BeaCon Voluntary Open Health Registry
Year 10 Report
March 15, 2011

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. For those who only put in their healthy dogs and don't report those with health problems, please reconsider for the sake of future generations.

Participation

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 (consent from primary owner is needed before the dog's record is public).
- A breeder. Starting in the spring of 07, a breeder may also submit information. In the case of a breeder entering pups in a litter prior to sale, if their contract notes the pup is in BeaCon's open registry that suffices as consent. Otherwise consent from the primary owner is needed before the dog's record is public.
- Primary owners whose co-owner refuses to let a dog be in the open health registry can still enter the dog in a non-public section (started 2008). This is done by entering a co-owner name in the appropriate field. Such dogs' data will remain private; they cannot be found in searches or reports of the database. Those dogs' individual data will be included in the general tabulation of data, such as the number of dogs with a particular disease, ages, causes of death, etc.
- Breeders who enter a sire or dam can indicate if the dog has produced a disease in offspring. This policy was started in year 3 because breeders are not always able to convince their puppy buyers to participate in the open registry. Dams producing progeny with a disease can have the number of cases and the litter (s) indicated. Sires producing progeny with a disease may have the number of cases indicated. The name of a dog with the specific disease produced cannot be listed without permission of the owner.

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

Documentation.
No changes have been made from previous years. Copies of health screening test results are requested. This is especially important for dogs from countries other than the USA.

Health screening tests that have not been submitted for publication in to another registry (.e.g., CERF) can be included in BeaCon's registry. However, a copy of the documentation form should be sent to BeaCon.

Updating.
Reminders are sent each calendar year to owners of all living dogs in the registry as of the most recent data entry.   Updating should be done yearly, even if the dog has had no changes. You can also update whenever there has been a change in your dog's health or new health screens done – at any time.

Newer Features

- ➢ Starting in 2009 the search and report function of the OHR became free to anyone who is registered, starting March 2009. Currently there are 176 registered users who do not have dogs in the open registry.
- ➢ Since Fall 2008, there is a non-public section if an individual prefers that their dog's information not be in the public view or when a co-owner refuses to give the primary owner permission to put the dog into the open registry. "Non-public" entries are collated in the yearly statistics only and are not available to the search and report functions. This year there are 34 dogs in the non-public section.

The Value of Large Numbers of Participants

- ➢ A large number gives a more comprehensive view of the extent of health problems in the breed because disease frequency is determined by the number of both affected and normal dogs.
  - o For example, if there are 57 dogs with Addison's in a total of 916 dogs, the frequency of Addison's is 5.9%, but if the total number of dogs is 1800 dogs, the frequency of Addison's diseases drops to 3.1%.
- ➢ To provide whole family information which breeders can use for relative-risk pedigree analysis in diseases that are autosomal recessive.
- ➢ To provide data for researchers.
- ➢ To allow prospective puppy buyers data on the health conditions affecting Bearded Collies and their prevalence which may enable them to make more informed choices, or at least know what questions to ask breeders.

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. Data for pedigrees come from many sources including pedigrees submitted by owners and online databases.   With the advent of the on-line registry system, fewer hard copy pedigrees have been submitted; thus the dependence on other sources. Pedigrees are generated with Breeder's Assistant. If an error is found in a pedigree, please notify E. Sell (beaconbb@bellsouth.net) with the correct information.

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.

COI's can be calculated by hand, but it is complex; various online sites describe how to do this. It isn't complex if one uses a pedigree software program with the built in calculation.   Breeder's Assistant software is used to calculate 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.

Resistance and Dilemmas

Uncertainty about entering dogs into this open health registry will always exist. Some are fearful that a breeder and his/her kennel will be maligned. BeaCon's board encourages owners and breeders alike to give consideration to balancing such fear with the importance of establishing a record of the breed's health.

New breeders in particular face the dilemma of having limited amounts of data on which to make an informed decision about what would constitute a good pairing. One can go to the various registries for information such as the OFA web site or CERF, but it should be understood that the appearance of a dog in one of these registries does not automatically indicate that the dog has normal results. If the dog is not listed, then a copy of the original test results should be requested. The BeaCon Open Health Registry should not be used as a definitive source for test results as individuals can enter data and may not send verifying data to the administrator.

