

At Crossfield, we make every effort to continue to educate ourselves on best breeding practice. We use the knowledge we gain from multiple forums, including: 1) years of vet consultations with highly educated, well-practiced vets in our local area who specialize in canine reproductive health, 2) articles published by geneticists from <a href="PawPrints">PawPrints</a> which speak specifically to genetic disease and canine reproduction, 3) professional peer dialogue with breeders across many breeds, and 4) independent research (basically entering the rabbit hole of veterinary archives and published articles widely available to the public) which many times originates from conversations we have with our current clients who are also very educated on dog health and disease.

Genetic testing for canine disease is and will always be a science. Therefore, we will always be learning more about best practice. That means we may choose to do more than we have, or less than we did. But those choices will be based on a decision-making process which takes into account one or more of the knowledge forums above. Simply stated, we do not make a decision until we feel the science and best breeding practice have spoken amply into that decision. We realize our decisions may not yield a perfect outcome. But, we are very proud of our record of producing hundreds of healthy pups over a span of multiple years. We are in contact with about 75% of our produced pups and have watched them live healthy lives with their owners.

The mere fact that we encourage and host a social forum (CFD #doodlepack on Facebook) where hundreds of our clients can engage and interact at will, should speak volumes to you that 1) we want to learn about the continued and sustained health of our pups for the duration of their lifetimes, and 2) we have nothing that we wish to hide from future or waiting clients about the product we have or will produce at Crossfield.

# Who do you use for genetic testing?

When we began our program, we used our vet, so our initial breeders—this is a throwback for many: Zoe, Jilli Bean, Geoffrey, Lexis, Sydney & Winston were done through other companies. Therefore, you will probably not see them linked from our website. However, once we discovered the accessibility of @PawPrints Genetics, we never looked to another company. Again, this decision was made through our



knowledge forums above. PawPrints is used by many exclusive breeders across multiple breeds. They are recognized as a premier genetic testing company, and they provide breeders with easy ways to share genetic testing with our clients. If you've clicked on the link provided on our website, you know how easy it is to scroll through all of our breeders—and yes, we've got quite a few of them on there! They are much more reliable than some other mainstream companies, and as a breeder, I know I can call any time, and they will let me speak personally to a geneticist to get answers that inform our breeding program.

Crossfield breeders are on two different accounts. These links will help you find breeders in our programs:

<u>Christy Scheiderer</u> (CFD North and most CFD South Breeders) <u>Christy Galkin</u> (CFD West Breeders)

## What do you genetically test for?

Let's go back to the point about Science and how genetic testing for canine disease will always be a science. When we first started our breeding program, the most commonly identified diseases for the \*Mixed Poodle breeds (as there were not enough companies testing specifically for \*Labra/Golden-doodle) were: 1) Canine degenerative myelopathy, Aliases: DM, 2)Exercise-Induced Collapse Aliases: EIC, 3) Progressive Retinal Atrophy, Progressive Rod-Cone Degeneration Aliases: PRA-PRCD, PRCD, and 4) Von Willebrand Disease I Aliases: Pseudohemophilia, Vascular hemophilia, von Willebrand disease type 1, von Willebrand's disease, VWDI. At the date of writing this article, there are an additional eleven genetic tests identified in the "Breed panel" for our labradoodles, four more in the supplemental, and nine more additional diseases we can test for. They also offer essential, supplemental and additional tests for Goldendoodles and Schnoodles. When a breeder enters our program, we will test for at least the four primary tests above. In many cases, we have gone ahead and tested for many other tests. At times we use other breeders' dogs to breed for us. However, before we make that decision, we look at that breeder's testing as well. That testing is rarely available to you, because we cannot ask a fellow-breeder to provide that to our clients. But, they do provide it to us. The way you can trust us is our guarantee to you. It would be unwise for us to offer



you a guarantee in your contract for genetic diseases, if we were not doing our job of clearing all breeders genetically.

#### What does "Clear by parentage" mean?

Identified diseases (and let's remember that that subject is a growing number as geneticists work to identify more and more diseases) can be tested for by labs using DNA swabs and testing a dog's DNA against the lab's bank of DNA. Each dog we breed has been tested or has already proven to be clear by parentage to carry "At Risk" diseases which they could pass along to off-spring.

