LIGHTING THE WAY

BEACON for Health
The Bearded Collie Foundation for Health

The Official Newsletter of the Bearded Collie Foundation for Health

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In This Issue

Presidential Reflections by Elsa Sell

President's Musings

Spring is always an inspirational time on the farm with renewal of whatever survived the prior years' drought – flowers bloom, young calves spritz around, trees leaf out, the sheep lazily nibble on grass, and the beloved Beardies bounce their way through the day. The sight of their flowing hair, their cheerful barks, their smiles when given a pat on the back or an ear rub – all are why I remain a steadfast volunteer working to achieve BeaCon's missions.

Almost daily I review the log of data entry for BeaCon's open health registry. I am happy when a new entry is a completely healthy Beardie; I am sad when there is note of a health problem or the dog is deceased. In recent years BeaCon has been sending condolence notes to owners whose Beardie in the open registry is recently deceased. We hope that somewhat softens the grief.

Life has its ways of giving and taking. In the last year, several BeaCon directors have stepped down. Elizabeth Coolidge-Stolz helped on occasion to make scientific articles more understandable for all. Cindy Alspaugh worked on the SLO project for several years. Jana Jezkova of the Czech Republic

brought a large number of new Beardie owners from her part of the world into the open health registry. She also translated several registry yearly reports into Czech for the web site.

We welcome returning director Sharon Dunsmore from Canada; she is a Beardie breeder and trainer, active in agility, with website development skills. She is assisting with total updating of BeaCon's website. Also just coming to the board is Peg Caldwell from Florida and NC. Peg has long been interested in health of Bearded Collies. She has worked to bring information about BeaCon and the open health registry to her BCCA Regional club members. We thank Sharon and Peg for making time for BeaCon and Bearded Collie health in their busy lives.

We need healthy Beardies as controls for the SLO project. See the notice following.

BeaCon is advocating that readers convert to the email newsletter starting in the fall. Every hard copy newsletter that is not mailed saves money.

The year 11 report from open health registry Beardies makes up most of this newsletter. It is a short version; for those desiring more detail and colored graphics, check out the complete report on our website. There are also translations into several languages. May all have a healthy and happy summer.

Get Your Newsletter by Email

You can contribute to BeaCon's financial wellbeing by changing your snail mail newsletter to email. Gordon Fitzgerald, the long-time editor of Lighting The Way, generously has donated the printing through his KwikKopy business for some years now. That is expensive for him. BeaCon pays for the postage which runs around $500 each issue.

So, we'd appreciate your change over if that is feasible. At the moment the email newsletter is one that can be printed for reading and record keeping if you want hard copy. Contact Fitz - fitz@kwikkopy.com – to let him know.

SLO Project Notice – Healthy Controls

The Symmetrical Lupoid Onychodystrophy (SLO) project collects information about the environment, flea and heartworm preventive use, vaccinations, diet, general health and family health history. Details about the dogs' SLO diagnosis and treatment are also obtained; we know that 94% had onset of the disease before the age of 8 years.

Both Dr. Anita Oberbauer at UC Davis, who is collecting and storing DNA samples on SLO and healthy Beardies, and Dr. Patrick Horan (retired UGA epidemiologist) reviewed the SLO Survey summary. They recommend that the same environmental, family, and medical information be obtained on a group of healthy control Bearded Collies. As Dr. Horan noted: "the case-control design (comparing two groups from similar "environmental circumstances" which differ primarily in expressing the malady of interest) is widely used in epidemiological research to explore which environmental

factors are most promising for further research." They also encouraged the collection of DNA samples on the healthy dogs with completed surveys.

Hence we are asking for volunteers for the control group. The dogs may be in BeaCon's open health registry, but that is not essential. Your Beardie is eligible if he/she is:

- Healthy (no chronic health problems requiring treatment or veterinary visits).
- Age – 8 years or over.
- Sire and dam are known

The survey form is posted on BeaCon's home page as a .doc and PDF. Links for DNA sample collection and associated forms are in the same location. We hope you will also donate a DNA sample collected by cheek swab and blood (if your vet will draw the sample free for you) for this project. The goal is at least 80 healthy controls. Help us meet that goal in 2012.

The only persons who will have access to family information on the healthy controls are Dr. Oberbauer's research team. The general information such as sex, age, use of preventives will be collated without identifiers.