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 up-date 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. Until the majority of 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.

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.

Geneticists believe the following circumstances are indicative of heritability:
- Relatively frequent occurrence of the disease
- Mating a sire and dam several times results in the same health problem in more than one litter.
- Mating a dog or bitch with different mates results in the same health problem in several litters.

If several dogs from the same kennel are reported with the same problem, you cannot assume that the problem occurs with high frequency. You have to know the status of the other dogs from that kennel before making any assessment regarding prevalence. This means that full participation by a breeder is important, rather than selectively entering certain dogs in the registry.

Many hereditary problems, other than those transmitted by an autosomal dominant mode of inheritance, involve healthy parents, one or both of whom are carriers of the genes responsible.

Information that a particular dog or bitch has produced a problem is vital to any breeder. This is especially critical for novice breeders just establishing their programs because they are least likely to have a good network for finding and verifying such information.

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.

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.

Notice of Copyright

Respectfully submitted, the Board of Directors for the Bearded Collie Foundation for Health (BeaCon)

        Cindy Alspaugh
        Linda Aronson
        Denise Barley
        Elizabeth Coolidge-Stolz
        CJ del Valle
        Karen Drummond
        Judy Howard
        Jana Jezkova
        Elsa Sell

March 15, 2010

# Registration Statistics for Beardie Collies, Litters, and Pups

USA registration data begin with 1977 when the breed was recognized by AKC. The decline in number of USA litters and number of pups in registered litters from 2002-2006 was statistically significant.

1) In 2010 the number of registered litters, pups in litters, and dogs was slightly lower than for 2009, and still below the 1977 numbers.
2) Denise Barley provided the UK figures.

Year	USA - AKC					UK - KC		
	# Dogs Registered	# Litters Registered	# Pups in Litters	Av # pups/ Litter		# Registered	# Litters	av# pups per litter
2010	321	79	430	5.4		572	95	6.0
2009	331	84	463	5.5		528	90	5.9
2008	393	82	421	5.1		643	113	5.7
2007	413	110	603	5.5		606	98	6.2
2006	447	90	537	5.2		720	119	6.1
2005	485	109	658	6.0		650	113	5.8
2004	562	150	842	5.6		821	129	6.4
2003	543	154	897	5.8		668	109	6.2
2002	587	159	943	5.9		901	140	6.4
2001	620	165	953	5.8		721	121	6.0
2000	682	183	1031	5.6		952	150	6.4
1999	614	196	1202	6.1		1034	175	5.9
1998	752	175	1077	6.2		1119	179	6.3
1997	711	197	1249	6.3		1286		
1996	720	178	1031	5.8		1318		
1995	762	186	1105	5.9		1467		
1994	640	177	1057	6.0		1337		
1993	749	157	912	5.8		1506		
1992	766	182	1092	6.0		1575		
1991	796	194	1162	6.0		1621		
1990	700	181	1062	5.9		1715		
1989	713	185	1128	6.1		1945		
1988	817	190	1175	6.2				
1987	760	184	1098	6.0				
1986	797	185	1175	6.4				
1985	858	191	1253	6.6				
1984	858	209	1330	6.4				
1983	895	201	1190	5.9				
1982	763	196	1257	6.4				
1981	723	172	1095	6.4				
1980	653	155	909	5.9				
1979	588	127	782	6.2				
1978	472	111	684	6.2				
1977	446	85	496	5.8				
1976	-	-	-	-				

AKC Registrations – 5 years Intervals
For those interested in the figures for each year, refer to the previous table.

