BeaCon Voluntary Open Health Registry
Year 8 General Report

Welcome to BeaCon's Open Health Registry Report for year 8. This is BeaCon's 10th year and the eighth year of reporting health conditions for the breed.

Resistance to entering dogs persists due to fears that a breeder and his/her kennel will be maligned. That is a very real fear and it demonstrates how far the Beardie community has yet to travel before the breed's health becomes the highest priority for everyone.

This dilemma needs to be addressed because the number of AKC registered litters of Bearded Collies breed continues the steady decline that began in 2002. Consider the following:

- A 5.2 point higher average coefficient of inbreeding (10 generations) of USA registry dogs compared with original USA foundation stock
- The phenomenon of the popular sire use which lowers genetic diversity over generations (http://www.beaconforhealth.org/Popular_Sire.html

New breeders in particular face limited amounts or selectively offered information from which to make informed decisions that should include known health concerns. If you are a new breeder make sure that you ask to see the original health screening certificates for proposed mates. You can also check these certifications on the OFA Web site (www.offa.org) by entering a dog's AKC registration # or registered name. If you don't find the expected certification for a dog of breeding age it is prudent to suspect that the dog failed to meet the standard for that test. If the prospective mate has a CHIC #, be aware that the tests needed to obtain a CHIC # do not have to be normal; you must ask to see the certificates (or do the online check). If you are in a country other than the USA and do not have on-line access to verify test results, then you should ask to see the certificate or letter or form with evaluation results.

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 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.

New Features of the Open Health Registry

1. **Starting March 2009, the use of search and report functions for the database is free. There is no long a subscription charge for either registry participants or non-participants.**
2. **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 in the open registry. "Non-public" entries will be collated in the yearly statistics only. This year there are 45 dogs listed in the non-public section.**

Who May Participate?

- **ALL BEARDED COLLIES** of known parentage
- Deceased or living
- Healthy or with a health problem
- From any country
- The primary owner, a co-owner, or a breeder (as of spring 07) may submit information, but written consent is always required from all the owners.

Why Are Healthy as Well as Those with Health Problems Important?

- The largest number possible is needed to give a complete picture of the extent of wellness or health problems.

- To allow calculation of disease incidence. There need to be enough dogs to calculate disease frequencies that are applicable to the general population of Beardies, not just those in the open registry.
    - For example, if there are 57 dogs with Addison's in 916 dogs, the frequency of Addison's is 5.9%. If the total number of dogs is 1800 dogs with the same number of Addisonians, the frequency 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.

Who May Submit Information

- Owners with whom the dog lives.
- A co-owner. The primary owner (defined as the person with whom the dog lives) must send in a signed consent for the information to be public.
- A breeder. Starting in the spring of 07, a breeder may also submit information. The primary owner must send in a signed consent. 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.
- Breeders who enter a sire or dam into the registry 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. It is vital to know about certain health conditions in offspring. Because of ongoing research projects, diseases of special interest are Addison's, symmetrical lupoid onychodystrophy, systemic lupus erythematosus, and hypothyroidism. Any disease can be noted in the "other" category; e.g., autoimmune hemolytic anemia, immune-mediated thrombocytopenia, polyarthritis, or a heart condition. Dams producing a disease can have the number of cases and the litter (s) indicated. Sires producing a disease may have the number of cases indicated. The name of a dog with the specific disease produced cannot be listed.
- New procedure – fall 2008. 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. 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 used for general tabulation of data, such as the number of dogs with a particular disease, ages, causes of death, etc.

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. We attempt to validate the information for USA dogs through the on-line registry databases (OFA or CERF). When that is not possible, it is so noted in the dog's report.

Health screening tests that have not been submitted to another registry can be included in the registry. Preferably, a copy of the documentation form is sent to BeaCon; e.g., a copy of the CERF ophthalmologists' exam for an eye exam.

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.

If you have entered a diagnosis which is later changed, contact beaconbb@bellsouth.net with the new information, or log in to your account and make the change yourself.

