

Australian Bullmastiff Breed

Health survey:

Survey and article Author: Glenn Sparham
Bullmastiff Club New South Wales, Australia



Contents page:

1. Cover page
2. Contents
3. Aim and methodology
4. Scope and limitations, start of results
5. General questions
6. General questions
7. Health schemes
8. **Cardiac** - Overview heart defects
9. **Midline / head defects** - Crank/ screw tails, Hemi/ fused vertebrae, Cleft palate/ hair lip, pinched nostrils
10. Soft Palate/ elongated palate/ restricted breathing, Mandibular defects
11. **Musculoskeletal disorders** – Elbow Dysplasia
12. Elbow Dysplasia enlarged pie chart – All responders
13. Elbow Dysplasia enlarged pie chart – Breeders
14. Hip Dysplasia
15. Hip Dysplasia
16. Hip Dysplasia enlarged pie chart – All responders
17. Hip Dysplasia enlarged pie chart – Breeders
18. Panosteitis, Luxating Patella, cruciate rupture
19. **Cancers**- Lymphoma, Hemangiosarcoma
20. Osteosarcoma, Mast cell tumours
21. **Optical/ eye disorders** – General eye questions
22. Optical/ eye disorder chart, Progressive retinal atrophy and CMR1
23. **Miscellaneous**- Allergies, Bloat/ gastric torsion
24. Shaking legs/ orthostatic tremors, Thyroid issues.
25. Thyroid, Kidney diseases, Hypertrophic Osteodystrophy
26. **Reproduction issues**- Pyometra, Uterine inertia
27. Undescended testicles, vaginal prolapse/ hyperplasia
28. **Top voted health concerns** - Graph and list
29. Current breed health tests and information
30. Current breed health tests and information
31. Studies from other countries
32. Studies from other countries
33. Expert review

Aim:

- To obtain a general over view of the health status of the Bullmastiff within Australia.
- To compile a comprehensive list of health issues that affect the Bullmastiff within Australia.
- To gauge the frequency of health issues with the view to developing new health initiatives.
- To gauge the interest and willingness of breeders to participate in health initiatives.
- To obtain statistics for further analysis.
- To identify information gaps.

Methodology:

- A list of health issues concerning the Bullmastiff was sourced from around the world and questions regarding these issues were formulated.
- The survey was sent to all Australian Bullmastiff Breed Clubs and they in-turn forwarded the survey to their members. The author sent an invitation to all breeders listed on the Australian breeder website "Dogzonline" that weren't associated with Breed Clubs.
- The questions were open to breeders, owners and long-term enthusiasts.
- The questions were framed in the following manner:
 - *When any question asks about your "knowledge" of an issue occurring within the Bullmastiff. "Knowledge" may be defined as: "A belief or evidence based suspicion but does not need to be a verified diagnosis. It requires personal knowledge of it occurring in an actual individual animal."*
 - *When any question asks about an issue occurring within "Your lines" the definition of "Your lines" will include: A loose term describing any Bullmastiff that you may have owned or bred or any stock that you may have based your blood lines upon, and any stock bred from your lines up to three generations of descent. If you are a non-breeder then base your answers on the lines that you are most associated with.*
 - *When any question relates to your "knowledge of an issue occurring within your country", the meaning will include: Knowledge of the issue occurring in Bullmastiffs other than within "your lines."*
- The majority of the health issues had three questions in common
 - 1) *"Do you know of any incidence of this trait within your lines?"*
 - 2) *"Do you know of any incidence of this trait within this country?"*
 - 3) *How would you rate the incidence of this issue within the breed in this country?*The potential answers were:
 - *Very rare/ insignificant*
 - *Very frequent and concerning*
 - *Occasionally but not an issue*
 - *Frequent*
 - *Unsure*

Scope and Limitations:

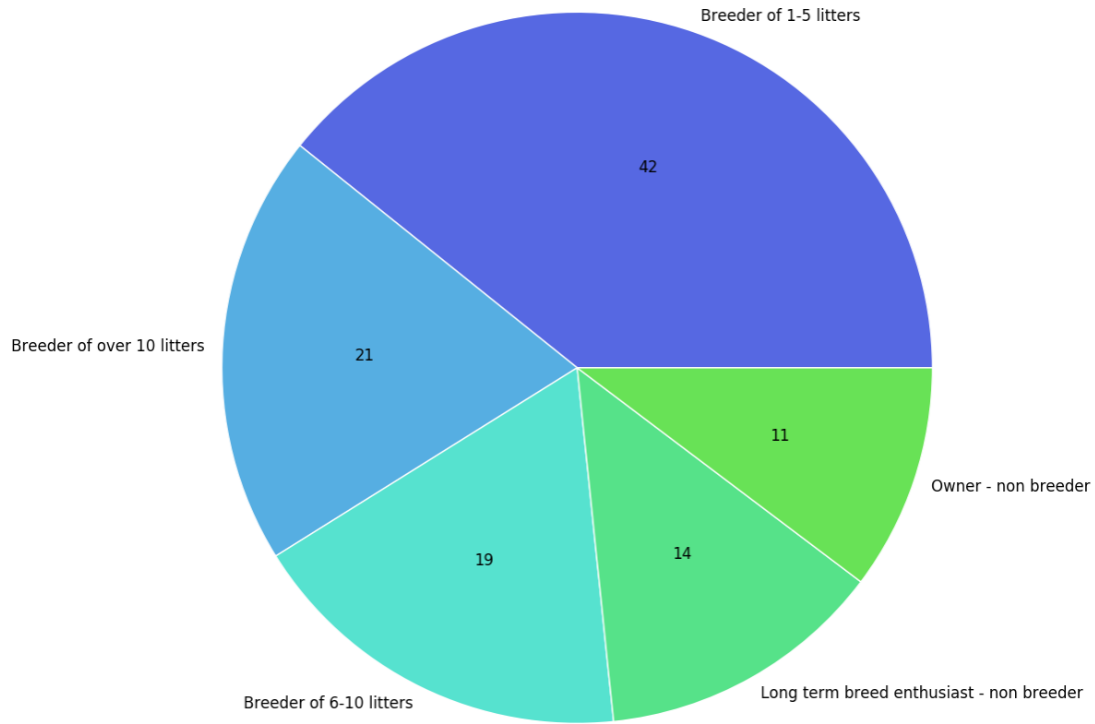
- The survey sought information on many conditions, but not in-depth data. To obtain more detail would require tailored surveys on individual conditions.
- While the request for “opinion” and “knowledge” respects the value of every participant, the limitation is that people have varied experiences, knowledge, record keeping and memory.
- While a more accurate approach would have been to ask for proof of a diagnosis, it would have been cumbersome and would limit the number of people completing the survey. For that reason, some results may be over represented but the chance of missing anything is significantly reduced.
- With the results from the first question I primarily published answers from “breeders only”, leaving out the other responders/non-breeders. Where this was not this case it is noted. I felt breeders were more likely to have better knowledge of issues within their own bloodlines. In addition, the breeders are those who will be expected to embrace any future health initiatives, and this should be respected.
- The second question includes ALL responders and includes any replies not captured in question 1. The risk with this question is that a single diagnosis could be known across the fraternity and when reported in this fashion, it would appear wider spread than it really was. Despite this limitation an unexpected benefit was that this question identified a few health issues that were unknown or unreported by breeders in question 1.
- The third question sought to assess frequency and the concern level for each disease. Again, this question is opinion based and relies upon the varied experience, knowledge, record keeping and memory of each responder. It also relies upon reasoning without any rationale to assist with accuracy.
- The choice of “unsure” in the multiple-choice answers is over represented in many of the results. This could also indicate that responders felt that more appropriate answers weren’t available or that the question was confusing. This meant that the statistics from these questions weren’t always accurate.
- The use of scientific terms may have confused responders and accurate answers may have been missed.
- In instances where a pie chart is presented it may include all survey responders or it may involve breeders only. Where there are results of breeders only it has been titled “exclude non-breeders.” When a question asks an opinion about breeding (and a pie chart is shown) the data will most likely “exclude non-breeders.” The rationale is that it will be breeders who will be involved in the consultation for new schemes, be expected to promote new schemes, and be expected to burden the costs of any new schemes.
- Where there is a very low reported % of a disease it has been deemed statistically non-significant and has not been discussed or included.
- With Hip Dysplasia scores used by the AVA, they were partnered with the OFA’s (USA) use of descriptive terms (Eg, Mild dysplasia.) The comparison of these gradings is an approximation only that may affect accuracy. The use of the OFA terms may have also brought about a more emotive response which may have unfairly influenced answers.

RESULTS:

- A total of 107 people responded to the survey with 82 being breeders from 2015-2016. The responses covered all states of Australia apart from the Northern territory. The responses roughly reflected the percentage of breeders per State apart from NSW where they contributed a larger number. This could have been a result of extra exposure of NSW enthusiasts to the survey by the author who is a NSW resident.

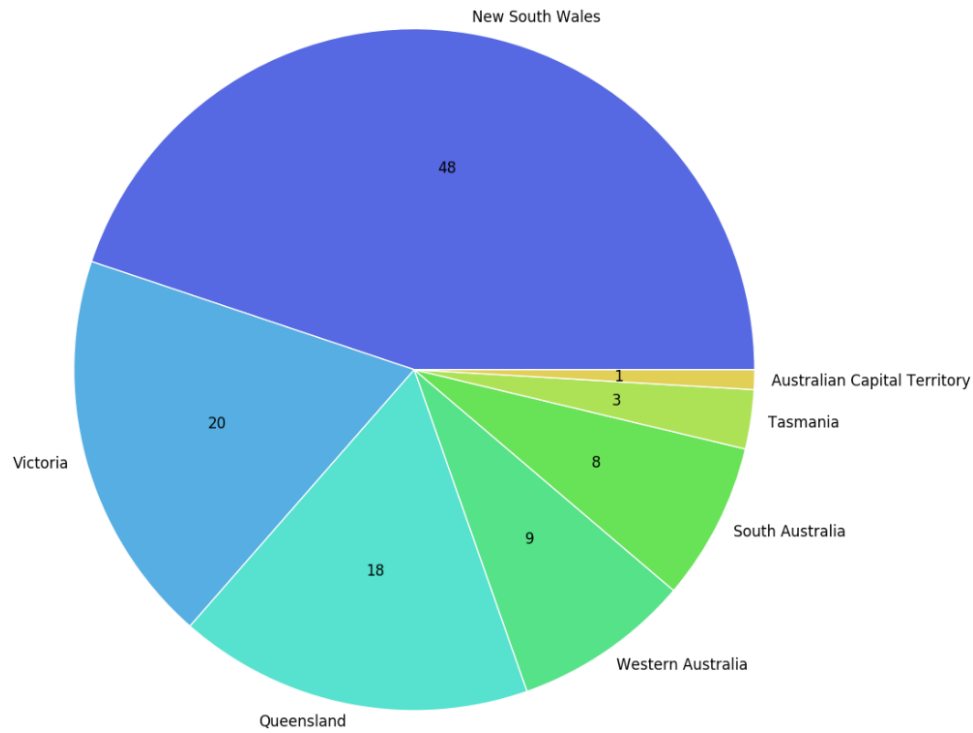
General questions:

General: How would you describe your involvement with the breed?

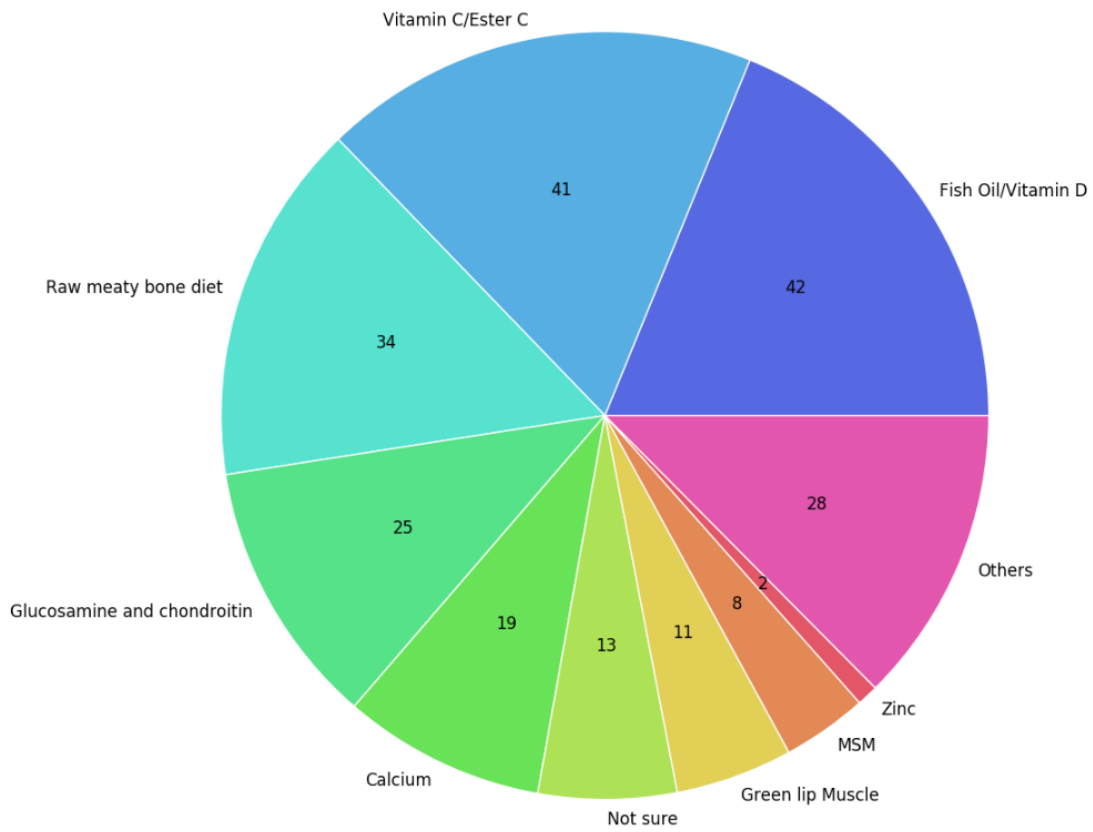


Where are the responders from?

