

Everyone has an opinion on breeding.

By Joe Newlin

Everyone has an opinion on breeding. There are as many divergent opinions on how an animal should be bred as there are breeders. I have heard many very successful people say that they never inbreed, others say they never outcross. These opinions are literally poles apart. Never the twain shall meet.

I have heard it spoken, only half in jest that if it works, it is linebreeding and if it doesn't it is inbreeding! If there is a principle misunderstood by even those who advocate its use - it is inbreeding.

Inbreeding is the mating of closely related animals to one another. Closely related, here, means parent-offspring, full-siblings, half-siblings, aunt-nephew, or uncle-niece. For this discussion, if the two parents are related, but not this closely we will define it as linebreeding rather than inbreeding.

Now that we have defined what it is, WHY DO IT?

Inbreeding is done for a variety of reasons, but two very valid reasons come immediately to mind. First, is to find and identify weaknesses (faults in structure, conformation, temperament, etc., or poor recessive genes) that may be masked and transferred to another generation of puppies. Second, is to concentrate the genes of one very good dog.

Every trait that a mammal has is inherited in duplicate. We, and our dogs, get a gene for every trait from each of our parents. Our dogs will show one trait that is more like one parent and another trait that is more like the other parent. One parent is dominant for one trait and the other parent would be dominant for the second trait. For example, this explains why a puppy can have the head of one parent and the body of the other.

The trait that is exhibited, or that we can see, is referred to as being dominant. The trait that is not exhibited is referred to as being recessive. However, the dog can pass on the recessive traits as easily as it can the dominant ones. This is where a lot of surprises come from. This is the simplest of cases. Many traits are a combination of more than one gene, sometimes far more than one. The technical term for this is "polygenic." Each of the genes that contribute to the trait or characteristic can be inherited from either parent.

By breeding animals that have many of the same genes in common, we can remove many of the variables or possibilities that otherwise might surprise us. In order to breed animals with as many genes in common as possible, you must start with closely related breeding stock.

Since many of the gene combinations will be duplicated, we will find that many of the recessive traits will be revealed; revealed-not caused. This is a very, very important distinction to make. The recessive genes which may be faults will be unmasked because they will have been duplicated from both the sire and the dam. However, the good traits will also have been inherited in duplicate. If we can find the puppy with the good traits that we are seeking from an inbreeding, then we can be fairly

confident that the good traits are there in duplicate. We will have a puppy that is plenipotentiary for the good traits.

The bad side to this coin is that we may also have puppies that have the faults in duplicate and they must be culled from the breeding pool. They must be neutered and not allowed to reproduce. For this reason, inbreeding is not a plan for the faint of heart.

A puppy receives half of its genes from each parent, 25% from each grandparent, 12.5% from each great-grandparent, etc. If we breed a dog to his daughter, the resulting puppies will receive 50% of their genes from their sire. Their dam is already 50% of the sire, so the puppies will have 75% of their genes contributed by their father who is also their grandfather. This makes them actually more related to their sire than their dam, who is also their half-sister. If one of these second generation bitches is bred back to the same sire, he would then be contributing 87.5% of the genetic makeup of that litter of pups.

When the Santa Gertrudis breed of cattle was being developed in South Texas, the ideal bull was developed. He was bred to his daughter and to her daughter and to her daughter for six successive generations to set the breed type. Finally, the last generation produced a cow that had 127/128ths of its genetic material donated by the original bull. This is as close to cloning the ideal animal as we can come.

Problems? The Santa Gertrudis is one of the hardiest and largest of all breeds of cattle. Descendant cattle were just as big and had the same temperament as the original stock. There was no loss of size or of good temperaments resulting from this type of concentrated inbreeding. Since you are not introducing any new genes, but simply recombining the same genes into new combinations, this method cannot cause faults. It will, however, allow you to identify them and then remove them from the existing breeding stock.

This brings to mind a second notion that I have often heard. I hear people tell how many different times a kennel name appears in a pedigree and they consider that a sign of inbreeding or line breeding. If you elect to inbreed, you must select a dog upon which to concentrate your efforts, not a kennel.

It is not possible to inbreed to two or three dogs simultaneously. Just because a dog carries a kennel name in its pedigree several times does not mean that it has been line bred or inbred. I have heard some people tout their dogs as being of a certain line or kennel because of one of its great-grandparents. All that tells me is that 7/8 of the dog's genes came from somewhere else.

I know of some dogs that are not any closer related to a prominent stud dog than seven generations, or a great-great-great-great-great-grandparent. A dog in that generation is only one of 128 ancestors in the 7th generation. Yet, due to the inbreeding and the many times that the dog appeared in the puppy's pedigree in the 7th, 8th, 9th and 10th generations, he still accounted for 28% of the genetic makeup of the puppy. With inbreeding, a dog can still have a significant impact upon the breeding, long after it has passed away. Someone with a dominant, ideal stud dog should consider inbreeding to save as much of his genes as possible for future generations. You may have a dog that meets your ideal of the breed standard or you may be able to find the dog that you think most closely matches the standard and breed to it.

How do you plan a program to reproduce that dog? First, study the pedigrees of some of our best dogs and you will be able to use this pedigree as a blueprint to follow. Second, breed a bitch to this "ideal" dog. Hopefully, the bitch will have some common ancestry. Third, take the best bitch puppy of the resulting litter that does not have faults in common with the sire and breed her back to her father/grandfather. You should then get puppies in this second generation that are 75% of the sire and have very few faults in common with their sire. Our dogs do not often live long enough to breed those puppies back to the sire again. From here you must search out a sibling or half-sibling that, again, does not have any common faults and breed them. This will keep the genetic makeup of the original sire well over 50% in any puppies that you produce and you will be able to see this dog's good qualities repeated over and over again.

Out crossing should be done judiciously, as you are reintroducing many variables. You may get some outstanding puppies; you may also be masking some recessives that will not crop again for several generations.

One good pedigree that I have seen and studied took a half-brother/half-sister cross and produced two dogs and a bitch. The bitch was bred to one of her littermates and produced a bitch puppy. This second generation bitch puppy was then bred back to her double uncle, the littermate of both of her parents. There are several instances of this type of breeding, or a slight variation of it, in all the prominent lines in the breed. This breeds success, if done with study and the fortitude to neuter the undesirable ones.

I realize that many will see an article on inbreeding and think of taboos and that it is a program that can be disastrous. Any breeding program will breed mediocrity, if it is done haphazardly without thought, training and study.

Patience is the key. No breeding program is going to turn out the ultimate dog after only one generation, unless you are very, very fortunate. What you should see, though, is a consistent improvement generation to generation. With inbreeding, you should also see uniformity and consistency within a litter. Often, you will see more uniformity from an inbred litter than one from another type of breeding simply because there are fewer variables introduced in the genetic makeup of the puppies. As with any breeding program, you must ensure that the uniformity you seek is of high quality rather than just the average. Breeding average dogs should not be anyone's goal.