AKC Registration of Bearded Collies
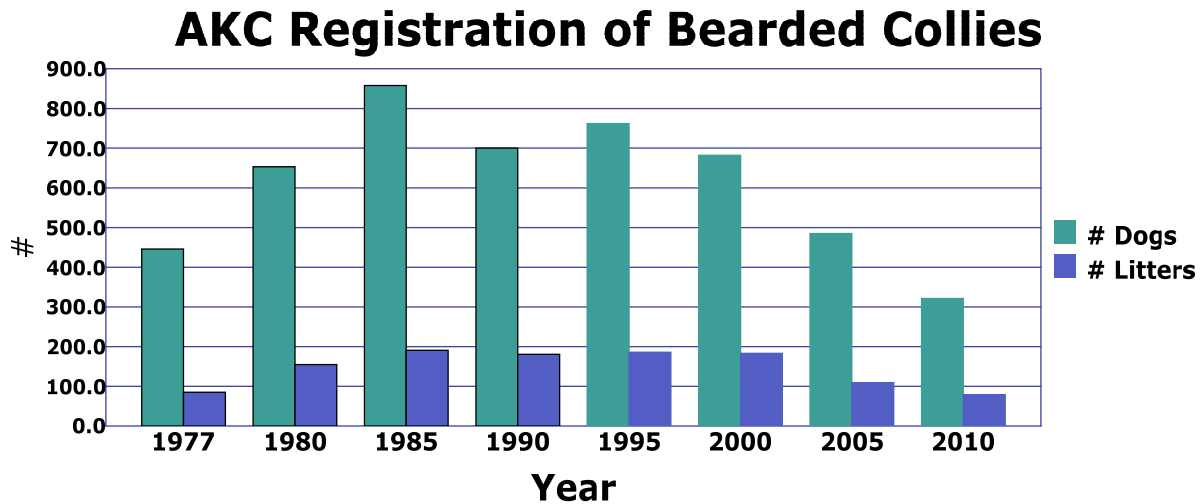
THE OHR – Owners, Dogs and Registry Years

Number of Owners and Dogs
There are 606 participating owners, an increase of 40 from last year, and 1746 Beardies, an increase of 176. 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. The following table shows the cumulative participation over the years.

Year	# Owners	# Dogs	Dogs added	Months Included
1	169	303	-	July 00 – Aug 01
2	205	410	107	Sept 01 – Nov 02
3	278	593	183	Dec 02 – Nov 03
4	315	678	85	Dec 04 – Nov 05
5	357	808	130	Dec 05 – Jan 06
6	410	961	153	Feb 06 – Feb 07
7	491	1203	242	Mar 07 – Mar 08
8	560	1426	223	Mar 08 – Mar 09
9	606	1570	144	Mar 09 – Mar 10
10	646	1746	176	Mar 10 – Feb 11

Geographic Location

These are arranged in descending order by number of owners in a country.

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**	

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

Country Contribution of Dogs.

Location of Dogs

USA: 819.0 (47%)
Others: 131.0 (8%)
Czech Republic: 67.0 (4%)
Germany: 68.0 (4%)
Netherlands: 93.0 (5%)
Australia: 92.0 (5%)
Canada: 107.0 (6%)
UK: 369.0 (21%)
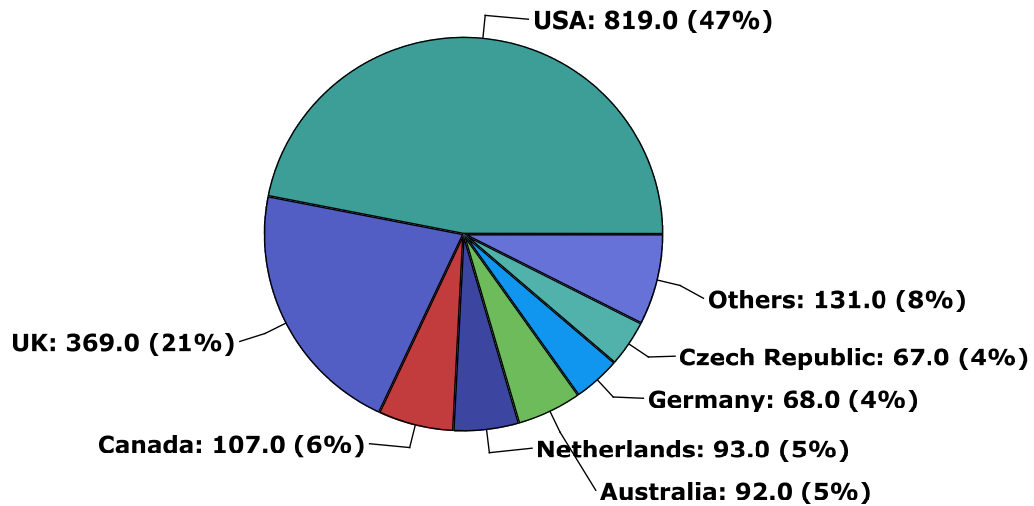
General Dog Information (1746 Beardies)

