

**Heritable Eye Disorder Screening by CERF  
of Sires and Dams Appearing in Bagpipes' Listings  
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Introduction. BeaCon periodically reviews CERF (Canine Eye Registration Foundation) reports on Bearded Collies to track which eye diseases are being reported in the breed and to check the CERF status of sires and dams of litters listed in the Bagpipes. Some say that there are no or very few eye problems in Beardies and so why worry? Why do eye checks on animals used in breeding? "We report – you decide" (Fox News Channel). The belief that there are no eye problems in Beardies may come from ignorance of what is already known on the topic or with epidemiological approaches, or simply from denial.

Epidemiology is a branch of medicine that deals with the study of the causes, distribution, and control of disease in populations. That can be any population – humans, dogs, individual breeds of dogs – and any disease. Descriptive epidemiologic studies provide information about the occurrence of disease in a population or its subgroups and trends in the frequency of disease over time. The basic needs for epidemiologic work are a source of enough data and a system to report, collect, and study those data.

In the USA, CERF collects, studies, and reports on heritable eye diseases in dogs. CERF maintains a research database of every eye exam done on every dog by a veterinary ophthalmologist certified by AVCO (American Veterinarian College of Ophthalmology). Reports are provided yearly; these can be obtained by breed clubs as well as individuals for a nominal subscription fee.

So, one part of the system is in place. The other part, to obtain sufficient data, depends upon the breed of dog and commitment by parent club leadership, breeders and owners.

Bearded Collie CERF Utilization.

CERF recommendations are for a yearly CERF exam from age 2 through 5-7 years. The BCCA joined CHIC (Canine Health Information Center) in 2000 and the board decided upon the health screening tests necessary for participation in that program. The tests do not have to show absence of disease in order for a dog to receive a CHIC #; testing is for hip dysplasia, heritable eye diseases (tested yearly until age 5 and then every other year), and hypothyroidism with an OFA panel (tested yearly until age 5 and then every other year).

The following table shows the CERF findings for Bearded Collies. On average 194 CERFs are done yearly. A range of 2.5-15.6% had hereditary problems and the majority of those are cataracts (reported elsewhere in BeaCon's newsletters). In breeds with a known mode of inheritance for cataracts, it is a recessive disorder. In both 2006 and 2007 there was one female (different ages, so it may have been the same individual two years running) with suspicious bilateral retinal atrophy. Hopefully the breeder of that dog is aware of the problem because retinal atrophy (AKC progressive retinal atrophy – PRA - is known to be hereditary in other breeds).

Year	CERF Exams - #	Normal CERF - # (%)	Hereditary Problems - %
1997	168	129 (76.8%)	8.9%
1998	234	182 (77.8%)	4.7%
1999	286	218 (76.2%)	10.5%
2000	235	161 (68.5%)	5.1%
2001	137	108 (78.8%)	7.3%
2002	157	116 (73.9%)	15.4%
2003	183	129 (71.5%)	15.6%
2004	189	151 (79.9%)	4.8%
2005	206	154 (74.8%)	8.7%
2006*	161	120 (74.5%)	2.5%
2007*	175	139 (79.4%)	2.9%
2008	Data not yet available from CERF as of 8/29/09		

\*2007. One case of suspicious bilateral retinal atrophy, age 2-3 yr

\*2006. One case of suspicious bilateral retinal atrophy, age 6-12 mo

### Litter Listing.

The BCCA has had a litter listing dating back to May 1994, first in the monthly BCCA Newsletter, the name of which was changed to the Bagpipes in June 1997. The litter listing requirement for hip dysplasia screening of both sire and dam began in May 1997. The litter listing is also available on the BCCA web site. There have been several efforts in recent years to bring the litter listing health screen requirements up to the level of the CHIC requirements – with no success to date.

The following table shows the Bagpipes listed litters, all litters registered with AKC, and the percentage of Bagpipes litters for 2002-2008. Fewer than 50% of AKC registered litters have been advertised in the Bagpipes with the lowest at 22.6% and the highest at 49.5%. (Some litters are from Canadian breeders too, and more likely registered with CKC.)