Pedigrees and Coefficient of Inbreeding (COI). Every effort is made to be accurate in the pedigrees. 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 were submitted; thus the dependence on other sources. Pedigrees are generated with Breeder's Assistant, starting in January 2006. 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. The Breeder's Assistant software was used to calculate 10 generation COI's for the OHR.

Use of Data and Caveats. Viewers of the open health registry data are responsible for interpretation and use of the information. 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 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
- When mating a sire and dam several times results in the same health problem in more than one litter.
- When a dog or bitch mated 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.

Respectfully submitted, the Board of Directors for the Bearded Collie Foundation for Health (BeaCon)
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March 15, 2009

How Many Beardie Collies are Born in the USA?
This year for the first time we include a table showing several sets of figures about the numbers of Beardies in the USA. The data start with 1977 when the breed was recognized by the AKC. All data come from AKC reports; some are standard reports and some are special reports. The decline in number of litters and number of pups in registered litters from 2002-2006 was statistically significant, as reported in Lighting The Way (spring 2007).

Since the number of dogs registered with AKC in a given year may include imported dogs, as well as USA dogs born late in the prior year, we also have the number of foreign born, AKC registered dogs. The registration system in the USA leaves it up to a puppy buyer to register their dog. Unless AKC adopts a procedure similar to the UK (where breeders register individual pups – that is not left to the puppy buyer), the AKC dog registration figures won't be an indicator of the number of dogs born here.

In 2007 the number of USA born and registered Beardies (405) was very near that in 1977 (397) – 30 years previous. There is some relief to be found in this seemingly distressing decline from two sources:
(1) AKC dog registrations for most breeds have been declining in recent years; however the relative rank of the breed has dropped dramatically as well.
(2) In 2008 both the number of registered litters and number of pups in litters were below the 1977 numbers.

Year	# Dogs Registered*	# Foreign Born Registered	# USA Born Dogs Registered	# USA Litters Registered	# Pups in USA Registered Litters	Av # pups Per registered USA Litter
2008	393	-	-	74	403	5.3
2007	413	8	405	105	603	5.5
2006	447	30	417	103	537	5.2
2005	485	29	456	118	658	6.0
2004	562	28	534	142	842	5.6
2003	543	15	528	161	897	5.8
2002	587	20	567	186	943	5.9
2001	620	27	593	142	953	5.8
2000	682	29	653	196	1031	5.6
1999	614	29	585	178	1202	6.1
1998	752	30	722	188	1077	6.2
1997	711	30	681	196	1249	6.3
1996	720	58	662	171	1031	5.8
1995	762	49	713	189	1105	5.9
1994	640	37	603	160	1057	6.0
1993	749	26	723	166	912	5.8
1992	766	26	740	185	1092	6.0
1991	796	47	749	203	1162	6.0
1990	700	32	668	172	1062	5.9
1989	713	34	679	182	1128	6.1
1988	817	32	785	206	1175	6.2
1987	760	28	732	177	1098	6.0
1986	797	23	774	187	1175	6.4
1985	858	23	835	189	1253	6.6
1984	858	23	835	208	1330	6.4
1983	895	22	873	207	1190	5.9
1982	763	20	743	193	1257	6.4
1981	723	28	695	158	1095	6.4
1980	653	35	618	156	909	5.9
1979	588	31	557	132	782	6.2
1978	472	29	443	98	684	6.2
1977	446	49	397	89	496	5.8
1976	-	135	-	-	-	-

*This number includes dogs born in USA and foreign born dogs until 2008.

THE OHR This Year – A Quick Look.

