Approaches to tackling genetic welfare problems in companion animals

Report of the Companion Animal Welfare Council Workshop held at 14:30 on Thursday 9th October 2008 at 2 Millbank, Westminster.

Summary and conclusions

At present, structured and coordinated approaches to implementation of appropriate breeding strategies for addressing genetic welfare problems in companion animals are limited and the leadership for such coordination is unclear. By default, the approach adopted has been one of developing diagnostic tests and breeding strategies to tackle specific problems. This is of course extremely important but there needs also to be higher level consideration of whether the best way forward, for animal welfare, is to proceed in this way or, instead, to cease breeding at all from some strains.

The Workshop concluded that a suitably constituted and independent advisory body, set up to consider these issues (ie the best ways forward to tackle genetic welfare problems on a breed by breed basis) could provide a very valuable service to animal welfare and to society. By addressing the issues outlined above, ie by making explicit both the welfare costs and the possible benefits of continued breeding, and by offering its consensus views on the balance of these and making clear its reasons for these, such a body (and this may be an appropriate role for CAWC) could provide valuable guidance. It would clearly have to consult widely and its standing and authority would rest only on the quality of its composition, including its technical advisors, and its judgments. It would address, with breeders and others, both the ethical and the practical genetics aspects: can continued breeding in a population be justified? And, if so, what the aims (and perhaps methods) of the future breeding strategies (species by species or breed by breed) should be.

Background

On 29th April 2008, CAWC held a workshop meeting at the House of Lords to review progress in tackling genetic welfare problems in companion animals two years on from the publication of its Report on 'Breeding and welfare in companion animals'. This workshop focused on the condition of syringomyelia in Cavalier King Charles Spaniels (CKCS) in order to try to highlight general principles about tackling genetic welfare problems that might have wide application in companion animals.

At that workshop there was discussion about the possible approaches to tackling genetic welfare problems. A brief report of the meeting is available from CAWC and the relevant section of this is reproduced at Appendix A below. At that meeting, three kinds of approaches to tackling genetic welfare problems were identified (see Appendix A):

- breeding to reduce prevalence or eliminate within the breed,
- outbreeding to reduce prevalence or eliminate,
- or ceasing to breed at all from potential carriers.

It was concluded that there should be further debate about such fundamental aspects of approaches to tackling genetic welfare problems in companion animals

The aim of the workshop held on 9th October was to discuss these matters and the relative merits of these three approaches to tackling genetic welfare problems: recognising that this is a large and controversial subject which clearly includes both scientific and ethical aspects. The intention was to try to capture key points with a view to producing a brief paper, perhaps for publication as a letter or brief report, to help inform society and stimulate further critical thinking and debate about these important animal welfare matters.

A list of the Workshop participants is at Appendix B

Breeding strategies for tackling genetic welfare problems in companion animals. How are decisions reached and what factors underlie them?

If it is believed that there is something intrinsically important about a breed then the matter of how best to deal with any genetic welfare problems within it is one of practical genetics.

However, if there is not something intrinsically important about a breed, then the question of what to do about genetic welfare problems is more purely an ethical one. Under this circumstance, shouldn't the breeding of these animals cease so as to preclude the risk of perpetuating welfare problems? So how does one decide which breeds are sufficiently important to justify continued breeding in the face of genetic welfare problems?

There are some 200 breeds of dogs so would it matter if this dropped to, say, 180? For those species that have only relatively recently begun to be bred as companion animals (eg many species of birds, reptiles, amphibians and fish), it has been argued that breeding for particular traits should be avoided (CAWC, 2006; CAWC, 2008a): there seems to be no good case for developing wide varieties of breeds of these. This is because, from the welfare point of view it is likely to be generally better not to select for characteristics away from the wild type (although some modifications - eg that result in better adaptation to the new environment - may have welfare benefits).

Breeding animals that will be at risk of genetic welfare problems reflects a judgment (perhaps usually tacit) that, in some way, the benefits of so doing outweigh those welfare costs.