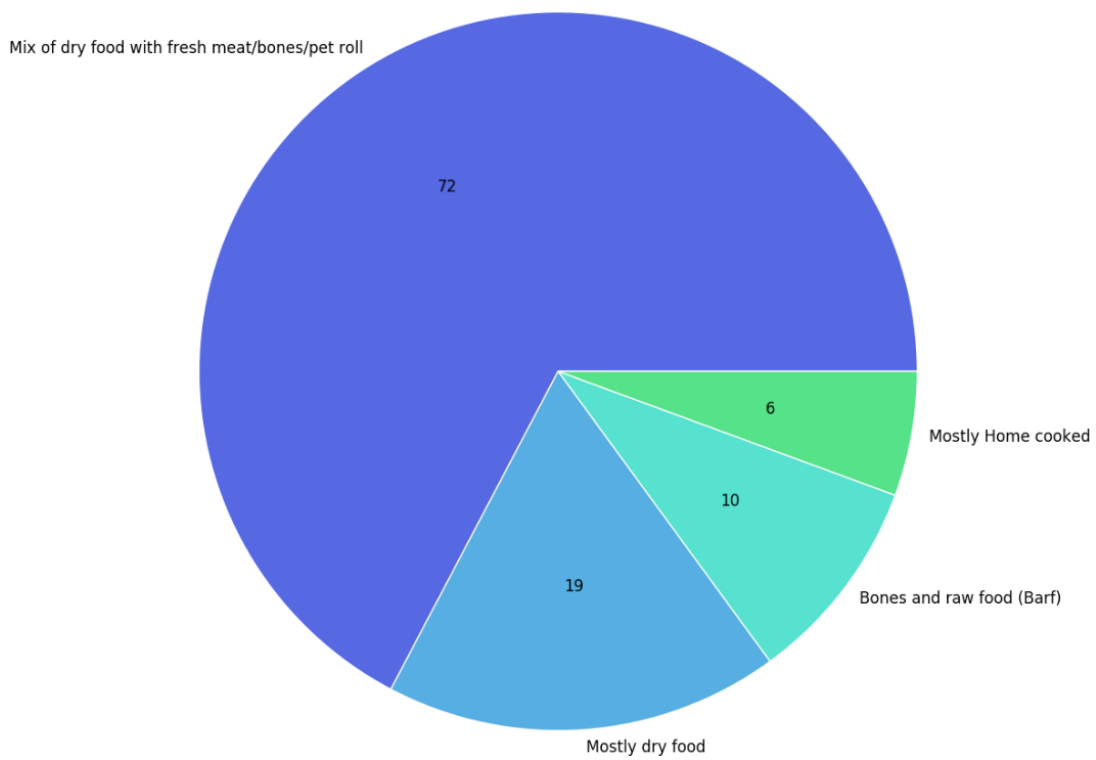
General: State/Territory



General: What supplements have you seen that successfully assist with sound skeletal growth? (May select more than one)



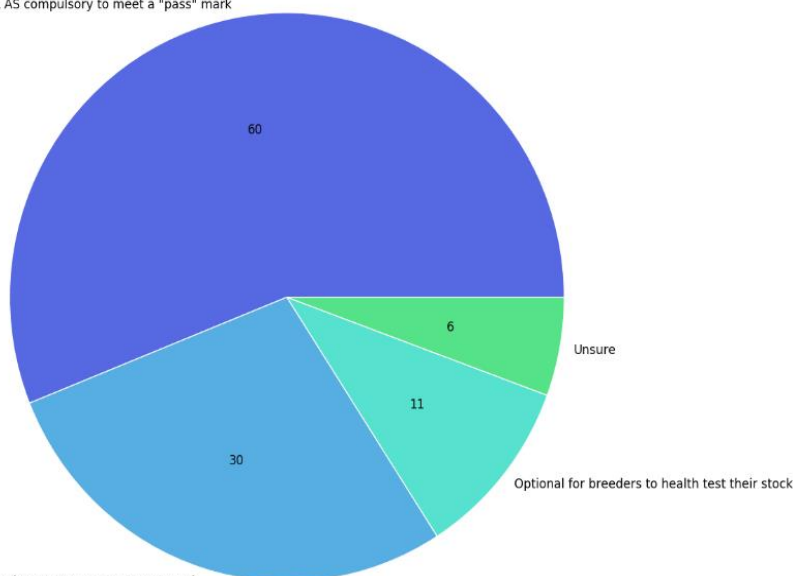
General: Which describes your feeding regime?



Health Schemes:

1. If information indicated the breed would benefit from creating new health studies or schemes would you support them? Yes 96%, No 0%, Unsure 4% (All responders)
2. If overseas research suggested a particular health scheme should be implemented and is already being followed by a particular country, do you think we should automatically follow suit? Yes 34%, No 32%, Unsure 34% (All responders)
3. In your opinion what should be the aim for any health testing scheme "long term"? (All responders)

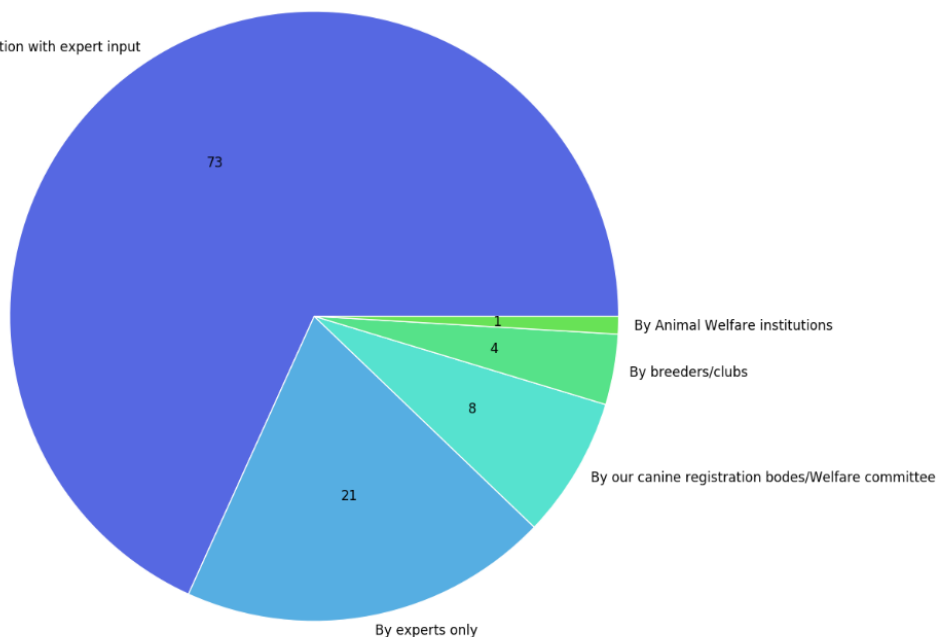
Compulsory for breeders to health test their stock AS WELL AS compulsory to meet a "pass" mark



Compulsory for breeders to health test their stock BUT NO requirement to meet a "pass" mark

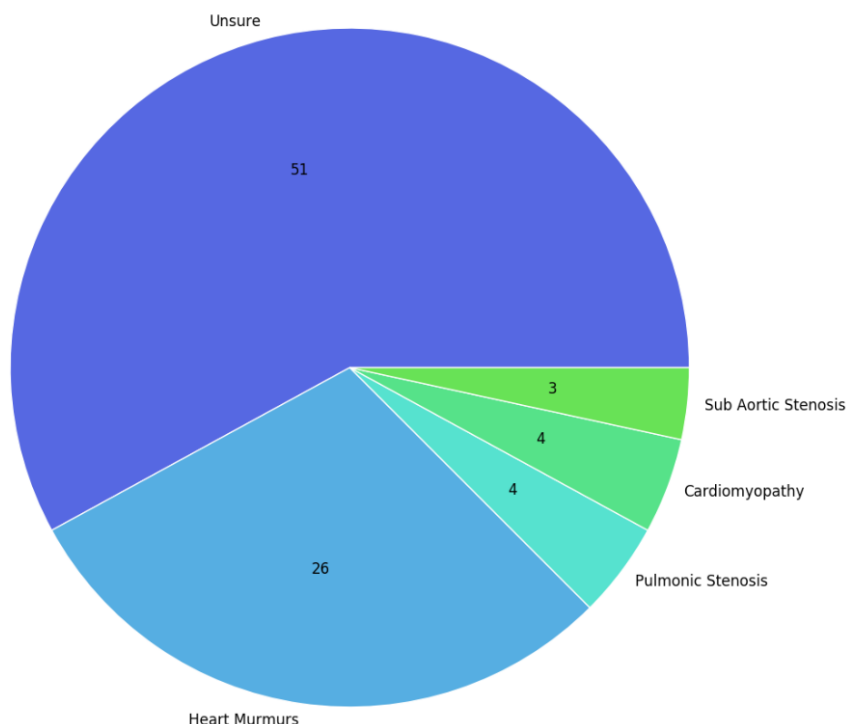
4. Would you support an "open" register (Where results are open to public view) of any health testing done? Yes, all schemes should be open 62%, No I would never support an open registry 14%, Only as a long-term goal 24% (All responders)
5. If a health scheme were proposed where a "pass" mark had to be determined, who should decide the "pass" mark? (All responders)

By breeders/clubs in consultation with expert input



Cardiac issues

1. Are you aware that systemic cardiac tests can be carried out to assist with determining heart issues in dogs? Yes 67% No 33% (Breeders only)
2. Do you know of the following heart diseases occurring within your lines? (Breeders only)



3. Do you screen your breeding stock for heart conditions with a cardiac specialist? Yes 12%, No 88% (Breeders only)
4. If it were determined that Bullmastiffs were a breed “at risk” of heart conditions would you support a heart screening scheme? Yes 85%, No 2%, unsure 13% (All responders)

Cardiac comment:

- 67% of people were aware that systematic tests can be used to diagnose heart issues. Heart murmurs topped the frequency at 33% which dwarves the other three listed issues (Pulmonic stenosis, Cardiomyopathy and Sub Aortic Stenosis at 13% total.)
- A whopping 85% of people said they would support a heart screening scheme should the breed be “at risk.”
- This is interesting when you consider that only 12% already screen for heart defects with a cardiac specialist and 64% are “unsure” of any cardiac issues within their lines.
- **NOTE:** The huge % choice for “unsure” (64%) for the Cardiac question appears to be an anomaly within survey monkey itself and how it dealt with my question. Where I asked, “Do you know of the following heart conditions within your lines?” a “No” result didn’t come up as a choice in the pie chart and it appears that all the “No” answers were actually added to the “Unsure” results (which incidentally wasn’t an option.) By combining all results, it seems that about 45% of breeders had at least one cardiac issue but for a clearer picture another survey would be required.
- In addition, there are multiple conditions that present as “heart murmurs” which could have contributed to the confusion.