Clear by parentage simply means that both the dam and sire of the puppy in question have been cleared genetically by DNA testing. For example, if Mom does not carry the mutated gene and Dad does not carry the mutated gene, we can correctly assume that puppy will not carry the mutated gene. For many of our breeders who have come from either our program or a program like ours where genetic testing was done for the parents, we can clear by parentage multiple generations without having to submit a DNA sample and do a genetic test. Here's a good example from our program.

Maggie Grace was produced by Lil' Maitland (out of Chloe + Matisse (genetically tested Stud)) + Russell (out of Jilli Bean + Geoffrey both genetically tested). Since Lil' Maitland & Russell are \*normal/clear (which means they do NOT carry mutated genes) for EIC, I can make an informed assumption that Maggie Grace also does NOT carry mutated genes for EIC or that she is normal/clear, thus "Clear by parentage." We did, however do DNA testing on Maggie Grace (PawPrints provides testing at discounted rates frequently, and at times it's less expensive to choose a breed panel than an individual test), so we may at times test a breeder for many other tests because it just resets our testing and updates to what are currently identified \*essential panel tests. From that panel testing we performed, I can show you that the assumption of "Clear by parentage" was indeed correct and Maggie Grace also genetically tests \*normal/clear for EIC.

# Normal (Clear), Carrier, At Risk

## Here is a very good explanation of those terms from PawPrints:

For each test, you have the possibility of receiving the following results: normal, carrier, or at-risk (affected). Normal means that your dog has two copies of the "wildtype" or normal DNA sequence for the gene being tested. Carrier means that your dog carries one copy of the "wildtype" sequence (normal) and one copy of



- CLASSY COMPANIONS .

the mutation. For most diseases, your dog will not be affected with the disease, but simply a carrier. Carriers can pass this mutated copy of the gene to half of their offspring and depending on the genetics of their mate, may produce at-risk or affected puppies. An at-risk result means that your dog has two copies of the mutation and is at-risk for developing the disease. In this case, these dogs carry two copies of the mutation so that all offspring will inherit at least one copy of the mutation and depending on its mate, is at high-risk of producing affected puppies.

The reason genetic testing is such a valuable part of our breeding program is because it helps us make the proper decisions about which Dam and Sire we should breed. In the example above, you will note that Maggie Grace is also clear of Degenerative Myelopathy (DM). However, Russell, her father, does carry one copy of the mutation: Carrier. This does not mean he is affected (At Risk). But, what we do learn from testing Russell, is 1) that his off-spring might carry a single copy of the gene (carrier, though not affected) and 2) that we should NOT breed Russell to any other DM carriers to protect the genetic integrity of the off-spring. Therefore, any breeders we have kept from Russell's lines, we know to check them as well for DM so we can properly plan their mates for breeding.

SO Valuable, right! I am not kidding you, when I learned about the genetic testing offered to our breeders, I wondered how much of this is available to humans!

### Where is testing for ...?

We make every attempt to update our online records as frequently as we can. However, sometimes we just flat get behind! We can assure you that we will not make a decision about breeding apart from genetic testing (see my note above about the guarantee in your contract with us as regards genetic disease.) However, you may not be able to see the records as immediately as we can. We have to share and update reports, and while we place a priority on being as up-to-date online as we can, sometimes the immediate needs of caring for a new litter of puppies, teaching a guardian home about their new member or answering clients may edge out these updates. If you find we are missing a link for your breeding pair, just let us know @Crossfield Doodles, and we will get to this request as soon as we possibly can.



What is different about genetic testing and testing for hips and elbows? Really good question! While genetic testing lies primarily on the \*science side of the equation, hips and elbows is a widely debated and many breeders contend disputed \*art that falls more squarely on the \*practice side of the equation.

For genetic testing, you take a swab and gather saliva from a dog's mouth. Any age (as long as you swab post-weaning) pup to adult dog's DNA in that saliva swab is going to be the same.

Hips/Elbow testing is so, so, very different from age available to being tested, to factors that can affect not only the testing procedure, but also the environmental factors that can change the results, to how the results are interpreted or read. Here is a basic explanation of how that testing is done.