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.

Healthy Dogs (%)

Registry Year	Yr 10	Yr 9	YR 8	Yr 7
%	54.5	53.0	55.8	47.4
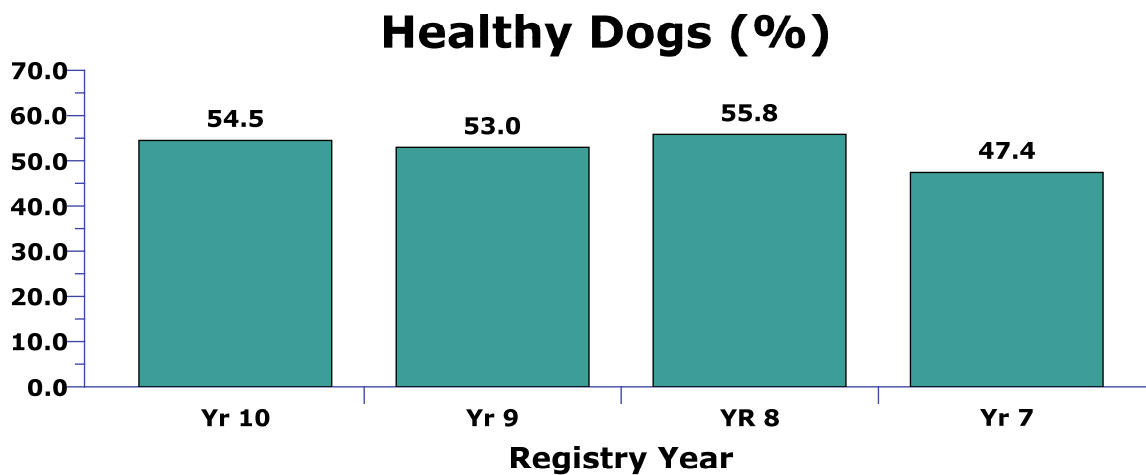
Ages of Live Dogs in Registry

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:

Age of Living Dogs
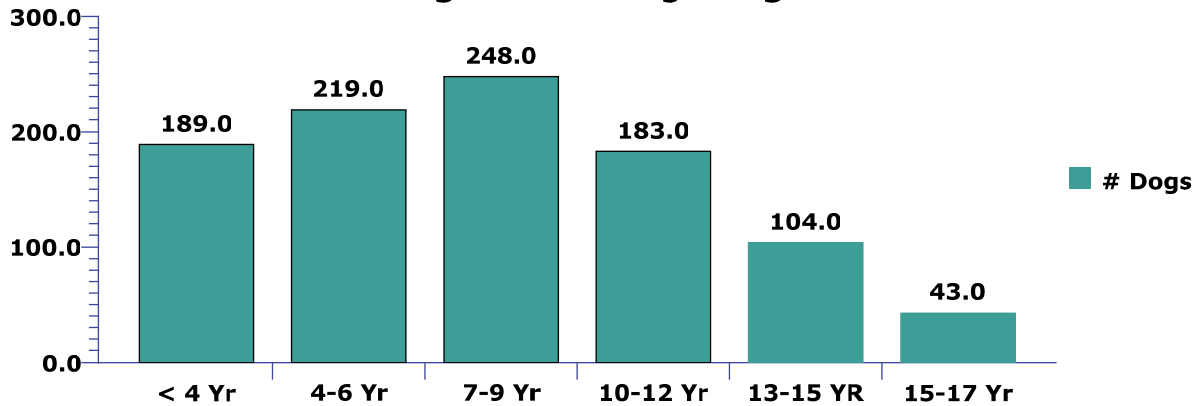
Health Problems.

