

What is the difference between inbreeding, line breeding and outcrossing?

Inbreeding can be defined as '*the mating of closely related cats*' such as brother to sister, father to daughter, mother to son etc. It can be used by cat breeders (as it is with all purebred animal species) as a way to produce kittens with '*predictable and uniform physical traits*'.

There may however be problems associated with inbreeding of cats in that although recognisable improvements can occur, so do undesirable genetic traits. These may include immune deficiencies, major and minor congenital abnormalities, result in smaller size litters along with cats that fail to grow to normal full size and a decreased survival rates of kittens.

Any Breeders using this method would need to carefully research the cat's pedigree lines for signs of negative genetic traits before proceeding.

Line breeding simply involves the mating of less closely related cats (*more distanced in their pedigrees*) such as grandparents to grandchild, cousin to cousin etc. Although this method is a slower way to produce kittens with desirable traits this is also a slower rate of producing non desirable traits, which enables breeders to take action on non-desirable matings. Line breeding does help in limiting undesired negative genetic traits. It can be said though that line breeding is the cornerstone of selective breeding.

In conclusion, the simple difference between the two: inbreeding versus line breeding lies in the degrees of separation between one half of a breeding pair of cats and the other in their pedigrees.

Note: in any breeding program consideration should be taken for PRA (*Progressive Retinal Atrophy*) gene which can cause blindness. A cat that is a 'carrier' only will have normal vision but statistically if one is mated to another 'carrier' (PRA positive) it is likely that some of the litter will have PRA and go blind. A cat can be simply be DNA tested for the PRA gene.

Outcrossing is simply the mating of cats that are totally unrelated to each other or unrelated for 5 or more generations. The male and female cats will be chosen for their quality, type and temperament and to improve the health of the breed plus introduce genetic '*hybrid*' vigour.

The latter can unfortunately result in some undesirable or unpredictable genes but outcrossing can also increase genetic diversity and reduce the probability of resultant cats being subject to disease and genetic abnormalities.

The breeding of pure bred 'pure' Siamese cats mean that they have a fully registered ancestry (pedigree) which reflect their breeding from generation to generation resulting in kittens that are predicable in both type and temperament.

References:

http://fcc-wa.com/CatsWA_PolicyOnInbreedingAndLineBreeding.pdf

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