Final Report on the Low Uric Acid Dalmatian Presentation DCA National Specialty 2008

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on behalf of
the DCA Health & Research Committee,
the DCA Low Uric Acid Study Group,
and the LUA Dalmatian Presentation Participants

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There were three major educational and informational activities regarding the Low Uric Acid Dalmatians at the 2008 DCA National Specialty in Fort Mitchell, Kentucky.

1. An "LUA Parade" was conducted on Sunday afternoon following Sweepstakes judging. Each dog was introduced and presented in the show ring in London Hall. A video was recorded and can be accessed by streaming video link over the Internet at **http://www.luadalmatians.com**. The video is also available for purchase to play on a home video or TV system at: **http://www.showdogvideopros.com/DCA.html**.

2. At its meeting in Fort Mitchell, Kentucky (contemporaneously with the National Specialty) the DCA Board of Governors commissioned and wrote a survey to be taken of the members and guests visiting the LUA Dalmatians at the informational booth organized by the LUA Study Group. The booth made available educational materials and LUA Dalmatians for "hands on" examination and study. The survey results have been compiled by the LUA Study Group and are presented in this document entitled, "Your Opinion Counts - Results". A pdf version of the report is available under separate cover. That exact file is incorporated with this report (see end of report).

3. After the DCA General Membership Meeting held at the DCA National Specialty on Monday evening, the floor was opened to questions from the members present on Low Uric Acid topics. President Dr. Charlie Garvin presided and Recording Secretary Diana Skibinski made a contemporaneous record of those questions, which was then forwarded to the Health & Research Committee and the LUA Study Group to develop responses (see below).

DEFINITIONS

1. LOW URIC ACID (LUA) – refers to *canine normal* daily urinary uric acid production, which is approximately 10 – 40 mg/dl per day. The word "Low" is a misnomer. It is used only to distinguish from the abnormal "High" daily urinary uric acid production of all AKC registered Dalmatians. The proper term would be "Canine Normal".

2. HIGH URIC ACID (HUA) – refers to the abnormal condition seen in all AKC registered Dalmatians, which produce 10x to 20x more urinary uric acid per day, i.e. 200 – 800 mg/dl/day.

3. LUA PROJECT – this is a misnomer. There is no formalized "project", "study" or "research" that pertains to the breeding of LUA Dalmatians. Several breeders of LUA Dalmatians conduct their own breeding programs using these dogs, just as any other breeder of any breed or Dalmatian conducts and manages their own breeding program.

4. LUA RESEARCH – again, this is a misnomer. There is no formalized scientific protocol for the breeding of LUA Dalmatians. The introduction of the *canine normal* urinary uric acid gene (on canine chromosome #3) by the selective outcross breeding to a Pointer and subsequent backcross breeding to the Dalmatian lineage followed scientific principles, but *was part of a breeding program and not a formalized scientific research protocol*. In contrast, the identification of the specific canine urinary uric acid gene was done under strict scientific research protocols as part of an NIH funded research grant (by Dr. Danika Bannasch at University of California at Davis).

5. CLINICAL TRIAL – a formalized, scientific, properly controlled research protocol has been discussed with the DCA Board as a means to conduct a scientifically rigorous examination of the LUA Dalmatians. As yet this approach has not been finalized, and has not been funded.

6. HERITAGE DALMATIAN PROJECT – refers ***only*** to the breeding program conducted by Denise Powell that incorporates and produces LUA Dalmatians. NOTE: there is no scientific protocol that is written or followed, nor is there any funding whatsoever from DCA or DCAF (or any other funding agency) for this breeding program. Breeding decisions, health testing, and follow-up of LUA Dalmatians produced by Denise Powell and her Heritage Dalmatian Project *are solely at her discretion.*

7. BACKCROSS PROJECT - Bob Schaible's formal Backcross Project started with the original Dalmatian Pointer cross breeding and ended in 1981 when the AKC agreed to register two of his 5th generation dogs as Dalmatians. Since that time Dr Schaible has continued to produce one or two litters of LUA Dalmatians per year.

RESPONSES to Low Uric Acid Questions
After DCA General Membership Meeting April 28, 2008

1. How far down in generations are the low uric acid dogs that are here this week? What's the plan? What's next?

   Here is a listing of the LUAs presented at the National and their generation from the original Dalmatian Pointer cross:

   a. UKC GR CH Stocklore Top Spot "Topper" is a 9th generation dog.
   b. Rambler Carey's Dara Mac "Mac" is an 11th generation dog.
   c. Aberdeen's Deal or No Deal "DeeDee" is a 10th generation bitch.
   d. Stocklore Stalwart "Wart" is an 11th generation dog.
   e. UKC BIMBS CH Fiacre's First and Foremost "Fiona" is an 11th generation bitch.
   f. Woodwynd Dotter's Eagle Scout "Cubby" is an 11th generation dog.
   g. UKC CH Stocklore Vilia de Forrest "Hannah/Vilia" is a 9th generation bitch.
   h. Aberdeen's Angelina "Angie" is a 10th generation bitch.
   i. Aberdeen's Felix Felicis "Gryffindor" is an 11th generation dog.
   j. UKC CH Robinwood Penny Ante "Penny" is a 10th generation bitch.