Frequency is calculated if there are more than 20 cases. Some owners entered health problems only into update notes, so that information was transferred to a health record for a more accurate accounting. Autoimmune diseases replaced fear of loud sounds as the most common problem. There were a few new cases of most problems; 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
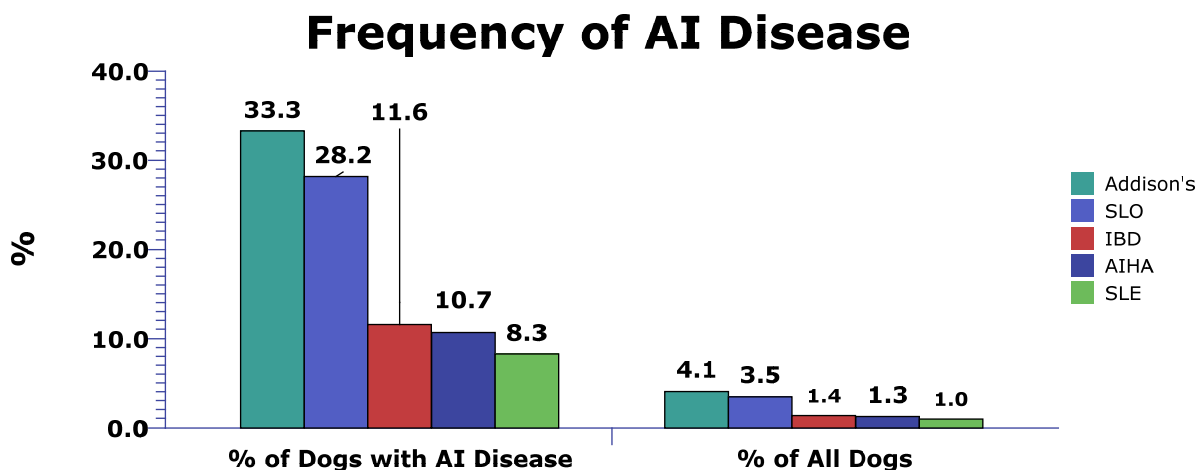   4 have IBD
       3 each have pemphigus and Addison's
       2 have rheumatoid arthritis
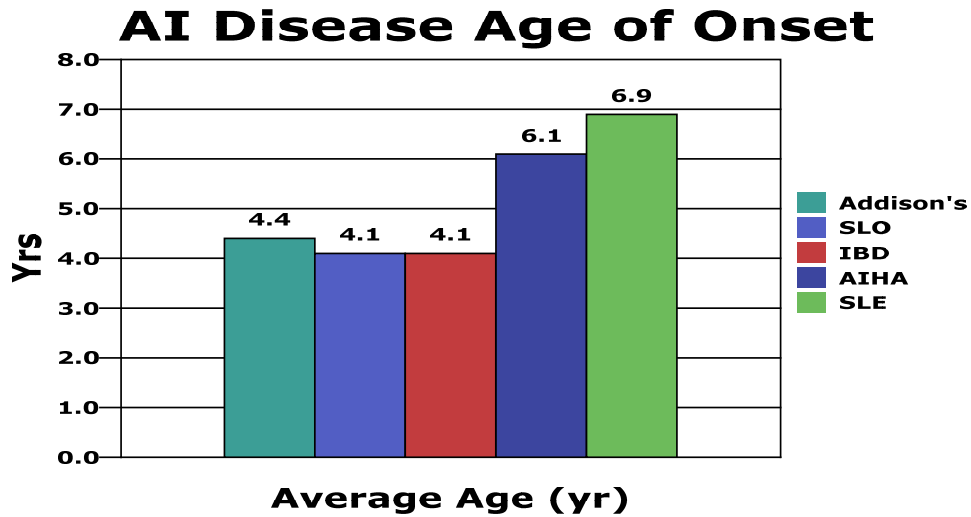   1 each has SLE, AIHA, and discoid lupus

A/I diseases – charts
     Frequency of Most Common A/I Diseases

Frequency of AI Disease

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

AI Disease Age of Onset

Legend: Addison's, SLO, IBD, AIHA, SLE

Bar values (Yrs): 4.4, 4.1, 4.1, 6.1, 6.9

X-axis: Average Age (yr)
Y-axis: Yrs

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 erythematosus	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.