Canine Vaccination Thoughts

Pros: Provide immunity to an individual as well as a group; the latter only when a sufficient proportion of the population is immunized. Dogs that have not been immunized may develop passive immunity from association with vaccinated individuals; passive immunity is relatively short lived compared to active immunity from vaccination.

Cons: Uncertainty about duration of immunity contributed to the practice of yearly vaccination. This is no longer the case with core vaccines, but remains an issue for leptospirosis and Lyme vaccines.

Some individuals have adverse vaccination reactions, which may be severe, and not immediately apparent.

Other: Some individuals are non-responders and will remain at risk of vaccine preventable diseases.

History – Human Experience

In human medicine, for families around 1900, one in five children died during the first five years of life, mostly from infectious diseases. Today, 110+ years later, how many families do you know that have ever lost a child to an infectious disease for which there is a reliable vaccine? There are now 14 vaccine preventable human infectious diseases.

The increased interconnectedness of the world due to ease of travel, lack of complete vaccination programs in less developed countries, and parental questioning of the value and safety of vaccines in developed countries all contribute to a small but real risk of illness and death from vaccine preventable diseases.

AAP News (ref 1) noted an ongoing measles outbreak in France in 2011 that killed at

least six children and left 12 with brain damage. There have been more than 750 cases of measles in Quebec, Canada and two measles-infected people attended some festivities of the 2012 Super Bowl.

Canine Experience

The most recent vaccination guidelines for the USA (2011) (ref 2) from the American Animal Hospital Association (AAHA) are published online and are summarized below for core vaccines.

Distemper vaccines (modified live virus) following the recommended initial schedule and completed by 16 wk of age, should have a single booster no later than 1 yr after the initial series and, be revaccinated every 3 yr. In healthy dogs all available distemper vaccines are expected to induce sustained protective immune response lasting at least 5 years.

Canine parvovirus (modified live virus). Initial series before 4 mo of age with final dose between 14-16 wk to minimize the risk of maternal antibody interference OR one dose after 4 mos of age. The initial vaccination is followed every 3 years with revaccination regardless of which product is used. Among healthy dogs, vaccines are expected to give protective immune response lasting at least 5 years.

Adenovirus vaccines (type 2 induces protection against type 1 also) (modified live virus) after the initial vaccination series is completed by 16 wk should receive a single booster not later than 1 yr after completion of the initial series and be revaccinated every 3 yrs. In healthy dogs all available distemper vaccines are expected to induce sustained protective immune response lasting at least 7 years.

The frequency of rabies vaccination (killed virus) is determined by state law, varying from 1 to 3 year intervals. The initial vaccination is given not before 12 wk and then yearly or every 3 years per law requirement. The Rabies Challenge Fund Charitable Trust is supporting a long term research project to determine the duration of immunity from rabies vaccines. The goal is to determine if the required interval for rabies boosters can be extended beyond 3 years to 5 or even 7 years. Research began November 2007 and is now in year 5. The project is under the direction of Dr. Ron Schultz and the University of Wisconsin Foundation. (ref 3)

Waivers. The American Veterinary Medical Association (AVMA) policy of rabies vaccination (ref 4) now recognizes the need for a waiver from rabies for vaccination for some animals in whom vaccination poses an unacceptably high risk. Both the licensed veterinarian who has a client-patient relationship and the appropriate public health authorities need to concur that the waiver should be issued.

THE CLIENT MUST BE INFORMED THAT THE WAIVER ONLY SERVES TO LET THE ANIMAL BE LICENSED IN COMPLIANCE WITH ANIMAL CONTROL REGULATIONS. Thus, if the animal is involved in a potential rabies exposure event, the animal is considered unvaccinated against rabies for the purpose of public health regulation. The

policy states that rabies waivers should be reconsidered yearly.

Know Your Pet's Risk For Rabies – A Recent Happening
If you live in Carlsbad, NM or other areas afflicted by severe drought (SD, TX, KS) and a mild winter, you are probably aware of an increase in rabid skunks. The outbreak in the county where Carlsbad is located has so far documented 33 skunks testing for rabies in 2011-12. This is in contrast to no confirmed rabies cases in the past 15 years.