   The answer to the question "what's next?" is not at all clear. On opposite ends of the spectrum there are people who feel that the descendants of Dr Schaible's backcross project can never be considered Dalmatians no matter how many generations away from the Pointer they are, and others who feel that the issue was settled in 1981 when the AKC accepted Dr Schaible's dogs as purebred Dalmatians. In between there are people who would like for more studies to be done before granting AKC registration and status to any more descendants of the backcross project. There are people who are willing to grant AKC status now, but who do not intend to incorporate LUAs into their own breeding programs any time soon. There are people who are eager to breed LUA Dalmatians and compete fully in AKC events.

   What is clear is that the breeding of LUA Dalmatians will continue with or without DCA or AKC approval. DCA influence over future breeding is, and will be, very limited as long as the dogs are registered with the UKC rather than with the AKC. The breeders that are involved in the LUA project plan to continue breeding Dalmatians with low (canine normal) urinary uric acid to increase the available gene pool and genetic diversity and to maintain correct Dalmatian type and spotting.

2. What happens when a low uric acid dog is bred to a low uric acid dog? Have there been breeding of this type and what is the result or outcome in low uric acid? How many generations following a low uric acid dog to a low uric acid dog breeding are anticipated for follow up?

Several LUA to LUA breedings have been conducted over the years. The oldest dog at the LUA Parade, UKC GR CH Stocklore Top Spot, is the result of such breeding. Many of today's LUA Dalmatians are his progeny.

When both parents are heterozygous LUA [Uu], three quarters of their offspring are expected to be LUA and one quarter HUA [uu]. Each pup in the litter has a one in four chance of inheriting two copies of the LUA gene which would make that pup "pure for LUA" or homozygous LUA [UU].

More LUA to LUA breedings are planned in the future as the population of LUA Dalmatians grows and suitable breeding pairs can be found, but caution has been exercised to avoid inbreeding as much as possible. For example, there was a recent LUA x LUA breeding that produced a homozygous dominant [UU] bitch from the Topper x Vilia litter. Mr. Dennis Trout owns her.

Breeders of LUA Dalmatians follow the dogs they produce in much the same way that other breeders follow their dogs. At present there is no formalized "project", "research protocol", "database" or "clinical trial" to keep follow up and generational data, other than the formal information gathering done by the DCA LUA Study Group.

3. Will there be an opportunity to see photographs of entire litters more than just the selected photographs that have been made available so far?

Ten of the ~33 LUA Dalmatians that are alive today were present at the 2008 DCA National Specialty. Photographs of litters and littermates have been published in the Spotter and are available on the LUA Dalmatians webpage (http://www.luadalmatians.com). Photos of many whole litters have been available for the past few years on the Dalmatian Heritage Project website at www.dalmatianheritage.com/album/index.htm

4. How soon will we be able to register the dogs with AKC?

First, the DCA membership by 2/3 approval of the members voting, must agree to petition the AKC to lift the hold on the registration of Stocklore Stipples and allow her descendants to be registered. Then, AKC has to agree and remove the hold. This process has to be initiated by the DCA Board who would have to prepare a ballot and supporting materials, receive AKC approval of the ballot and enclosures, and distribute the ballot to the DCA membership. This process could be started at any time.

5. What happens or can there be, or has there been a study of what happens when low uric acid dogs when fed a high purine diet?

All of the LUA Dalmatians have been fed "normal" dog rations throughout their lives with no reported occurrence of urate stone disease. No clinical studies to feed high purine diets have been done, or are likely to be done, because of ethical concerns. In order to do a valid study, LUA Dalmatians would need to be compared to HUA Dalmatians (and to non-Dalmatians). The researchers who have been approached about doing such studies are reluctant to do studies in which HUA Dalmatians would be fed high purine rations because of the significant likelihood that they would develop very high urinary urates, form stones, and obstruct.

Low Uric Acid in Dalmatians is really "normal canine uric acid" and therefore any diet that is nutritionally sufficient for canines is acceptable for these Dalmatians.

6. For the genetic testing of the low uric acid dogs, first what is the status of it and second is it able to distinguish between a heterozygous or homozygous state?

A DNA test that can distinguish if a dog is heterozygous LUA [Uu], homozygous LUA [UU] or HUA [uu] was developed by Danika Bannasch, DVM, PhD and is available through the University of California at Davis. All litters are genetically tested using the removed dewclaws, and the LUA or HUA status of the pup is positively determined.