Midline/skull defects:

Crank/ screw tails

1. Do you know of any incidence of this trait occurring within your lines? Yes 56%, No 43%
2. Do you know of any other incidence of this trait within this country? Yes 84%, No 16%

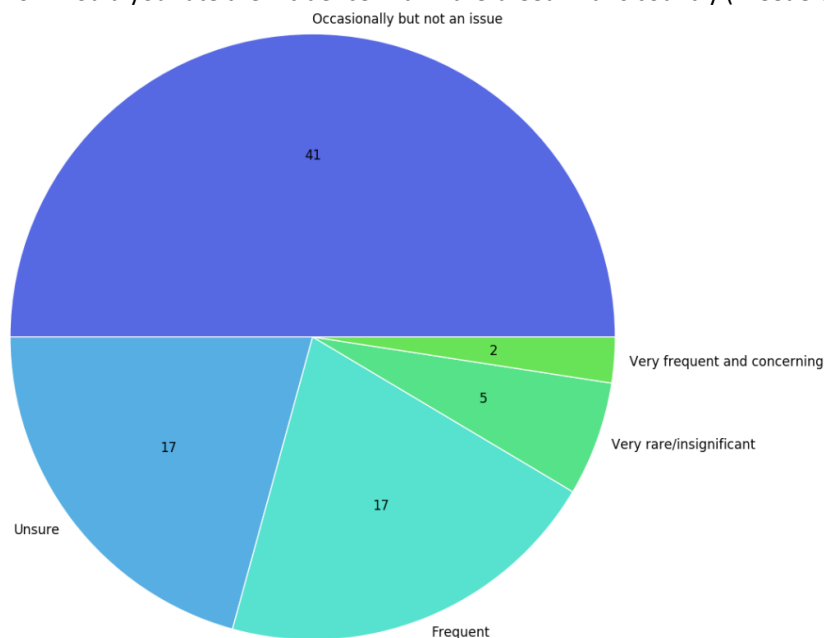
Hemi-vertebrae/fused spinal vertebrae:

1. Do you know of any incidence of this trait within your lines? Yes 0%, No 100%
2. Do you know of any incidence of this trait occurring within this country? Yes 10%, No 90%

*This issue appears almost non-existent or insignificant with Australia

Cleft palate/ hair lip:

1. Do you know of any incidence of this trait occurring within your lines? Yes 51%, No 49%
2. Do you know of any incidence of this trait within your country? Yes 72%, No 28%
3. How would you rate the incidence within the breed in this country (Breeders only)?



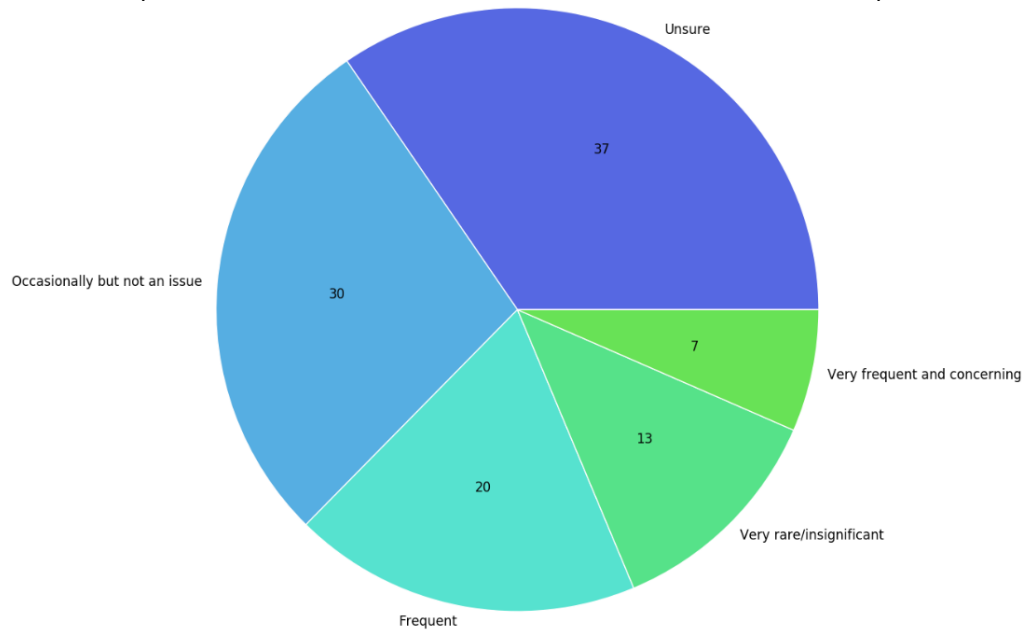
4. Do you supplement pregnant/brood bitch with folic acid/pregnancy vitamins to prevent these midline defects? Yes 65%, No 35% (Breeders only)
5. If yes, did it reduce the occurrence of these defects? Yes 30%, No 16%, Not applicable remainder (Breeders only)

Pinched nostrils:

A topic about "Pinched nostrils" was listed on the survey but the software failed to capture any data and was therefore lost. *(Anecdotally, pinched nostrils are a frequently occurring issue and may need to be addressed, but to get a better understanding further research would be needed.)*

Soft palate/ elongated palate/ restricted breathing:

1. Do you know of any incidence of this trait occurring within your lines? Yes 11%, No 91%
2. Do you know of any incidence of this trait occurring within this country? Yes 43%, No 57%
3. Should breeders try to breed away from stock that has breathing issues? Yes 92%, No 4%, Not applicable 4%
4. How would you rate the incidence of these traits within the breed in this country?



Craniomandibular osteopathy/ calvarial hyperostotic syndrome

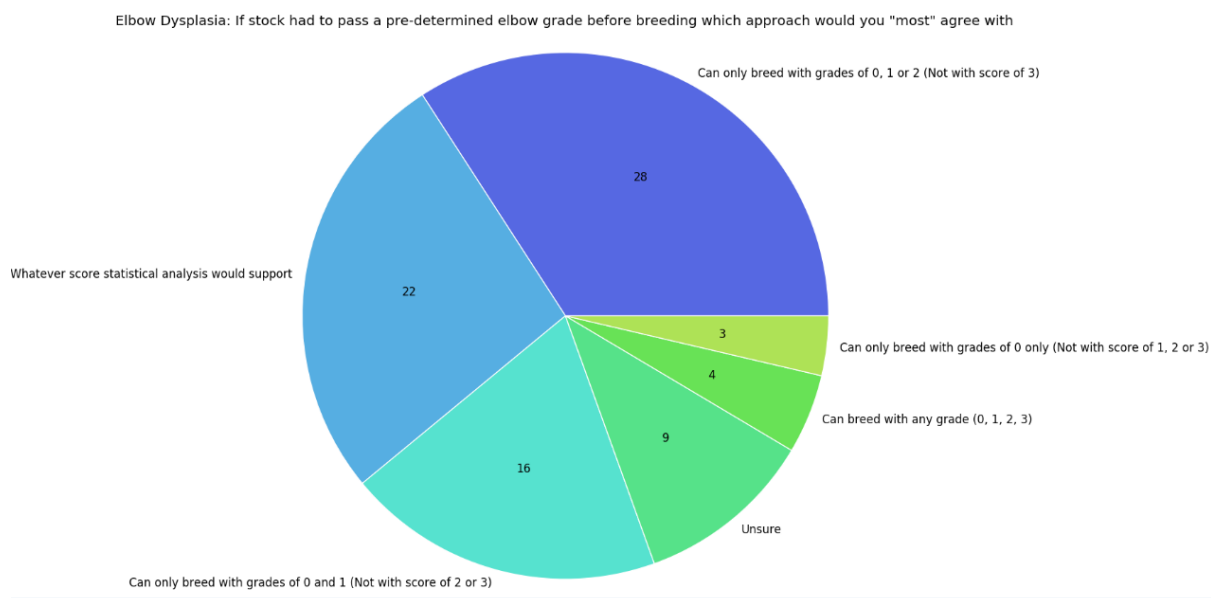
1. Do you know of any incidence of this trait occurring within your lines? Yes 4%, No 96%
2. Do you know of any incidence of this trait occurring within your lines? Yes 10%, No 90%

*This issue appears almost non-existent or insignificant with Australia. Alternatively, the scientific term may not be well known and the common name of "Scottie" or "Lion" jaw may have resulted in more responders acknowledging the condition.

Musculoskeletal disorders:

Elbow dysplasia:

1. If a scheme were proposed where stock had to pass a predetermined elbow grade before being allowed to breed would you support the schemes introduction? Yes 76%, No 9%, 15% unsure (All responders)
2. If stock had to pass a pre-determined elbow grade before breeding which approach would you “most” agree with? (Breeders only)

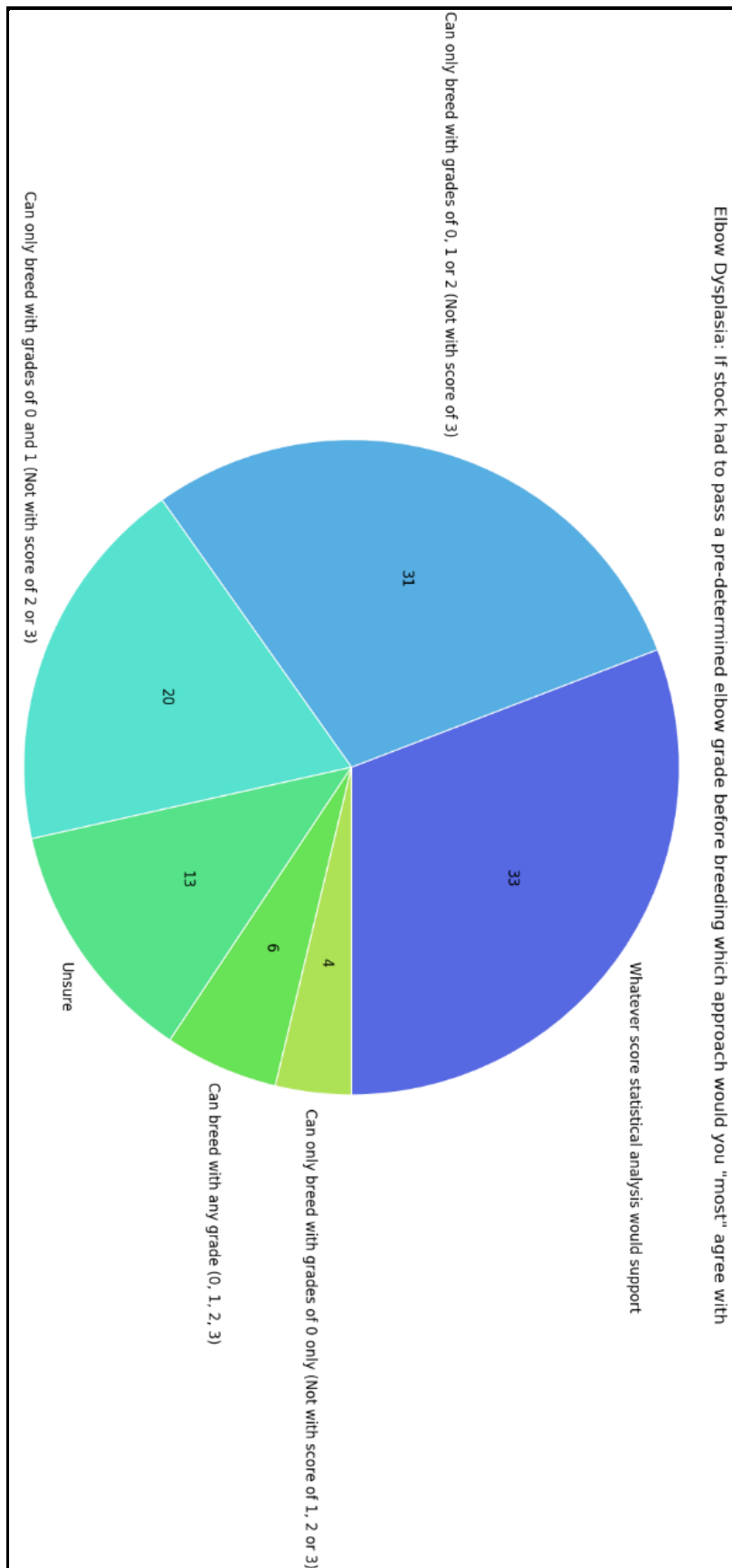


3. In addition, would you be more likely to consider a scheme that would tolerate a slightly higher elbow grade if it had a compulsory requirement of breeding with a considerably lower score? Yes 52%, No 12%, Unsure 35% (Breeders only)

