Chapter 1.5 Origin of animal breeding: a history of science

The start in the 18-th century

Until roughly the 1700s animal breeding, as in selective breeding, did not really exist. Of course people mated their animals with animals in the neighborhood that they liked. There was no systematic way of selecting animals for reproduction, based on predefined characteristics that did not change from mating to mating, but remained similar in time. In Europe, the origin of animal breeding lays in the United Kingdom. It was Sir Robert Bakewell (1725 – 1795) who introduced keeping accurate records of performance of animals so that objective selection became possible. He used inbreeding (mating of related animals with similar traits) to fix certain characteristics in animals and he also introduced progeny testing, the method of evaluating performance of the first (small) group of progeny and use that information to select the best father of future progeny. He promoted the idea to ‘breed the best to the best’.

Bakewell developed the New Leicester sheep from the old Lincolnshire breed. The New Leicester had good quality fleece and a good fatty shoulder that was popular at the time. Bakewell also noticed that Longhorn cattle were growing well and used less feed compared to other cattle. So he developed that further in order to grow more meat efficiently. It is amazing he did this without knowing anything about genetics.

Establishment of herdbooks

With time the number of people increased who were using the selective breeding approach introduced by Bakewell. With the growing number of generations of selective breeding, it became increasingly difficult to remember the relationships between the animals, especially further back in the pedigree. This was the reason to start recording pedigree on paper, so that correct information could be reproduced and it could be proven that an animal was of a certain breed. The first herdbook was for the thoroughbred horse and was established in England in 1791. This book did not contain all pedigree, but only those of horses that were winning important races. Following the race horses, the Shorthorn cattle (1822) were next to start a herdbook. In the rest of Europe, herdbooks only started to be established in from 1826 onwards for horses (in France), and from 1855 onwards for cattle (also in France). The first international herdbook was established for the American Berkshire pigs in 1876. The first dog in the Netherlands was registered by the Koningklijke Nederlandsche Jachtvereniging Nimrod (predecessor of the Raad van Beheer op Kynologisch Gebied in Nederland) in 1874. After the turn of the century animal breeding within herdbook settings became standard.

Creation of breeds

With the establishments of herdbooks, breeds were formed. There is still debate on what is a true definition of the term ‘breed’. This is nicely illustrated in dog breeding by the fact that the Fédération Cynologique Internationale (FCI), the international federation of kennel clubs, which are national organisations across herdbooks, recognises 339 separate breeds, while the English Kennel club recognises 210 breeds, and the American Kennel club even only 162.

Definitions

A breed is a group of animals of a certain species that through generations of selective breeding has become uniform in performance, appearance, and selection history.

A species is the largest group of animals that are capable of interbreeding and producing fertile offspring.

It is interesting to realise that these herdbooks were established without any knowledge about genetics. Breeders had a feeling about inheritance and that was sufficient to invent this selective breeding.