7. Would it be possible to have another one or more additional projects on the similar nature to be studied? We have dogs with problems now that need research and can we look at the present as well?

That the uric acid defect is genetically fixed in the Dalmatian has been known and proven for nearly a century. For example, one investigator conducted a Dalmatian Collie cross around the turn of the century and all pups produced had normal canine urinary uric acid production. This history can be reviewed in greater detail on the LUA Dalmatians website at http://www.luadalmatians.com.

While it would be possible to start another research project by breeding a Dalmatian to another Pointer (or to any other breed) and thereby incorporating the gene for normal urinary uric acid, the current project has been working for 12 or more generations and over 35 years to re-establish correct Dalmatian type. No scientific purpose would be served by repeating the project. The goal of reintroducing the gene for low (canine normal) urinary uric acid has been accomplished in the Dalmatian.

8. What is the follow up testing of the existing low uric acid dogs? What testing protocols are being followed long-term?

LUA breeders are interested in following their puppies for life – just as other Dalmatian breeders want to follow their puppies. What testing is done on the puppies depends on the situation, the breeder and Dalmatian owner. Just as most breeders would not have pet Dalmatians OFA'd, this could be the case for LUAs that are not going to be used in a breeding program. Because there is no formal scientific study, there are no testing protocols being followed – there are individual breeding programs and testing is determined by the breeder/owner. The Board is considering a proposal for a clinical trial for a more rigorous study of LUA Dalmatians, but finding the funding for such studies is always difficult.

9. What other health related testing has been done on low uric acid dogs? How does those statistics compare with the general Dalmatian population?

All current LUA Dalmatians have been BAER hearing tested as pups. Many have hips done as soon as they are old enough (2 years of age or prior to breeding). CERF's are also done. All current LUA Dalmatians have been genetically (DNA) tested for the LUA gene, the latter having largely replaced the need for spot urine tests for high/low uric acid. Bladders have been ultrasounded for some of the LUA Dalmatians and all have been found to be clear of debris, sediment or stones. All other tests and medical records compare favorably with the general Dalmatian population.

10. Are there any other genetic issues that could potentially be brought in by the Pointer?

The Pointer is generally a healthy breed. There was some very low incidence of dwarfism in one of the Pointer lines, but not in the line used for the original cross. Since that time, there has been some incidence of epilepsy in the Pointer, but again, that was after the original cross. In addition, the Pointer genetic material that is still present in the LUA Dalmatians is very, very small and limited to basically the single transporter gene associated with producing canine normal low uric acid.

A thorough discussion of this issue can be found on the LUA Dalmatians website at http://www.luadalmatians.com.

11. Is there a mechanism in place where breeders could donate their bitches to be used for participating in the LUA Project?

Any breeder could breed their bitch to a LUA male, assuming that the mating was mutually agreeable to the owners of the stud dog and brood bitch. There is no formalized "LUA Project" per se. Breeding decisions reside with the parties involved.

12. Is it possible to produce dogs that are low uric acid that have normal Dalmatian spotting?

The 10 LUA Dalmatians that were present at the 2008 DCA National all had spotting patterns (size and distribution) that fall within the AKC Dalmatian Standard. They are between the size of a dime and a half-dollar as specified, and are generally evenly distributed with very little, if any, intermingling of spots to form clusters. Please see the video of the DCA LUA Parade Event at http://www.luadalmatians.com.

13. If we select for low uric acid, what will the results look like? Will we retain Dalmatian traits?

Breeders who are trying to incorporate the LUA gene into their line are not selecting for just LUA – they are selecting for the entire package, so yes, you will retain Dalmatian traits. All of the LUA Dalmatians have been selected for low uric acid and at this point (and for the past 7 or 8 generations), all Dalmatian traits have been retained. Please see the response to question 12.

14. How much research should be done prior to raising the questions of registration?

The research that has been done to date shows that Dr. Schaible was able to transfer the gene for normal canine urinary uric acid levels from the Pointer to a line of Dalmatians. Dr. Schaible has been breeding LUA Dalmatians for 35 years. The dogs from Dr. Schaible's line have had Dalmatian type from as far back as the 5th generation removed from the Pointer. He reports no health problems in his dogs other than those commonly found in Dalmatians (except no urinary uric acid related clinical symptoms). Whether Dalmatians from Dr. Schaible's line are comparable to Dalmatians being bred by others is a matter of opinion. Scientists and researchers are not concerned with refinements of type; that is a matter for breeders to tackle when choosing breeding pairs.

Accordingly, it is believed that sufficient research has been accomplished to justify AKC registration. The LUA Dalmatians are phenotypically Dalmatians (please see the response to question 12). The pedigrees of the LUA Dalmatians are pure-bred Dalmatians for over 10 generations whereas most registries around the world accept merely 5 generations to certify a breed, and the current LUA Dalmatians are indistinguishable from pure-bred Dalmatians by the most current DNA and genetic

testing methods. A breeder may wish to have more research before they incorporate an LUA Dalmatian into their breeding program, but that would be the breeder's choice and option.