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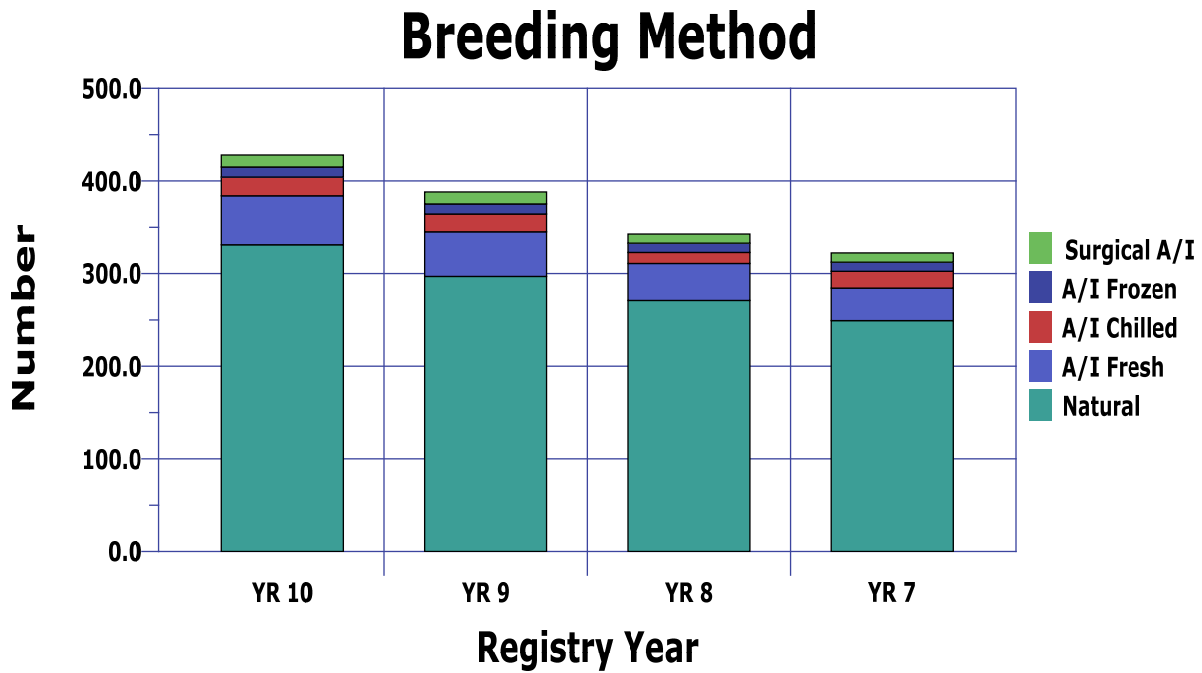
	YR 10	YR 9	YR 8	YR 7
Natural	331	297	271	249
A/I Fresh	53	48	40	35
A/I Chilled	20	19	12	18
A/I Frozen	11	11	10	10
Surgical A/I	13	13	10	10

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 deaths reported; that is 26.0% of all dogs in the registry. The average age at death due to all causes was 11.8 years. Some owners didn't provide information about cause of death. Other dogs may also be deceased but their owners have not responded to update requests.

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.

Owners sometimes provided only month and year, or sometimes only year, for age of death. For those, an estimated exact date of death was assigned by using the first day of the month (if month and year were given) or assigning the date as 1/1/yyyy (if only year was given). In no case did the assignment of estimated exact date of death change the age group that the dog was in for purposes of evaluating causes of death.