Year	# Litters in Bagpipes	# AKC Registered Litters	% Bagpipes/AKC
2002	38	186	20.4%
2003	42	161	26.1%
2004	59	142	41.5%
2005	42	118	35.6%
2006	41	109	37.6%
2007	52	105	49.5%
2008	31	74	41.9%
2009*	17	Na	na

\*Through Aug 09 Bagpipes

CERF Status of Bagpipe Litter Sires and Dams. CERF status was determined using of the on-line OFA and CERF databases and, the yearly report of Bearded Collie certifications. Care must be taken in these searches because misspelling can happen; thus, several spellings of names were tried when necessary.

### Definitions.

A CERF # and certificate mean that at the time of the eye exam there was no heritable eye condition. The certificate is good for only 12 months because some eye conditions have later onset.

1. A “current” CERF is one done within 12 months prior to the breeding (or a normal CERF at 5 years or thereafter if the sire or dam is bred when over 5 years of age).

2. An “outdated” CERF is one outside the 12 month period, either before or after the breeding.
3. “None or no” means there was no CERF in either database. That can happen when no CERF exam is done, there is a difference between the dog’s AKC identification and that at CERF, there was a hereditary disorder so the CERF data aren’t linked to the dog, or a CERF was done but the forms not submitted for a certificate.

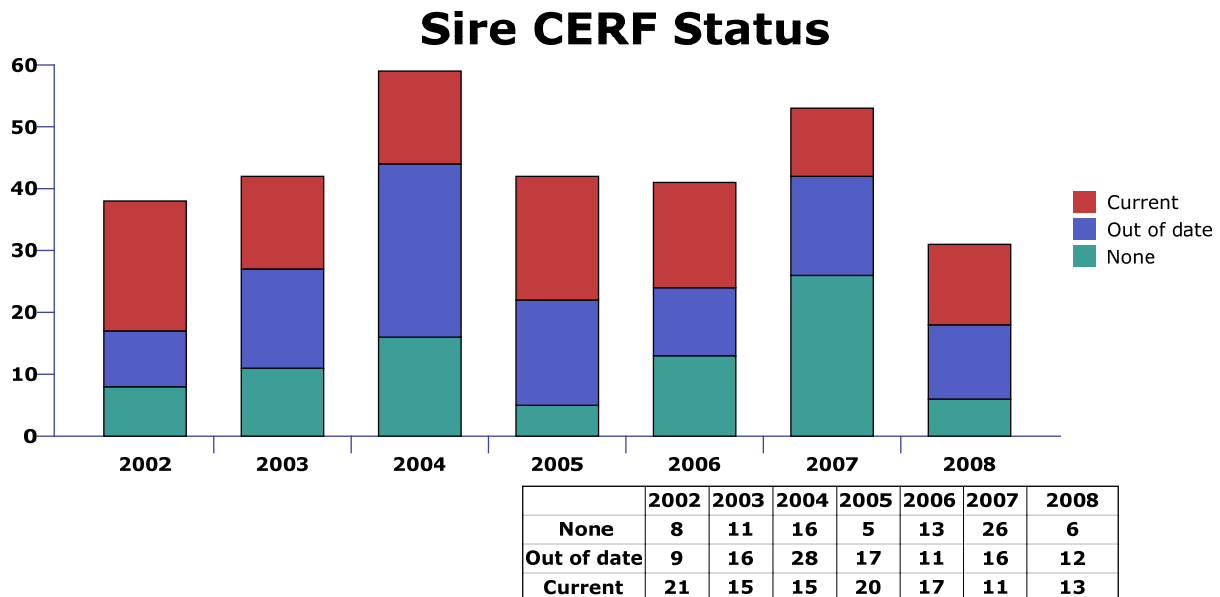
Bagpipe Litters. Each litter listed was counted one time though listings are for a three month period. The table below shows the CERF status of sires and dams for each of the last seven years.

