WHAT IS INBREEDING?

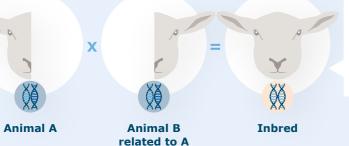






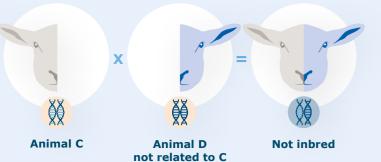
Basic DNA rule

Offspring



Inbreeding

An inbred animal is the offspring of two related animals. These parents have common ancestors.



50% SIRE 50% DAM

No inbreeding

For each gene, different combinations of the DNA of the sire and the dam are possible.

Inbreeding

Variation in gene combinations decreases. Animals are homozygous if they have twice the same gene. (=).

Inbreeding

Causes reduced variation and increased homozygosity in future generations.

RECESSIVE GENES AND GENETIC DEFECTS

Recessive genetic defect (one f)

There are many genetic defects. Every animal (including humans) unknowlingly carries different (lethal) defects. Only with two copies of the same (lethal) gene, the defect will be expressed.



Homozygous: present on both copies

Genetic defect is expressed



Heterozygous: present on one copy

Animal is carrier, no genetic defect

Free, carrier and affected

Genetic defects are rare and most animals are free (no copy) or carrier (one copy). With increased inbreeding higher frequency of affected animals (two copies of the same defect).

Matings between carriers and free animals

With a mating between a carrier and a free animal the offspring are, at worst, carriers.



Carrier

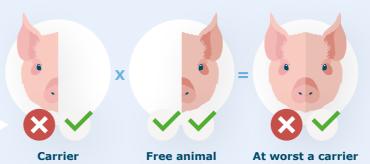
Healthy

Free

Healthy

Diseased

Affected



INBREEDING DEPRESSION

Decreased vitality

GENETIC DEFECTS

Serious consequences





Skeletal deformities



Less resistance



Metabolic diseases



Less growth



Immune system diseases



Lower milk yield



Epilepsy



Shorter lifespan



Blindness

The animals in this infographic have been chosen randomly. Inbreeding can occur throughout the whole animal kingdom.



Matings between carriers

Unrelated animals

unrelated animals will copies from both sire and dam of the same defect in their offspring. Affected animals are extremely rare.



carry different genetic defects. Mating between hardly ever result in two

Related animals are more likely to carry the **same** defect. Their offspring can inherit the same defect from both sire and dam, consequently the defect will be expressed.