15. What will happen with these questions?

They are being answered as best as they can by the LUA Study Group and the DCA Health & Research Committee, and the responses are being made available to the entire Dalmatian fancy via the website http://www.luadalmatians.com.

16. If there were a mechanism for donating a bitch's season to the project, what would be the mechanism for placing and follow up of the puppies? What has been the experience of the breeders who have produced low uric acid dogs in placing and finding appropriate homes for those dogs? How would the sire be selected and who makes the choices in that breeding decision?

Please see the response to question 11. The present breeders of LUA Dalmatians report no problems in placing either LUA or HUA pups from their litters. As stated before, breeding decisions are made by mutual agreement between the owners of the stud dog and brood bitch.

17. Of the low uric acid dogs that have been produced, what health problems, if any, have shown up in those progeny?

There have been no health issues other than what would be expected in the general Dalmatian population, with the exception that there have been no reported occurrences of urinary uric acid related clinical symptoms or syndromes.

18. If the low uric acid dogs, especially the homozygous low uric acid dogs, have a spotting pattern that is different from current should the Dalmatian Standard be changed with that in mind?

Please see the response to question 12. We do not believe that the AKC Dalmatian Standard should be changed.

19. Can we get a good explanation of how the registration process would work?

Please see the response to question 4. We would suggest that AKC identify all Descendants of the Dalmatian Pointer cross with an asterisk or other identifying notation as part of the registration number for some number of generations (to be determined by the AKC). In that manner, breeders could decide to incorporate or not incorporate any of the Descendents into their breeding program, and be insured of the integrity of the resulting pedigree.

20. Is there a reasonable estimate of how long it would take to have the low uric acid genetic capabilities spread throughout the Dalmatian genome? Could several potential scenarios that could be described depending on assumptions?

If AKC registration of the LUA Dalmatians is granted in the near future, it is likely to take decades before a significant percentage of Dalmatians have the gene for canine normal low urinary uric acid. Without AKC registration it could take even longer. A more precise answer cannot be given without pure speculation about the rate of acceptance and incorporation of these Dalmatians into a majority of breeding programs throughout the United States and abroad.

21. What would be the process for eventual registration of low uric acid dogs?

Please see the responses to questions 4 and 19.

22. How can we facilitate DCA membership participation in the Low Uric Acid Project?

There is no formal LUA project. Right now individual DCA members have the option of making their stud dogs available for breeding to LUA females or taking their brood bitches to LUA males and registering the litters with the UKC.

23. What is a zygote?

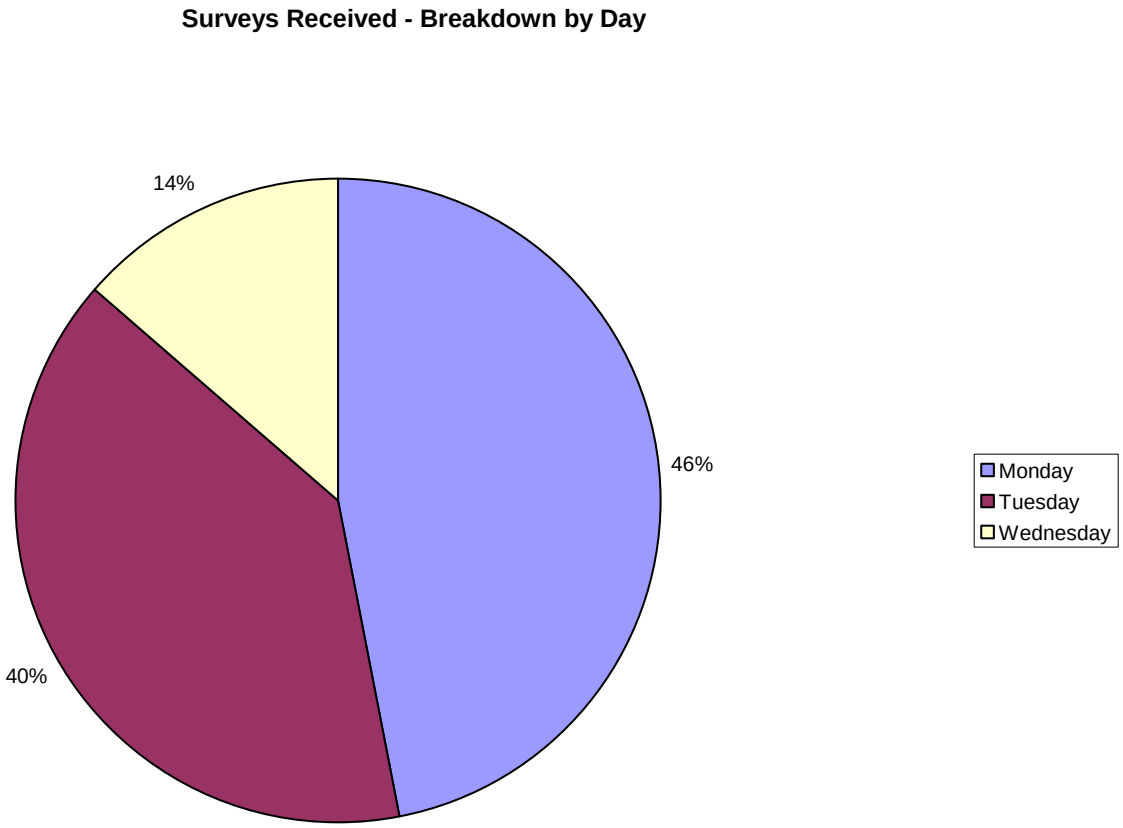
A zygote is the first cell that results from the fertilization of an egg by a sperm.