The encounters of rabid skunks have involved dogs, cats, and sheep. An unfortunate outcome has been euthanasia of over 30 pets and farm animals. Twelve people have received shots as a precaution and fortunately none have exhibited symptoms of rabies. The disease can be fatal if not treated quickly. It is speculated that the drought has caused skunks to migrate to locations in a search for water. (ref 5)

References

1) AAP News 33/4, p 1 & 4, April 2012.
2) AAHA Vaccine Recommendations. https://www.aahanet.org/PublicDocuments/CanineVaccineGuidelines.pdf
3) Rabies Challenge Fund Charitable Trust - http://www.rabieschallengefund.org/ http://www.avma.org/issues/policy/annual-rabies-vaccination-waiver.asp
4) Wall Street Journal, by Nathan Koppel, p A3, April 6, 2012

BeaCon Open Health Registry, Year 11 Report

See the complete report available on BeaCon's web site for more detail.
What Dogs May Participate? All Bearded Collies of known parentage, deceased or living, healthy or with a health problem, and from any country.

Who May Submit Information? Owner with whom the dog lives if primary owner, co -owner (with owner consent or otherwise dog goes into the non-public section started in 2008), a breeder (usually puppies before they go home). Information on dogs in the non -public section is used for the yearly report but it is not available in the search or report function of the registry database.

How To Submit Information. This is best done online - www.beaconforhealth.org/sqlweb. Hard copy forms are also available on-line and by request.

Who May Access the Open Registry Database? Anyone who is registered can do searches or reports on dogs in the public section of the database. Owner contact information is not available.

Pedigrees and Coefficient of Inbreeding (COI)
As new dogs are entered into the database, a five generation pedigree is generated offline before posting. Owners are notified and asked to confirm accuracy of the pedigree once it is posted. Data for pedigrees come from several sources including pedigrees submitted by owners and online databases.

A COI is the mathematical definition that elucidates closeness of relationship in a pedigree. It is usually expressed as a percentage and it was developed by Sewall Wright (Coefficients of inbreeding and relationship. Am Nat. 56:330-8, 1922). Basic principles are that inbreeding only exists if the ancestor appears on both sire's and dam's side of the pedigree. Breeder's Assistant software is used to calculate the 10 generation COI which is displayed at the top of each dog's pedigree. These values may differ from those obtained by other pedigree programs due to differences in the algorithm used for calculation and/or the number of generations used.

Use of Data and Caveats

The purpose of this registry is to give objective data on disease and wellness, not to draw conclusions about any particular line, sire, or dam. We leave it to the user to interpret the information as they see fit. For maximum accuracy we need to know that data on any individual dog is current. Good effort is made to contact owners each year to up-date their dogs' entry.

The disease frequencies in this report apply solely to this particular population of Bearded Collies. Until more Bearded Collies worldwide have been entered accurately into the Open Health Registry, no conclusions can be drawn regarding the general health status of the breed.

As research uncovers more information on inheritance of disease it becomes increasingly obvious that many diseases are neither simple autosomal dominant or recessive traits. For example, the current research leads us to believe that up to 40 genes may be involved in whether or not a dog gets a particular autoimmune disease! Some genes have been found that affect the likelihood of getting any autoimmune disease while others relate to specific diseases. This supports pedigree analyses, which showed autoimmune disease in particular lines no matter which type of disease, while some breeds have higher incidence of a particular autoimmune disease.

Genes have been found that increase risk of disease while others protect against it, and a dog can carry both. Epigenetic changes alter how a gene is expressed or the phenotype of a cell without changing the genetic (nucleotide) sequence. These changes remain for the life of a cell, but can also be inherited at least through several mammalian generations. We have long known that environmental triggers as well as stress – physiological, physical or psychological – is somehow involved in the expression of autoimmune and other diseases, and likely this is the result of epigenetic change.

