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 Musings

Elsa Sell

With all the world crises and natural disasters it is a relative wonder that anyone has time to notice that Lighting The Way is in the mail, hold it and read it. Yet some will do so and in this issue you benefit from other's acts of thoughtfulness in entering their Beardie's wellness and health problems in BeaCon's open health registry. Now in 10 years, 1746 Bearded Collies are in the database, thanks to 645 owners from around the world.

As is customary for the newsletter registry reporting, the report is shortened by deleting some minutiae and explanatory details. You can find those additional details (such as yearly AKC and UK Beardie registration stats) in the complete report posted on the web site.

For readers who find the registry report useful, remember you can find even more on-line. All registered users can study the public information in the database by using the search or report functions.

For those not yet participating, think about why not and perhaps reconsider.

Are you just too busy? If yes, do you really have Beardie health as a priority? If yes, then something else has to move aside just for a wee bit of time. Are you just plain lazy?

Are you afraid of the internet and dealing with a form on-line? If yes, there are several alternatives.
You could put the data on a hard copy form which will take way longer than on-line.
You could let me know and we can have a phone conversation while I guide you through the process.
You could view a slide presentation about using the on-line system – it's a great way to get started–http://portal.sliderocket.com/AEZLL/09_Brochure

Do you worry that somebody will use information from the registry negatively against you? This is a tough one. I invite breeders to send me their thoughts on this and will devote a section of the next newsletter to your valuable insights – anonymously if you want, or not – whatever is your preference.

Several articles planned for this issue were incomplete at the editor's deadline so they come next time. The web site will undergo a revision in the coming months. The board of directors is changing a bit with Sharon Dunsmore rejoining and Denise Barley departing. Have a good summer with your Beardies and may they all be healthy as possible.

Genetic Diversity

Yet another publication had highlighted the need to increase genetic diversity in a mammalian species – the southern Plains bison in the Texas panhandle. I have taken excerpts below directly from the article in the Atlanta Journal Constitution, March 25, 2011 (http://www.ajc.com/news/nation-world/ted-turners-bison-help-885608.html)

Six years ago, inbreeding threatened to destroy the last herd of southern Plains bison. Only 53 were left, and breeders were having trouble getting females to carry their calves to term. Tests showed that unless something was done to increase the diversity of genes in the historic herd, all the animals would be gone within 50 years.

The herd that exists today was started in the 1880s by Charles Goodnight, one of the most prosperous cattlemen in the American West…. At its peak, the herd numbered 250. It was donated to the state in 1997 and moved to Caprock Canyons State Park, which was once part of Goodnight's JA Ranch in the Texas Panhandle.

The rescue effort to save the herd began after pregnancy tests showed that 15 of the 18 adult females were pregnant in the fall of 2001. By spring, only five calves survived. The rest were either miscarried or died shortly after birth. Disease and genetic problems, such as chromosomal defects, were ruled out. But as part of another project, Derr and another researcher were already

sampling DNA from the federal bison herds throughout the United States. They knew how much genetic variation there should be in a typical herd, and they found the Texas animals had significantly less.

With no new genes entering the herd in 120 years, the researchers concluded it suffered from inbreeding and would probably die out in 50 years if nothing was done to save it. The researchers turned to Ted Turner, who owns the largest private bison herd in the world with about 55,000 head on 14 ranches in seven states. Nationwide, there were about 223,000 bison in 2007.

Turner's animals were important because they had plenty of genetic diversity but weren't hybrids of cattle and bison or infected with contagious diseases, such as such the brucellosis afflicting many of Yellowstone National Park's bison.

One of Turner's bulls never mated, but the two others provided the genetic diversity the Texas herd desperately needed. Together, they have sired 21 calves. Today, the Texas herd has 38 cows and 37 bulls, and more are on the way. Eleven females are pregnant and will give birth this spring. Donald Beard, the Texas park superintendent who manages the herd, said it's in better shape but not yet out of the woods. "We can't set by and let nature run its course yet," he said. "We still have to actively manage the breeding program."

