

Supplementary questions

Question one

1. What are some of the most common behavioural or health issues experienced by mother dogs who come out of large scale, intensive breeding establishments?

Because they lack proper socialisation, many bitches display poor mothering skills. An RSPCA discussion paper cites examples of mothers demonstrating profound lack of interest in their pups, in some cases chewing or even killing their puppies.¹¹ They can also suffer from emotional distress, demonstrated in behaviours such as aggression towards other animals and people, separation anxiety or extreme cowardice, and compulsive disorders such as excessive grooming.

In terms of health, they commonly suffer medical issues, such as eclampsia, as a result of prolonged nutrient depletion: bitches are typically mated as soon as they come into season and are in a constant state of either pregnancy or nursing, all of which places a lot of stress on the body. Many will lose their fur due to chronic nutritional deficiencies.

If poor hygiene and lack of preventative health practices are at play, many will also have high intestinal and external parasite burdens and infections such as mastitis, diarrhea, or wounds as a result of exposure to filth.

Question two

2. Dogs NSW's submission included a suggestion that there is "no scientific evidence to suggest that negative welfare outcomes ensue from breeding an animal more than twice or even more than any particular number of times". What is your response to this – do you agree or disagree, and why?

This is untrue. Peer-reviewed research findings clearly identify negative welfare outcomes for both mothers and their puppies when a female dog is overbred and some studies recommend against breeding female dogs more than twice. A study¹² published in the Veterinary Information Network (VIN) on the influence of parity (the number of times a female has had offspring) on breeding complications in guide dogs found an increasing trend by parity in the percentage of whelpings during which complications arose. A 2016 paper¹³ on German Shepherds found that parity significantly influenced litter size, live born puppies, and the incidence of stillbirths. The number of whelpings in one bitch over the course of one year significantly influenced litter size.

¹¹ <https://kb.rspca.org.au/wp-content/uploads/2019/03/RSPCA-Puppy-Farm-Discussion-Paper-Jan-2010.pdf>

¹² <https://www.vin.com/apputil/content/defaultadv1.aspx?pld=11349&id=5328436&print=1>

¹³ https://www.agriculturejournals.cz/publicFiles/89_2015-CJAS.pdf

A study by Gill (2001)¹⁴ of various purebreeds found that parity of bitch was a significant predictor of stillborn puppies, with losses due to stillbirth being constant up to the 4th parity, after which the percentage of stillbirths increased with the increasing parity. Parity was also found to be a significant predictor of mortality due to foetal asphyxia. Bitch parity was a significant predictor of mortality with the odds of a pup dying increasing by 1.14x, and in Toy Breed dogs, for each increase in parity, the odds of a pup dying increased by 1.28x. There was found to be a general pattern of increasing perinatal mortality with increasing parity. Parities one and two had the lowest perinatal mortality (15.3%). Parity was found to be a significant predictor of mortality due to fading puppy syndrome. For each subsequent parity, mortality due to fading puppy syndrome increased by 1.47x. There was a tendency for increasing chemical assistance (that is, oxytocin) for birthing required with increasing parity. Parity also influenced cesarean rates, which have an impact on welfare owing to the pain involved during recovery. Parity one and two had the lowest caesarean section rate.

There is limited research into the impact of parity on the health of breeding females, which is why there is no definitive evidence on the number of litters a female dog should safely have. The veterinary advice, however, is overwhelmingly to avoid overbreeding, to be mindful of the physical strain breeding places on a female dog and to allow for recovery in between litters. When female dogs are overbred, particularly through back-to-back breeding on consecutive heats without a break to fully recover, they are at higher risk of health complications¹⁵ associated with pregnancy, such as uterine infection, mastitis and hypocalcaemia (potentially life-threatening low levels of calcium in nursing females). Overbreeding also reduces their length and quality of life. Common recommendations¹⁶ are not to breed a female dog until her 2nd or 3rd heat to ensure she is physically and behaviourally mature enough to mother, to have a minimum of one heat (preferably two) in between litters and to stop breeding between 5 to 7 years of age to avoid the risk of miscarriage, injury or even death during pregnancy. When these guidelines are adopted, female dogs would have 3 to 4 litters at a maximum, but our view is that legislation intended to regulate companion animal breeding should err on the side of caution, which supports a limit of 2 litters per lifetime for each breeding female.