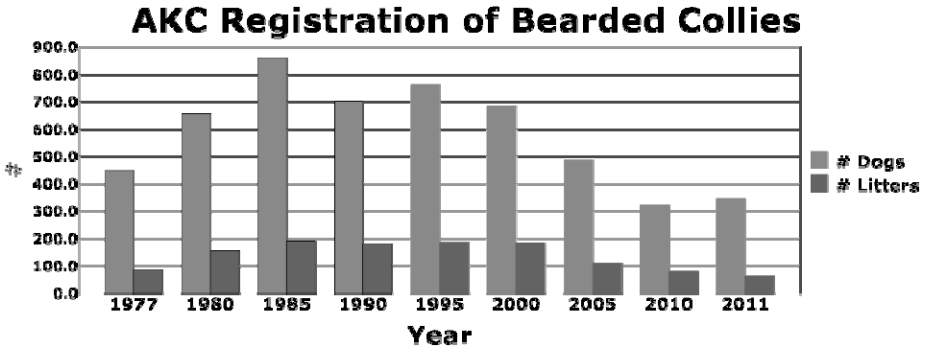
Other terms that may be heard in this context are penetrance, the % of the population with a genetic variant that shows an associated trait. In some cases penetrance can be quite low meaning other factors are likely involved. If every individual with that variant has the trait there is complete penetrance. Even with complete penetrance some individuals may be more or less severely affected, and this variable is described as expressivity. (Note expressivity is measured only with complete penetrance.)

As our understanding of inherited disease increases, identifying individual genes responsible for each disease is going to be elusive for many illnesses. There is however, a strong genetic component to their occurrence. This is where a comprehensive open health registry can be of greatest value. If we can go back through generations of dogs – not just in a linear fashion but looking at siblings, aunts, uncles etc. patterns begin to emerge. If one problem appears repeatedly in a particular line, tapping into one where it has not appeared for generations is a possible way to reduce frequency of the problem.

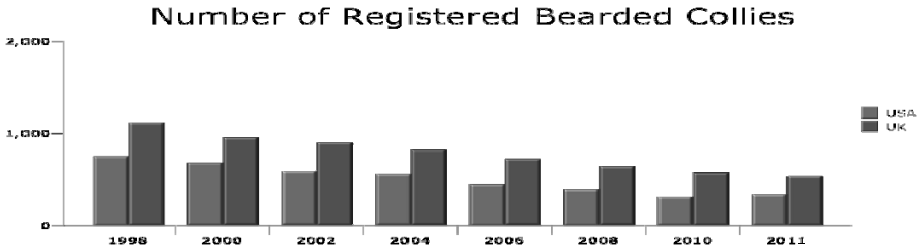
Dog breeding is becoming increasingly multinational with frozen semen and surgical implantation. We are increasingly less likely to have hands on experience with every dog we are considering and its extended pedigree. We may not have all the answers ever, but the more pieces we have of a puzzle the better informed we can be to create dogs that are not just superior in structure and type, but also health and temperament.

Our goal continues to be full participation and data on every Beardie whether or not it will ever be used in a breeding program it has been part of a breeding program. We therefore discourage selectively entering only certain dogs, we want them all! The inclusion of dogs in this registry is by the free choice of the owner/co-owner. Absence of dogs from this registry is also by the free choice of the owner/co-owner. Notice of the registry's availability is made through BeaCon's newsletter (Lighting the Way) and web site (www.beaconforhealth.org), and Beardie internet lists.

AKC Registrations – 5 years Intervals



Comparison of AKC (USA) and KC (UK) Registrations, 2 Yr Intervals



The above graph shows a parallel decline in the number of Registered Bearded Collies in the UK and the USA between 1998 and 2011. Where this will end, no one knows, although it is heartening to see lesser decline recently. Since in the UK breeders must register the pups (in the USA, the owner usually registered a dog), it seems quite possible that the parallel decline reflects a true decrease in the number of Bearded Collie pups being produced year by year, rather than a decline in owner registration.

Number of Owners and Dogs

There are 729 participating owners, an increase of 80 over last year, and 2053 Beardies, an increase of 307. There is little change in the frequency of the most common health problems; fear issues and autoimmune problems continue to lead the list, although their order is reversed. The frequency of health screens is also little changed. Puppy mortality is 5% stillborn and an additional 7-8% dying by 6 weeks of age.

Geographic Location

These are arranged in descending order by number of owners in a country. The overall increase in owners was 80 with the largest percent from the UK (28.5%) and the Netherlands (22.5%).