Your Opinion Counts - RESULTS

Total surveys received: 96
Estimate of people visiting the booth: 152

63% of people visiting the booth completed a survey

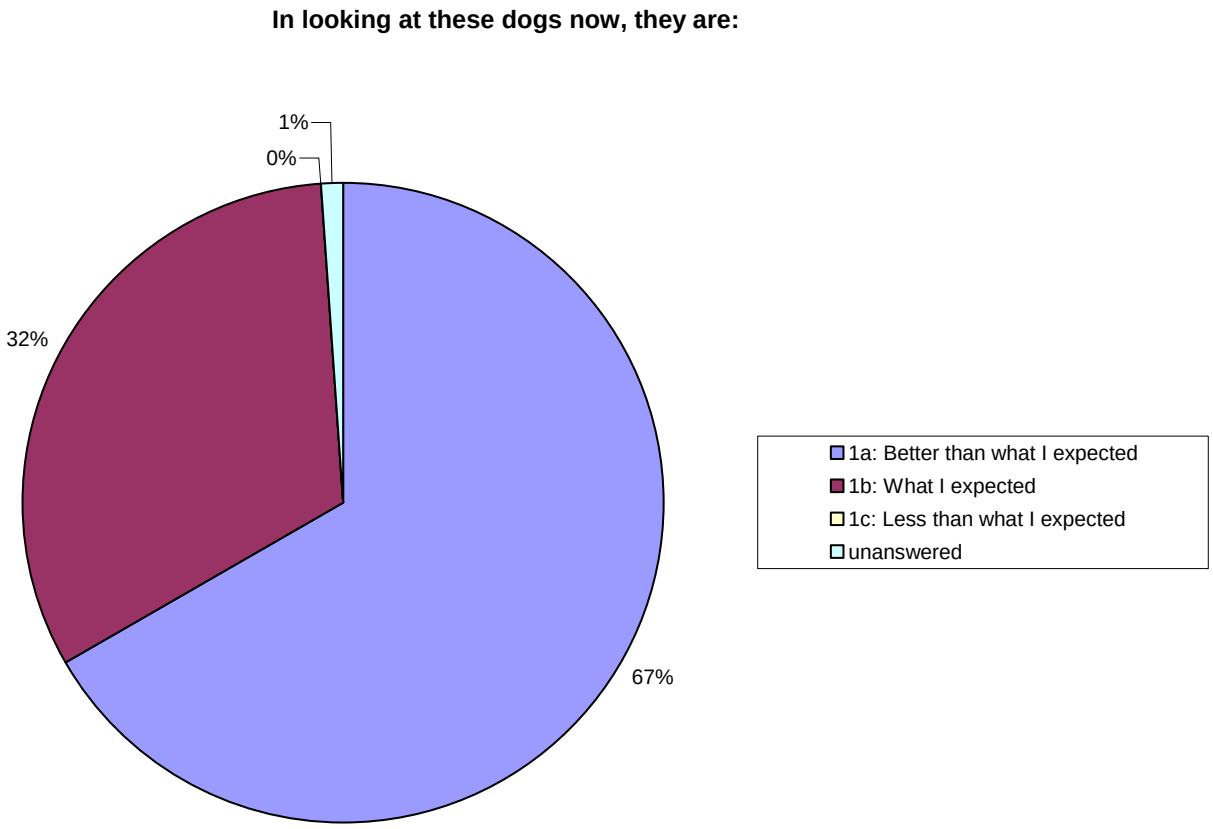
Breakdown by Day: Monday – 45 surveys
Tuesday – 38 surveys
Wednesday – 13 surveys



1. In looking at these dogs now, they are

a. Better than what I expected	responses received: 64 (67%)
b. What I expected	responses received: 31 (32%)
c. Less than what I expected	responses received: zero
	unanswered: 1 (1%)