I share this information with you as a backdrop for the value of having a breeder's committee in the BCCA that could lead an innovative educational effort to understand genetic diversity in the Bearded Collie and to what practices can best sustain the breed in the long term.
E. Sell.

BeaCon Voluntary Open Health Registry
Year 10 Report – Abridged for Newsletter

Welcome to BeaCon's Open Health Registry Report for year 10. This is BeaCon's 11th year and the tenth year of reporting health conditions for the breed. BeaCon's directors thank each and every Beardie owner and breeder who has made information on their dogs available through this open health registry. You have made an important contribution to the breed by providing current and future breeders and potential new owners with valuable information.

The complete report is posted at www.beaconforhealth.org. Please see that for more complete explanations of study of the report and additional details on registration stats and certain health topics.

What Dogs May Participate?

⇒ **ALL BEARDED COLLIES** of known parentage
⇒ Deceased or living
⇒ Healthy or with a health problem
⇒ From any country

Who May Submit Information?
Owners with whom the dog lives.
⇒ A co-owner.
⇒ A breeder.

How To Submit Information.
This may be done either by hard copy form or on-line at www.beaconforhealth.org/sqlweb.

Anyone registered can study data in the registry for free. There is a non-public section for those who prefer their dog's information not be public.

Pedigrees and Coefficient of Inbreeding (COI)

Every effort is made to have the pedigree be accurate. As new dogs are entered into the database, a five generation pedigree is generated offline and posted. Owners are notified and asked to confirm accuracy of the pedigree. Breeder's Assistant software calculates a 10 generation COI's which is displayed at the top of each dog's pedigree. These values may differ from those obtained by other pedigree programs due to the algorithm used for calculations.

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. We therefore make every effort to contact owners each year to update their dogs' entry even if it is just to say there has been no change in the dog's health or health clearance status. When studying disease incidence it is important to know that our healthy population for that condition remains healthy or our statistics become less accurate. The disease frequencies in this report apply solely to this particular population of Bearded Collies.

We caution the reader that a sire or dam cannot be assumed to be a carrier of an undesirable genetic trait simply because that health problem is reported in a single progeny. Furthermore, the expression of many genetic diseases may be influenced by environmental factors, many of which are still unknown.

BeaCon encourages breeders to enroll pups in BeaCon's Open Health Registry before they go to their new homes. Having a large number of healthy young dogs to follow over the long term is an optimal resource for determining frequency of diseases in any breed.

Registration Statistics

AKC Registrations – 5 year intervals. For those interested in the stats for each year, please see the complete article on the website.

Geographic Location

The number of owners is 646 and dogs is 1746.

Country	Owners (#)	Dogs (#)	Dogs (%)
USA	365	819	46.9%
UK	99	369	21.1%
Canada	40	107	6.1%
Netherlands	31	93	5.3%
Australia	19	92	5.3%
Germany	27	68	3.9%
Czech Republic	24	67	3.8%
Others	41	131	7.5%
Total	**646**	**1746**	

General Dog Information (1746 Beardies)

Sex and Reproductive Status

These figures are similar to those in past years.

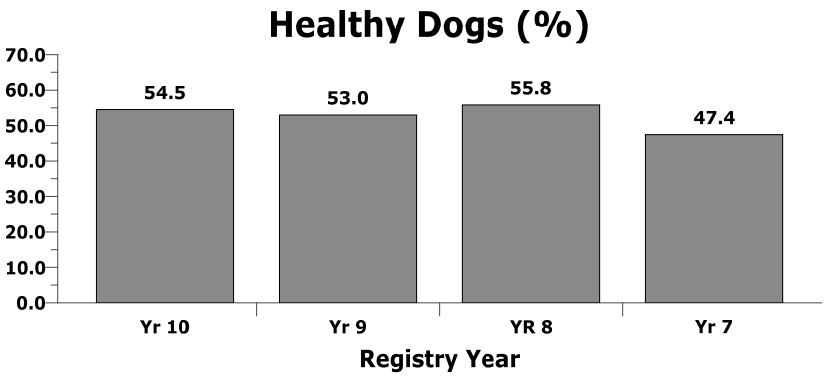
Sex	# Dogs	%
Male	775	44% of total
Intact	439	56.7% of males
Neutered	323	41.7% of males
Unspecified	13	
Female	972	55.7% of total
Intact	488	50.2% of females
Spayed	475	48.9% of females
Unspecified	9	