Country	Owners (#)	Dogs (#)	Dogs (%)
USA	381	884	43.1%
UK	138	452	22.0%
Canada	42	116	5.7%
Netherlands	40	167	8.1%
Germany	30	81	4.0%
Czech Republic	24	71	3.5%
Australia	21	102	5.0%
Others*	53	180	8.8%
Total	**729**	**2053**	

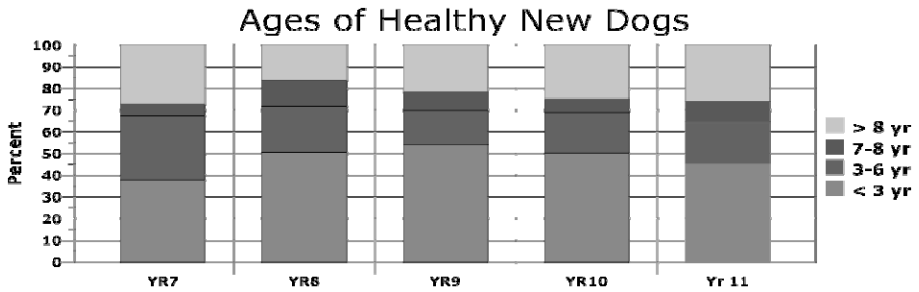
*Other owner locations include Austria, Belgium, Brazil, Denmark, Finland, France, Hungary, Ireland, New Zealand, Norway, Portugal, Slovakia, South Africa, Spain and Sweden.

General Dog Information for 2053 Beardies

Sex and Reproductive Status. The data are similar to those in past years.

Sex	# Dogs	%
Male	926	45% of total
Intact	556	60% of males
Neutered	356	38.5% of males
Unspecified	14	
Female	1128	55% of total
Intact	583	51.7% of females
Spayed	536	48.3% of females
Unspecified	9	

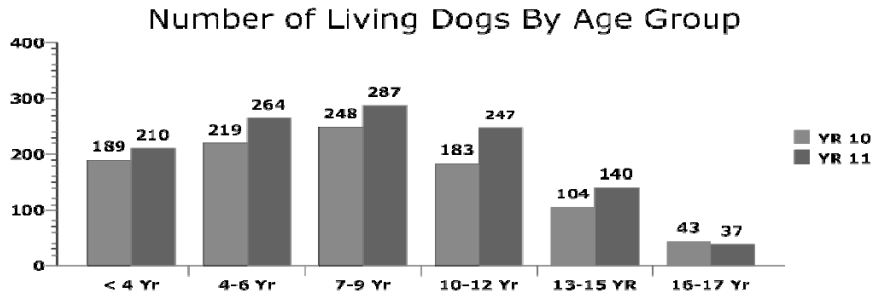
Healthy Dogs. The percentage of healthy dogs in recent registry years is given in the two figures below. 1168 (56.9%) dogs have no health issues recorded as of February 15, 2012. The data shows that 73% or more of new healthy dogs entered in the last five years were under the age of nine years and in the last four years 45% or more were below the age of three years. The youth of new entries provides an excellent opportunity to follow their health over the long term.



	YR7	YR8	YR9	YR10	Yr 11
< 3 yr	37.7	50.6	53.8	50.3	45.4
3-6 yr	29.5	20.9	16	18.6	18.9
7-8 yr	5.5	12.2	8.5	6.2	9.6
> 8 yr	27.3	16.3	21.7	24.9	26.1

"Success is not final, failure is not fatal:
it is the courage to continue that counts."
Winston Churchill

Ages of Live Dogs in Registry



Age of dogs using 2/23/12 as the current date was calculated for 1228 dogs below the age of 18 years and last recorded as alive. The average age is 8.5 years. Breakdown by age groups is given in the chart below.

Health Problems. Autoimmune diseases remain the most common problem.

Health Problem		
	# Dogs	*% Dogs*
Autoimmune diseases	234	11.4%
Fear, loud sharp noises	197	10.0%
Cancer (all types)	147	7.2%
Hypothyroidism	129	6.3%
Umbilical hernia	69	3.4%
Hip dysplasia	55	2.7%
Dietary allergy/food intolerance	41	2.0%
Cataract	35	1.7%
Aggression, all types	32	1.6%
Atopy	29	1.4%
Depigmentation	28	1.4%
Inflammatory bowel disease	27	1.3%
Fear, other	26	1.3%
Nail problems, other	26	1.3%
Allergy, flea bite	25	1.2%

The incidence of autoimmune thyroiditis in the open health registry dogs remains unknown; data from OFA labs through December 2011 suggest it is

relatively low – 1.3% of 537 having OFA panels (with 0.9% idiopathic hypothyroidism, 12.1% equivocal, 85.7% normal).