Total responses for question 1: 95 (99%)



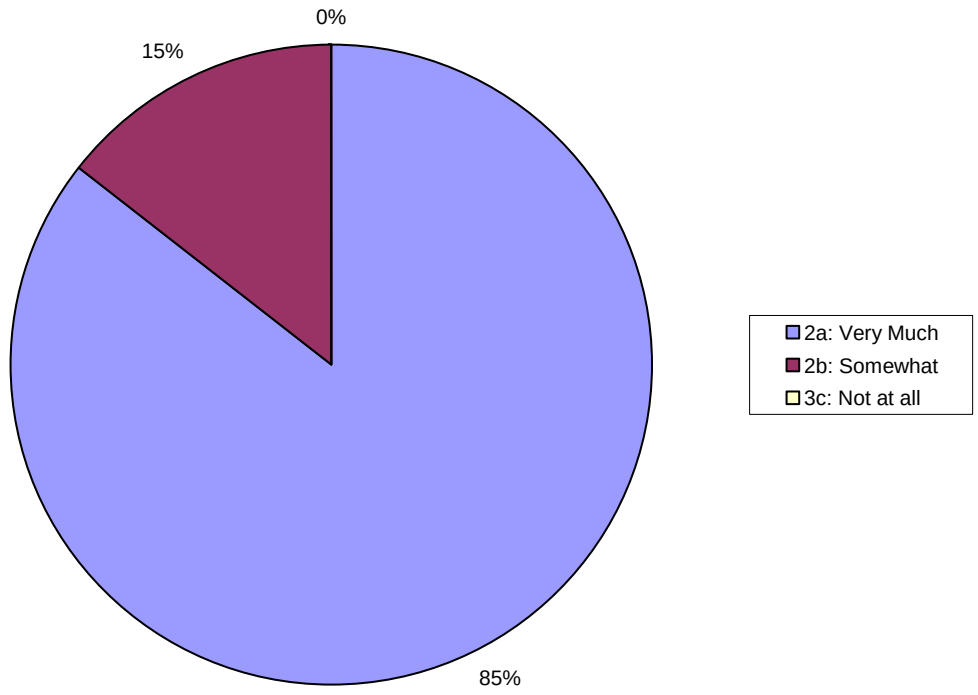
Comments:

- DeeDee was much better than I expected.
- They ARE Dalmatians!

2. How closely do these dogs fit the Dalmatian Standard in your opinion?

a. Very much	responses received: 82 (85%)
b. Somewhat	responses received: 14 (15%)
c. Not at all	responses received: zero

Total responses for question 2: 96 (100%)



Comments:

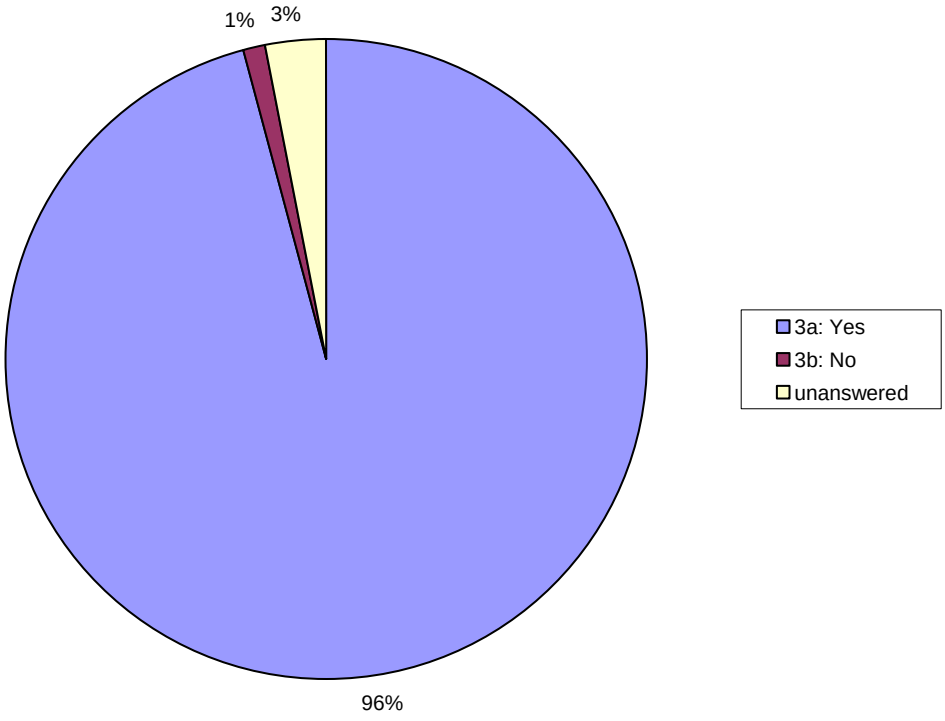
- Clearly these are Dalmatians.
- These are dalmatians.