Deceased

There is a relatively high proportion of the total that is deceased, probably due to the large number of elderly Beardies in the registry and an improved rate of updating this year. There are 449 (25.7%) known to be deceased. Some owners whose dogs are surely dead based on their birthdates have not updated or couldn't be found.

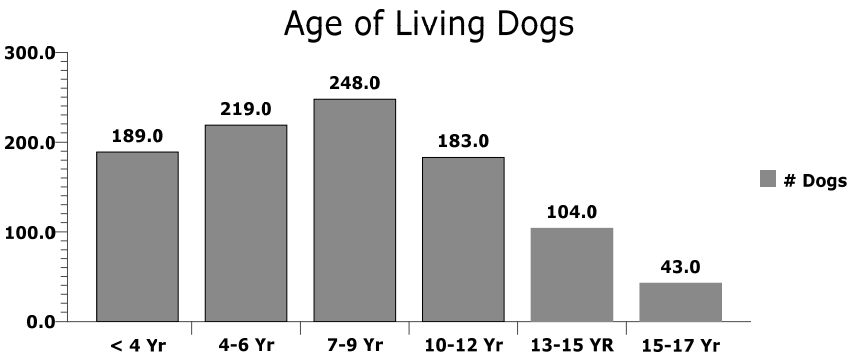
Healthy

The percentage of healthy dogs in recent registry "years" is given in the figure below. 952 (54.5%) dogs have no health issues recorded. Keep in mind both that some owners have not updated and that in recent years more young dogs have been placed into the open registry.



Ages of Live Dogs in Registry

Age of dogs using 2/25/11 as the current date was calculated for 965 dogs below the age of 17 years, updated since 2004, and last recorded as alive. The average age is 8.0 years, minimum is 0.3 year, maximum is 16.0 years. Breakdown by three year groups is given in the chart below:



Health Problems.

Frequency is calculated if there are more than 20 cases. This year, autoimmune diseases replaced fear of loud sounds as the most common problem. The largest increase was SLO and other nail problems no doubt reflecting focus on those problems with the SLO survey the past 2 ½ years. There were several new cases of apparent idiopathic epilepsy and one case of amyloidosis causing kidney failure.

Health Problem	# of Dogs	% of All Dogs
Autoimmune diseases	216	12.4
Fear, loud sharp noises	194	11.1
Hypothyroidism	127	7.3
Cancer (all types)	123	7.1
Umbilical hernia	61	3.5
Hip dysplasia	56	3.2
Cataract	35	2.0
Dietary allergy/food intolerance	34	2.0
Aggression, all types	30	1.7
Atopy	29	1.7
Allergy, flea bite	27	1.6
Fear, other	26	1.5
Depigmentation	25	1.4
Inflammatory bowel disease	25	1.4
Nail problems, other	25	1.4
Teeth, overshot	18	
Hearing loss	18	
Vaccination reaction	17	
Pyometra	17	
Kidney failure	16	
Cryptorchid	16	
Hot spots	15	
Cognitive dysfunction	15	
Monorchid	14	
Hyperactivity	13	
Cushing's disease	13	
Obsessive compulsive	12	
Epilepsy, idiopathic	12	
Exercise induced collapse	8	
Diabetes mellitus	3	

Note: Some cases of depigmentation can be autoimmune in nature (e.g., vitiligo, or associated with lupus or pemphigus). Since there are other causes of depigmentation, it was not placed into the table with autoimmune diseases.