¹⁴ <https://core.ac.uk/download/pdf/41232423.pdf>

¹⁵ <https://www.wikihow.com/Know-when-to-Stop-Breeding-a-Female-Dog>

¹⁶ <https://www.southmtnpet.com/blog/308225-how-many-times-should-you-breed-a-female-dog-in-her-lifetime>

Question three

3. Do you support a ban on breeding animals with heritable defects, and breeding animals related by blood? If so, can please explain why you think banning each of these practices would improve animal welfare?

Only functionally and clinically healthy dogs should be used for breeding but it is unrealistic to breed only genetically healthy dogs, which could exclude so many in the breeding population as to result in inbreeding.¹⁷ We support a ban on breeding dogs who carry genes that are likely to impair the health and functioning of any offspring. However, many dogs carry genes for heritable diseases that may not lead to disease in offspring, or that may lead to defects that do not affect quality of life, and such a ban would unnecessarily restrict the gene pool. We do advocate for genetic testing to be performed prior to breeding, as recommended by the Small Animal Veterinary Association¹⁸, to rule out the presence of any deleterious alleles. Responsible breeders should perform available pre-breeding genetic tests before breeding¹⁹, on the understanding that negative test results will limit their breeding options. An animal who carries a deleterious dominant allele/s should not be bred, and if they carry a recessive or semi-dominant allele/s then they should not be mated with animals who also carry these. Failing genetic testing, we propose that animals who produce offspring with phenotypic issues that compromise their welfare - such as hip dysplasia - should no longer be bred from; alternatives would be to breed from normal relatives. OMIA, "Online Mendelian Inheritance in Animals"²⁰, lists almost 850 heritable canine disorders and traits and almost 400 heritable feline disorders and traits. Ultimately, animals should be screened for these in order to remove them from the population..

We advocate for a ban on breeding related animals. Domestication and breed formation have unintentionally increased the number of deleterious genetic variants within breeds.²¹ This is exacerbated by inbreeding, which can cause inbreeding depression, where inbred individuals suffer from reduced fitness due to loss of genetic diversity.²² Inbreeding depression is normally assessed using birth and mortality rates, litter size, reproductive success, body size, and performance traits.

A paper that studied juvenile survival in captive mammalian populations found that the average cost of a parent-offspring or full sibling mating was 0.33, that is, mortality was 33% higher in offspring of such matings than in offspring of unrelated parents - and the authors predicted that this was likely to be an underestimate.²³ A 2021 paper that specifically studied the relationships

¹⁷ <https://www.vin.com/apputil/content/defaultadv1.aspx?pld=11223&id=3859039>

¹⁸ <https://wsava.org/wp-content/uploads/2020/01/WSAVA-Hereditary-Disease-Committee-Position-Paper-HDC.pdf>

¹⁹ <https://www.vin.com/apputil/content/defaultadv1.aspx?pld=11310&catId=33752&id=4516238>

²⁰ <https://omia.org/home/>

²¹ Marsden CD, Ortega-Del Vecchyo D, O'Brien DP, Taylor JF, Ramirez O, Vilà C, et al. Bottlenecks and selective sweeps during domestication have increased deleterious genetic variation in dogs. *Proc Natl Acad Sci U S A*. 2016;113(1):152–7.