The more frequent locations of cancer are: mammary – 16, liver – 13, spleen – 12, nasal – 11, stomach – 9, bone – 7, and hemangiosarcoma – 5. As a result of low necropsy rate, few pathology exams, and other factors, the prevalence of cancer and the type of each cancer within the breed remains uncertain.

Autoimmune (A/I) Disease

The number of individual A/I diseases was 264. The number of dogs having A/I disease(s) was 234, or 11.4% of all dogs.

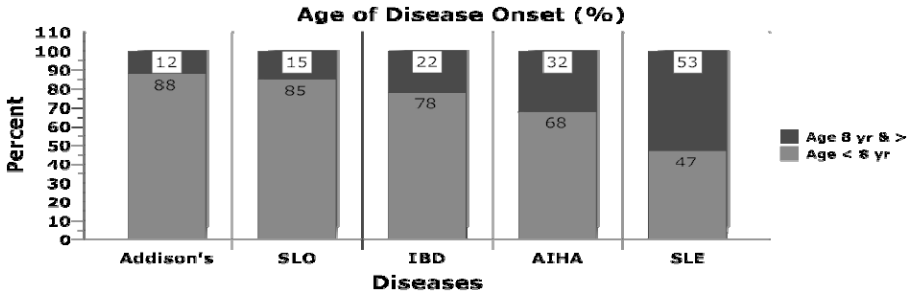
Disease	#	% of All Dogs	% of A/I Dogs
Addison's disease (hypoadrenocorticism)	76	3.8	32.5
Symmetrical lupoid onychodystrophy (SLO)	71	3.5	30.3
Inflammatory bowel disease (IBD)	27	1.3	11.5
Autoimmune hemolytic anemia (AIHA)	25	1.2	10.7
Systemic lupus erythematosus (SLE)	19	1.0	8.1
Rheumatoid arthritis*	14	0.7	6.0
Immune-mediated thrombocytopenia (ITP)	13	0.6	5.6

Hypothyroidism is not included in A/I diseases because there is insufficient information available to know that the disorder was autoimmune based.

* These include cases of suspected immune polyarthritis

Twenty-five dogs had more than one disease; 20 dogs had 2 A/I diseases, 7 dogs had 3 A/I diseases, and 3 dogs had 4 A/I diseases.

Age of Onset of Most Common A/I Diseases



As in previous years, Addison's, SLO, and IBD had earlier onset than AIHA and SLE, using below and above 8 years of age as the division point for early and late onset.

Reproductive Outcome

Dogs. There were 143 with reproductive history recorded; 62 had semen checked but most gave no information about semen quality. The following table shows the number of bitches bred, the number of litters and puppies produced.

Item	#
Bitches bred	562
Litters produced	501
Total puppies produced	2927
Total female puppies produced	1269
Total male puppies produced	1345

Later Health Problems in Dogs' Puppies.

Health Problem	**# dogs producing problem**	**# puppies with problem**
Addison's	8	19
Symmetrical lupoid onychodystrophy	9	14
Systemic lupus erythematosus	2	2
Hypothyroid	10	12
Cryptorchid	20	46

Bitches. 323 bitches were bred with 520 litters and 3404 pups produced. Cesarean section delivery was done in 59 (18.0%). Breeding methods resulting in live pups is shown below.

Method	Registry Year				
	11	10	9	8	7
Natural	373	331	297	271	249
A/I fresh	58	53	48	40	35
A/I chilled	29	20	19	12	18
A/I frozen	15	11	11	10	10
Surgical A/I	14	13	13	10	10

Early Identifiable Issues in Bitches' Puppies.

Male pups		
	#	% of total
total born	1764	-
live born	1624	92.1%
live @ 6 wks	1506	85.4%
		% of those alive at 6 weeks with
cryptorchid	86	5.7%
mismark	72	4.8%
umbilical hernia	59	3.9%
bad bite	15	
poor pigment	14	
cleft palate	3	
Female pups		
	#	% of total
total born	1640	-
live born	1523	92.9%
live @ 6 wks	1410	86.0%
		% of those alive at 6 weeks with
mismark	75	5.3%
umbilical hernia	62	4.4%
bad bite	15	
poor pigment	6	
cleft palate	2	

Later Health Problems in Bitchs' Puppies.