Assessing the costs and benefits

It is clear that individuals reach different conclusions about which way the scales tip in this cost to benefit balance. The workshop considered that there were some breeds of dogs whose perpetuation could not be justified (at least in their present forms) because it was felt that any benefits of so doing could not outweigh the welfare costs. However, where in other breeds, the welfare costs were judged to be milder (ie less intense, and/or of shorter duration), and where the proportion of individuals affected was (sufficiently) small, opinion was that continued breeding is acceptable: the benefits can outweigh the costs in these cases, providing that breeding is structured and managed so as to tackle the existing genetic welfare problems.

In these cost to benefit assessments, welfare costs are put, in the mind's eye, on one side of the scales and the various benefits are put on the other. We each form a judgement of which way the scales tip. The 'weight' on the welfare side is dependent on our judgements about the impact of the condition on the animal's quality of life (in terms of, for example, pain, fear or other unpleasant feelings, how severe these are, how long they last, and the proportion or number of animals affected). But what are the benefits that we (tacitly, or otherwise) place on the other side of the scales? That is, what are the reasons why we might, for example, choose to breed (or buy) a dog of breed **A** whilst being aware that the dog may face an increased risk of a problem that will diminish its welfare? (The dog is picked here as an example – the principles apply to any species).

The reasons might include some of the following.

- Function. For example, we may choose a sheepdog if we want our companion animal also to herd sheep.

- Economics. We may wish to breed **A**s because we depend upon so doing for our income (say, to feed our family).

- Suitability. Choices may often relate to suitability for our needs with respect to, for example: size, feeding costs, space and exercise requirements.

- Predictability. We may choose to buy a dog of breed **A** because its temperament is predictable, because of its breeding, and hence is more suitable for our needs.

- For social reasons. Our friends may all have dogs of breed **A** and we want one also for social reasons.

- We just like them. We may wish to breed or buy dogs of breed **A** because we just like them (eg because of the way they look).

Some of the reasons for our preferences, described above, might be logical and reasoned. For example, choices that relate to suitability in relation to meeting the animals needs for food, space and exercise, space and cost; or choices relating to function (eg getting a sheepdog because we need to herd sheep). However our choices may, in some cases, also be reflections of arbitrary preferences the basis of which may be unclear to us, and which may perhaps be whimsical. We may just like **A**s.

The bullet points above list reasons why we may wish to buy or breed a companion animal breed that is known to be at risk of genetic welfare problems. So 'good welfare' is not included in the list. However, good welfare is undoubtedly also a powerful factor influencing people's choice. So, it is very important that clear information is readily available on genetic welfare problems in companion animals and how to avoid or minimise them so that potential buyers and breeders can take this fully into consideration.

Historically, it appears that function was a major factor driving the breeding of particular genetic lines of dogs. For example, the purpose of bulldogs was to bite bulls and their design reflects the selective breeding that was directed to that end. The purpose of bulldogs now – the reason why people breed and buy them – is as companion animals. It appears that 'just liking them' is a very powerful motive for breeding and buying particular breeds and that this, rather than function, economics or other reasons in the list above, may often be the major factor.

If this is the only factor, the question becomes does 'just liking them', with whatever human welfare benefits this may bring, justify continued breeding where it is known that there is a risk of poor welfare due to hereditary disease as a result? If animals were to be bred, *for scientific purposes* rather than as companion animals, where there was a known likelihood that the welfare of some of the offspring would be compromised, this would be permitted only under licence under the Animals (Scientific Procedures) Act 1986, and only where the Home Secretary was persuaded that the benefits outweighed the welfare costs. It seems very unlikely that 'just liking' something would ever be accepted as a justification for causing poor animal welfare in this context. Similarly, there is legislation which aims to protect farm animals from risks to welfare associated with breeding - the Welfare of Farmed Animals (England) Regulations 2000 provide that: *'It shall be the duty of any person who selects an animal for the purpose of breeding from it to have due regard to any anatomical, physiological or behavioural characteristic apparent in the individual or the breeding line which is likely to put at risk the health or welfare of the offspring or the female parent'* .

