

UNCOMMON BREEDING STRATEGIES FOR RARE BREEDS

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While conscientious breeders of all breeds face complex challenges in attempting to achieve goals of correct conformation, temperament, type, and movement – along with good health – this can be especially daunting for breeders of rare breeds or breeds with small numbers. In some cases, such a high percentage of dogs are found to be affected with genetic disease that breeders simply don't even bother to screen because they feel helpless. Other breeders may screen so rigorously that they breed only within very narrow lines. Or sometimes dogs that are of overall excellent quality and good health may be so heavily bred (as popular sires, for example) that a large segment of the breed population may begin to carry a disproportionately high genetic contribution from just a few dogs. Each of these breeding strategies can result in unintentional harm to the breed.

Eliminating large portions of a breed's genetic diversity – whether through rapid removal of less perfect dogs from breeding, or through over-reliance on a few highly desirable dogs – carries hidden dangers to a breed. As genetic diversity is reduced, the genes that remain are concentrated in the population; and deleterious recessive genes that were formerly less common and widely dispersed, begin to pair up and reveal themselves. To further compound the situation, by the time some health issues begin to manifest, significant diversity may already have been lost. And since purebred dogs are by definition a closed gene pool, breeders may be left with few options because they cannot recapture lines that have been eliminated. In rare breeds or breeds with already severely limited numbers, this is a real risk and can occur over just a handful of generations.

A more measured approach may slow progress in specific areas, but benefit the breed in the long run by maintaining a richer and more vigorous gene pool. To start, Parent Clubs can assist breeders in making good decisions about health issues by conducting a health survey to provide accurate information about the current status of the breed. This should help breeders identify the most serious health concerns, as well as assess how widespread they are in the population. From that position of factual information about a breed, breeders can begin to prioritize and make decisions that are in the best interests of both individual dogs and the breed.

The mode of inheritance of each individual disease will guide the most suitable approach, but using the example of hip dysplasia (which has a complex mode of inheritance), imagine that health survey data indicate a 40% incidence of hip dysplasia in a hypothetical rare breed. A rigid attempt to reduce HD in the breed by breeding only unaffected dogs would result in the loss of 40% of the breed's genetic diversity, potentially causing harmful long term consequences. A more comprehensive approach to the breed's health might be for breeders to rigorously collect sibling data on their dogs (see <http://offa.org/hovanart.pdf>), and consider also breeding selected mildly affected dogs that have at least 75% normal siblings. With a breed average that starts at only 60% normal, choosing to breed both normal dogs and near-normal dogs from highly normal litters should gradually improve the hip status of the breed. This offers a reasonable option to make progress against hip dysplasia, while still preserving and protecting as much genetic diversity as possible.

Vital to the success of this breeding strategy is screening a high percentage of the breed, including dogs placed in pet homes. Breeds will make the most progress using this approach if Parent Clubs encourage, prod, and reward breeders for actively collecting sibling data, and for sharing that data in a public forum so that all breeders can make informed decisions. This requires a culture within the breed that is supportive of carefully thought out and well documented (by sibling data) choices that may fall outside of the more traditional methods of breeding only normal dogs. In some cases, uncommon breeds may benefit from uncommon breeding strategies!

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