



Welcome to the world of DanAvl genetics

The characteristics of the national breeding program

DanAvl genetics is considered to be one of the best in the world today, being a product of a 40-year-long research. The research was focused on the profitable sector and extraordinary quality of meat with the aim to cover the requirements on competitive international markets. DanAvl breeding program sows have the best reproductive performance in the world. Many pig producers in Denmark wean more than 30 pigs per sow a year.

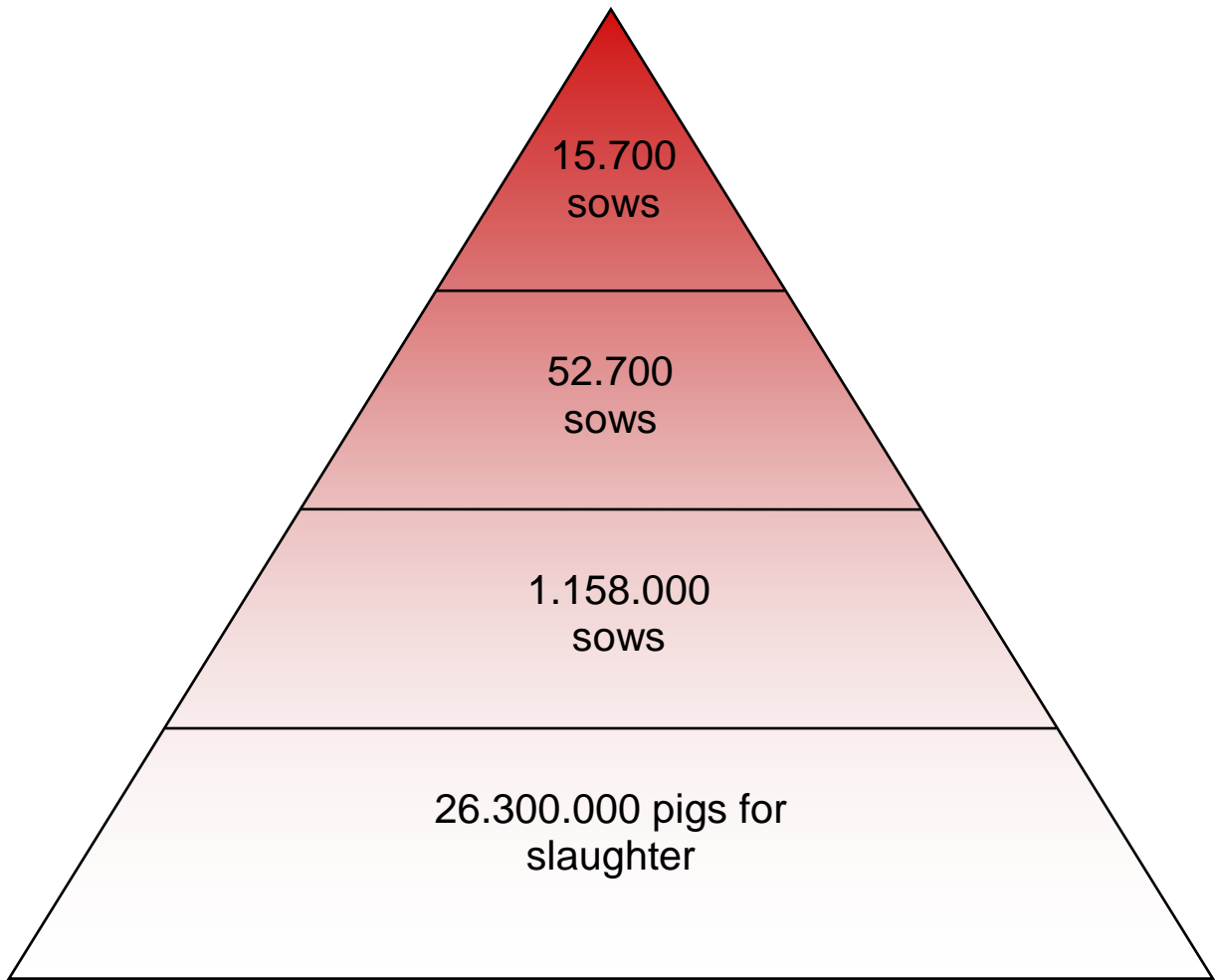
An independent test comparing individual genotypes took place in 2007 and 2008 in Germany. Breeding stations of various genotypes: Pietrain insemination doses were applied at DanAvl, BHZP, JSR, LRS, Hülßenberger, PIC, and TOPIGS. The test monitored both the reproductive and the production performance of the individual genotypes. For more details click [here](#).