Cataracts. 25 had cataracts and an additional six had punctate cataracts (Category E) – age of onset wasn't given for five and it was over the age of seven in 22 (i.e., related to older age most likely).

The incidence of autoimmune thyroiditis in the open health registry dogs remains unknown; data from OFA labs suggest it is of relatively low incidence – 2.2% of 448 having OFA panels (with 0.9% idiopathic hypothyroidism, 13.2% equivocal, 84.6% normal)..

Cancer diagnoses are listed below (see the online OHR search facility for a look at the less common cancers - select cancer, other). To assure an accurate count, the cancer causes of death are checked against a dog's health problem list. If such a diagnosis had not been added to the health problem list by the owner, it was added by the database administrator.

mammary – 11
nasal – 11
liver - 11
stomach - 9
skin (various types) - 8
bone - 7
spleen – 9
hemangiosarcoma – 5
4 each - fibrosarcoma or sarcoma, abdominal, testicular
3 each - kidney, pancreas (1 was insulinoma), spindle cell
2 each - small intestine, hemangiopericytoma, shoulder adenocarcinoma
1 each - adrenal gland pheochromocytoma, insulinoma, apocrine duct, bronchial, liposarcoma, lymphosarcoma, histiocytoma, throat, thyroid, trichoblastoma beneath ear, lymphoma
others – usually no specific location or "suspect" cancer

The low necropsy rate is low and often either the primary site of the cancer was unknown or the diagnosis was "suspected" cancer. As a result the prevalence of cancer and the individual types within the breed remains uncertain.

Autoimmune (A/I) Disease

The number of individual A/I diseases was 244. The number of dogs having A/I disease(s) was 216, or 12.4% of all dogs. There was a small increase in the number of cases for most diseases this year; the increase for SLO was greater, likely due to the research focus on SLO for the past year and a half. Hypothyroidism is not included in A/I diseases because there is insufficient information available.

Disease	#	% of All Dogs	% of A/I Dogs
Addison's disease (hypoadrenocorticism)	71	4.1	33.3
Symmetrical lupoid onychodystrophy (SLO)	61	3.5	28.3
Inflammatory bowel disease (IBD)	25	1.4	11.6
Autoimmune hemolytic anemia (AIHA)	23	1.3	10.7
Systemic lupus erythematosus (SLE)	18	1.0	8.3
Immune-mediated thrombocytopenia (ITP)	15	0.9	6.9
Rheumatoid arthritis*	13	0.8	6.0
Pemphigus	7		
Discoid lupus erythematosus	7		
Myositis	3		