CERF	2002	2003	2004	2005	2006	2007	2008
	38*	42	59	42	41	52	31
Sire							
Current	21	15	15	20	17	11	13
None	8	11	16	5	13	25	6
OOD	9	16	28	17	11	16	12
Dam							
Current	10	14	9	7	14	11	9
None	17	17	30	26	19	28	13
OOD	11	11	20	9	8	13	9
Sire and Dam							
Current	7	8	5	5	7	4	5
None	4	8	11	3	9	15	5
OOD	3	7	11	3	2	2	5

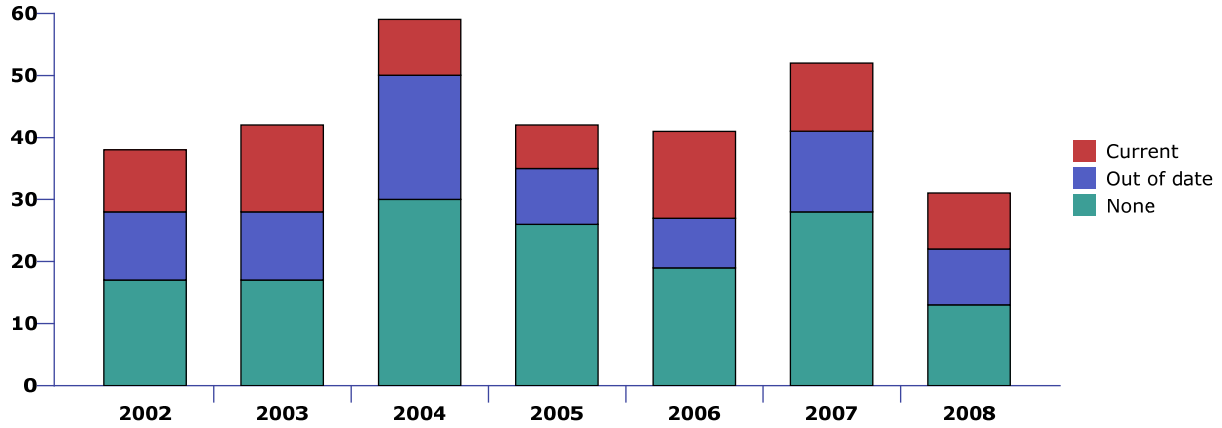
OOD = Out of Date (outside the 12 month period prior to breeding).

\*Number of unique litters in Bagpipes

The information is also displayed in the two figures below for sires and dams.



