

## **Glaucoma Research Update – Roslin February 2017**

We consulted Professor Kim Summers, who is leading the research at the Roslin Institute for any recommendations about breeding. She said: “The advice you received from Aimee Llewellyn is still the most sensible approach. That is, don’t breed from an affected animal; don’t breed close relatives even if they are clear; don’t breed from any animal that has an affected parent; if an animal later develops the condition only breed from progeny that are tested and clear and leave it until they are older (eg older than the affected parent) so it will be more certain that they are not going to develop it. Our study doesn’t change this”.

This summary largely echoes the advice that was received from Aimee Llewellyn, who also stressed that using older dogs who are unaffected is safer than using young dogs, if goniodysgenesis and glaucoma are progressive and develop as the dog ages. In summary (in her words): “The best-case scenario is to seek out, and pair up those dogs with the widest number of close relatives (parents, siblings, progeny) who are unaffected.” Aimee added that it would be even better to use animals who have no affected relatives in several previous generations. This could be based on both goniodysgenesis and glaucoma, but it would be particularly important to avoid animals who have relatives with glaucoma.

Since goniodysgenesis is quite prevalent in the Border Collie population at the moment, avoiding breeding from all individuals who have failed the BVA gonioscopy test could result in reducing the breeding pool of dogs and hence the genetic variability in the breeding population. The problem here is that the undesirable version of other genes may end up at higher frequencies leading to other health issues. So it is important to use as wide a variety of animals for breeding as possible.

These thoughts are intended to provide background information for decisions about breeding strategies that may reduce the risk of passing on goniodysgenesis and the predisposition to glaucoma. Without a specific genetic test for the single or multiple genes involved we can’t guarantee that puppies produced following these ideas will be free of goniodysgenesis and glaucoma, but could reduce the incidence in future generations.

The officers of the PBHF would like to suggest to any newcomer to the breed seek advice from someone who can explain and who fully understands the suggestions regarding breeding.

Prof Summers said that they are currently focussing their studies on dogs with glaucoma of any severity, dogs who have lost one or both eyes, and dogs with a diagnosis of severe goniodysgenesis, which is determined from the report of the veterinary ophthalmologist. “For our present studies we are considering only these dogs as “affected”. Until we have identified the genetic cause and the mode of inheritance we can’t be sure of the status of dogs with milder goniodysgenesis.”