The Breeding Base

Current pig population in Denmark:

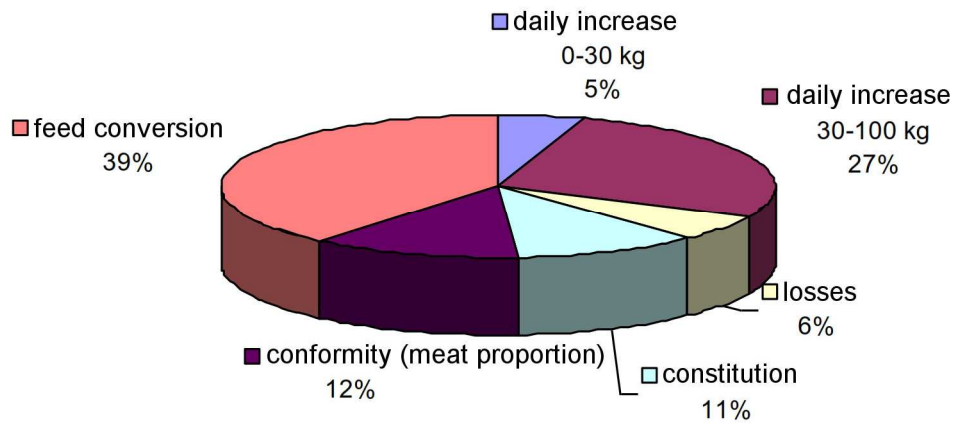
- 15 800 sows at breeding stations, 52 700 sows at reproductive stations, 1 158 000 sows at commercial farming stations for productive purposes
- breeding and reproductive groups also in other countries

DanAvl pyramid

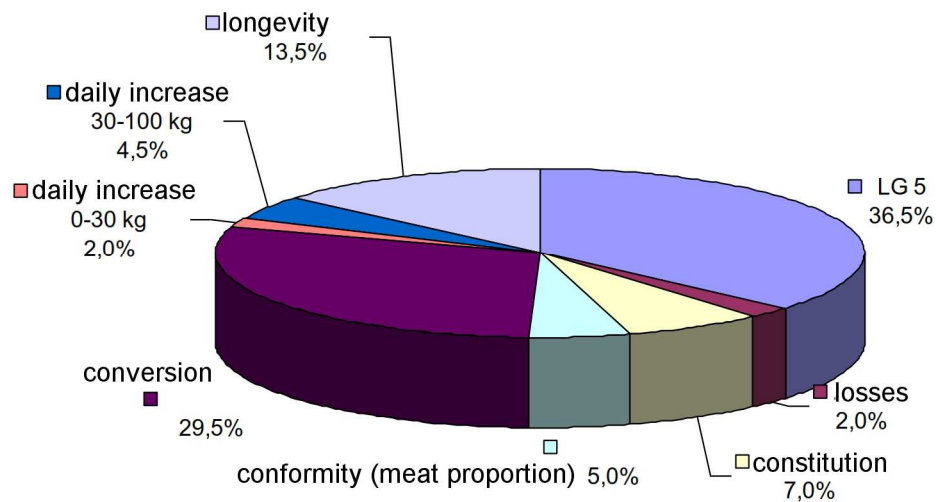


Breeding objectives

Father population - Selective index



Mother population - Selective index



Specific symbol for the Danish breeding program is **LG 5**. The DanAvl program does not follow the number of all born piglets and live born piglets, but only the number of live born piglets in the age of 5 days. Based on this parameter, it is possible to trace and keep only the best quality mothers within the whole population.

Breeding Progress

Breeding progress at DanAvl registered in the past 4 years.

	Breeding progress per a pig for slaughter	Breeding progress value in €
Daily increase (0-30 kg)	1,1 gR/day	0.018
Daily increase (30-100 kg)	11,6 gr/day	0.187
Feed conversion	- 0.027 FE/kg	0.478
Conformity (meat proportion)	0,09 %	0.104
LG5 ¹	0,44 piglets ²	0.768
constitutional strength	0,03 points ³	0.050
Longevity	-0,011 % ²	-0.126
Slaughter losses	0 kg	0.000
The average for all breeds	-	1.479

¹ frequency of litter (5th day of the piglets' life)

² Yorkshire, Landrace

³ Duroc

Concentration of nutrients in KD calculated in barley units 12,5 MJ

Health control system SPF-specific pathogen free

In Denmark, the health of all pigs in the DanAvl breeding program is strictly monitored. The occurrence of the following diseases is practically non-existent in the whole country – classic swine fever, African swine fever, foot-and-mouth disease, swine vesicular disease, pseudorabies, Teschen disease, bovine brucellosis, tuberculosis and trichinosis.

The health control system in Denmark is built on regular sampling and the examination of the samples carried out by an independent veterinary authority. Reproductive and breeding farms are included in the red system, which prescribes regular collection of blood samples once a month. Herds producing pigs for slaughter belong to the blue system, where the state of health is monitored once a year.