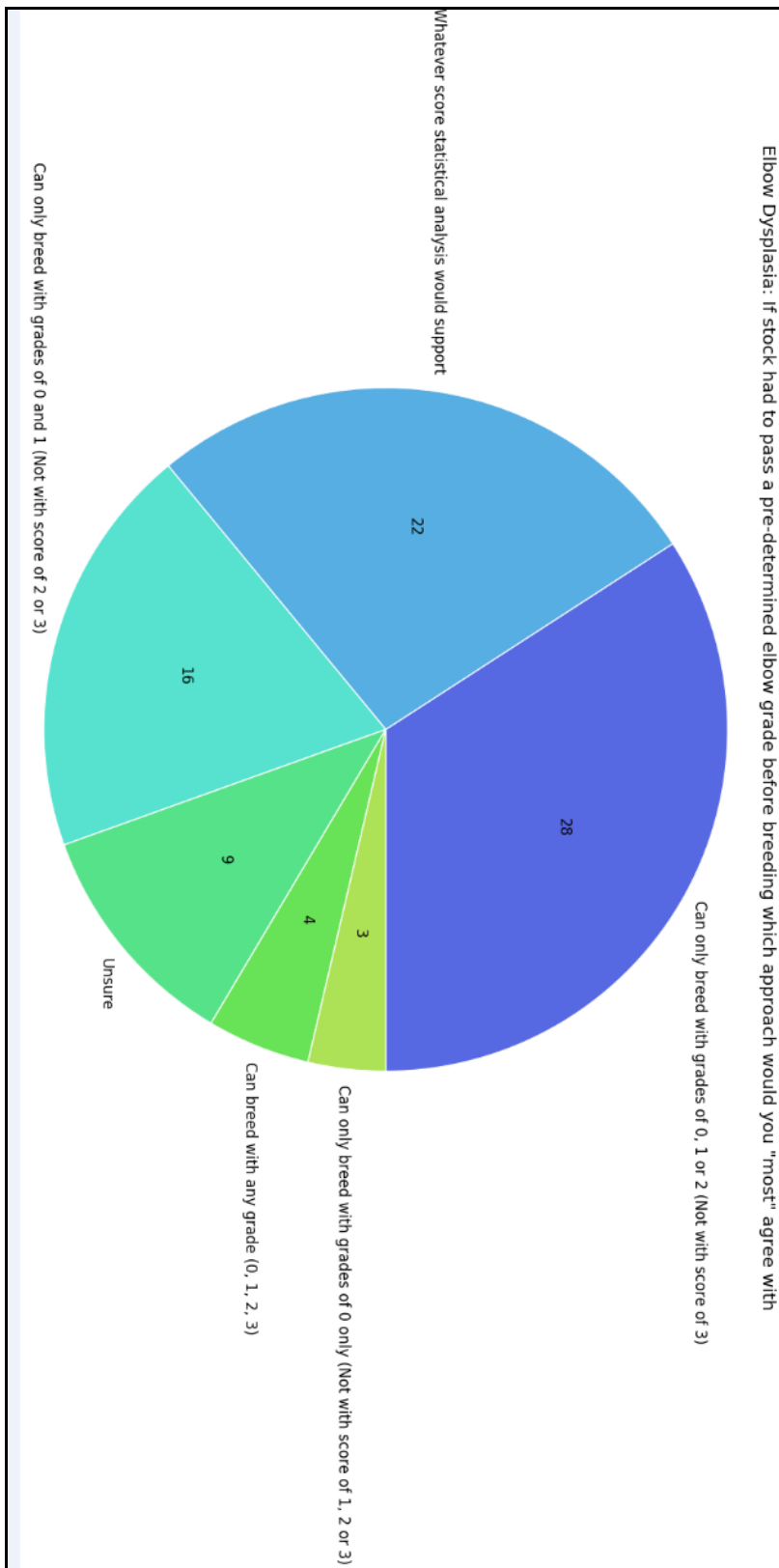
Elbow dysplasia comment:

- 76% of all responders were happy to support a scheme where stock had to “pass” a pre-determined elbow score before being allowed to breed.
- The biggest support for the maximum pre-determined score was roughly shared between “**Whatever statistical analysis would support**” at 31% and the response of “**0, 1, 2 (not with 3)**” at 29%.
- Third most supported was “**0 and 1**” at 19%.
- What is clear is that there are plenty of people awaiting expert advice before making a firm decision.
- It is also clear that the majority of people would not accept a limitation to only breed with “**0**” scores.

Elbow Dysplasia results enlarged: All responders

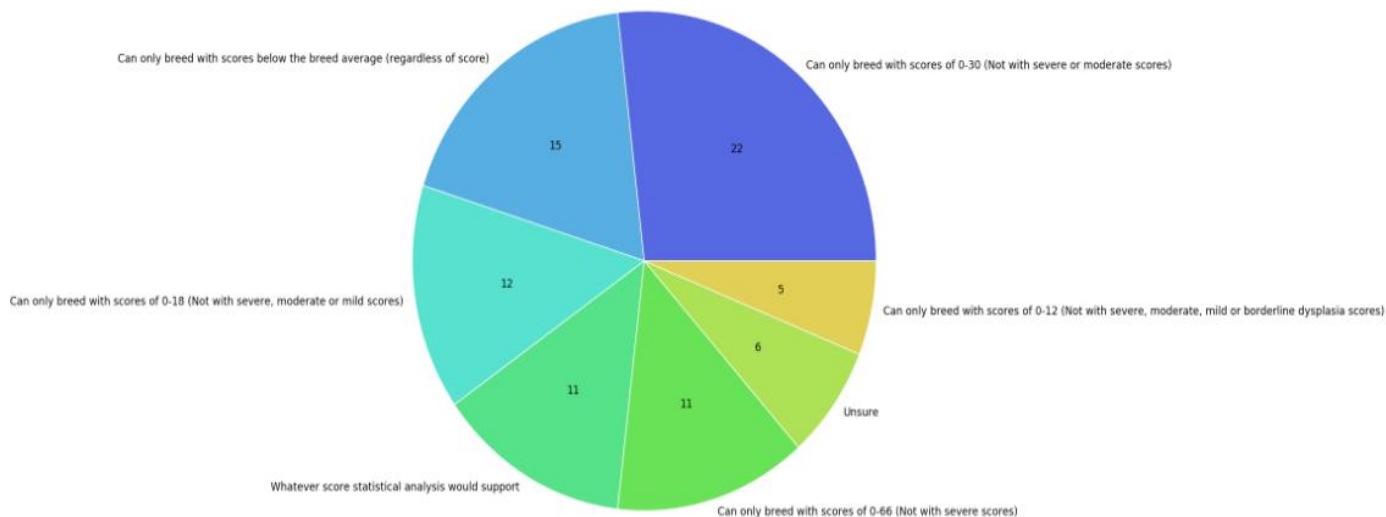


Elbow Dysplasia results enlarged: (Breeders only)



Hip dysplasia:

1. If a scheme were proposed where stock had to “pass” a pre-determined hip score before being allowed to breed would you support the schemes introduction? Yes 75%, No 13%, Unsure 12%
2. If stock had to pass a pre-determined hip score before breeding which approach would you “most” agree with? (Breeders only)



Hip dysplasia scheme comparisons:

Classification	FCI Europe	South Africa KUSA	United States of America OFA	UK, Australia & NZ BVA (0-106)	Sweden & Finland
No signs of Hip Dysplasia	A1	0	Excellent	0	A
	A2		Good	0 – 6	B
Transitional case	B1	1	Fair	6 – 12	UA
	B2		Borderline	12 – 18	C
Mild Hip Dysplasia	C1	2	Mild	18 – 24	D
	C2			24 – 30	
Moderate Hip Dysplasia	D1	3	Moderate	30 – 42	E
	D2			42 – 54	
Severe Hip Dysplasia	E1	4	Severe	54 – 66	E
	E2			66+	

***Note:** This graph is an estimation of the comparisons between schemes as there is no universally agreed correlation. It was chosen merely because of the large number of schemes that it chose to compare.

Any discussion on defining maximum scores would need professional guidance and in-depth statistical analysis on the scores as well guidance on sustaining a viable population.

3. If research showed that the breed population could only be sustained with a higher hip score than the one you chose in the previous question, would you support it as the pass mark?
Yes 49%, No 23%, Unsure 28% (Breeders only)
4. In addition, would you be more likely to consider a scheme that would tolerate this slightly higher hip score if it had a compulsory requirement of breeding with a considerably lower score? Yes 59%, No 7%, Unsure 34%. (Breeders only)

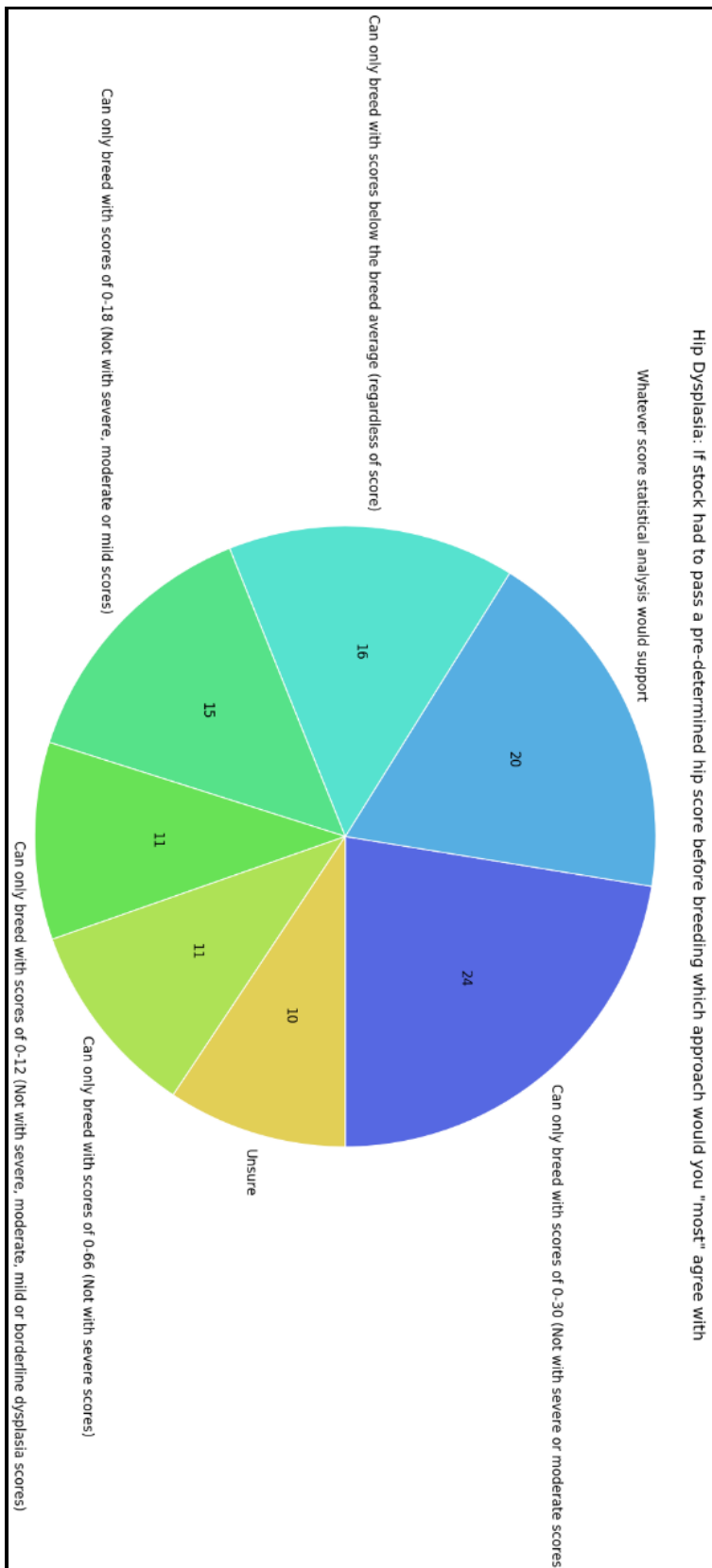
Hip dysplasia comment:

- 75% of all responders were happy to support a scheme where stock had to “pass” a pre-determined hip score before being allowed to breed, which perhaps indicates a willingness to embrace such an initiative.
- Breeders gave the biggest support for the maximum pre-determined score of 27% was **“Can only breed with scores of 0-30”**.
- Second place with 18% was **“Can only breed with scores below breed average (regardless of score)”**
- Three choices were supported roughly the same: **“Can only breed with scores of 0-18”** at 15%, **“Whatever statistical analysis would support”** at 13% and **“Can only breed with scores of 0-66”** at 13%.
- 59% would support a scheme that would tolerate a slightly higher hip score if it had a compulsory requirement of breeding with a considerably lower score, but with 34% of breeders **“unsure”** it appears that a further explanation may be required and is included below:

