WECS COLLIE HEALTH

There are some interesting new items to report since the last RoundUp.
I realise not everyone is "into" health issues, thinking the information is too technical, or given too much importance, especially with regard to MDR1. But as Health Coordinator for WECS, I am obliged to report any new developments for interested breeders.

One of the main concerns regarding testing has been the cost involved, so some good news to start with.....
Until now Laboklin has been the only laboratory recognised by the KC for MDR1 testing, and Optigen the only laboratory offering DNA testing for CEA and PRA (and now the PRArcd2). However, the KC will now accept test results from Genomia in the Czech Republic. Genomia's DNA tests for both CEA and MDR1 are currently much cheaper than either Optigen or Laboklin can offer. Check out details at www.genomia.cz . As Optigen claim world patenting rights for the PRA test the KC cannot accept PRA test results from Genomia at present.

East Anglian Collie Association has been instrumental in helping to set up a Rough Collie DNA Archive at the KC's Genetic Centre at the Animal Health Trust.
The Archive is available for all Rough Collie breeders to make use of by taking DNA samples (by cheek swabs) of their dogs, which can then be stored until such time as they may be required for research into any further health issues. All the AHT asks is a small donation of £5 for each dog's DNA submitted, to cover the cost of administration – the DNA storage itself is free.
Swab kits can be collected from any EACA show or event, and further information can be found on the health pages of EACA's website, c/o www.collienet.com If there is sufficient interest we may be able to arrange for some swab kits to be available at WECS shows, together with our usual MDR1 swab kits.

MDR1 continues to cause heated discussions between breeders, with varying views on its' importance to the Rough and Smooth collies.

The KC has now recognised DNA Health Testing schemes for MDR1 for Australian Shepherds, Smooth Collies and Shetland Sheepdogs, and recently, through the Breed Council, has asked the Rough Collie breed clubs for their views on setting up a similar scheme for the Rough Collie.

There does seem to be some misunderstanding about the way KC recommended health schemes work – some breeders feeling they are being forced into expensive testing, against their will. But just because the KC recommend these tests, it does not make them compulsory – the choice is still left to the individual breeder,

similar to the long established breed recommended CEA/PRA eye testing and HD hip scoring schemes; the option is there for those breeders wishing to test their breeding animals, but are under no obligation to do so.
Just before going to print the following statement was received from Gary Johnson (KC Breed Services Manager):
"There is absolutely no intention of imposing DNA tests on any breed unless they are requested by the Breed Clubs, or Councils. The purpose of the official DNA testing schemes is to create an open register of tested dogs. Breeders can choose to use the tests or not, but if they do, the results become part of the public domain, appearing on registration certificates, the BRS and the KC website.
The KC will therefore record results on a voluntary basis for both MDR1 and CEA/CH for Rough Collies. Therefore any owner who submits DNA results for their own dogs will have these published, as described above.
You may wish to let your Breed Council, Clubs and the breed note writers aware of this decision."
So there we have it, direct from the horses mouth!

Another drug has just been added to the growing list of medication that causes adverse, often fatal, reactions in -/- dogs; Flagyl (metronidazole) is a fairly routine antibiotic used to treat bacterial infections. It might be wise for collie owners/breeders to keep their vets updated as these drugs are identified.

There also seems to be a lot of confusion about the way the MDR1 gene is passed on, and I have been asked if I can explain it in simple terms, as many of the websites we are referred to are scientific papers and too technical.
We are lucky in that we know the MDR1 gene is a simple recessive gene, which follows a set pattern, (as opposed to say the hip dysplasia gene, which is thought to be polygenic, involving more than 1 gene) so in theory, relatively simple to breed out.

+/+ refers to the dog who is unaffected and a non carrier for the condition;
+/- is the dog who is itself unaffected, but carrying the mutant gene;
-/- is the affected/carrier dog.

So, in basic terms, each dog receives 2 genes (one from each parent) for every part of its makeup, from coat colour, ear carriage, tail length, to eye shape, conformation, and so on, including MDR1. There can be differing genes for the same thing, and usually one gene will be dominant and one recessive, (as the sable colour gene is dominant over the tricolour gene.) Fortunately the MDR1+ gene is dominant over the – gene.

The three gene types (+/+, +/-, and -/-) give us 6 possible breeding combinations. With the first 3 possible matings we are dealing with known fact so can accurately predict the outcome of each litter without the use of DNA tests.

1) If +/+ is mated to +/+, **all** the resulting offspring **have** to be +/+ too, as neither parent possesses the – gene to pass on. If both parents have been DNA tested as +/+, (or are known to be hereditarily clear), there is no specific need to DNA test these pups as they can be classed as **hereditarily clear.**
2) In the same way, -/- mated to -/- **must** produce **all** -/- pups, as there is no + gene to be passed on, so we know these pups to be **hereditarily affected/carrier.**
3) The next combination is +/+ mated to -/-; each pup will inherit a + gene from one parent and a – gene from the other parent, producing a litter **all +/-.** As long as we are sure of the parent's status, then we know the pups to be **hereditarily clear/ carriers.**
The final 3 possible matings are the ones not so straight forward, meaning the only way to identify clear, affected or carrier pups is by DNA testing.
4) +/+ mated to +/- (clear to clear/carrier mating), will produce an expected ratio of 50% clear +/+, and 50% clear/carriers +/-, but **no** affected pups.
5) +/- mated to -/- (clear/carrier mated to affected) will produce an expected ratio of 50% clear/carrier +/-, and 50% affected -/-.
6) The final combination is +/- mated to +/- This mating will give us an expected ratio of 25% clear +/+, 50% clear/carrier +/-, and 25% affected -/-. The only way to identify which is which is by a DNA test.

This shows it is not necessary to DNA test every pup, as long as we, the breeder, know the status of the parents. To test these pups just gives us the (expensive) confirmation we already know.
I am not sure yet if the KC will allow this to be eventually added to the dog's registration certificate, or included on the KC health register results without their own individual DNA certificate. (EACS MDR1 register already does include hereditarily clears.)

Also this shows that there should be no fear or stigma involved in owning a -/- dog, as if the breeder wishes to retain the dogs otherwise outstanding qualities, by mating to a +/+ partner, in the first generation we can produce an entire litter of +/- unaffected (although carrier) pups.

We do need to be careful we do not throw the baby out with the bathwater and reject otherwise good dogs simply on their MDR1 status. It should be viewed as any other fault – heavy ears, lack of or too deep stop, incorrect tail carriage, etc, and considered as part of the breeding program.

As more breeders begin to understand the condition and the mode of inheritance, hopefully common sense will prevail, and the suspicion can be replaced by a calm and steady resolve to eventually reduce the incidence of MDR1 in our collies.

Anyone requiring further information on any health matter, please contact

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