TOWARDS A GLOBAL APPROACH TO HEALTH

At a time when genetics is the main subject of health and selection, I want to draw the attention of all the players in the field to its limits and, more generally, to the proper use of screening programs for the various diseases of the canine species.

In a recent statistical study on Ranking Grids, a major element in terms of selection in our country, hip dysplasia is by far the most affected condition and is present in almost 60% of the Ranking Grids. It is also historically the first ailment to have been the subject of an official screening. It is certainly a heavy and sometimes disabling ailment but it is interesting to note that it represents only a very small percentage of the reasons for consultation in veterinary medicine, in all it is very far from the leading position it occupies in the dog world.

In a more general way, when we examine carefully the list of diseases that are the subject of an official screening programme (by genetic testing or by medical examination) and which are included most of the time in the Ranking Grids, many of these greatly concern the musculosketal system (dysplasia, osteonecrosis, vertebral malformations) and the sense organs (essentially ocular defects) and a minority in the cardiovascular system (stenoses, cardiomyopathies) and urinary tract (nephropathies). For the most part, these conditions are not fatal even if their severity and disabling nature are not questioned and fully justify some soncern.

However, it must be admitted that the causes of mortality in the canine species are very different.

A study dated from 2015 and covering 75000 subjects (Journal of Veterinary Int Medicine) showed that it is the tumours and the neurological diseases that take away our old dogs whilst the younger dogs die more from infections and digestive ailments. Without going any further, it can be seen that the diseases that are the subject of screening and which are fully integrated into the selection are far remote from those which kill and which reduce life expectancy.

In the field, there are a good number of breeders concerned about the early onset of cancers in certain breeds, the immune deficiencies of certain lines that weaken them in the face of infections and the predisposition to stomach twists in others.

It is clear that these two groups of diseases (those that kill and those that are screened) form two groups that overlap quite badly. Our knowledge in many fields is still insufficient to propose a complete health analysis and many serious ailments remain mysterious as to their etiology. This does not mean that what is being done is useless, we do what we can with what we know, step by step, and all diseases, even minor ones, merit our attention.

However, this means that these facts, even multiplied to infinity are and will probably never be sufficient to attest to the good health of an animal. This is because of a lack of knowledge or a concern for extreme simplification (sometimes with a mercantile focus) there is an increasing tendency to accumulate more or less invasive health tests to attest to the good health of a future reproducer.

This is a heresy. In practice, it is realised that the dog that will successfully pass five tests will sometimes be the least healthy, have the shortest life and the extremely deteriorating for the breed and of no genetic interest.

In contrast, another reproducer with a chronic disease but with little disability (light dysplasia, minor eye disease) and thus failing in health tests may be the strongest for breeding, the fastest, the best hunter, the most resistant to infections, the one who ages best and longest and therefore proves to be extremely interesting despite their first failure which often closes the door to reproduction for them definitively.

We thought we were beginning to figure out genetics and that by “simply” identifying the

unfavourable mutations this would solve a large part of our problems. Genetics, however, has this peculiarity of becoming more and more complex as it is studied and advanced in its comprehension.

For a very long time, we had a rather simplistic vision or we were opposing, in the expression of a character, what was genetic and what came from the environment. With epigenetics, we now know that the environment can interfere directly with the expression of a genome, which complicates the matter a little and should make us consider our approach.

On the other hand, numerous studies (Angela R Brooks-Wilson – hum genet 2012) on genetics and ageing in the human species show that centenarians have no fewer defective or high risk alleles concerning many diseases than the rest of the population but it is rather the presence of many favourable alleles associated with a good environment that influence longevity.

In summary, as far as we are concerned for lack of a complete and global analysis of genetics, our approach is biased.

This is the reason why I recommend a certain flexibility in the use of these programmes, which, I repeat, have all their interest as a selection tool but which, in no case, can be a substitute for the observation of the breeder who lives with and knows their dogs better than anyone else. Because they live with and have experience of the breed, they are at the best place to locate the best, the most resistant ones, the best performers, those who recover the most quickly, those who resist disease better, those which are the best whelpers and those who become old in good condition.

The health tests that we incorporate into the Ranking Grids and Pedigrees should not replace any comprehensive and global health analysis. As an example of the latter, we can quote the trials adapted to each breed.

It is essential to continue to select both on the morphology and the work that has been done in France for decades and do not succumb to the temptation to create lines exclusively based on beauty. The strain tests under medical control organised for certain brachycephalic breeds also go in this direction and would merit to be extended to many other breeds.

Another interesting example is to show to advantage the veterans and the publication of ages (and causes) of death. When an animal lives for a long time, it is probably interesting genetically even with some defects. We must, therefore, avoid excessive use of screening programmes and allow the breeder a certain amount of flexibility.

It is true that the temptation to draw up regulations of all kinds based on these examinations is great but we must be careful if we do not want to witness the consequent and irreversible damage due to excessive purification. Often the best is the enemy of good.

Without coming to that, let us make the best use of the tools that science gives us, let us continue to test and identify the healthy animals and the others to deploy the matings in a judicious way but let's refrain from regulating too much. Breeding is already quite complex like that. Moreover, it is essential to initiate a thought process in order to develop this axis of global analysis of health, which must be done in conjunction with the specific tests.

Let us not be tempted to replace the good sense of the breeder by a multitude of tests which will never be a guarantee of the good health of an animal.

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