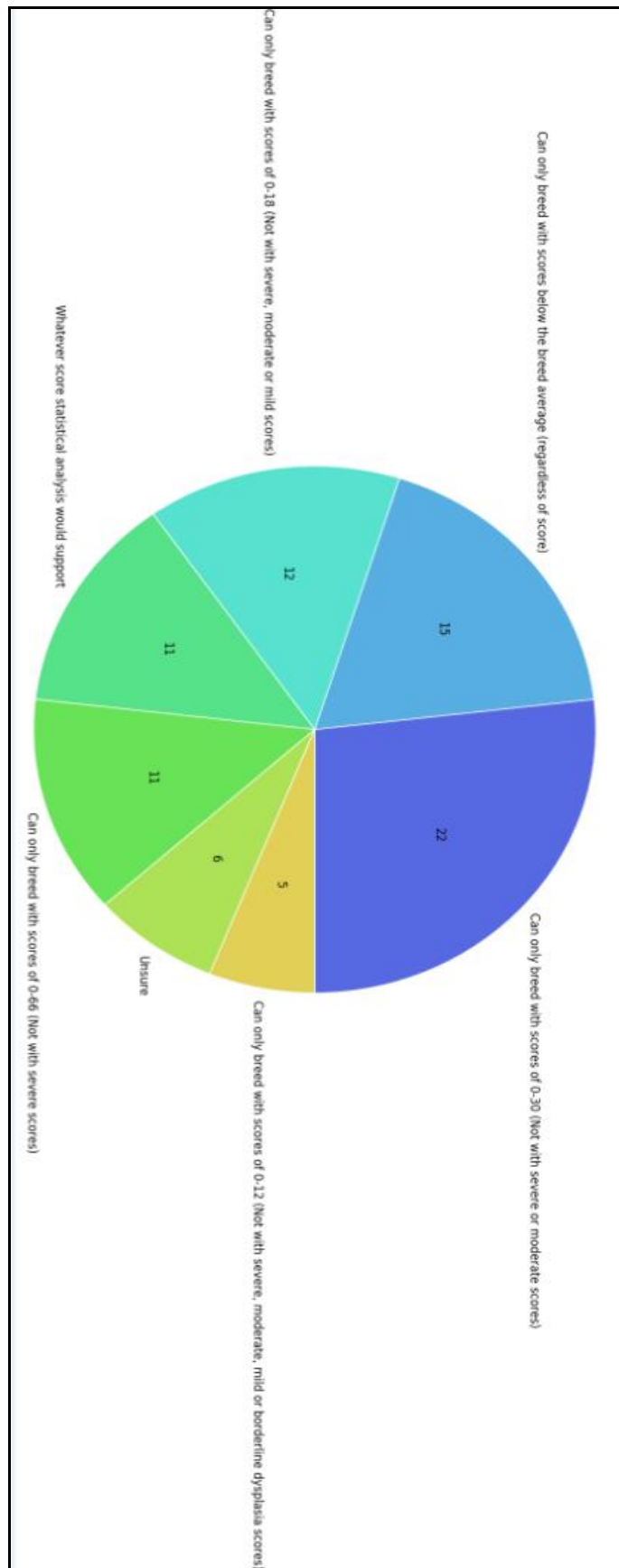
With this method a cap on a maximum combined score of both Sire and Dam would be decided rather than a cap on an individual dog’s score. (This scheme is currently used by the National Rottweiler Council of Australia.)

- *The theory of the combined score is to prevent two animals with highish scores from being bred together. It also allows an individual to be bred that has a higher score if done so responsibly with a dog with a more desirable score.*
- *It prevents an outstanding animal with higher than ideal scores from being eliminated from the gene pool.*
- *EG, for arguments sake if the maximum combined score was 40, then a Dam with a 30 hip score could be mated, but only with a Sire with a score not higher than 10.*
- *Alternatively, if combining the scores was not required, and a maximum score for an individual was set, for example a score of 30, then theoretically a Dam with a 30 Hip score could be mated to a Sire with a 30 Hip score resulting in a combined total of 60. It could be debated that this mating would not assist an overall reduction of scores within the breed population even though it complied with requirements.*

Hip Dysplasia results enlarged: All responders

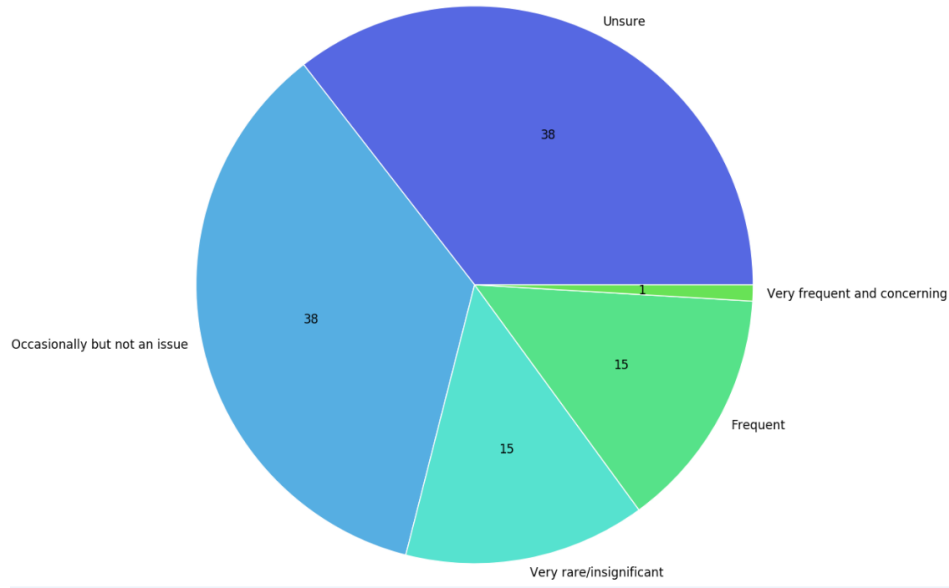


Hip Dysplasia results enlarged: (Breeders only)



Panosteitis:

1. Do you know of any incidence of this trait occurring within your lines? Yes 23%, No 77%
2. Do you know of any other incidence of this trait occurring within this country? Yes 71%, No 29%
3. How would you rate the incidence within the breed within this country?

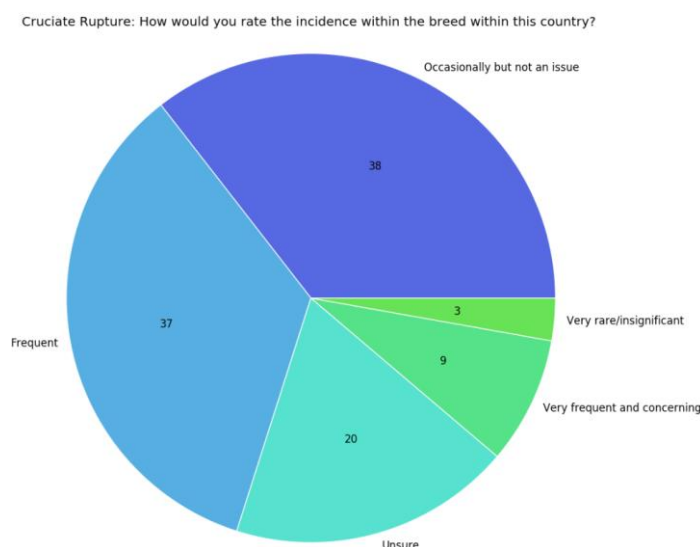


Luxating patella/slipping knee cap:

1. Do you know of any incidence of this trait occurring within your lines? Yes 1%, No 99%
 2. Do you know of any incidence of this trait occurring within this country? Yes 20%, No 80%
- *It appears while not reported from breeders that some responders know of an incident of this issue.

Cruciate rupture

1. Do you know of any incidence of this trait occurring within your lines? Yes 34%, No 66%
2. Do you know of any other incidence of this trait occurring within this country? Yes 87%, No 23%
3. How would you rate the incidence within the breed within this country?

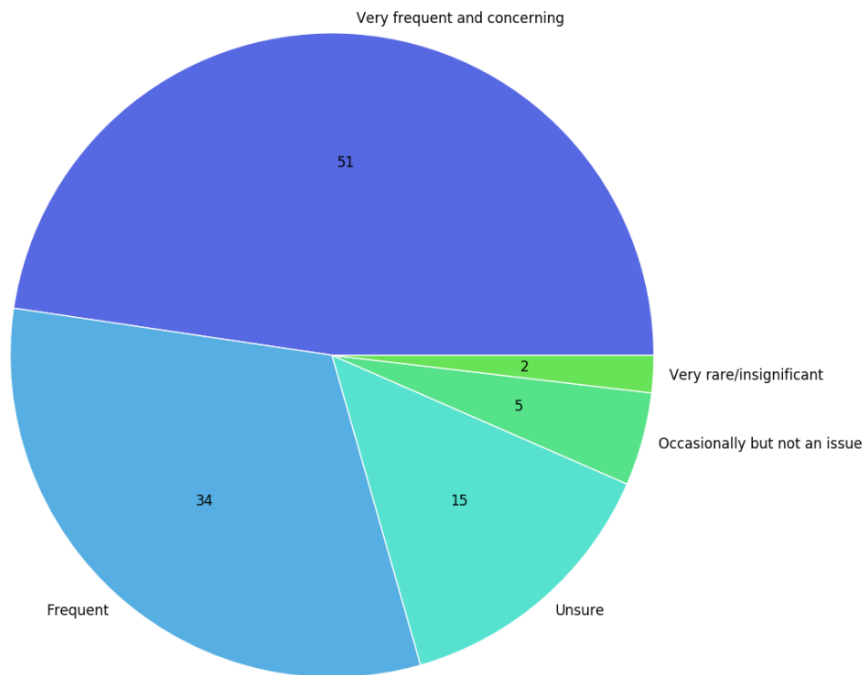


Cancers:

Lymphoma, Lymphosarcoma:

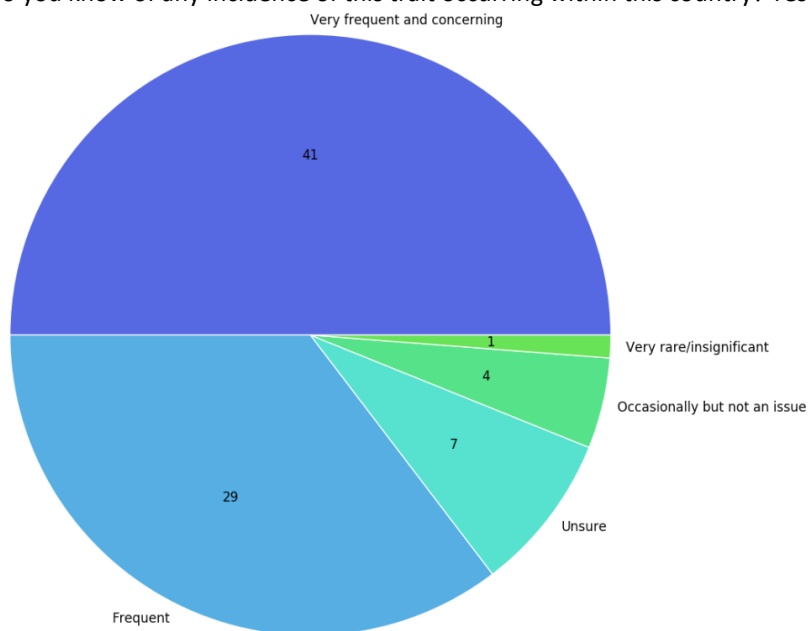
1. Do you know of any incidence of this trait occurring within your lines? Yes 62%, 38% No
2. Do you know of any incidence of this trait occurring within this country? Yes 89%, 11% No
3. How would you rate the incidence within the breed within this country?

Lymphoma/Lymphosarcoma: How would you rate the incidence within the breed within this country?



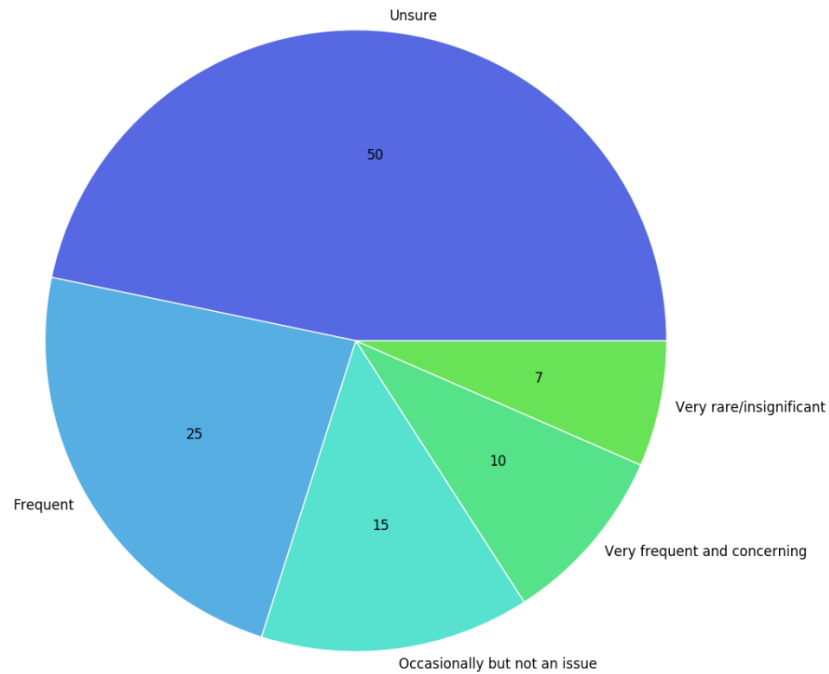
Hemangiosarcoma

1. Do you know of any incidence of this trait occurring within your lines? Yes 15%, No 85%
2. Do you know of any incidence of this trait occurring within this country? Yes 43%, No 57%



Osteosarcoma

1. Do you know of any incidence of this trait occurring within your lines? (Excludes non-breeders) Yes 23%, No 77%
2. Do you know of any other incidence of this trait occurring within this country? Yes 55%, No 45%
3. How would you rate the incidence within the breed within this country?