* These include cases of suspected immune polyarthritis

Twenty-five dogs had more than one disease

18 dogs had 2 A/I diseases

5 dogs had 3 A/I diseases

2 dogs had 4 A/I diseases

Addisonian dogs

16 (22.2%) are hypothyroid

20 (27.8%) have fear of loud sharp sounds

12 (16.7%) have at least one other A/I disease

SLO dogs

6 (9.8%) are hypothyroid

4 have IBD

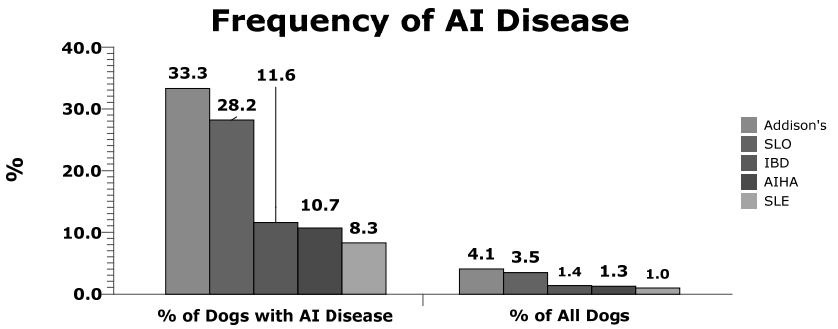
3 each have pemphigus and Addison's

2 have rheumatoid arthritis

1 each has SLE, AIHA, and discoid lupus

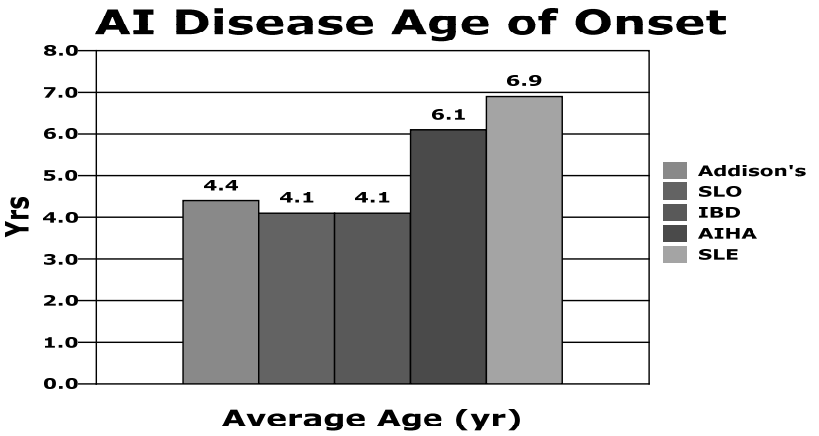
A/I diseases – charts

Frequency of Most Common A/I Diseases



The frequency of the different AI diseases is the same as last year with Addison's disease and then SLO leading the list.

Average Age of Onset of Most Common A/I Diseases



As last year, Addison's, SLO, and IBD had earlier onset than AIHA and SLE.

Health Screening Tests

Screening Test Done	#	% of All Dogs
Hips	669	38.3
Eyes	589	33.0
Thyroid	431	24.7
Elbows	157	9.0
Hips and eyes	346	19.8
Hips and thyroid	203	11.6
Hips and elbow	152	8.7
Hips, eyes, and thyroid	164	9.4
MDR-1	26	
Von Willebrand Disease	11	

The frequency of individual health screening tests and the various combinations were about the same as last year.

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	#	Av
Bitches bred	527	3
Litters produced	472	3
Total puppies produced	2774	23
Total female puppies produced	1194	11
Total male puppies produced	1267	11

Not all breedings resulted in a pregnancy. The number of puppies produced was not listed for some dogs, so the number of total male and female puppies is less than the total number of puppies.

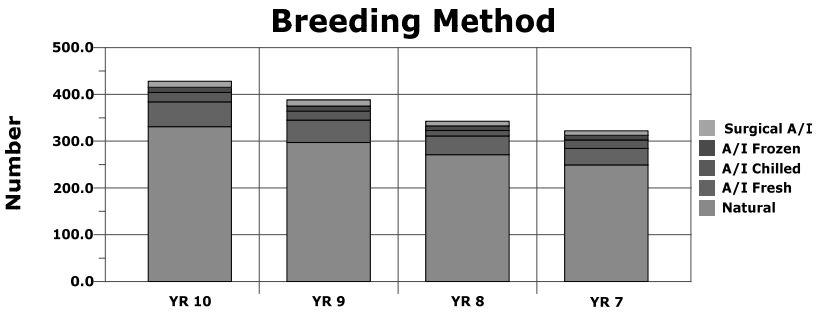
Later Health Problems in Dogs' Progeny.