There are 560 participating owners, an increase of 69 from the previous year, and 1426 Beardies, an increase of 223. There is little change in the frequency of the most common health problems; fear issues and autoimmune problems continue to lead the list. The frequency of health screens is little changed. Puppy mortality is about 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
1	169	303	-
2	205	410	107
3	278	593	183
4	315	678	85
5	357	808	130
6	410	961	153
7	491	1203	242
8	560	1426	223

Definition of Registry "Years"

- Year 1. July 2000 – Aug 2001
- Year 2. Sept 2001 – Nov 2002
- Year 3. Dec 2002 – Nov 2003
- Year 4. Dec 2004 – Nov 2004
- Year 5. Dec 2005 – Jan 2006
- Year 6. Feb 2006 – Feb 2007
- Year 7. Mar 2007-Mar 15, 2008
- Year 8. Mar 16, 2008-Mar 6, 2009

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Cumulative Report for Year 8

Contents

Demographic Data for Complete Open Health Registry

Item	#	
Owners	560	
Australia	11	
Belgium	6	
Canada	32	
Czech Republic	18	
Denmark	2	
Finland	11	
France	1	
Germany	21	
Hungary	2	
Ireland	1	
Netherlands	29	
New Zealand	3	
Portugal	1	
Scotland	2	
Slovakia	1	
South Africa	3	
Spain	1	
Sweden	1	
United Kingdom	83	
USA	328	
Not indicated	3	
Dogs	1426	
Location		% of total dogs
USA	712	50.0%
UK, Scotland	298	20.9%
Netherlands	82	5.8%
Canada	76	5.3%
Australia	53	3.7%
Germany	51	3.7%
Czech Republic	44	3.1%
Finland	36	2.5%
Belgium	21	1.5%
Others	53	3.7%
Sex - male	645	45.1% of all dogs
intact	365	56.5% of male dogs
castrated	268	41.6% of male dogs
unknown	12	
Sex - female	781	54.8% of all dogs
intact	390	49.9% of female dogs
spayed	380	48.7% of female dogs
unknown	11	

Health Problems. A higher percent of dogs were healthy this year, 55.8% vs. 47.7% for year 7. This reflects an increased entry of younger dogs, and some of these were put into the registry as young pups before going to their new owners. Frequency of specific health problems is reported if there are more than 20 cases. Some owners entered health problems only into update notes; all effort has been made to also create a health problem record from the update notes for a more accurate accounting.

A caveat for both the healthy dog and disease frequencies is that they apply to this specific population of Bearded Collies. It won't be possible to speculate if the findings are applicable to the broad population of Beardies until several thousand more dogs are in the registry.

Health Problem	**# of Dogs**	**% of All Dogs**
None	759	53.2%
Fear, loud sharp noises	174	12.2%
Autoimmune diseases (see table below)	171	12.0%
Hypothyroidism*	103	7.2%
Cancer (all types)***	89	6.2%
Umbilical hernia	60	4.2%
Hip dysplasia	49	3.4%
Fear, other	32	2.2%
Dietary allergy/food intolerance	30	2.1%
Atopy	28	2.0%
Allergy, flea bite	25	1.8%
Depigmentation**	23	1.9%
Nail problems other than lupoid onychodystrophy	23	1.9%
Inflammatory bowel disease	20	1.4%
Teeth, overshot	18	
Vaccination reaction	17	
Cognitive dysfunction	16	
Cryptorchid	14	
Hot spots	14	
Hyperactivity	12	
Cushing's disease	12	
Monorchid	12	
Kidney failure	11	
Stroke	10	
Epilepsy, idiopathic	9	
Exercise induced collapse or hyperthermia	8	
Diabetes mellitus	2	