So, is 'just liking them' justification enough to breed companion animals whose welfare may be at significant risk?

No doubt there is a wide range of opinions about this. Perhaps, if views were surveyed rigorously, there would be a consensus (as in this Workshop) that there are some breeds whose continued breeding cannot be justified.

The way forward?

At present, structured and coordinated approaches to considering these questions are limited and leadership is unclear. By default, the approach adopted (if any is adopted at all) tends to be one of developing diagnostic tests and breeding strategies to tackle specific problems. This is of course extremely important but there needs also to be higher level consideration of whether the best way forward, for animal welfare, is to proceed in this way or, for some strains, instead, to cease breeding at all.

It was not the role of this Workshop to begin to consider approaches to particular breeds but it was clear that there was little support for the continued breeding of those whose very breed characteristics have direct adverse welfare consequences. For example, dog breeds with deep skin folds are very likely to suffer from dermatitis and any perpetuation of this is very hard to justify. However it is not always simple to draw a clear line between welfare problems that are linked to breed characteristics and those that are independent of them.

The Workshop concluded that a suitably constituted and independent advisory body, set up to consider these issues – the best ways forward to tackle genetic welfare problems on a breed by breed basis - could provide a very valuable service to animal welfare and to society. By addressing the issues outlined above – by making explicit both the welfare costs and the possible benefits of continued breeding, and by offering its consensus views on the balance of these and making clear its reasons for these – such a body (and this may be an appropriate role for a group that CAWC might establish and operate) could provide valuable guidance. It would clearly have to consult widely and its standing and authority would rest only on the quality of its judgements.

It would address both the ethical and the practical genetics aspects: can continued breeding be justified? And, if so, what the aims (and perhaps methods) of the future breeding strategy should be. And, what would be the key characters upon which quality of an animal (especially for future breeding) should be judged (breed standards) and how can these be assessed or quantified? With respect to methods, the Workshop recognised that all the methods listed above may have a role to play depending on the circumstances.

Tackling these welfare problems depends on them being recognised as such. Where the way forward is through structured and managed breeding programmes, success will depend on those responsible for breeding taking ownership of the challenge. Breed standards should reflect welfare objectives. It was proposed at the Workshop that there should be breed-specific certification (regarding health and welfare status) and that such certification should be a requirement for entry to shows or for breeding. This certification should be managed or overseen by a specialist panels.

The workshop also concluded that the creation of veterinary databases that could be accessed for monitoring and properly regulated scientific analysis would be a most valuable step towards proactive management of welfare problems in companion animals. The need for recognising emerging problems, monitoring the prevalence of these and existing ones, and for prompt development of appropriate responses has been the subject of a separate CAWC workshop and the ‘Scoping Report on Companion Animal Welfare Surveillance (CAWC, 2008b) is available from CAWC.

The intention, following the Workshop, was to produce a brief report of the discussions (and this is that report). After seeking comments on this from the Workshop participants, this would be circulated to the CAWC Council, made generally available, and publicised to help promote debate and seek wider views about the way forward to inform, among others, CAWC regarding the next steps to pursue.

References

CAWC (2006) Breeding and welfare in companion animals: the Companion Animal Welfare Council's Report on welfare aspects of modifications, through selective breeding or biotechnological methods, to the form, function, or behaviour of companion animals. Available from the Companion Animal Welfare Council. www.cawc.org.uk.

CAWC (2008a) Report of the CAWC Workshop on 'Fixing ancestral problems. Genetics and welfare in companion animals focusing on syringomyelia in Cavalier King Charles Spaniels as an example'. 29th April 2008, House of Lords. Available from the Companion Animal Welfare Council. www.cawc.org.uk.

CAWC (2008b) Scoping report on companion animal welfare surveillance. Available from the Companion Animal Welfare Council. www.cawc.org.uk.