Health Problem	# dogs producing problem	# progeny with problem
Addison's	8	19
Symmetrical lupoid onychodystrophy	9	14
Systemic lupus ery-thematosus	2	2
Hypothyroid	10	12
Cryptorchid	18	43

Other problems produced were: umbilical hernia 5, heart anomaly type not identified 3, overshot bite 2, and 1 each – monorchid, persistent pupillary membrane, patent ductus arteriosus, immature kidney syndrome, AIHA, transitional vertebrae, low platelets, and myositis. Since the litter is the responsibility of the bitch owner, it is important for them to understand the need for a diagnosis if the problem is identified in the neonatal period. For example, heart anomaly is less meaningful whereas patent ductus arteriosus is a specific diagnosis and therefore, of greater value.

Bitches. 286 bitches were successfully bred; with 498 litters and 3059 pups produced. Cesarean section delivery was done in 50 (10.0%).

Breeding Methods Resulting In Live Pups.



	YR 10	YR 9	YR 8	YR 7
Natural	331	297	271	249
A/I Fresh	53	48	40	35
A/I Chilled	20	19	12	18
A/I Frozen	11	11	10	10
Surgical A/I	13	13	10	10

Additionally, there were 13 (2.2%) bred with a combination of natural and A/I fresh. In recent years, 75% or more of breedings were natural.

Progeny and Early Identifiable Issues

Male pups		
	#	% of total
total born	1587	-
live born	1463	92.2%
live @ 6 wks	1357	85.5%
		% of those alive at 6 weeks with
cryptorchid	79	5.4%
mismark	65	4.8%
umbilical hernia	53	4.9%
bad bite	14	
poor pigment	13	
cleft palate	3	
Female pups		
	#	% of total
total born	1472	-
live born	1374	93.3%
live @ 6 wks	1270	86.2%
		% of those alive at 6 weeks with
mismark	69	5.4%
umbilical hernia	44	4.3%
bad bite	13	
poor pigment	5	
cleft palate	2	

Later Health Problems in Bitchs' Progeny.

Health Problem	**# dams**	**# progeny**
Addison's	12	19*
Symmetrical lupoid onychodystrophy	11	14
Systemic lupus erythematosus	4	4
Hypothyroid	11	13
Other	28	25**

*One bitch produced 6 Addisonian puppies

** Among the other are early, potentially congenital or heritable conditions:

- 6 heart problems (3 PDA; 1 persistent right aortic arch; 1 murmur, diagnosis unknown; 1 heart anomaly, diagnosis unknown)
- 3 exocrine pancreatic insufficiency
- 2 renal dysplasia
- 1 each - hyperthyroid, discoid lupus, autoimmune hemolytic anemia, pyelonephritis (early death at 3 wks), kidney failure (several died as young dogs), myositis, hip dysplasia, ulnar shortening.

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

There were 453 reported deaths, or 26.0% of all dogs in the registry. The average age at death due to all causes was 11.8 years. Necropsies were conducted on 34 (7.5%) of the deceased dogs. 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 67, euthanasia in 342, accidental in 15, and not documented in 28.

The leading causes of death before 9 years of age were autoimmune (n=23) and accidental (n=11). 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), and hopefully elimination of these problems where feasible.

Age Group – 0 to 3 yr

There were 15 deaths (3.3% of total with cause of death recorded).

- Accidental – 3
- Autoimmune – 5 (1 each pemphigus/ SLO, IBD, Addison's, immune mediated polyarthritis, AIHA)
- Aggression, directed at dogs' family – 2
- 1 each intussusception (after hemorrhagic gastroenteritis), meningitis, kidney failure, pyometra, myocarditis

Age Group – 3-7 yr

There were 37 deaths (8.2% of total)

- Autoimmune - 11 (29.7% of age group)
  ⇒SLE – 3
  ⇒AIHA – 3
  ⇒1 each: SLO with aggression due to pain, ITP, Evan's syndrome (ITP & AIHA), Addison's, IBD

⇒Accidental – 5

- Unknown - 4
- Acute renal failure - 2
- Cancer – 4 (10.8% of age group)
- 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

Age Group – 7-9 yr

There were 31 deaths (6.8% of total)

