

9.5 Population structure, breeding pyramid

The breeding of animals for production, as hen and swine, is almost entirely based on crosses. To maintain a steady production of crossbreds it is necessary to keep every breed, that are part of the final crosses, pure.

In such a system a breeding pyramid or kernel breeding including the following three steps are common.

- Breeding kernel
- Multiplication of parent animals
- Production

An example taken from the swine Danish production,

see Figure 9.7. In Denmark more than 20 millions pigs are produced every year. The main part is 3-way crosses. The mother animals are mainly Landrace Yorkshire (LY) crosses. Most of them are mated with Duroc boars, a few with Hampshire breed boars.

In a lifetime a sow gets circa four litters with an average of over 10 piglets and little more than two litters per year. Which means that around half a million crossbred sows have to be recruited every year. They mainly stem from the multiplier herds. The breeding pyramid is shown in figure 9.7. The kernel consists of 50 privately owned herds (breeding centres) of pure breed. These centres breeds with eight thousand breeding sows, four breeds each with circa 2000 individuals. For each pig an index is calculated made up of the characters in the breeding goal. The males are mainly found at the AI stations (artificial insemination). The figure indicates, by use of arrows, the direction of the gene flows in the system. In the production herds around half of the piglets are offspring of AI boars. The other half are sired by natural mating. The boars in the herds are mainly bought from the breeding centres.

Figure 9.7. Breeding pyramid showing breeding system used in Danish swine production.