Mast cell tumours

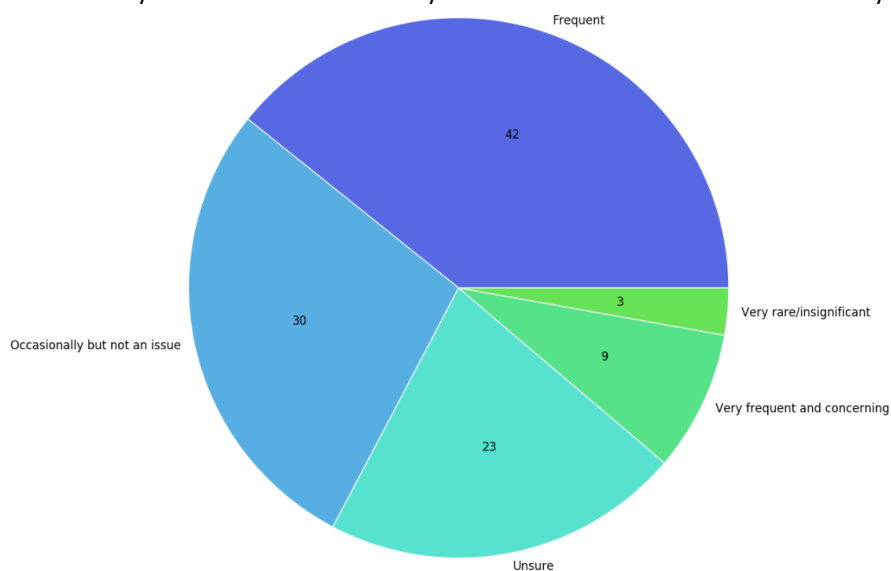
1. Do you know of any incidence of this trait within your lines? Yes 33%, No 67%
2. Do you know of any incidence of this trait occurring within this country? Yes 67%, No 33%

Cancer comment: Lymphoma is the most frequent cancer to affect the breed. Please refer to the study by the University of Sydney: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4732815/>

Optical/eye disorders:

General eye questions:

1. Do you know of any incidence of the listed diseases occurring within your lines? Yes 65%, No 35%
2. Do you know of any issues of any other incidence of these diseases occurring within your country? Yes 85%, No 15%
3. Do you test your breeding stock for eye disease using eye specialists in a standardised scheme? Yes 20%, No 80% (Breeders only)
4. How would you rate the incidence of eye disease within the breed in this country

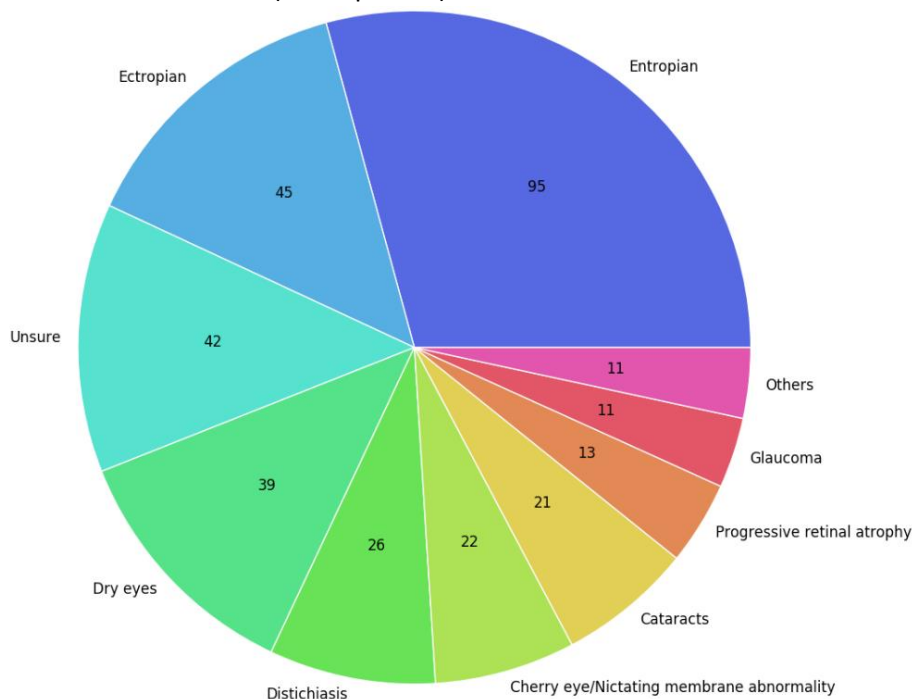


5. If it were determined that Bullmastiffs were a breed “at risk” of eye disease would you support a screening scheme? (Breeders) Yes 85%, No 1%, Unsure 14%
6. Would you be more likely to support a scheme if your breed club organised periodic screening to reduce the price? Yes 86%, No 4%, Unsure 10% (All responders)

Optical/ eye issue comment:

- A huge 65% of people said they had some “Optical/ Eye issue” within their lines and also said that eye disease within the country was “frequent” at 39% (1st place). With 85% of people saying that saying they would support a screening scheme and only 20% currently doing so, it could be time to discuss the issue further.

Optical/ eye disorder overview: Select five eye diseases that in your opinion are the biggest eye issues within the breed? (All responses)

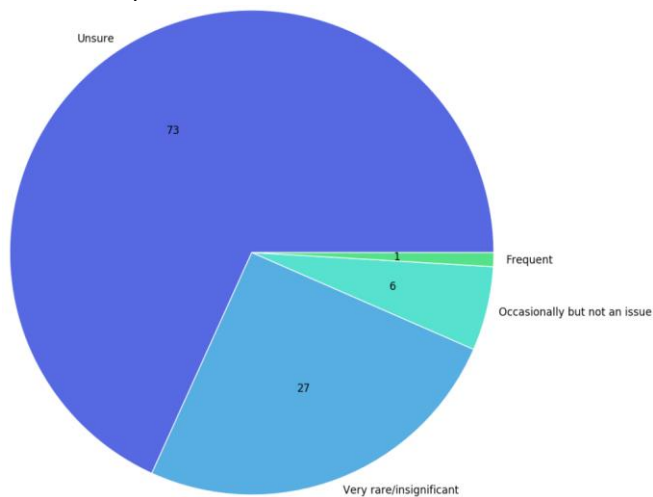


Optical/ eye disorder overview comment:

- Entropion was the overwhelming biggest reported eye issue. There were no reports of Multi focal retinopathy, Eury/macrobopharon, Persistent pupillary membrane or Optic nerve hyperplasia/ Micropapilla. These may have been captured under the umbrella of “Others” as they weren’t selected enough times to generate their own piece of the pie chart. Either way they appear to be rarely known in the breed in Australia.

Progressive Retinal Atrophy (PRA):

1. Do you know of any incidence of this trait occurring within your lines? No 100%
2. Do you know of any other incidence of this trait occurring within your country? Yes 7%, No 93%
3. Do you think the rate of PRA in this country is such that testing should be compulsory? Yes 11%, No 24%, Unsure 65%
4. How would you rate the incidence within the breed in this country?

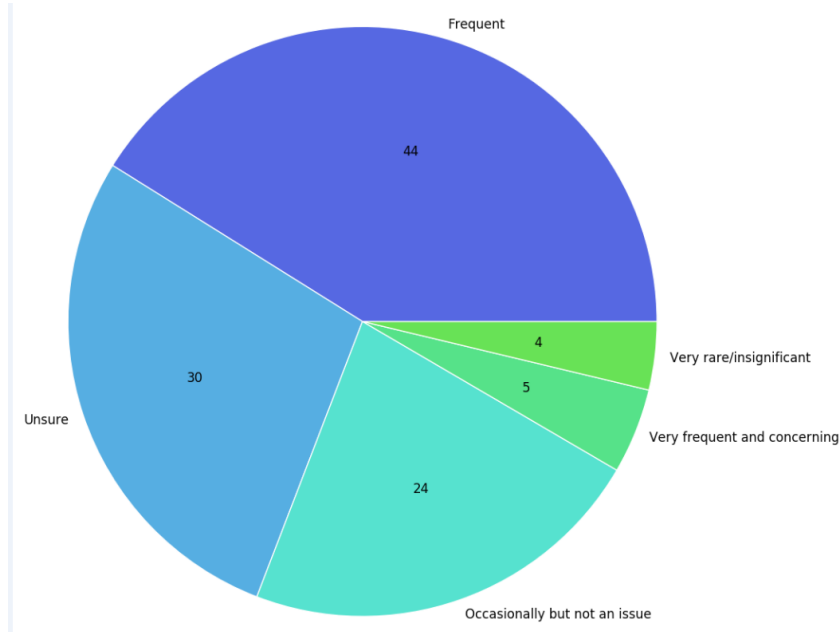


*This issue appears almost non-existent or insignificant with Australia

Miscellaneous:

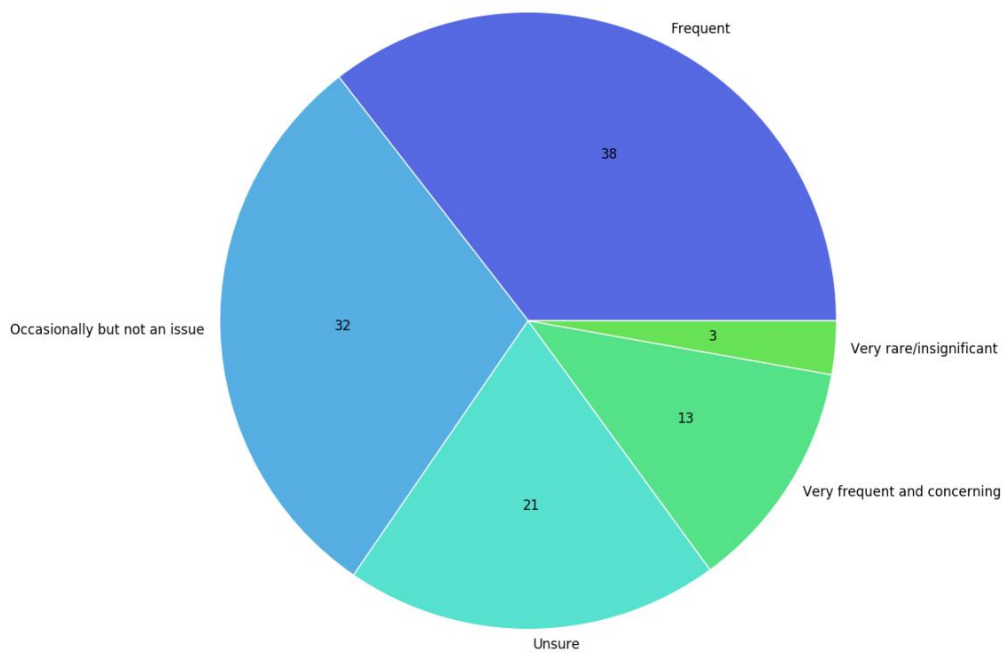
Allergies

1. Do you know of any incidence of allergies within your lines? 37% Yes, 63% No
2. Do you know of any other incidence of this trait occurring within this country? Yes 77%, 23% No
3. How would you rate the incidence of this trait within the breed in this country?



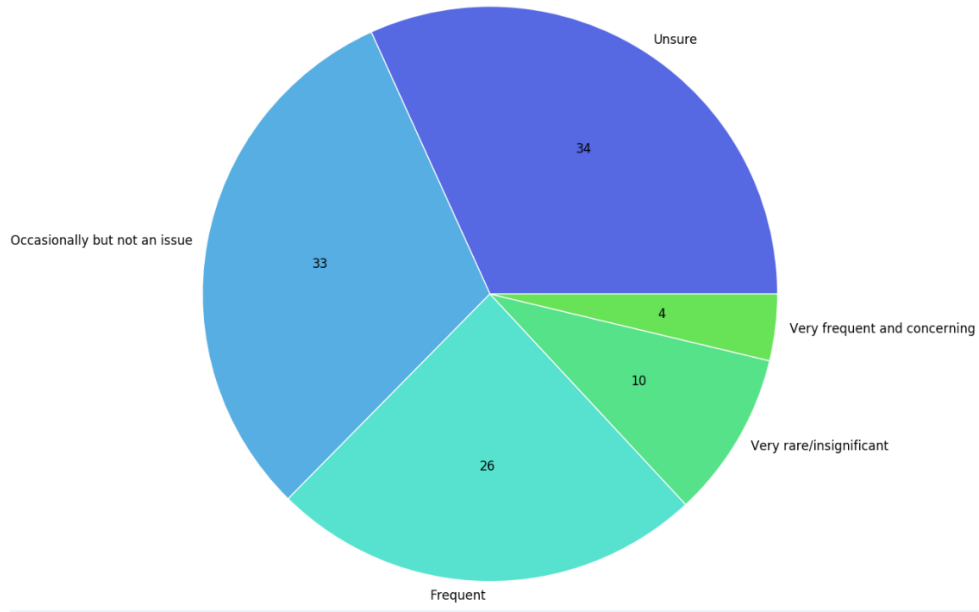
Bloat/ Gastric torsion:

1. Do you know of any incidence of this trait within your lines? Yes 28%, No 72%
2. Do you know of any incidence of this trait within this country? Yes 85%, No 15%
3. How would you rate the incidence of this trait within the breed in this country?