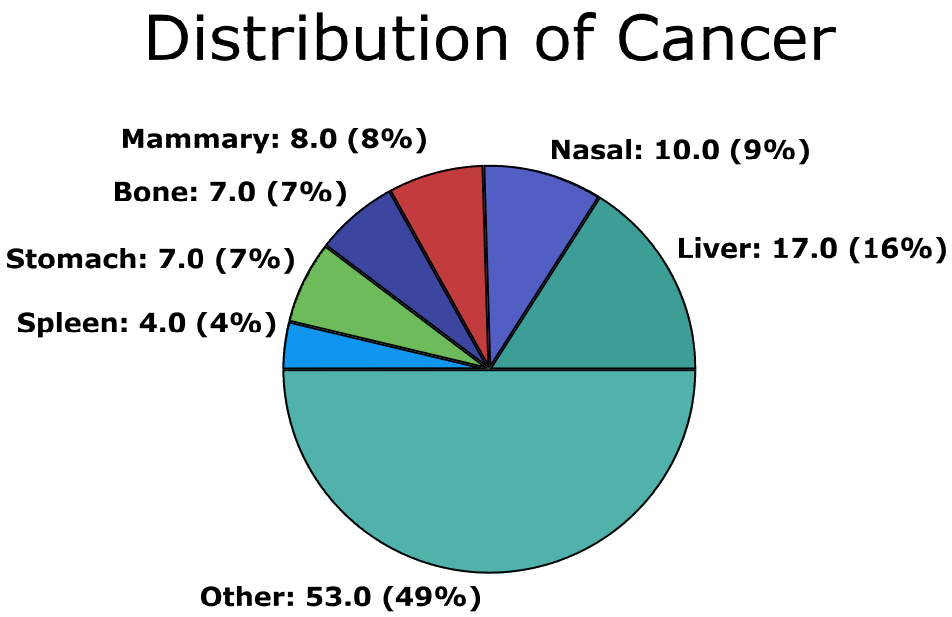
* The incidence of autoimmune thyroiditis in the open health registry Beardies is unknown; data from OFA labs suggest it is of relatively low incidence – 1.5% of 333 having OFA panels; 4.3% of 793 having panels done at the Michigan State University Lab. However, most of these dogs are being screened for reproductive fitness.

****** 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.

** Cancer diagnoses were:

nasal in 10
liver in 17
mammary 8
bone, stomach - 7 each
spleen 4 (plus 1 of liver and spleen)
hemangiosarcoma, kidney, testicular – 3 each
abdominal – 2
other - 42

The reader is referred to the online OHR search facility for a look at the less common cancers (select cancer, other)



Unfortunately, with the low necropsy rate and the fact that either a primary site is unknown or the diagnosis was "suspected" cancer, we lack sufficient data to identify the most prevalent cancers in the breed.

Autoimmune Problems (# diseases = 193; # dogs having diseases = 171, or 12.0% of all dogs). Although the frequencies appear to be unduly high in this population of Bearded Collies (i.e., in the open health registry), it is not known if the figures are applicable to the general population of Bearded Collies worldwide. That will remain unknown until a much larger number of dogs are in the registry.

Disease	#	% of All Dogs	#(%) with > one A/I disease**
Addison's disease (hypoadrenocorticism)	65	4.6%	11(16.9%)
Symmetrical lupoid onychodystrophy (SLO)	38	2.7%	6 (15.8%)
Inflammatory bowel disease (IBD)	20	1.4%	5 (25%)
Autoimmune hemolytic anemia (AIHA)	18	1.3%	5 (27.8%)
Systemic lupus erythematosus (SLE)	17	1.2%	6 (35.5%)
Rheumatoid arthritis*	11	1.0%	5 (45.5%)
Pemphigus	7		3 (42.9%)
Immune-mediated thrombocytopenia (ITP)	9		5 (55.6%)
Discoid lupus erythematosus	4		2 (50%)
Myositis	3		1 (33%)

* These include cases of suspected immune polyarthritis

**This does not include hypothyroidism because thyroid panels were not commonly in use earlier in the registry

22 dogs had more than one disease:

- 17 dogs had 2 A/I diseases
- 3 dogs had 3 A/I diseases
- 2 dogs had 4 A/I diseases