Health Problem	**# dams**	**# progeny**
Addison's	13	19
Symmetrical lupoid onychodystrophy	11	14
Systemic lupus erythematosus	4	3
Hypothyroid	11	10
Other	33	25**

There is a need for puppy owners, breeders, and stud owners to have better communication about health problems. Until that happens, there will continue to be gaps in knowledge of progeny health problems that may be heritable.

Mortality

General Information

This year the 9-14 year age group was separated into two because it represented nearly 50% of all deaths. There are 554 (26.50%) deaths reported. For the 536 dogs with known date of death, average of death was 11.9 yrs; minimum was 0.1 yr, maximum was 17.6 yrs.

Necropsies were conducted on 34 (6.1%). Owners should remember that necropsies will sometimes be helpful in establishing the cause of death. If more necropsies were done in those where death is not due to very old age, there would certainly be more identifiable causes of death. Mode of death was natural in 83, euthanasia in 420, accidental in 20, and not documented in 31.

The leading causes of death before 9 years of age were autoimmune (n=24), accidental (n=14), and cancer (n=11 in the 7-8 yr group). The high number dying from autoimmune disease at a young age is of concern and should be the focus of research to identify cause(s) and trigger(s). The percentage shown for each age used 536 dogs as the denominator.

Age Group—up to 3 Yr There were 18 deaths (3.4%)

- Accidental—4
- Autoimmune—5 (27.8%) of age group: 1 each pemphigus/SLO, ID, Addison's, immune mediate polyarthritis, AIHA
- Aggression, directed at dogs' family—2
- 1 each intussusception (after hemorrhagic gastroenteritis), meningitis, kidney failure, pyometra, myocarditis
- Unknown—2

Age Group—3-6 Yr There were 43 deaths (8.0%)

- Autoimmune—11 (27.5%) of age group:
  - SLE—3
  - AIHA—3
  - 1 each—SLO with aggression from pain, ITP, Evan's syndrome (ITP & AIHA), Addison's, IBD
- Accidental—6
- Cancer—6 (14% of age group)
- Unknown—5
- Acute renal failure—2
- 1 each: chronic interstitial nephritis, respiratory failure (in an Addisonian), acute fulminating pancreatitis after whelping, neurologic other (had hip dysplasia and developed rear paralysis from a pinched nerve), liver failure, sudden acute retinal

deterioration (unable to deal with visual loss), chronic pancreatitis, aspiration pneumonia, atopy, idiopathic epilepsy, poisoning, aggression

Age Group—7-8 Yr There were 41 deaths (11.5%)

- Autoimmune—10 (24.4%) of age group
  - 4—Addison's (either primary cause or associated)
  - 2—AIHA
  - 1 each—autoimmune muscle disease, rheumatoid arthritis, SLE, SLO
- Cancer—9 (22% of age group)
- Unknown—9
- Accidental—5
- Renal failure—2
- 1 each: family aggression, pet food poisoning, rear end paralysis, sudden breathing distress, pyometra, amyloidosis

Age Group—9-11 Yr There were 112 deaths (20.9% of total deaths)

- Cancer—42 (37.5% of age group)
- Autoimmune—12 (10.7% of age group)
  - Addison's—4
  - AIHA—5
  - 1 each—SLE, discoid lupus, ITP
- The remainder were either unknown or a few cases of a wide range of problems—including several with heart failure and several with Cushing's disease

Age Group—12-13 Yr There were 152 deaths (28.4% of total deaths)

- Cancer—39 (25.7% of age group)
- Old age—24 (15.8% of age group
- Kidney failure, unknown cause—9
- Stroke—7
- Autoimmune—7 (4.6% of age group)
  - Addison's—5
  - SLE—2
- The remainder were either unknown or 1-few cases of a wide range of problems

Age Group—14 Yr and Older There were 180 deaths (33.6%)

- Old age—88 (48.9% of age group)
- Cancer—28 (15.6% of age group)
- Stroke—10
- The remainder were unknown or 1-few cases of a wide range of problems.