Of note were three cases of gastric torsion (1 with stomach cancer) in older Beardies (ages 10.8, 14, and 15 years). Bloat/gastric torsion is very uncommon in Beardies; its occurrence in the older dog should alert owners to be aware of the signs and to seek emergency care immediately.

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

<u>Age Group – 7-9 yr</u>
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,

<u>Age Group – 9-14 yr</u>
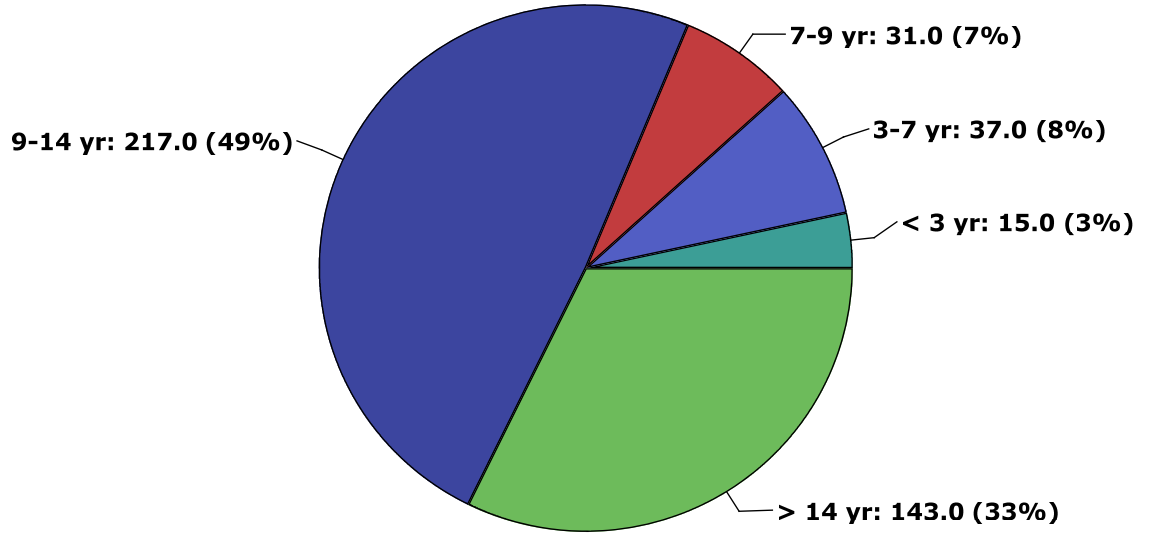There were 217 deaths (47.9%)
- Cancer 66 (30.4% of age group)
  - 11 - nasal (1 had severe nose bleeds but no confirmed dx)
  - 7 – spleen
  - 6 – liver
  - 4 each – abdominal, hemangiosarcoma
  - 3 each – bone, stomach,
  - Remainder had only 1 or 2 cases
- Autoimmune – 23 (10.6% of age group)
  - 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
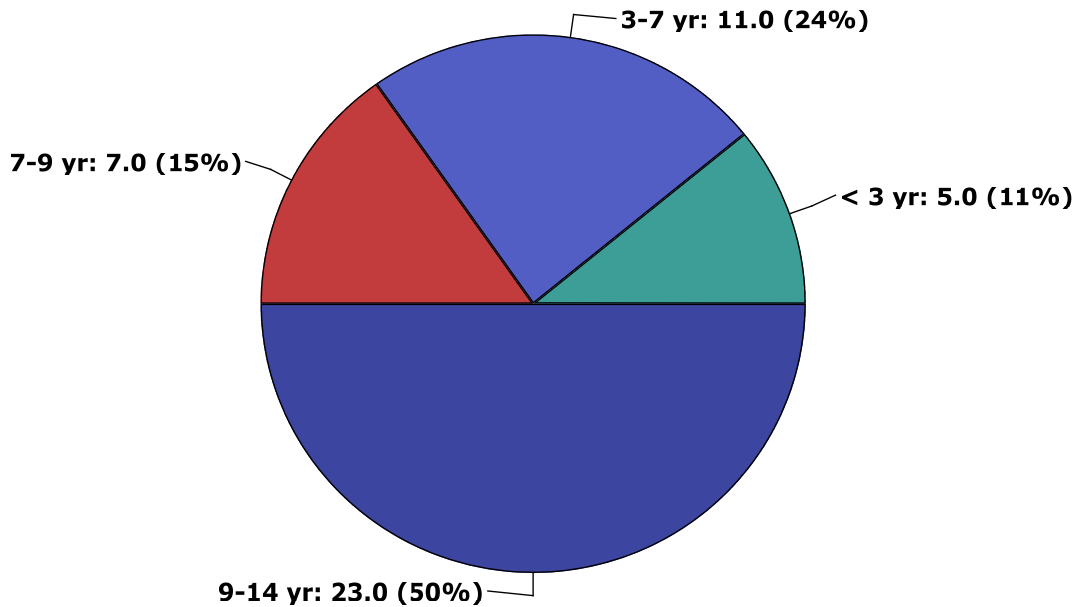
<u>Age Group >14.0 yr</u>
There were 143 deaths (31.6%)
- Old age - 72 (50.3% of age group) (av age 15.2 yrs)
- Cancer – 21 (14.7% of age group)
- Stroke – 8
- Other or unknown – 42