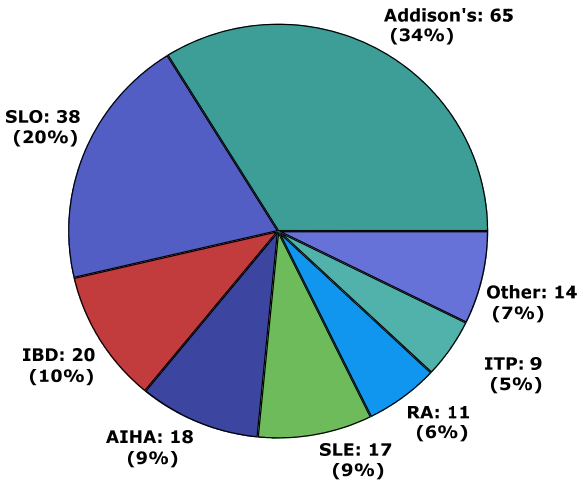
Addisonian dogs

- 15 are hypothyroid
- 20 have fear of loud sharp sounds (30.8%)
- 11 (16.9%) have at least one other A/I disease

SLO dogs

- 3 have pemphigus
- 2 are hypothyroid
- 1 has systemic lupus erythematosus

Distribution of Autoimmune Diseases



Research on Autoimmune Disease. The two most frequently reported A/I diseases are the subject of several research projects. The investigator responsible (Dr. Anita Oberbauer, UC Davis) for past Addison's research will in the very near future have 2 small grants administered by AKC CHF and funded by the BCCA and BeaCon. To date no genetic marker(s) have been identified, although statistical analysis showed that the disorder is polygenic with a single gene of large effect on expression of the disease with a recessive mode of inheritance. **The fact that this was a statistical approach makes it imperative that any dog's medical history be updated yearly in Dr. Oberbauer's database – even a single incorrect diagnosis throws the statistical analysis off.**

There are an another 23 Beardies with a chronic nail problem in addition to the 38 with SLO. BeaCon has begun a survey of Beardies with either SLO or chronic nail problems to establish a baseline of clinical findings and other factors that are possibly associated with SLO expression (e.g., vaccination, allergic problems, stress, family history of similar disease). The first step is to conduct a survey of affected dogs. Next there will be breeder interviews to learn if a similar condition exists in littermates, parents, and other close relatives. We ask all breeders for their cooperation. The third step will be identify and obtain similar clinical information from a group of healthy controls. Finally, all data will be put into a report, along with family pedigrees for study by genetic researchers.

Health Screening Tests

Screening Test Done	#	% of All Dogs
Hips	544	38.2%
Eyes	512	35.9%
Thyroid	371	26.0%
Elbows	110	7.7%
Hips and eyes	288	20.2%
Hips and elbows	106	7.4%
Hips and thyroid	165	11.6%
Hips, eyes, and thyroid	129	9.1%
MDR-1	19	
Von Willebrand Disease	11	

The frequency of individual health screening tests and the various combinations were minimally changed from the previous year, except for an increase in the number having MDR-1 screening. Mutation of the MDR-1 gene results in an inability of the blood-brain barrier to exclude certain drugs (such as ivermectin) from the CNS resulting in neurological disease. In rough t and smooth Collies one in five dogs carries this gene mutation. None of the Beardies reported in the registry had the MDR-1 mutation, and the same was true for the 97 purebred Bearded Collies tested for the mutation at the 2006 BCCA national specialty..

Of interest, there are several working Beardies in the registry. One breeder has had eye exams done on breeding stock of working origin and for several generations. This has been done because of concern that outcrossing KC registered Beardies to working Beardies would introduce eye problems in the progeny. To date, all eye exams have been normal. For a current litter of third generation working Beardies, the great great granddam (KC registered) was normal 9 years of age. The granddam (first generation working dog) has had four normal exams, the most recent at 6 years 4 months (a sister not being bred was normal at a younger age). The dam (second generation working dog) and four littermate sisters are normal at 4 years 1 month. Six 2 month old puppies (3 bitches and 3 dogs) are normal; they are the third generation of working dog breeding.

Reproductive Outcome

Dogs. There were 120 with reproductive history recorded; only 53 had semen checked and few of those gave sufficient details of the evaluation; 110 were bred. The following table shows the number of bitches bred, the number of litters and puppies produced.