Summary of Mortality Cause by Age Group

Age Group	# (%)
< 3 yr	18 (3%)
3-6 yr	43 (8%)
7-8 yr	41 (8%)
9-11 yr	112 (21%)
12-13 yr	152 (28%)
14 yr & >	180 (32%)

A/I Disease

Age Group	# (%)
< 3 yr	5 (11%)
3-6 yr	11 (24%)
7-8 yr	10 (22%)
9-11 yr	12 (27%)
12-13 yr	7 (16%)

Cancer

Age Group	# (%)
3-6 yr	6 (5%)
7-8 yr	9 (7%)
9-11 yr	42 (34%)
12-13 yr	39 (31%)
14 yr & >	28 (23%)

Although only 19% of all deaths occurred before 9 years of age, 57% of these were due to autoimmune disease. The reverse is true for cancer as the cause of death; 88% of cancer deaths were over the age of 8. This finding is the same as reported in previous years.

Research

The SLO project continues. The family pedigree data have been provided to Dr. Anita Oberbauer's lab for statistical analysis of possible mode of inheritance. The environmental data have been reviewed by Dr. Patrick Horan; he, like Dr. Oberbauer recommend gathering the same history for environment, vaccination, preventives use, and family history on a group of healthy older Beardies without any chronic nail condition. That project is to begin shortly. See the notice earlier in this newsletter.

DNA samples continue to be collected and stored by Dr. Anita Oberbauer's lab. These will be utilized for research into Addison's disease and/or SLO, depending on technology advances. The board of directors continues to encourage every Beardie owner who has a dog with one of these diseases to submit DNA samples and all Beardie owners who have healthy dogs or at least dogs who are free of chronic health issues that require regular veterinary attention, and who are age 8 or beyond to submit DNA for the SLO study.

"An investment in knowledge pays the best interest."
Benjamin Franklin

Coefficient of Inbreeding (COI)

The data are arranged by decreasing COI for individual country's dogs. Given the large standard deviations, the difference between countries is not significant, but just reflect the current breeding pool. Almost all countries have a maximum COI over 40; the two exceptions are the Netherlands with a maximum of 37.5 and Finland with a maximum of 31.4. All countries have a minimum COI of 9-14 except for the UK which is zero, due to one breeder who is utilizing non-KC registered sires in their breeding program. Remember that the COI's are based on 10 generations of ancestors.

Year Report/Other	Coefficient of Inbreeding				
	# dogs	Av	Min	Max	Std dev
USA – 1977 stud book	318	18.3	3.8	40.1	
USA – 2011 Specialty BOB	72	22.9	11.9	40.3	
Year 11					
All dogs	2508	23.3	0	47.5	6.3
UK	436	24.7	0	43.2	7.1
USA	868	23.7	11.2	43.9	5.6
Canada	114	23.3	9.2	47.5	6.8
Belgium	26	22.3	14.3	38.9	6.7
Finland	43	22.1	9.9	31.4	5.7
Czech Republic	70	22.0	11.2	47.3	6.1
Australia	102	21.6	10.8	42.1	5.3
Netherlands	161	21.3	9.2	37.5	5.4
Germany	80	20.4	8.9	42.4	6.6

"We must become the change we want to see in the world."
Mahatma Gandhi

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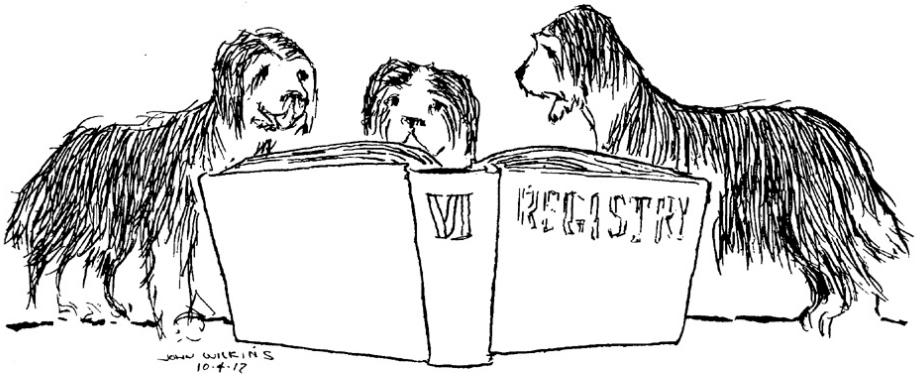

"There it is, on page 213. His name is Black Beardie and he was an old sea dawg!"

Editor
Lighting the Way
The Bearded Collie Foundation for Health
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