hearing, but...
- ...all the sire's siblings might have been deaf!
- Would we be less likely to use it at stud?
- What about the bitch from a similar situation?
- What use could we make of such info anyway, and how?
- Could we reduce deafness further?

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It is ironic to some extent, that although responsible breeders only breed from bilaterally hearing parents, they have no means of knowing the hearing status of the siblings of the intended parents and other earlier ancestors (unless bred themselves, that is), even though multiple generations of ancestors will have likely been tested before.

When the question was posed to the audience at the Seminar 'Would you breed from a bilaterally-hearing dog or bitch, if you knew that all the siblings of either the dog or the bitch were bilaterally deaf?', the emphatic response was definite 'no'. The example might be an extreme one, but illustrates the fact that we would all like to take a broader account of hearing status in the wider ancestry of a proposed mating, but have no source of information with which to do so, and certainly we would be unable to utilise the information other than subjectively even if we had it.

So can we do anything? Without a formal Scheme of recording authentic and reliable test data, the answer would be at best very little, and in reality probably nothing! But with a Scheme as a foundation, read on.....

## HEARING STATISTICS

Final thoughts:-

- 4% bilateral deafness means 1 deaf puppy every 3 litters (average)
- If we could reduce it further....
  - 3% means 1 deaf puppy every 4 litters
  - 2.5% means 1 deaf puppy every 5 litters
  - 2% means 1 deaf puppy every 6 litters

Which all leads onto:  
**ESTIMATED BREEDING VALUES**

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If we were able to reduce the incidence of bilateral deafness by further small amounts, what would be the impact?

Taking an average litter size as 8 (not unreasonable), the average incidence currently is 1 puppy in every 3 litters. The statistics in the above slide demonstrate that only small reductions are necessary to have a real impact in the ‘per litter’ incidence, which all responsible breeders would surely be delighted to achieve?

So how can we utilise to advantage the information which will be available to us from a KC BAER Scheme? The answer is by the use of **Estimated Breeding Values**.

[The subsequent presentation at the Seminar by Dr Tom Lewis addressed the principles and utilisation of Estimated Breeding Values (“EBVs”) in detail. In essence, the EBV concept provides a means for improving the prediction of the prevalence of a health condition in a litter of puppies, where the mode of inheritance involves more than a simple genetic mode of inheritance. The principle of EBV analysis takes account of the status of all ancestors of a proposed mating which have been tested for the condition in question, and not just the intended parents, in predicting the likely level of inheritance for the condition and the confidence factor for that result. Dr Lewis confirmed that EBVs were particularly pertinent to BAER testing and deafness in Dalmatians. He also expressed the view that, because it is the practice to screen whole litters of puppies, sufficient data could be compiled via the KC BAER Scheme such that EBVs could be applied beneficially to addressing deafness within just a few years].

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