Age At Death

7-9 yr: 31.0 (7%)

3-7 yr: 37.0 (8%)

9-14 yr: 217.0 (49%)

< 3 yr: 15.0 (3%)

> 14 yr: 143.0 (33%)

Deaths from A/I Disease

3-7 yr: 11.0 (24%)

7-9 yr: 7.0 (15%)

< 3 yr: 5.0 (11%)

9-14 yr: 23.0 (50%)

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

Age of Deaths from Cancer

9-14 yr: 66.0 (68%)

7-9 yr: 6.0 (6%)

3-7 yr: 4.0 (4%)

> 14 yr: 21.0 (22%)
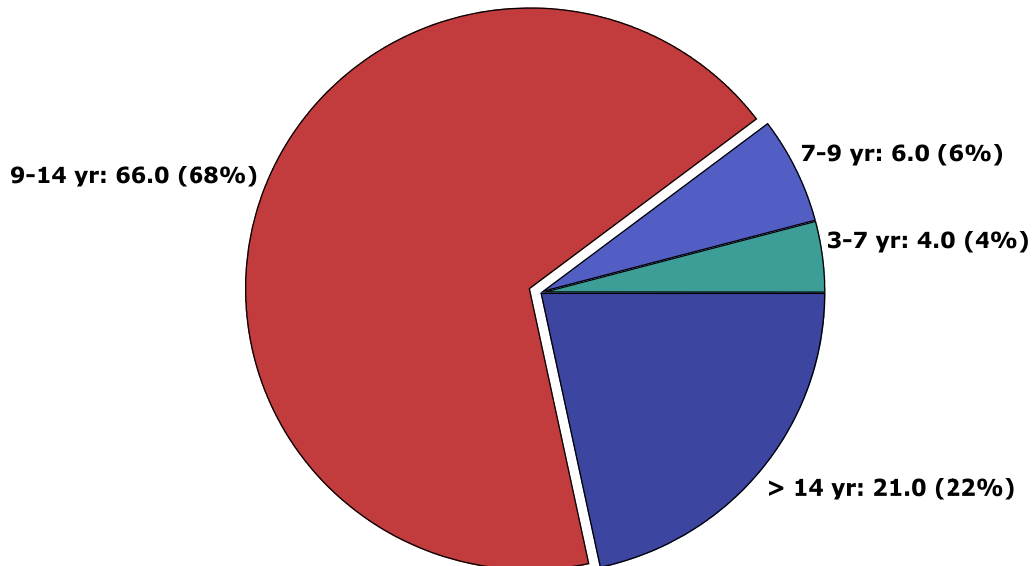
The vast majority of cancer deaths (90%) occurred in those 9 years and older.

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.