Appendix A. Excerpt from the Report of the CAWC Workshop 'Fixing ancestral problems. Genetics and welfare in companion animals focusing on syringomyelia in Cavalier King Charles Spaniels as an example

Approaches to tackling genetic diseases

Where genetic diseases occur that cause welfare problems in companion animals - and here we are referring to principles and in all companion animals (eg fish, reptiles, amphibians, birds and mammals) - there are various possible responses. These are outlined below.

(i) If maintenance of breed purity is taken to be the priority – then the approach pursued might be (as some advocate in the case of syringomyelia in the CKCS – see above) to take steps to eliminate the problem through selective breeding whilst as far as possible minimising further loss of genetic diversity in cases where the population is already very inbred (eg dog breeds).

(ii) If breed purity is not such a priority – then outbreeding (with another breed or breeds) may offer advantages. Whilst there could be risks with this, of introducing other genetic diseases, generally one would expect that advantages would be more likely than disadvantages. Ideally, this would be undertaken in managed programme – perhaps directed to try to address particular problems. To illustrate this using syringomyelia as our example again: since this a consequence of large brains in small skulls and selection for increased body size tends to result in relative greater size increment in skeleton than brain size, it might prove beneficial to breed for increased body size (whether or not this idea might have merits in the case of CKCS needs further consideration – some do not think it appropriate).

(iii) If animal welfare is the only consideration – then a decision might be made not to breed from any carriers or potential carriers of the disadvantageous trait even if this meant that the strain or breed might be lost. (For example, if a new colour morph of, say, a species of snake was bred but this strain was found also to be predisposed to a genetic disease that compromised welfare, then, if the priority is welfare, ceasing to breed this strain would resolve the problem).

It is apparent (and it was apparent at the meeting) that preferences concerning these options differ radically. This is not because of differences in the importance attached to welfare – all believe it very important. Some people feel strongly that breed purity is a great priority (whilst seeing welfare as a great priority also), others take the view that breed (the details of particular morphology and appearance) is not so important, being largely a matter of fashion, and that where it might be advantageous for the animals' quality of life to relax the pursuit of breed purity, this should be the way

forward. As far as we are aware public opinion on the desirability of breed purity in this context has not been surveyed.

As for the idea of not breeding from any potential carriers in order to prevent births of further animals whose welfare is compromised when the consequence of this would be that some lines or breeds might go extinct, it is apparent that there are strongly held views against this approach. As discussed above in the context of CKCS, one reason for this is that – depending on the circumstances - not breeding from potential carriers could lead to further loss of genetic diversity that may compromise the tackling of other genetic problems in a population. It was suggested that public opinion would not support the approach of not breeding from potential carriers in order to prevent births of animals at risk, but here again, as far as we are aware, public opinion has not been surveyed. The other side of this coin is acceptance that, during the course of efforts to eliminate genetic welfare problems, perhaps over a number of generations, animals will continue to be bred that are affected with painful and / or debilitating conditions.

It is important that, in the design of strategies to tackle these problems, the priorities (as outlined above) are clearly identified in each case as these will greatly influence the approach adopted. There seems to be a need for further debate about these fundamental aspects.

Appendix B Workshop Participants

Lord Soulsby of Swaffham Prior, CAWC Chairman
James Kirkwood, CAWC Workshop Chair
Sir Colin Spedding, Advisor to CAWC
Tony Birbeck, CAWC
Alan Waldron, CAWC Secretariat
Jeff Samson, Kennel Club
Clare Rusbridge, Stone Lion Veterinary Centre
Sarah Blott, Animal Health Trust
John Woolliams, The Roslin Institute, Royal (Dick) School of Veterinary Studies, Edinburgh University
Geoff Skerritt, Chestergates Referral Hospital
Judith Skerritt, Chestergates Referral Hospital
Nicky Paull, British Veterinary Association
Rachel Wain, British Veterinary Association

Companion Animal Welfare Council Contact details

CAWC Secretariat
The Dene
Old North Road
Bourn
Cambridge CB23 2TZ

Or as listed at CAWC website
www.cawc.org.uk
email: cawc@cawc.freeserve.co.uk

12th November 2008