²² <https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2656.13011>

²³ <https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/j.1523-1739.1988.tb00169.x>

between inbreeding, morphology and health in dogs found that smaller, less inbred breeds were healthier than larger more inbred breeds, and the authors concluded that body size and inbreeding along with deleterious morphologies contributed to increases in necessary health care in dogs.²⁴

A 2019 paper on inbreeding in golden retrievers found that the degree to which a dog was inbred influenced its fecundity. They found that, on average, a dam that is 10% more inbred than another will produce one less puppy per litter.²⁵ Similarly, a 2015 paper found a negative effect of inbreeding on both individual puppy survival and litter size.²⁶

A 2021 paper assessed inbreeding levels in a number of breeds, and the mean was found to be a staggering 25%. The authors remarked that strikingly few breeds had values less than 10%. To put the inbreeding values in context, the breeding of two first cousins produces a rate of 6.25%, two half siblings 12.5%, and two full siblings or parent-offspring 25%. Breeds with higher inbreeding levels were found to require greater amounts of veterinary care.²⁷ The Institute of Canine Biology states that the deleterious effects of inbreeding begin to become evident at an inbreeding coefficient of about 5%, with anything over 10% being significant.²⁸

Question four

4. You indicated in your submission that you support a ban on pet shops selling dogs and cats, unless they come from a rescue organisation. Can you please explain why you support this ban? What are some of your concerns around the keeping and selling of animals in pet shops?

Sentient supports a ban as it would reduce support for unethical breeding practices, including puppy farms, by eliminating one of their major sales outlets. Reputable breeders do not sell litters of puppies or kittens to pet shops. Banning the sale of dogs and cats in pet stores may also reduce impulse purchasing, and therefore, pet relinquishment and the resulting mental distress on animals, and financial and logistical burden on shelters and other rescue organisations. It may be speculated that such a ban would also directly increase the number of animals adopted from these organisations. An analysis of pet procurement channels by Galaxy Research 2013²⁹ found that dogs are most commonly obtained through breeders (30%), followed by friends or neighbours (20%), pet stores (16%) and then animal shelters (15%). One important flow-on effect from banning the sale of dogs and cats in pet stores is the potential for an increase in online sales. Therefore, we recommend legislation to ban this practice unless the seller is a registered breeder.

²⁴ <https://cgjournal.biomedcentral.com/articles/10.1186/s40575-021-00111-4>

²⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6606663/>

²⁶ <https://www.sciencedirect.com/science/article/abs/pii/S1090023314004559>

²⁷ <https://cgjournal.biomedcentral.com/articles/10.1186/s40575-021-00111-4>

²⁸ <https://www.instituteofcaninebiology.org/blog/coi-faqs-understanding-the-coefficient-of-inbreeding>

²⁹ <https://animalmedicinesaustralia.org.au/wp-content/uploads/2019/10/AMA-Pet-Ownership-in-Australia-5-AUGUST-2013.pdf>

Exceptions for this ban should be made for co-operative arrangements whereby pet stores sell animals to rehome on behalf of registered animal shelters and other rescue organisations, as a way of increasing shelter access to the public.

Welfare issues with animals in pet shops include:

- stressors (light, sounds, smells, exposure to unfamiliar humans and animals)
- lack of training and education of staff in animal welfare and care requirements
- grouping of animals in housing
- lack of environmental enrichment
- no opportunity for exercise and socialisation
- lack of supervision overnight
- poor hygiene
- risk of infectious diseases
- lack of vet checks
- stress from overhandling or shoppers banging on their enclosures
- lack of privacy
- no assessment of owner suitability
- resulting behavioural problems that may lead to relinquishment

A review³⁰ of seven published studies and one anecdotal report involving dogs born in high-volume commercial breeding establishments and sold to the consumer directly via the Internet or indirectly through retail pet stores revealed an increased incidence of behavioral and emotional problems that cause distress in adulthood compared with dogs from other sources, especially non-commercial breeders. The most consistent finding among studies is an increase in aggression, most commonly directed toward the dog's owners and family members but also to unfamiliar people, and other dogs. Increased fear was also identified in response to unfamiliar people, children, other dogs, non-social stimuli, and when taken on walks. Undesirable behaviors related to separation and/or attention seeking and a heightened sensitivity to touch were also noted. Because of how dogs sold through pet stores and/or born in commercial breeding establishments are bred, housed, weaned, transported, handled, homed, and raised, potential contributing factors for these reported outcomes are numerous and include:

