The different number of chromosomes impedes the production of crosses between species. In the formation of a zygote out of a sperm and an oocyte their single chromosomes are regrouped into pairs. With a different number of chromosomes this process fails when sperm cells and oocytes originate from different species.

Chromosomes are double-stranded helices, consisting of two long biopolymers made of simpler units called nucleotides—each nucleotide is composed of a nucleobase (guanine, adenine, thymine, and cytosine), recorded using the letters G, A, T, and C, as well as a backbone made of alternating sugars (deoxyribose) and phosphate groups (related to phosphoric acid), with the nucleobases (G, A, T, C) attached to the sugars (Wikipedia). Within a species and within a breed the nucleotides and nucleobases are situated in a fixed order.

DNA

- Nucleotide
- Each nucleotide: 1 of 4 base pairs
- Base pairs: T, A, C, G

Coding and non-coding regions
- 95% of DNA: non-coding
- But with purpose! Still finding out