HOW TO INTERPRET BREED ANALYSES

Population Statistics

Because these statistics might be unfamiliar to you, there are defined here:

Effective number of founders (fe) A breed might have 25 founders, but some of the original genetic diversity is invariably lost over time. The effective number of founders is an estimate of the number of founders that would produce the current genetic diversity of the population if all contributed equally to subsequent generations. This is a measure of the fraction of the genes contributed by the founders that still remain in the population.

Founder genome equivalent (fg) Founder genome equivalents of a population is that number of equally-contributing founders that would be expected to produce the same genetic diversity as observed in the current population if there is no random loss of founder alleles in descendants (e.g., through genetic drift).

Effective number of ancestors (fa) This is the minimum number of ancestors - which can be founders or not - needed to explain the genetic diversity of the current population. If there have been no population bottlenecks, *fa* will equal *fe*; the number and severity of bottlenecks will be reflected in the difference between *fa* and *fe*.

Mean kinship (MK) This is an index of the average degree of genetic similarity or relationship between an animal and other members of the population. An animal with many relatives in the population will have a high degree of genetic similarity to many animals, and its MK value will be high; an animal with few relatives will have a low MK. Animals with no relatives in a population have MK = 0%. Consequently, animals with lower values of MK are genetically more valuable in the population because they carry alleles that are uncommon or rare. Every time an animal is born or dies in the population, the MK of all of the animals change because alleles in the new animals become more common and those in the animals that die become less common. The coefficient of inbreeding of an animal is equal to the kinship of its parents; so the greater the genetic similarity between two animals, the greater the risk of inheriting two copies of the same allele.

https://www.instituteofcaninebiology.org/how-to-interpret-breed-analyses.html