- genetics
- early-life stimulus deprivation (inadequate stimulus exposure, inappropriate or lack of social exposure)
- stress (prenatal maternal stress and postnatal early-life adversity)
- early weaning and maternal separation
- transport
- pet-store-related factors, and

³⁰ McMillan (2017), Behavioral and psychological outcomes for dogs sold as puppies through pet stores and/or born in commercial breeding establishments: Current knowledge and putative causes. *Journal of Veterinary Behavior* 19: 14-26.

<https://www.sciencedirect.com/science/article/pii/S1558787817300102>

- owner-related factors such as inadequate knowledge and experience with dogs as well as different levels of commitment to the pet dog

All published studies suggest a role for major stressors during puppy development from the prenatal stage through adolescence in the development of many behavioural problems.

Question five

5. What are some of the common health and behavioural issues that puppies from puppy farms can develop?

Puppies born in high-volume commercial breeding establishments have been shown to develop the following health and behavioural issues. They have been attributed to genetics (including a lack of genetic screening of parents for inherited disorders such as heart murmurs), early-life stimulus deprivation, extreme confinement, unhygienic and overcrowded conditions, lack of appropriate preventative and veterinary care, stress, early weaning and maternal deprivation, transport and factors relating to being kept in pet stores.

Health issues affecting puppies and adult dogs³¹ include:

- Extensive matting of hair
- Malnutrition
- Parasitism (such as worms or fleas)
- Infectious diseases (such as parvovirus, pneumonia or kennel cough)
- Dental disease
- Ear infections
- Eye disorders (including dry eye and conjunctivitis)
- Skin wounds
- Skin infections (such as pyoderma)
- Congenital disorders³² such as:
 - Orthopedic problems (e.g., early hip dysplasia, especially in larger breeds and luxating patella, especially in smaller breeds)
 - Neurological disorders (often of unknown origin (idiopathic))
 - Hepatic disease (e.g., liver shunts)
 - Cardiac disease (e.g. hear murmurs)
 - Ocular disorders (e.g., entropion)
 - Umbilical hernias
 - Blood disorders (e.g., von Willebrand's disease)
 - Endocrine disorders (e.g., thyroid abnormalities)
 - Allergies

³¹ <https://www.humanesociety.org/sites/default/files/docs/veterinary-problems-puppy-mills.pdf>

³² https://www.hsvma.org/assets/pdfs/hsvma_veterinary_report_puppy_mills.pdf

- Deafness

Behavioural issues³³ include:

- Increased aggression towards owners, family members, unfamiliar people and other dogs
- Increased fear of unfamiliar people, children, other dogs, nonsocial stimuli and when taken on walks
- Undesirable behaviours related to separation (destructiveness, excessive barking, attention seeking)
- Heightened sensitivity to touch
- Stereotypical behaviours
- House soiling
- Escaping
- Excitability
- Lack of trainability
- Toy and food possessiveness

a. In your experience as vets, are these issues often expensive to treat?

Behavioural issues that do not respond to training would require the services of a veterinary animal behaviourist for assessment, management strategies and likely blood tests and medication (which may be ongoing). It is difficult to estimate the potential cost of this to owners, but it's important to be aware that behavioural treatment is generally not covered by pet insurance policies.

The cost of treating medical conditions could range from the purchase of flea preventatives to thousands of dollars to correct congenital disorders. Even after surgical correction, some of these disorders (such as elbow dysplasia) can predispose dogs to developing osteoarthritis, which requires lifelong management.