- 1. The vet. Breeder takes the intended sire to the vet for X-ray. This can be any vet who will do these X-rays and submit them for evaluation. This vet may be very skilled at taking the x-rays or not. This is not a lab (like above) where techs are trained on how to properly take and take millions of shots like a lab takes millions of spins with DNA. This is a once-and-done stop at the vet.
- 2. The X-ray. Vet lays sire out for X-ray. This means the vet spreads the pup's back legs as flat as possible against the table. For nearly every pup, this means sedation as you cannot generally manipulate a pup in this fashion. What this means is that some x-rays have sedated pups (and perhaps more relaxed joints for the open, spread), while others may be tighter because the pup was not sedated and is actually using their muscles to hold the joints together. Could this affect the results--completely! One pup's joints are going to appear tighter simply because he's awake!
- 3. The timing. X-rays can be taken as early as 4 months of age up to adult. Do you think that age may reveal different things in dogs as joints age and loosen? Yes, more laxity with age. At the same time, I'm left to wonder what affects the manipulation of joints as early as 4 months of age in order to achieve an appropriate view could lead to in that pup as an adult. If we are talking about an intended Dam, timing is crucial to this testing. As a woman who has given birth five times, I am fully aware of the important role of relaxin (the hormone that aids



- CLASSY COMPANIONS -

in loosening joints for birth--sorry fellas, we just went there) plays in birth. While this hormone is triggered by pregnancy, dogs are notorious for \*false pregnancies and some researchers argue all female dogs will go through a false pregnancy in some form or fashion. I've seen this in both my girls: Zoe & Scarlette. After their first heat (which we never breed on) both girls showed signs of pregnancy and even started carrying around a favorite squeaky toy day 65 post-cycle (or, when they would have given birth!) A female dog's body can produce hormones that work with birth, even though she's not pregnant. So, what if I've unknowingly laid-out my female like this when she's producing relaxin?! Probably really good results for the radiograph; but, my poor girl!

- 4. The factors. New research is showing that the primary causes of dysplasia are much more environmental than first believed. And breeders are being encouraged to consider development of joints as early as day one! The surface we have our puppies crawl on in their whelping box is a choice that speaks specifically to this research. Breeders are from all walks of life and a litter can be birthed in anything from a barn, to a kitchen floor, to a kiddle pool and then, what we employ: a whelping box. Research has shown that using a soft surface where the pup can actually grip the flooring as it motors to Mom countless times a day actually does affect the formation of those playdough-like sockets and joints. Research has also shown that what a family allows or does during pup's first months at home also plays a crucial role. Does puppy use the stairs? Does puppy go for leashed runs with the owner? Does puppy do agility training during those early months? All of these factors directly correlate to a pup's joint development. And the research is showing that pups who have been diagnosed early with dysplasia do indeed have these environmental factors at play. A final environmental factor that is being identified is the weight of the dog. If the dog is allowed to gain excess weight (and it does not even have to be much in excess of normal!) then that pup is much more likely to develop dysplasia than a sibling from the same litter.
- 5. The read. The radiographs taken by the vet are then sent to OFA for reading.
- 6. The reality. Dogs are diagnosed with dysplasia, and their parents have been tested with ratings of \*Good or \*Excellent. This happens at a high enough rate for researchers to be interested in finding out why and studies to be being conducted. Here's a sample study that is one of many recently conducted. You



- CLASSY COMPANIONS :

can find many others out there with nuanced thesis stated and methods to gather data and test. Study after study emphasizes that while genetic predisposition may be present, breeding practice and environmental factors after take home are playing a greater role in the prevalence of dysplasia.

- 7. The guarantee. We provide the following guarantee to each client for each pup: A warranty for Hip Dysplasia is provided for two years after the date of birth. Why? We believe that we are making proper choices for breeders based on our vet's recommendations at regular physical exams and also based on the to date, zero incidence of diagnosed dysplasia in any Crossfield puppies. If that number does increase numerically in years post the writing of this content, that will still be an astonishing low rate of occurrence. Additionally, we believe that we are following the best practices in caring for puppies by giving them surfaces that help joints develop from the earliest stages of life. We limit stair use to outdoor porch steps and carry pups should a flight of stairs be needed to access a living space. We do not run our pups on leash. Finally, we speak to clients and educate clients about how to care for joints upon home going. We believe that these things are the best way to promote healthy joint development for our breeders and puppies in our Crossfield Family.
- 8. The decision. We realize you may not agree with our conclusions. But, we would want you to be in full support of your breeder. If you are not comfortable with our decisions, we would encourage you to seek out the breeder who makes choices about dysplasia and tests in a way that reflects your personal values.