Item	#	Av
Bitches bred	405	3.5
Litters produced	365	3.2
Total puppies produced	2109	21.7
Total female puppies produced	928	10.6
Total male puppies produced	914	10.5

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

Problems developing in the dogs' progeny were:

Health Problem	# dogs producing problem	# progeny with problem
Addison's	7	14*
Symmetrical lupoid onychodystrophy	8	9
Systemic lupus erythematosus	2	2
Hypothyroid	9	10
Other	12	1 – nail problem 4 – heart problems
Cryptorchid	15	30

* one dog produced 5 progeny with Addison's, one produced 3 with Addison's and one produced 2 with Addison's

Females. 239 bitches were successfully bred; they produced 427 pregnancies for 392 litters and 2586 pups. The number of pups is 425 more than last reported. Cesarean section delivery was done in 42 (11.8% of all litters), which is up from 9.3% reported last year.

Litter information was not entered for every dam that was bred. That is either an oversight by the breeder or that this information wasn't collected in the earliest years of the registry.

The methods used in breedings that resulted in live pups were:

Natural	271 (69.1%)
A/I fresh	40 (10.2%)
A/I chilled	12 (3.1%)
A/I frozen	10 (2.6%)
A/I operative	10 (2.6%)
Natural and A/I fresh	8 (2.0%)
Not recorded	40

The number of progeny born and problems identified early on are given in the table.

Male pups		
	#	% of total
total born	1344	-
live born	1256	93.5%
live @ 6 wks	1162	86.5%
		% of those alive at 6 weeks with problem
cryptorchid	69	5.9
mismark	59	5.1
umbilical hernia	48	4.1
bad bite	15	
poor pigment	11	
cleft palate	3	

Female pups		
	#	% of total
total born	1197	-
live born	1137	95.0
live @ 6 wks	1049	87.6
		% of those alive at 6 weeks with a problem
mismark	57	5.4
umbilical hernia	47	4.5
bad bite	13	
poor pigment	4	
cleft palate	2	

Specific later health problems in the progeny of bitches are shown in the next table.

Health Problem	**# dams**	**# total litters**	**# progeny**
Addison's	11	37	17*
Symmetrical lupoid onychodystrophy	10	30	14
Systemic lupus erythematosus	3	12	4
Hypothyroid	9	22	9
Other	23	54	27**

* One bitch produced 6 Addisonian puppies
** Among the problems were 6 puppies with heart problems (3 PDA; 1 persistent right aortic arch; 1 murmur, diagnosis unknown; 1 heart anomaly, diagnosis unknown); 1 each produced hyperthyroid, discoid lupus, autoimmune hemolytic anemia, pyelonephritis (early death at 3 wks), kidney failure (several died as young dogs), exocrine pancreatic insufficiency. Newly reported this year is a case of ulnar shortening.

Mortality. There were 348 (24.4%) deaths reported on the dog home page (i.e., the field "deceased" was checked yes. There were just 329 records entered in the death page; owners didn't provide any information regarding the cause of death for 19 dogs. Others may also be deceased but their owners have not responded to update requests.

Necropsies were conducted on 21(6.0%) deceased dogs. Owners should remember that necropsied 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 or known, there would certainly be more identifiable causes of death.

The remaining data are derived from the table containing information about mode, cause, and date of death. Mode of death was natural in 48, euthanasia in 246, accidental in 13, and not documented in 22.

Owners sometimes gave age of death, or just month and year of death. For those, an estimated exact date of death was calculated from the information given by an owner by assigning the date as the first day of that month or using the age given. In no case did the assignment 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) reported in older Beardies (ages 10.8, 14, and 15 years). Bloat/gastric torsion is very uncommon in Beardies; its occurrence in the older ones 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=22) and accidental (n=9). The high number dying from autoimmune disease at a young age is of concern and we should focus should be on supporting research to identify cause(s) of the problems, and hopefully elimination of these problems where feasible.

Age Group – 0 to 3 yr.
There were 11 deaths (3.3% of total with cause of death recorded).