Question six

6. At the hearing, you raised concerns about breeding of animals with specific traits that are known to cause serious animal welfare issues, such as brachycephalic breeds.

a. What are some other physiological traits or breed standards that you are concerned about, because of the health issues they cause dogs and/or cats?

³³ McMillan (2017), Behavioral and psychological outcomes for dogs sold as puppies through pet stores and/or born in commercial breeding establishments: Current knowledge and putative causes. Journal of Veterinary Behavior 19: 14-26.

<https://www.sciencedirect.com/science/article/pii/S1558787817300102>

Apart from brachycephaly (which is defined as the foreshortening or flattening of the facial skeleton), other physiological traits of concern being selected for in dog breeds include exaggerated phenotypes such as:

- Deep skin folds (associated with the selection of brachycephalic features) that lead to a range of dermatological conditions such as infections and allergies that are frequently itchy and painful and often require lifelong management (including facial and tail fold intertrigo, pattern baldness, atopic dermatitis, demodicosis, *Malassezia* dermatitis, mast cell tumours, muzzle and pedal folliculitis and furunculosis)³⁴
- ‘Teacup’ varieties of toy dogs such as Chihuahuas, who are bred to weight less than a few kilograms and suffer from associated conditions due to their size reduction, including bone fragility and incomplete bone growth, which can leave them with soft spots on the skull
- Giant sized breeds who also suffer from growth problems related to breeding that pushes the limits of their body size. Their rapid long bone growth can lead to osteochondrosis, a painful orthopaedic condition, as well as to osteosarcoma (bone cancer) and gastric dilatation and volvulus (a potentially fatal twisting of the stomach), as well as a reduced life span.³⁵

b. What kind of legislative reform would you like to see on this issue – would you like to see provisions added to the Companion Animals Amendment (Puppy Farms) Bill 2021 to address this issue? If yes, what aspects should they cover from a veterinary Perspective.

Sentient supports the following position statement of the World Small Animal Veterinary Association³⁶ on health-conscious breeding:

‘WSAVA calls on veterinarians and breeders to ensure that criteria used for the selection of breeding animals include the ability to reproduce naturally and exclude anatomical characteristics that predispose to hereditary disease, such as extreme conformations including size, skin folds, angulation and extremely short faces (brachycephaly). If a breed demonstrates a disease-predisposing anatomy then selection should be towards a moderate and less extreme anatomy.’

³⁴ Fawcett, A et al, *Consequences and Management of Canine Brachycephaly in Veterinary Practice: Perspectives from Australian Veterinarians and Veterinary Specialists*. *Animals* 2019, 9, 3; doi:10.3390/ani9010003

³⁵ Farrell et al. The challenges of pedigree dog health: approaches to combating inherited disease. *Canine Genetics and Epidemiology* (2015) 2:3 DOI 10.1186/s40575-015-0014-9

³⁶ <https://wsava.org/wp-content/uploads/2020/01/WSAVA-Hereditary-Disease-Committee-Position-Paper-HDC.pdf>

Due to the popularity of breeds with inherited defects, the evidence that education does not change owner attitudes to pets with exaggerated features (such as brachycephaly)³⁷ and the currently inadequate regulation of dog and cat breeding in NSW, we advocate that a provision be added to the *Companion Animals Amendment (Puppy Farms) Bill 2021* to address this issue. Sentient supports provision **61ZI** of the Bill, which states that proprietors of companion animal breeding businesses must prepare health management plans in consultation with a veterinarian, including the process of determining the suitability of dogs and cats for breeding; we suggest this is where breed standards be discussed, and that veterinarians do not assess dogs or cats with exaggerated features that could potentially impact on the health and welfare of any offspring as being suitable for breeding.

³⁷ Kenny DD, Freemantle R, Jeffery A et al (2022) Impact of an educational intervention on public perception of brachycephalic obstructive airway syndrome in brachycephalic dogs. *Veterinary Record* e1430