3. I would support a formal study (clinical trial) of the LUA dogs.

a. Yes — responses received: 92 (96%)
b. No — responses received: 1 (1%)
unanswered: 3 (3%)

total responses for question 3: 93 (97%)

I would support a formal study (clinical trial) of the LUA dogs.



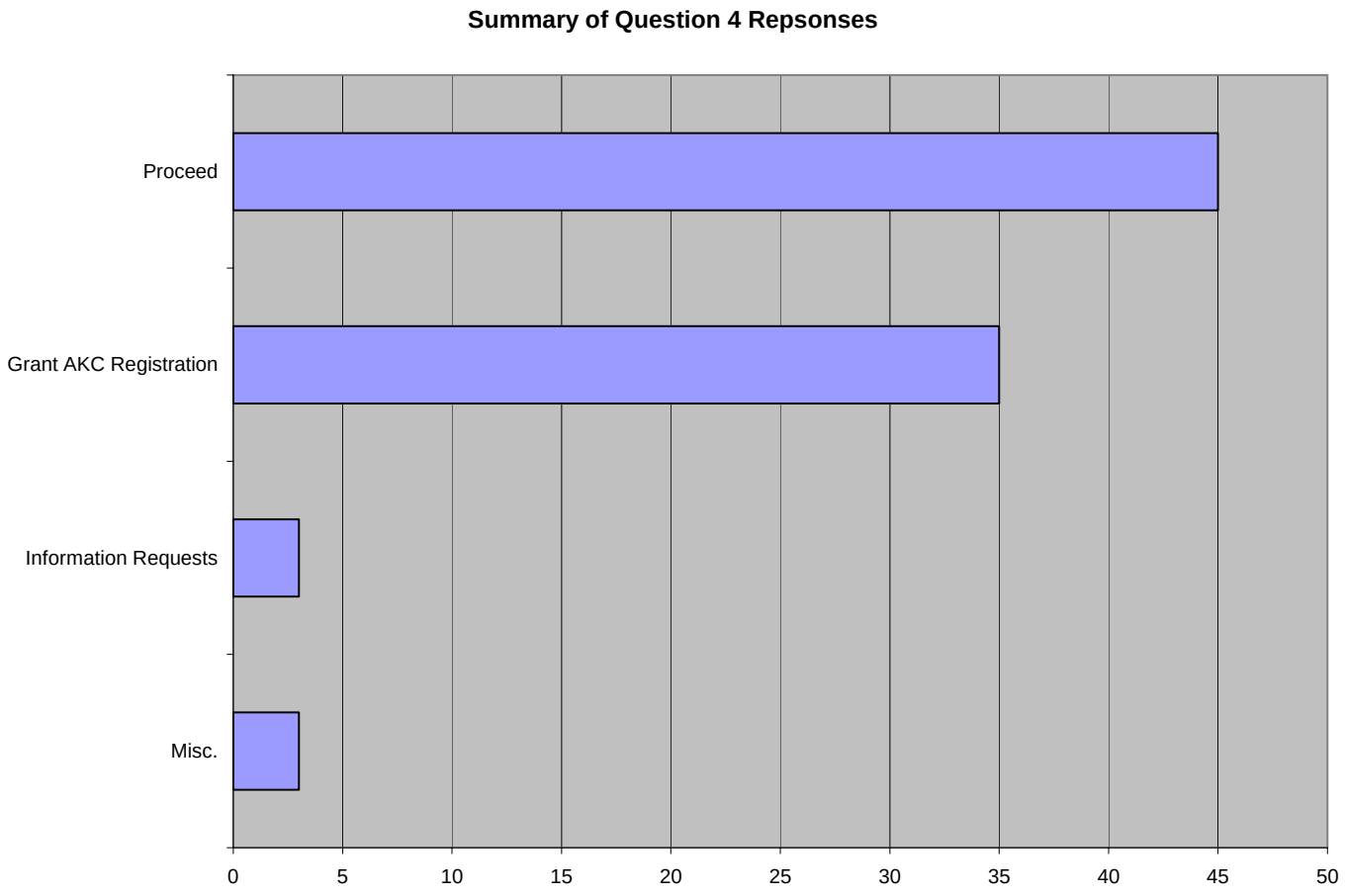
Comments:

- But unnecessary (Answered yes).
- Yes – but just register them already!
- But I don't think its necessary (answered yes).
- I would support a clinical trial of the science of these LUA dogs, or a new study with different dogs, but not a study of "appearance" perception.