- Accidental – 3
- Autoimmune – 3 (1 each pemphigus/SLO, IBD, Addison's)
- Aggression, directed at dogs' family – 2
- 1 each intussusceptions (after hemorrhagic gastroenteritis), epilepsy idiopathic, meningitis.

Age Group – 3-7 year
There were 27 deaths (8.2% of total)

- Autoimmune - 10
  - SLE – 3
  - AIHA – 2
  - 1 each: SLO with aggression due to pain, ITP, Evan's syndrome (ITP & AIHA), Addison's, and sudden onset of blindness with no cause identified in an Addisonian
- Accidental – 4
- Unknown – 3
- Cancer – 2 (7.4% of age group)
- Poisonings – 2
- 1 each: acute renal failure, chronic interstitial nephritis, respiratory failure, acute fulminating pancreatitis after whelping, neurologic other (had hip dysplasia and developed rear paralysis from a pinched nerve), liver failure.

Age Group 7-9 yr
There were 25 deaths (7.6% of total)

- Autoimmune – 9 (36% of age group)
  - Addison's – 5 (either primary cause or associated)
  - 1 each – muscle A/I disease, AIHA, rheumatoid arthritis, SLE
- Cancer – 5 (20% of age group)
- Unknown – 3
- Accidental - 2
- 1 each: family aggression, food poisoning, rear end paralysis, sepsis, sudden breathing distress, after surgical A/I

Age Group 9-14 yr
There were 171 deaths (52.0%)

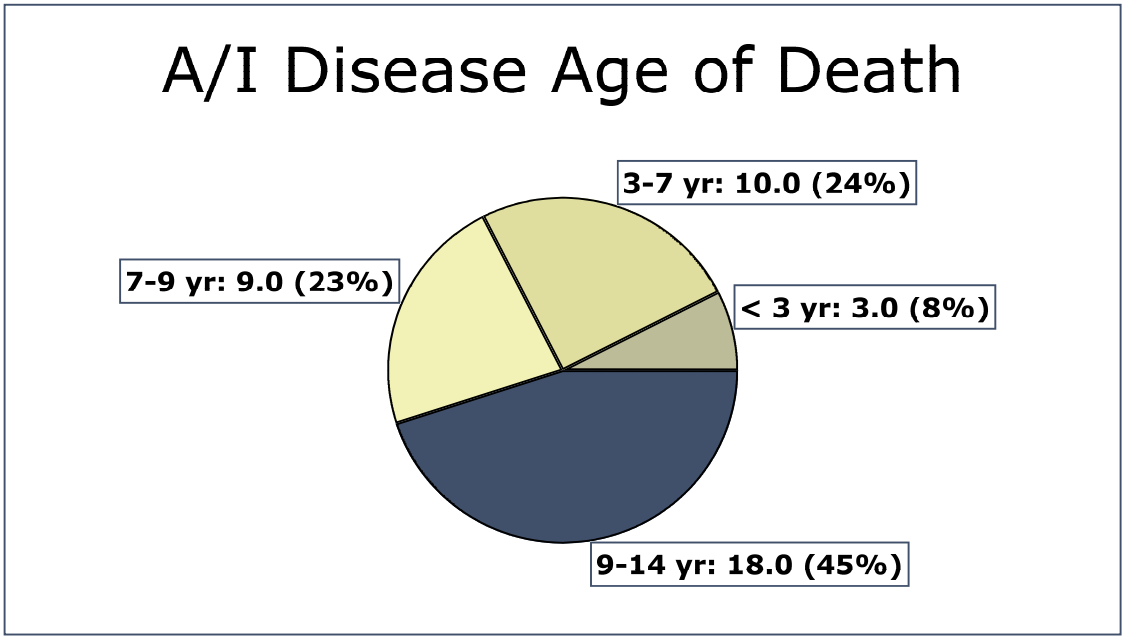
- Cancer 55 (32.2% of age group)
  - Nasal – 10 (1 of those has severe nose bleeds but no confirmed dx)
  - 4 each - abdominal , liver, spleen
  - 3 each – bone, hemangiosarcoma, stomach
  - Remainder had only 1 or 2 cases
- Autoimmune – 18 (10.5% of age group)
  - Addison's – 8 (1 with kidney failure
  - AIHA – 3 (1 with ITP [Evan's syndrome])
  - SLE - 2
  - 1 each – diabetes, IBD, pemphigus, rheumatoid arthritis, ITP
- Old age – 12
- Stroke – 7
- Other, unknown, mostly single diagnoses - 79