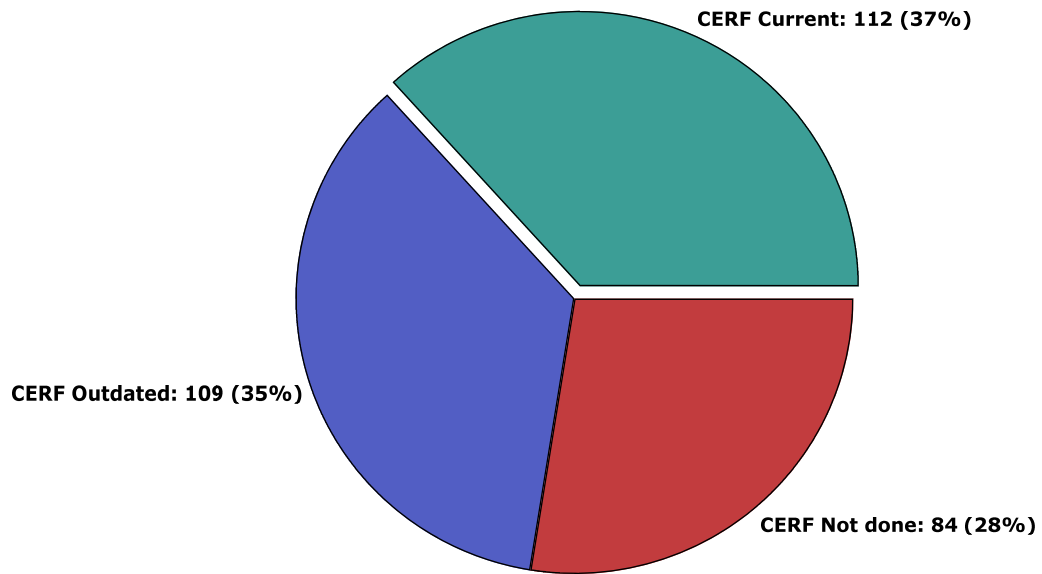
## Dam CERF Status



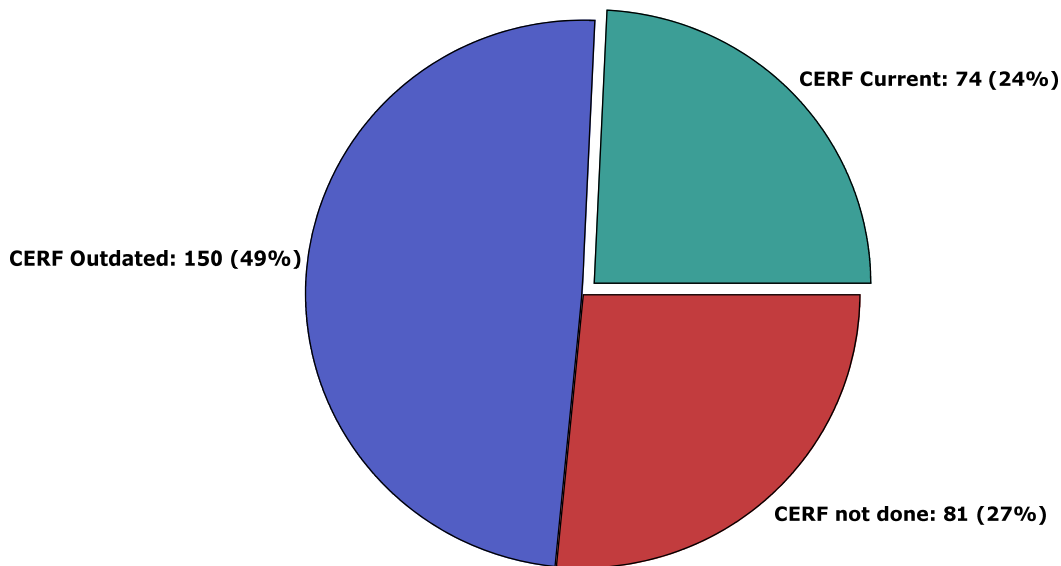
	2002	2003	2004	2005	2006	2007	2008
<b>None</b>	17	17	30	26	19	28	13
<b>Out of date</b>	11	11	20	9	8	13	9
<b>Current</b>	10	14	9	7	14	11	9

It is apparent from the above two figures that more sires have current CERFs than do dams, and that more dams never had a CERF exam. The numbers for all years were averaged and are displayed in the next two figures.

## SIRE CERF Status - 2002-2008



## Dam CERF Status - 2002-2008



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Summary. In the seven year period from 2002 to 2008, fewer than 50% of Bearded Collie AKC registered litters also were listed in the BCCA litter listing. Among the Bagpipes' litters, only 37% of sires and 24% of dams were current in their CERF status when bred; 28% of sires and 27% of dams had no CERF; the remaining CERFs were outdated.

Given that cataracts are the most common heritable eye condition in Bearded Collies as documented by the CERF research database, and that in other breeds cataracts are usually recessively inherited, one might question how the lack of current CERFs in Bearded Collie breeding pairs happens. Are breeders unaware that cataracts exist? Are breeders unaware that both sire and dam contribute to heritable conditions? Do breeders hope their puppies won't develop a heritable eye condition that was preventable by a health screen?

We suggest that breeders and the club leadership join in a lengthy discussion of this state of affairs. It is hard to argue that the status quo is satisfactory, given that there are insufficient data to make that conclusion, and there are data to support the opposite point of view.