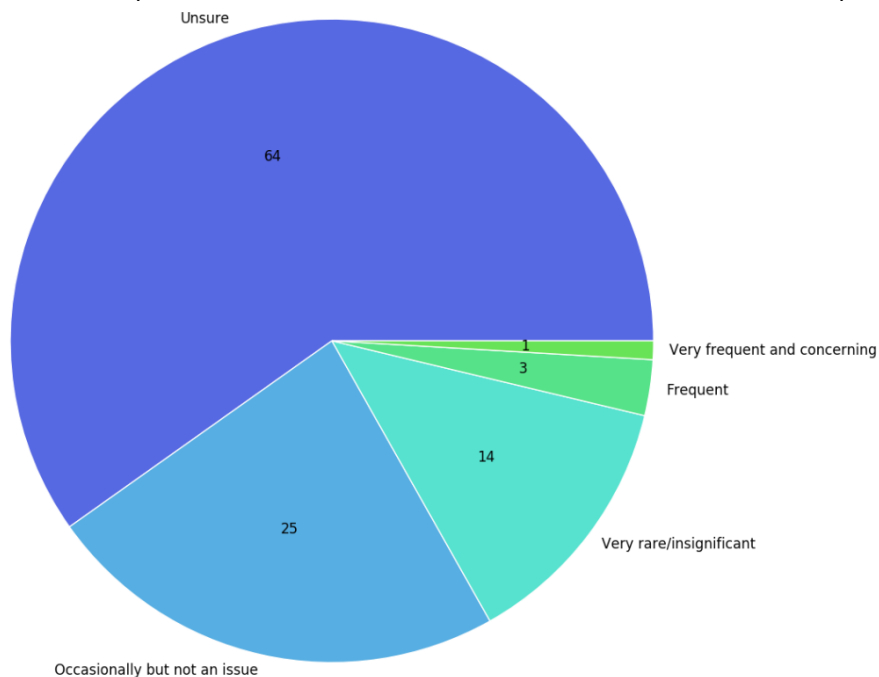
Shaking legs/ Orthostatic tremors:

1. Do you know of any incidence of this trait occurring within your lines? Yes 30%, No 70%
2. Do you know of any incidence of this trait occurring within this country? Yes 70%, No 30%
3. How would you rate the incidence of these traits within the breed in this country?



Thyroid issues:

1. Do you know of any incidence of this trait within your lines? Yes 9%, No 91%
2. Do you know of any other incidence of this trait occurring within your lines? Yes 29%, No 71%
3. Do you always test your stock for thyroid issues? Yes 15%, No 85% (Breeders)
4. Have you come across a Bullmastiff with a combination of any two or more of the following symptoms that has never been tested for thyroid issues? (*Scaly or thickened skin, cysts between toes, no coat on elbows, poor coat, shy or aggressive temperament.*) Yes 31%, No 69%
5. How would you rate the incidence of this trait within the breed in this country?



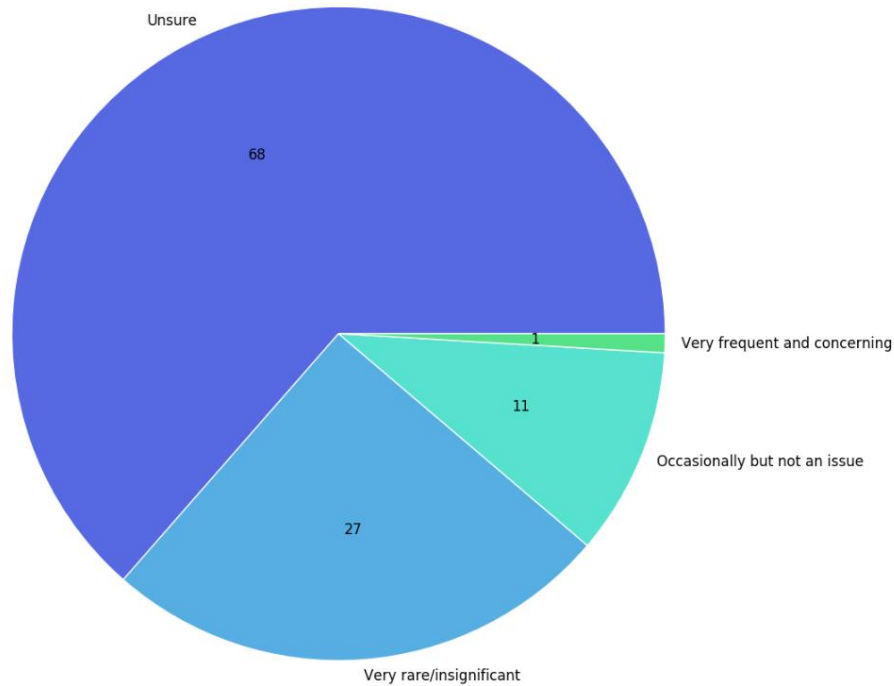
Thyroid comment: On face value thyroid issues don't appear to be an issue within Australia although people are mostly "unsure" of the frequency. 31% of people have noticed animals with symptoms matching Thyroid issues and it could be that a diagnosis has simply not been made. Having said that, some symptoms could be mistaken for other health issues and the issue may be wider spread than we have realised. External research suggests that the USA appears to have a problem with Thyroid issues but then again, they actively screen their dogs. If we screened all our dogs the incidence of affected animals would likely increase.

Kidney issues: **Glomerulonephritis & Renal Amyloidosis & Cystinuria:**

1. Do you know of any incidence of this trait occurring within your lines? Yes 7%, No 73%
2. Do you know of any other incidence of this trait within this country? Yes 31%, No 69%

Hypertrophic Osteodystrophy:

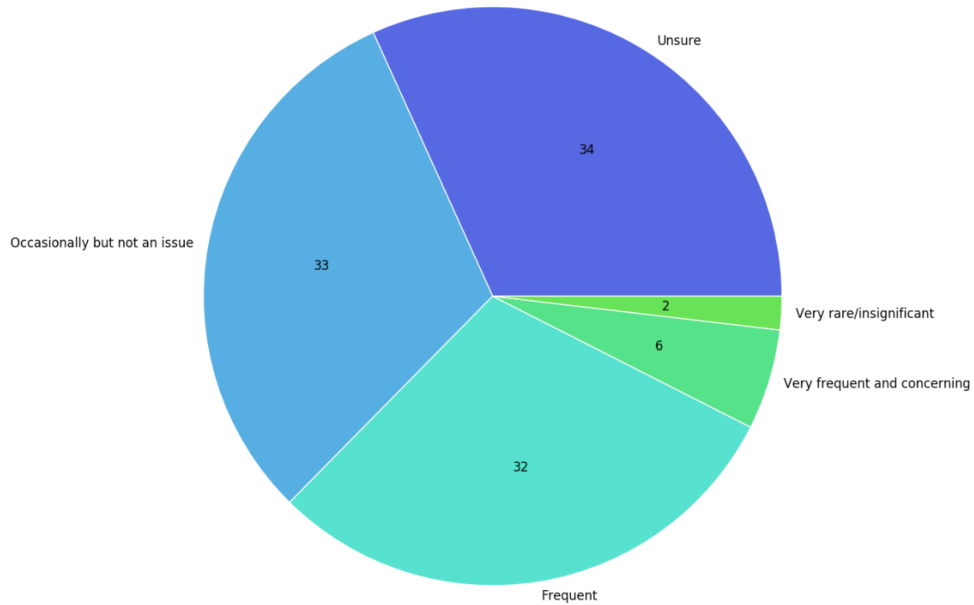
1. Do you know of any incidence of this trait occurring within your lines? Yes 2%, No 88%
2. Do you know of any other incidence of this trait within this country? Yes 15%, No 85%
3. How would you rate the incidence of this trait within the breed in this country?



Reproduction issues:

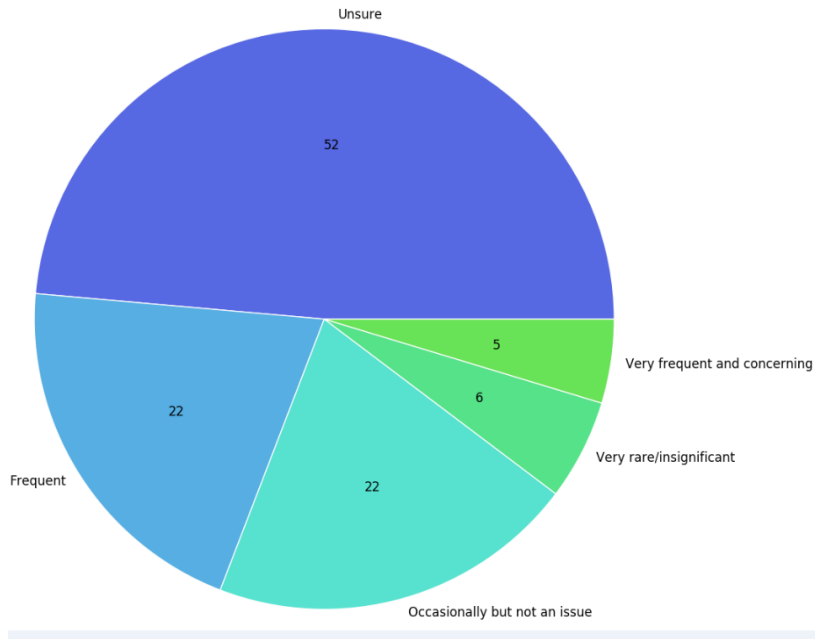
Pyometra

1. Do you know of any incidence of this trait occurring within your lines? Yes 45%, No 55%
2. Do you know of any other incidence of this trait within this country? Yes 80%, No 20%
3. How would you rate the incidence of this trait within the breed in this country?



Uterine inertia/ failure to push in labour:

1. Do you know of any incidence of this trait occurring within your lines? Yes 44%, No 56%
2. Do you know of any incidence of this trait occurring within this country? Yes 53%, No 47%
3. How would you rate the incidence of this trait within the breed in this country?

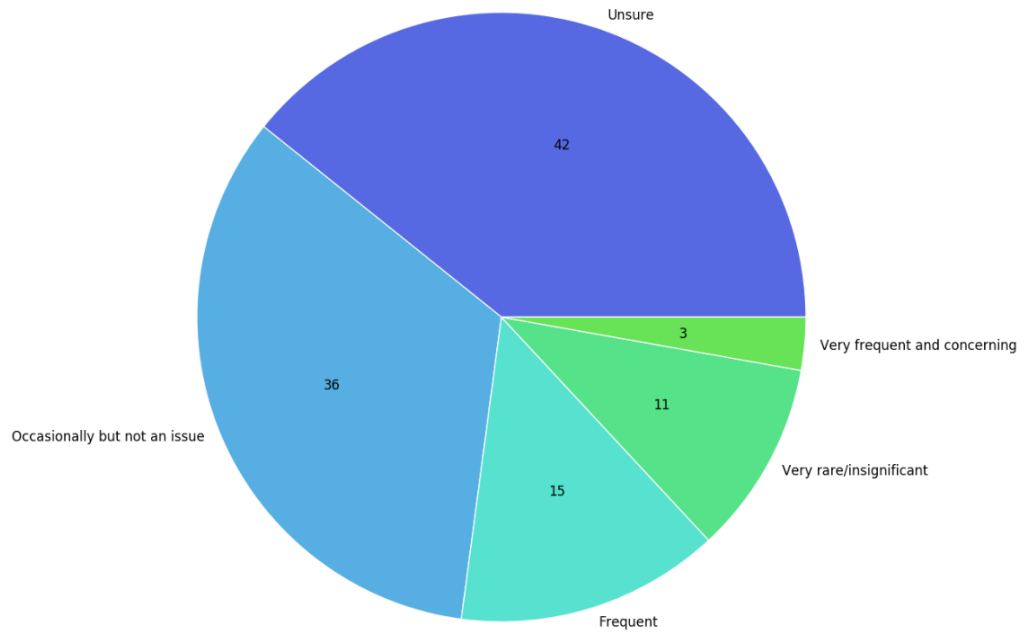


Undescended testicles:

1. Do you know of any incidence of this trait occurring within your lines? Yes 33%, No 67%
2. Do you know of any other incidence of this trait occurring within this country? Yes 67%, No 33%

