

## Account of meeting ECGG 6-2-2020

The Expertise Centre Genetics of Companion Animals is part of Utrecht University, Veterinary Service and Cooperation. The centre is independent and with scientific research that is a huge plus!

Jeffrey de Gier is a reproduction specialist. He was quick to explain they are usually very much in favor of natural reproduction, so very reluctant with artificial insemination (AI). But he indicated that there are circumstances where there should be exceptions to the rule. He discussed, among other things, the possibilities of AI when, for example, physical distance between male and female is a problem. And my example of mating problems due to height difference between male and female with outcross could possibly also be an exceptional situation. He also discussed the possibility of establishing a sperm bank, and the advantages and disadvantages thereof. The disadvantages are that it is quite expensive, and that the chance of gestation with AI with frozen sperm is considerably lower, and the size of the litter is also negatively affected. An advantage is that with breeds with late onset diseases, so diseases that only show up when the dogs get older, you can save the sperm of the young male and wait for to see if he develops the disease. International cooperation becomes easier, although chilled semen is often the better option. But then a maximum of 48 hours between collection and insemination must be possible and that is not always the case. Finally, it is possible to store and use the sperm indefinitely, even long after the death of the male dog. He advised to think carefully about ownership of the sperm, the advice would be to ensure that the foundation is the owner.

Hille Fieten, coordinator of the Expertise Centre but also veterinarian at the university clinic was next to tell us more about the services provided by the Centre.

She talked briefly about the possibility there will be a kind of "health street" where owners and their dogs can visit the various specialties for health testing in one day. It depends on the breed what will be tested. For SS&L dogs, the health committee will determine which tests must be done.

She told more about the status of PETscan, a system that allows central registration of diagnoses. Veterinarians can communicate their findings and diagnoses via PETscan and can receive information about the diagnosis. Because the first few digits of the chip number are included, the Centre can make the distinction between purebred dogs and non-purebred dogs. This can become a powerful tool in detecting an increase in hereditary diseases within a certain breed so that the Dutch Kennelclub and / or the breed association(s) can be informed. They can then decide to do further research within the breed and find out what can possibly be done about prevention (for example, exclusion of breeding lines) and perhaps raise funds to develop a DNA test if there is a chance that the disease inherits in a simple way (1 sick allele for example).

In the Netherlands, the Expertise Centre is the only lab that develops new DNA tests. She told more about the collaboration between the Centre and the various parties in the world that work with DNA analysis. For example, they can collaborate with MyDogDNA and with Embark, parties that already offer possibilities to look at the inbreeding coefficient (COI) on a DNA basis, and can make a calculation of the predicted COI of an intended parent combination. They facilitate the storage of blood so that DNA can be tested by any laboratory at any time without having to draw blood again. Perhaps we can purchase the tests cheaper through the ECGG, we will specifically ask about that.

She then explained more about Fit2Breed, software developed by the ECGG that can drastically change (and improve) breeding for health. In Fit2Breed, DNA data comes together with the clinical data of a dog. When there are enough other dogs of that breed / outcross program in the database, breeding advice which dog to use can be given in which diversity is an important factor. In addition, they can make sure no sufferers are born from diseases for which a DNA test is already available. The breeder is offered a list of possible matches for his/her dog, you can safely choose from the "green" animals. "Light green" dogs will also be shown, which means that the dog is probably suitable, but that one or more health tests are missing. After testing is complete, and if the results are good, the status can turn green and the combination is justified. When breeders use the advice of Fit2Breed, it will mean that they can legally prove that they have complied with the law by breeding as healthy as possible. Fit2Breed can be especially valuable for outcross. You want to keep the risk as low as possible that you introduce new hereditary diseases into your gene pool and the software can assist with that. In short, Fit2Breed is completely focused on breeding for health, what a great development!

Estimated breeding value was also briefly discussed. The disadvantage is that a lot of data is needed. And that data must be reliable, so preferably confirmed by a vet. But when the data is available, it becomes possible to predict the chance of illness/deviations without a DNA test being available. So potentially very interesting.

Finally, we discussed the FairDog project, which originated from FairFok. Utrecht University is part of the steering group, together with the Dutch Society for the Protection of Animals, the KNMvD (Royal Dutch Society for Veterinary Medicine) and the Dutch Kennelclub Raad van Beheer. The ECGG will be particularly involved in the project that will set up quality criteria for breeding.

In short, when we look at our vision and mission, there are quite a few points that the ECGG could facilitate. Let's hope we can find the funds to use their services.

Barbara Willemse