

Genetic diversity

The greater the number of alleles that all members of a species possess, the greater the genetic diversity of the species.

The greater the genetic diversity, the more likely it is that a species will be able to adapt to some environmental change. This is due to a wider range of alleles and therefore a wider range of characteristics.

There is a greater probability that some individual will possess a characteristic that suits it to the new environmental conditions.

Selective breeding:

- Also known as artificial selection.

It involves selecting individuals with desired characteristics and using them to parent the next generation.

Offspring that don't exhibit the characteristics are killed or prevented from breeding.

The variety of alleles in the population is deliberately restricted to a small number of desired alleles.

The founder effect:

- Occurs when few individuals colonise a new region.

They carry with them only a small fraction of the alleles of the population.

These alleles may not be representative.

The new population that develops from the few colonisers will show less genetic diversity than the population they came from.

Genetic bottle necks

Populations may sometimes suffer a drop in numbers.

This may be due to things such as a volcanic eruption or interference by man.

The few survivors will possess a smaller variety of alleles than the original population.

As they breed and become re-established the genetic diversity will remain restricted.

Ethics of selective breeding:

- Interfering with nature?

- Animal rights and welfare?

- Is it beneficial to the environment?

- Cost?