Age Group >14.0 yr
There were 92 deaths (28.0%)

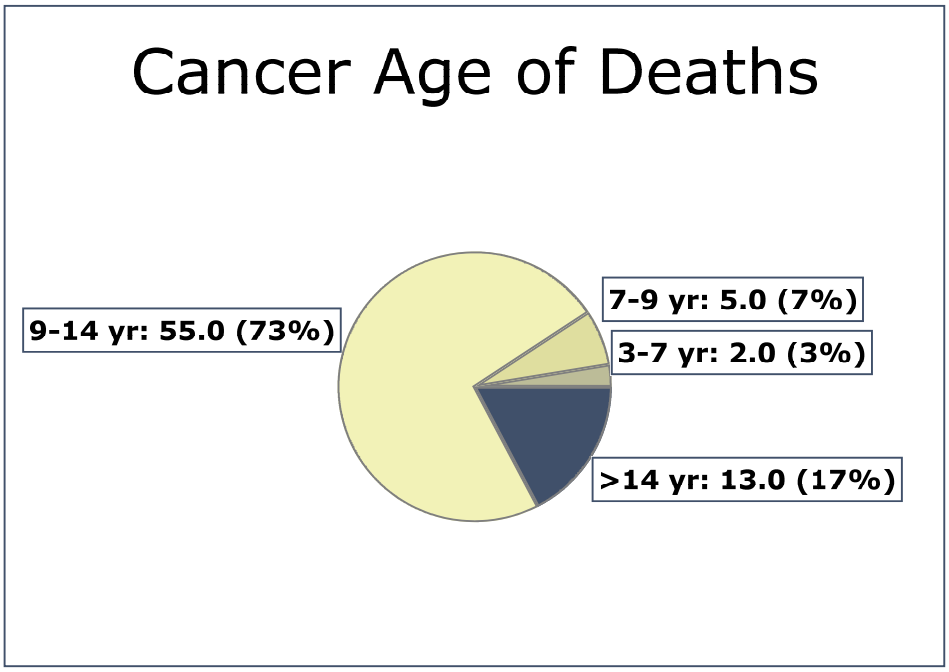
- Old age or cognitive dysfunction – 51 (55.4% of age group)
- Other or unknown – 24

- Cancer – 13 (14% of age group)
- Stroke - 4

The distribution of age groups for two common causes of death is given in the pie charts below.



As in previous years, the majority of deaths from autoimmune causes occurred prior to 9 years of age and none occurred in the oldest age group.



The vast majority of cancer deaths occurred after 8 years.

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.

The data for the USA 1997 AKC stud book were calculated using 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 of Report/Other	# dogs	Av COI	Min COI	Max COI
USA – 1977 stud book	318	18.3	3.8	40.1
Yr 8 – all dogs	1421	23.5	0	42.8
Yr 8 - USA	706	23.6	11.2	42.8
Yr 8– UK	297	25.0	0	40.5
Yr 8– Netherlands	81	21.0	9.2	36.0
Yr 8 – Canada	76	23.7	9.2	35.2
Yr 8 – Australia	53	22.8	12.4	42.1
Yr 8 – Germany	51	20.9	10.8	38.4
Yr 8 – Czech Republic	43	22.3	12.2	38.6

When time permits, the COI's for USA Beardies shown at the national specialty over the years will be calculated and reported. Show catalogues from the specialties are needed to complete this work. Please contact Elsa (beaconbb@bellsouth.net) if are willing to temporarily share your catalogue for this effort. Thank you.