- Autoimmune – 7 (22.6% of age group)
  - ⇒ Addison's – 3 (either primary cause or associated)
  - ⇒ 1 each – autoimmune muscle disease, AIHA, rheumatoid arthritis, SLE
- Cancer – 6 (19.4% of age group)
- Unknown – 5
- Accidental – 3
- 1 each: family aggression, pet food poisoning, rear end paralysis, sepsis, sudden breathing distress, after surgical A/I, pyometra, pancreatitis & kidney failure, renal failure, immune mediate kidney failure,

Age Group – 9-14 yr

There were 217 deaths (47.9%)

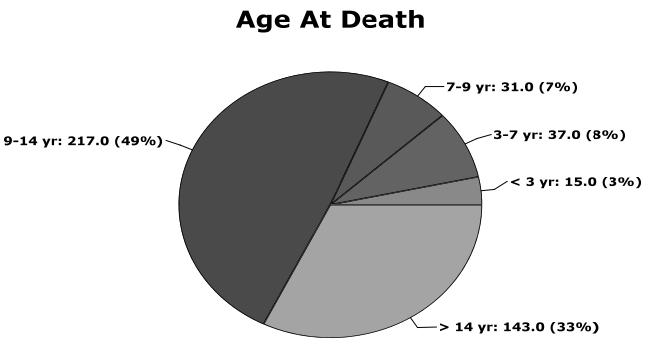
- Cancer 66 (30.4% of age group)
  - ⇒11 - nasal (1 had severe nose bleeds but no confirmed dx)
  - ⇒7 – spleen
  - ⇒6 – liver
  - ⇒4 each – abdominal, hemangiosarcoma
  - ⇒3 each – bone, stomach,
  - ⇒Remainder had only 1 or 2 cases
- Autoimmune – 23 (10.6% of age group)
  - ♦Addison's – 9 (1 with kidney failure)
  - ⇒AIHA – 5 (1 with ITP [Evan's syndrome])
  - ⇒SLE - 3
  - ⇒Diabetes, IBD, pemphigus, rheumatoid arthritis, ITP , discoid lupus– 1 each
- Kidney failure – 10
- Cognitive dysfunction – 6
- Old age – 20 (av age = 13.1 yrs)
- Stroke – 9 (av age = 12.9 yrs)
- Other, unknown, or mostly single diagnoses - 84

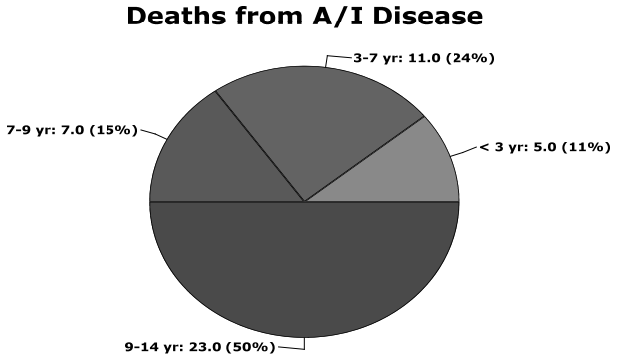
Age Group >14.0 yr

There were 143 deaths (31.6%)

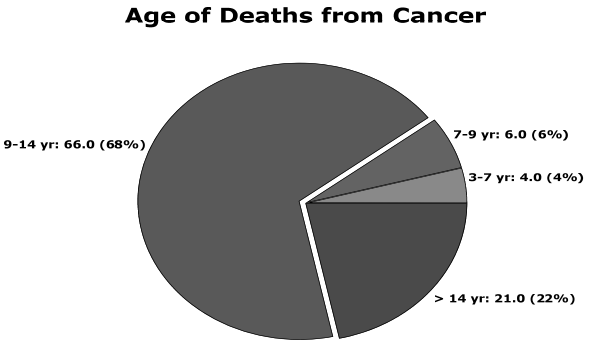
- Old age - 72 (50.3% of age group) (av age 15.2 yrs)
- Cancer – 21 (14.7% of age group)
- Stroke – 8
- Other or unknown – 42

Charts – Age at Death, general; A/I Disease; Cancer





Half of the deaths due to autoimmune diseases occurred prior to 9 years of age.



