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28th February 2011

To Whom It May Concern:

**Re: Animal Foundation & Law vs The Cavalier King Charles Spaniel Club of the Netherlands**

We have been asked to comment on the proposal to prohibit breeding of Cavalier King Charles Spaniels in the Netherlands. It has been proposed that the Cavalier King Charles Spaniel breed has such a high incidence of inherited disease that breeding is not acceptable on ethical and welfare grounds.

In reply, we would have to agree that the Cavalier King Charles Spaniel, like many pure-breed dogs, is predisposed to several breed related and inherited disorders. Some disorders such as Chiari-like malformation (CM), syringomyelia (SM), mitral valve disease and pancreatic disease have a very high prevalence in the breed. However, we would be against a complete ban on breeding these dogs at this time for the following reasons:

The first is that we believe that there are many breeds where conformation is having a far greater impact on welfare, for example, the extremely brachiocephalic breeds or dogs with excessive skin folding. Brachiocephalic obstruction syndrome means that the dog struggles with the basic life function of breathing. Likewise selecting a dog for excessive skin folds can cause pain and eye problems and is, in our opinion, unacceptable. In these disorders there is a clear association between conformation and disease

By contrast, in the Cavalier there is not such a clear association. CM is a consequence of a mismatch in the skull and brain size characterised by a comparatively small skull with increased brain size. However the suggestion that this disease has occurred simply because the breeders have selected for a certain type of head shape is unproven and an over-simplification. If this disease was purely a consequence of selecting for a smaller dog then many individuals of all toy breeds would have this condition.

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The other reason why we think that it is premature to ban the Cavalier King Charles Spaniel at this time is that the Dutch breeders have led the world in their attempts to reduce the prevalence of SM. They were among the first breeders to begin an MRI screening programme for CMSM and they are the only group of breeders which insist (as of the 1<sup>st</sup> July 2011) for MRI screening of every breeding Cavalier King Charles Spaniel. By contrast, in the USA and some other parts of Europe, breeders appear extremely reluctant to MRI screen their breeding stock or even acknowledge that Chiari-like malformation /syringomyelia (CMSM) is a problem. In other words, in the worldwide population of Cavalier breeders, the Dutch breeders are leading the way and tackling the issues with a range of directives. For example, the Cavalier Club of The Netherlands is the first to recommend that any foreign stud dog used in the country is screened for CMSM and require that all dogs be evaluated for mitral valve disease, patella luxation and they enforce guidelines as to the minimum and maximum age for breeding.

Current knowledge about CMSM has greatly benefited from the participation and support of the Dutch breeders who have paid for MRIs screening with their own money. By presenting their MRI scan results to us, they have facilitated a variety of investigations into the inheritance and progression of this disease which has already enhanced our understanding of the condition and provided direction for further study. With the help of Utrecht University, many of these breeders have provided DNA samples which were pivotal in the initial stages of the genome project searching for the genetic cause of both CM and SM. As a consequence of their MRI screening programme, which has been in place since 2004, we can show that the incidence of SM in the cohort of Dutch Cavalier King Charles Spaniel appears to be dropping and might prove to be less prevalent than elsewhere. In other words, Dutch Cavaliers may be healthier than Cavaliers in the rest of the world and therefore provide an important source of genetic material.

It is therefore our opinion that the Dutch Cavalier King Charles Spaniel should not be banned at this time. We would like to take this opportunity to make the following recommendations based on our analysis of the data arising from the UK and Dutch MRI screening.

1. All breeding Cavalier King Charles Spaniels should be MRI screened.
2. Dogs with clinical signs from SM should not be used for breeding.
3. To increase the number of SM-free dogs, at least one parent should be ascertained to be free of SM by MRI scan at 2.5 years of age.
4. SM has a very high prevalence in Cavalier King Charles Spaniels. Recent data suggests that at 12 months of age, 25% of Cavaliers are affected by SM rising to 70% at 6 years of age. Evidence suggests that SM can be a late onset and progressive disease so the true SM status of the grandparents at least 5 years of age should be established.
5. Although there is some success in breeding away from SM, it will be difficult to eliminate completely because of its progressive and/or late onset nature. CMSM has been shown to be a complex trait involving the interaction of one or more gene/s and may also be influenced by other factors. The priority of our genome project (in collaboration with Montreal University) is to elucidate the inheritance of the condition. In 2007 we submitted a database of the UK Cavaliers to Dr Sarah Blott and Dr Tom Lewis at the Animal Health Trust, UK. They used this and other MRI results to create a programme which gives each Cavalier an estimated breeding value (EBV) based on their MRI scan results and those of their relatives.

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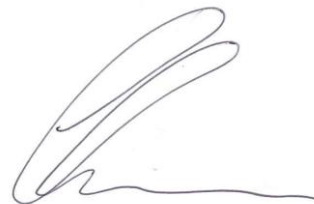
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It can also incorporate other screening test results. In the near future we hope that there will be an official Kennel Club/British Veterinary Association (KC/BVA) CMSM MRI screening programme for breeding Cavaliers and other toy breeds. In this scheme there will be a standardised assessment of MRI scans and a certificate issued to the breeder. The results of this will feed into the EBV database and used in a "Mate Select" programme which the breeder will be able to use to make sensible breeding decisions for their dogs. Because the inheritance of SM is so complex, EBVs give the best information to the breeder to make informed breeding decisions. We would like to add the data which we have collected from the Dutch MRI screening programme to this system. I would also recommend that the Dutch breeders submit all their MRI scan results to the KC/BVA CMSM scheme (after it is launched) so that the Dutch breeders can also make use of this Mate Select program. If for some reason this is not possible then I suggest that the Dutch develop their own official screening programme and database generating EBVs.

6. If an asymptomatic SM affected dog is used for breeding then ideally the chosen mate should either be selected on the basis of its EBV or be an older SM clear dog, i.e. clear of SM at over 5 years of age. Some might consider it inappropriate to use an SM affected dog, however in some instances this might be necessary simply because the individual does not carry a genetic tendency towards other diseases. If only SM-free dogs are used for breeding then genetic bottlenecking will occur and other diseases will emerge or increase in prevalence. If a SM affected dog is used then obviously the offspring of the proposed mating should also be scanned and ideally not used for breeding before 2.5 years of age and bred to older SM clear dogs (older being greater than 2.5 years of age).
7. Finally, we feel that this situation should be reviewed in the future especially when/if the CMSM genes are found. It may become more appropriate to use a DNA screening test and/or a genomic breeding value rather than an EBV. It also might not be possible to breed away from SM in the Cavalier King Charles Spaniel because of its link to CM which is ubiquitous in the breed. If this is proven to be the case then then a more radical approach to breeding the Cavalier King Charles Spaniel might be necessary and perhaps even consider outcrossing to allow the introduction of new DNA.

Please do not hesitate to contact us if you wish us to go over some of our data which has been collected in collaboration with the Cavalier Club of The Netherlands.

Yours sincerely



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&

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