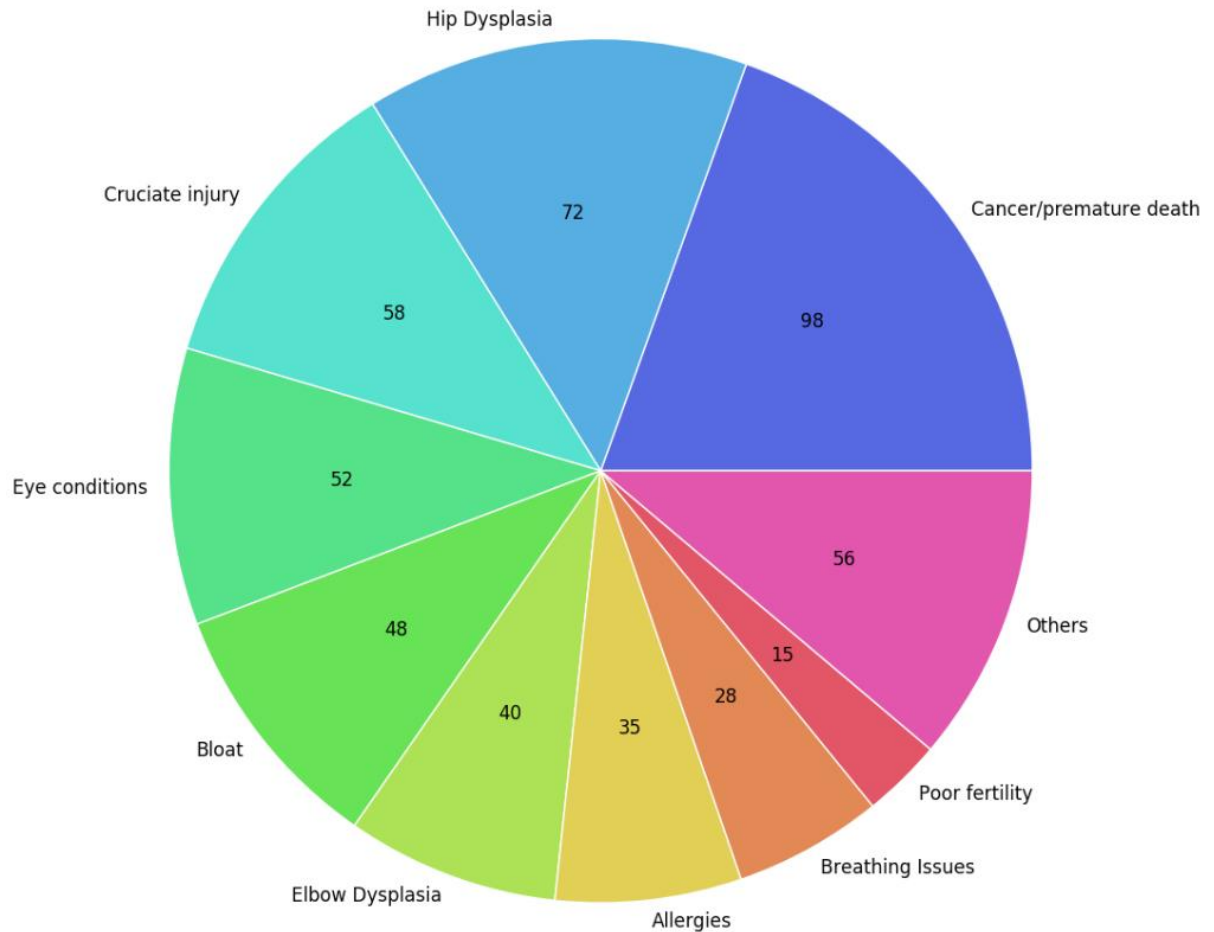
Vaginal prolapse/Hyperplasia:

1. Do you know of any incidence of this trait occurring within your lines? Yes 34%, No 66%
2. Do you know of any other incidence of this trait occurring within this country? Yes 63% No 37%
3. How would you rate the incidence of this trait within the breed in this country?



Top voted health concerns: (All responders)

Closing Questions: In your opinion, select the top 5 issues that MOST need addressing in this country



Priorities listed:

1. Cancer/ premature death
2. Hip Dysplasia
3. Cruciata injury
4. Eye conditions
5. Bloat
6. Elbow Dysplasia
7. Allergies
8. Breathing issues
9. Poor fertility
10. Other

Closing questions: Are you aware of any other FREQUENTLY occurring genetic or congenital defects that haven't been mentioned?:

Answers: Skin conditions, wry jaws/bad mouths, Poor temperament, Patent ductus Arteriosus. *"I believe many problems are caused by over-nutrition, owners feeding high protein diets..."*

CURRENT BREED HEALTH TESTS AND INFORMATION:

- 1) **General:** <http://ankc.org.au/> & <https://www.ofa.org> & <http://bullmastiff.us/health-rescue/common-diseases-conditions/> & <https://www.bva.co.uk/Canine-Health-Schemes/>
- 2) **Cancers - Breed-Predispositions to Cancer in Pedigree Dogs**
<https://www.hindawi.com/journals/isrn/2013/941275/>
- 3) **Lymphoma: "Maple Simmons" Lymphoma Study**
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4732815/>
<http://www.caninecancer.org.au/Bullmastiff%20Report%202013.pdf>
<https://ses.library.usyd.edu.au/handle/2123/16759>
<http://www.bullmastiffclubofnsw.com.au/files/lymphomalinkspage.html>
- 4) **C.H.E.D.S (Canine Hip and Elbow Dysplasia Scheme)**
<http://www.ava.com.au/cheds> & <https://www.bva.co.uk/Canine-Health-Schemes/Hip-Scheme/>
& http://www.online-vets.com/hipscore_1.html
- 5) **ACES (Australian Canine Eye Scheme)**
<http://www.ava.com.au/aces> &
- 6) **Cardiac Evaluation** <https://www.ofa.org/diseases/other-diseases/cardiac-disease>
<https://bullmastiff.us/health-rescue/sub-aortic-stenosis-sas/>
- 7) **Thyroid /Autoimmune issues** <https://www.ofa.org/diseases/other-diseases/hypothyroidism>

Thyroid Classification

- **Free T4 (FT4)**—this procedure is considered to be the “gold standard” for assessment of thyroid’s production and cellular availability of thyroxine. FT4 concentration is expected to be decreased in dogs with thyroid dysfunction due to autoimmune thyroiditis.
- **Canine Thyroid Stimulating Hormone (cTSH)**—this procedure helps determine the site of the lesion in cases of hypothyroidism. In autoimmune thyroiditis the lesion is at the level of the thyroid gland and the pituitary gland functions normally. The cTSH concentration is expected to be abnormally elevated in dogs with thyroid atrophy from autoimmune thyroiditis.
- **Thyroglobulin Autoantibodies (TgAA)**—this procedure is an indication for the presence of the autoimmune process in the dog’s thyroid.

8) Canine Multifocal Retinopathy CMR1 (DNA test with multiple companies)

Multifocal Retinopathy 1 is an inherited disorder of the Retina affecting Bullmastiffs. Affected dogs typically present between 11 and 16 weeks of age with multiple discrete circular areas of retinal detachment with underlying fluid accumulation that are visible on an eye exam performed by a veterinarian. These blister-like lesions are typically found in both eyes and can appear grey, tan, orange or pink and vary in number, size and location. Progression of retinal changes is usually slow and new lesions are not noted after 6 to 12 months of age. Occasionally as affected dogs age, lesions appear to heal and are no longer visible on an eye exam. Generally, the dog’s vision is not affected although vision loss has been described in some cases of multifocal retinopathy 1.

Note: Since the development of the survey a DNA test for this disease has been released for the Bullmastiff. The Author is unaware of any incidence of this disease and can only find mention of the disease from Canine DNA testing companies.

9) Progressive Retinal Atrophy, Dominant (DNA test with multiple companies)

Despite PRA tests being readily available there seems little to no evidence of this occurring with Australia. While anecdotal evidence suggests it is rare, even overseas, it may be prudent to test sires when importing semen or the progeny of such lines. Any breeders whose stock has produced PRA would be wise to further conduct testing. The issue can be eliminated easily in a few generations owing to a simple mode of inheritance.

10) Brachycephalic Obstructive Airway Syndrome (BOAS)

<https://www.vet.cam.ac.uk/boas/about-boas>

<https://www.vet.cam.ac.uk/boas/about-boas/recognition-diagnosis#clinical-assessments>

BOAS is described as a series of breathing issues that commonly affect “brachy” breeds owing to the shortening of the muzzle and therefore the breathing passageways. A systematic breathing assessment is a new approach to looking at BOAS and since the Bullmastiff is often categorised as being brachy breed this information is of utmost importance. A current assessment developed by the Cambridge University (UK) is explained below.

Functional Grading System (clinical assessments pre- and post- exercise)

BOAS clinical signs may not be present at rest in some moderately affected dogs. Therefore, functional grading based on a 3-minute trotting exercise tolerance test is suggested. Grade 0 and I are considered clinically unaffected; Grade II and III are considered clinically BOAS-affected and they require management and/or treatment.

BOAS Test Result reference:

- **Grade 0** – BOAS free; annual health check is suggested if the dog is under 2 years old.
- **Grade I** – clinically unaffected but with mild respiratory signs, annual health check is suggested if the dog is under 3 years old.
- **Grade II** – BOAS affected with moderate respiratory signs. The dog has a clinically relevant disease and requires management, including weight loss and/or surgical intervention.
- **Grade III** – BOAS affected with severe respiratory signs. The dog should have a thorough veterinary examination with surgical intervention.

UK studies

The 2018 Uk Kennel Club **Breed Health Conversation Plan** for Bullmastiffs concluded that:

- Owing to the risk of cruciate injury that the Bullmastiff should be recommended for inclusion in the University of Surrey study for cruciate injury research.
- That the breed was the third most frequently operated on to correct entropion (Using Australian data.)
- The Kennel Club is considering an entropion grading scheme in collaboration with the BVA (British Veterinary Association.)
- The breed was most frequently admitted breed for emergency treatment for Pyometra.

A 2013 Breed survey showed, in order, the most “frequently reported” issues as:

1. Cancers/ Lymphoma
2. Bloat
3. Pyometra
4. Skin conditions
5. Heart conditions
6. Cruciate ligament condition
7. Lameness
8. Eye conditions
9. Fertility conditions
10. Hip dysplasia
11. Elbow Dysplasia
12. OCD
13. Ear conditions

*Note: Not an extensive over view

USA Studies:

American Bullmastiff Association Health and Research Mini Survey 2016

Executive Background: The poll takers gathered survey data each morning from individuals showing and seated around the 2013 ABA Bullmastiff National ring each day and the responses are below. This information was used to identify what the ABA Membership wanted from the H&R committee priorities. The Membership identified: major health concerns, emerging health concerns (cardiac a newly identified risk), and provide a source for education, communication and focus.

QUESTION #1 - CANCER

Which **Cancer** is the most serious health concern to the bullmastiff?

22	35%	Lymphoma/Lymphosarcoma
21	33%	Hemangiosarcoma
14	22%	Osteosarcoma
4	6%	Mast cell tumors
2	3%	Brain tumors
1	2%	Other Cancers
0	0%	Lung Cancer
<hr/>		
64		

QUESTION #2 – Most Serious – CARDIAC

After cancer, the most **Serious** health concern to the bullmastiff

22	31%	Cardiac
16	23%	Orthopedic/Hips/Elbow/Cruciate Ligament
13	19%	Immune / Allergy
8	11%	Gastrointestinal / Bloat
6	9%	Urinary / Renal / Kidney
5	7%	Entropion other eye / blindness issues
0	0%	Other
<hr/>		
70		

QUESTION #3 – Most Common/Widespread

After cancer, the most **Common** (Widespread) health concern to the bullmastiff

30	43%	Immune / Allergy
19	27%	Orthopedic/Hips/Elbow/Cruciate Ligament
11	16%	Cardiac
7	10%	Gastrointestinal / Bloat
2	3%	Urinary / Renal / Kidney
3	4%	Entropion other eye / blindness issues
0	0%	Other
<hr/>		
72		

Dr Tony O’Callaghan review: Australian Bullmastiff Breeder and Veterinarian.

OVERVIEW:

- * The data collected indicates that the respondents consider there are several medical conditions which occur with significant frequency in the Bullmastiff breed.
- * The data indicates that the occurrence of certain cancers, mainly osteosarcoma, lymphosarcoma and hemangiosarcoma are of primary concerns within the breed.
- * Hip dysplasia is also noted to be of significance to breeders and the preferred scheme appears to be using breeding stock with a score in the range of 0-30
- * Cruciate injuries, whilst the data indicates were frequent, weren’t considered as a great concern.
- * It appears a high number of respondents were unsure about the frequency and significance of elbow dysplasia and scoring.
- * Most other conditions appear to be considered of low significance.
- * I would note that cardiac issues are difficult to evaluate as “heart murmurs” would ideally need to be further evaluated as to their significance. These could include pulmonary stenosis, aortic stenosis or conditions such as VSD, ASD and PDA.

Overall it appears that a highly significant number of respondents are supporters of the idea of implementing health schemes. The data indicates that most respondents would support health schemes, but I suspect only if these schemes were determined by breed members in consultations with experts. I also suspect that any breed schemes would not be supported if they were too prohibitive, as this would not be practical given that we are dealing with a relatively small gene pool.