The vast majority of cancer deaths (90%) occurred in those 9 years and older.

Coefficient of Inbreeding (COI)

The COI values were calculated using the Breeder's Assistant (BA) Pedigree Software for ten generations of ancestors. Further information about COI's and their meaning can be found on the internet and also on BeaCon's web site in the section on open health registry data.

Others using different pedigree software may obtain different COI's for ten generations. All software state that the original Wright's coefficient is used; however, the algorithms used for the COI calculation probably vary slightly to account for the differing values that have been brought to our attention.

The data for the USA 1997 AKC stud book were calculated by trying to use just one dog from each litter so as to represent unique breedings. There were 939 Bearded Collies registered as foundation stock as of October 1, 1976.

Year Report/Other	Coefficient of Inbreeding				
	# dogs	Av	Min	Max	Std dev
USA – 1977 stud book	318	18.3	3.8	40.1	
Year 10					
All dogs	1729	23.3	0	47.5	6.0
USA	809	23.5	11.2	42.8	5.3
UK	248	24.4	0	40.5	6.9
Netherlands	90	20.7	9.2	36.0	5.6
Canada	105	23.9	9.2	47.5	6.5
Australia	92	22.0	12.4	42.1	5.1
Germany	68	20.3	8.9	38.4	6.2
Czech Republic	66	22.0	11.2	47.3	6.1

Research

The SLO survey project is almost completed. Several surveys are pending, several breeders have yet to provide family information, at which point the board will review the data and determine how to proceed. We hope that a research team will be identified, funding found somehow, and the survey data given to a researcher for further analysis.

Bits of Interest

A new test (DLA which stands for dog leukocyte antigen) has been added to the health screen drop down list in the open health registry. DLA was discussed in an article on genetic diversity in the fall 2010 newsletter which is available on the web site.

Addison's Project with Dr. Oberbauer. If your Beardie(s) has a blood or cheek swab sample submitted for DNA with the Addison's project remember you need to update the health record yearly whether the dog is healthy or has had Addison's or has newly diagnosed Addison's; go to: http://cgap.ucdavis.edu/healthupdateform.htm

Addison's Project with Dr. Oberbauer. Although there is no active project, the lab is collecting and storing DNA for future work. If your Beardie has Addison's disease and you haven't yet submitted a sample for DNA, here is the link to get you started - Join the project. Obtain a DNA kit for your Beardie: http://cgap.ucdavis.edu/addison's.htm

SLO – Owners and Breeders.

If you have a dog with SLO or have bred a dog with SLO, BeaCon needs your help. Information is already gathered on 112 Beardies with SLO or SLO like signs and response to treatment. The survey form and information about blood samples for DNA are on BeaCon's home page. Please consider completing a survey, providing family information if you are a breeder, and obtaining blood samples for storage and future research.

E. Sell.

The BeaCon Board of Directors

Elsa Sell - beaconbb@bellsouth.net
Elizabeth Coolidge-Stolz, MD editormom@comcast.net
Cindy Alspaugh stonebaybeardies@yahoo.com
CJ del Valle - mhari@mhari.cnc.net
Linda Aronson - dvm@petshrink.com
Sharon Dunsmore Sharon@k9klubhouse.ca
Karen Drummond - beardiemom@worldnet.att.net
Judy Howard - beardiebunch@gmail.com
Jana Jezkova glenalbyn@gmail.com

Please contact the Board if you have any ideas, questions, problems or wish to participate in any of BeaCon's ongoing projects.

Visit BeaCon on the web at- www.beaconforhealth.org

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"You had measles?"

Editor
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