4. After viewing these dogs today, I think that the LUA Project should:

- Move forward
- Continue researching and breeding for improvement. Start doing LUA to LUA breedings to see true type.
- Allow them to be shown. (Signed by Cynthia Cramer)
- Be admitted to the registery.
- Go full force ahead.
- Proceed.
- Still continue and those that want to breed for LUA should.
- Be consider.
- Proceed.
- Go forward with the study & have the dogs accepted by DCA.
- Be allowed to be registered.
- Be more respected and given AKC approval/recognition. These ARE better representatives then some Dals competing today.
- Move forward with AKC registration (with identifying LUA letters after the AKC #).
- Be supported! The health of the breed & improving the health of the breed is just as important as conformation to standard.
- Proceed w/attempts to AKC register.
- Identify the Pointer health issues people are worried about and track whether or not they present in the project (HUA or LUA) dogs.
- Continue.
- Continue and be supported by DCA.
- Be included in AKC registration ASAP.
- Move forward w/the blessing of the DCA.
- Continue expeditiously.
- Be encouraged by DCA, and start a new seed line with a pointer & quality dal.
- Move forward & backcross dogs should be AKC reg. immediately.
- Continue & be supported.
- Continue with AKC acceptance into the stud book.
- Start registering these Dalmatians with AKC.
- Go forward to AKC registration.
- Continue. I am all for AKC registration.
- Consider as a Dalmatian.
- Continue.
- Continue full steam ahead.
- Be registered w/AKC.
- CONTINUE.
- Go full steam ahead.
- Move forward with Full DCA support!!!
- Work with them to increase awareness.
- Be more understood.
- Be continued & expanded.
- Be approved by the DCA.
- I don't understand – these are Dals – what's the controversy?
- Be supported.
- Be approved for AKC registration to be included in our breeding programs to improve the health of our dalmatians. (Signed by Ada J Luttrell)
- Be AKC registered.
- Be continued until we have all LUA dals!
- Be able to be AKC registered dogs.
- Answer questions from membership & work to get dogs AKC registered.
- Continue in an educational capacity.
- Go forward!!
- Continue!!!
- Continue.
- Be registered with AKC.
- Move to registration.
- Continue breeding programs.
- Keep going with the breeding program.

- Continue & expand to more breeders.
- Be AKC registered.
- Register them now!
- Be AKC registered.
- Continue to do this study and hope for AKC dogs to breed to to continue.
- Be well known.
- Create a simple powerpoint presentation to explain it & distribute it on a CD.
- Go forward full swing.
- Proceed and be funded by DCA & given AKC registration status.
- Continue – more LUA exclusively live bred generations.
- Proceed.
- Progress soon.
- Continue.
- Breed for the LUA trait to evaluate the effects of selection for that trait.
- Be put to a vote.
- Proceed to registration with AKC.
- Be continued.
- Continue & be granted AKC registration.
- Register them with AKC.
- Register AKC.



Note: Some comments addressed more than one topic, such as recommending to continue and proceed with AKC registration.

5. I would still like to know:

- Why DCA members are so negative.
- Nothing more.
- Criteria for choosing who (HUA) is included or brought into program.
- When they'll be able to show at AKC shows!
- Why the DCA won't let these dogs & bitches be registered. Why not let Dalmatians be registered?
- How to make the above happen. (Go forward with AKC registration.)
- I want to meet more of the LUA & HUA backcross dogs & see them in the ring with the rest of the Dals. Their great!
- More about the gene and uric acid.
- Should you not want to use LUA in your breeding program don't – But they are dals – get over yourself.
- LUA x LUA
- Why people cannot see these Dals are Dals.
- I've asked all my questions and am satisfied with the answers.
- These dogs are Dals.
- How I could help.
- More.
- I'd like to see pictures of all the littermates on your website along w/all of the info read at yesterday's exhibition.
- Why AKC doesn't recognize them as dalmatians.
- Better access to LUA pedigrees.
- More.
- How to win the lottery!
- Why the dogs can't be registered!
- How to get the LUA dogs accepted by AKC for full registration.
- Why there is any opposition to LUA Dals.
- How to register.
- What % of LUA dogs are HUA.
- What present is still out there.
- How soon we can register the get.
- Why is AKC registration taking so long?
- When they will be registered.
- When they are going to be registered.
- Follow up as program progresses.
- I would like to know if they're going to be AKC registered soon.
- How much does it cost to do the DNA tests that Dr. Bannasch does & could we widely perform them to determine if ANY LUA dals are in our current show population.
- Let's move on.
- How I can help.
- At what point will these (and future) dogs be AKC registered.
- All of the statistics.
- How AKC feels about low uric dalmatians.
- More – less talk about how this is a wonderful solution & more info on data (both good and bad).
- If selecting for LUA will change the look of the dal (the current consistent outcrossing does not answer that question).
- Why there's such an uproar.
- Whether or not the membership as a whole is in favor of registration with AKC.
- Why there is such a problem in trying to improve the quality of life for our beloved family animals. I thought this was "America."
- When will these dalmatians be granted AKC registration?
- How the HUA/LUA gene appears tied somehow to color and markings.

Summary of Question 5 Responses