The samples are serologically tested in laboratories approved by the SuS (organization responsible for the health system related to pig farming in Denmark) for enzootic pneumonia, actinobacillus pleuropneumonia of all serotypes, PRRS and atrophic rhinitis. In case the sample tests positive for atrophic rhinitis, nasal swabs are taken for bacteriological examination. Dysentery is investigated by cultivation. The occurrence of Salmonella is monitored by the analysis of meat juice at the slaughterhouse. In case of a positive result, samples are collected for bacteriological examination the directly at the breeding point.

Each breeding station provides information on the history of health records on its website. This information contains the exact dates of health examination and dates of any changes in declaration codes.

Declaration codes:

SPF

SPF + MYC

SPF + MYC + APP6

SPF + MYC + APP6 + APP12

SPF + MYC + APP6 + APP12 + PRRS

SPF - free from lice, scabies, enzootic pneumonia, atrophic rhinitis, dysentery, actinobacillus pleuropneumonia and PRRS.

SPF + MYS - free from the above listed diseases, but positive for enzootic pneumonia

SPF + MYC+ APP12 - free from the above listed diseases, but positive for enzootic pneumonia and actinobacillus pleuropneumonia ser. 12

SPF + MYC+ APP12 - free from the above listed diseases, but positive for enzootic pneumonia and actinobacillus pleuropneumonia ser. 6 and 12 .

Health records may be confirmed on the SuS website according to the number of the breeding station, which is a part of the ear mark of all pigs coming from a respective breeding station.

The organization of pig farming in Denmark

Pig breeders in Denmark are organized into a company called the Videncenter for Svineproduktion. The executive body of the Videncenter for Svineproduktion is the Danish Pig Production (the National Committee for the production of pigs), which is responsible for the decision-making process on the structure of the breeding population, the breeding purposes and health control of all the herds included in the breeding program. Danish pig Production also grants licenses for the export of the DanAvl breeding material.

Why does Sevaron cooperate with the DanAvl breeding program?

SEVARON was selected for cooperation with the DanAvl breeding program by the embassy of the Danish Kingdom, thanks to the provision of comprehensive service to supplied animals. SEVARON offers not only the mediation of the purchase of genetic material or pigs for fattening, but also provides the subsequent service.

SEVARON cooperates with a Danish company called Porc-Ex Inc., who has been the owner of the license for the export of breeding material since 2001. The company has two divisions: **Porc-Ex Breeding** arranges for the export of genetic material and **Porc-Ex** arranges for the export of pigs for fattening.



Breeding material Pigs for fattening



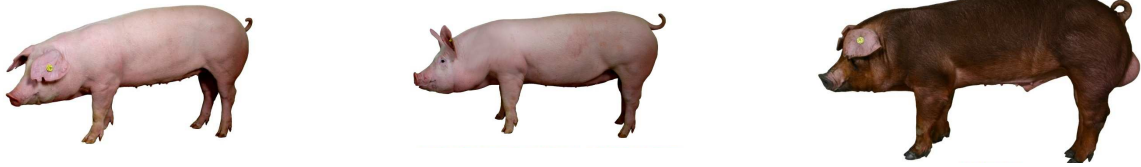
Breeding material

The national DanAvl program

The Danish system of breeding is built on simplicity. There are three basic breeds: Danish Landrace, Danish Yorkshire, and Danish Duroc.

Until recently, Danish Hampshire was also used in the paternity position. However, after the publication of results of a Danish test focused on the sensitivity to circovirus, in which Danish Duroc in comparison to Danish Hampshire showed a higher resistance to diseases caused by

the originator of this virus, breeders' demand for insemination doses of Danish Hampshire boars disappeared.



Danish Landrace, Danish Yorkshire, and Danish Duroc.

Characteristics of the breeds

Danish Landrace and **Danish Yorkshire** have excellent fertility, and milk production capabilities, as well as good survivability of the pigs, litter balance, constitutional strength, and locomotion. They are resistant to stress, have an excellent growth capacity, and combining follow-up.

The F1 generation crossbreeds LY/YL use the effect of heterosis, which increases their productibility.

Danish Duroc has an excellent meat quality (high percentage of intramuscular fat) and growth capability given a favourable feed conversion. Its resistance, constitutional strength and optimal conformation help them achieve excellent results in the use of Danish Duroc in the paternity position for the production of the final hybrid.

This breed is highly resistant to infection by the PCV - 2 virus .

LG 5

DanAvl is the only breeding program working with the selective index of the maternal population marked as LG 5. LG 5 is the number of piglets in litter aged 5 days. Until recently the emphasis was put on the LG5 index amounting to 76 %, however given the changes in commodity market prices and the increase of feed prices, the selective index had to be reevaluated.

OUR OFFER OF GENETIC MATERIAL FROM DENMARK

We offer:

The proposal of depopulation of the individual farms:

- Assessment of suitability and proposal of construction adjustments to the existing farms
- Visit of the Porc-ex Breeding A/S staff
- consulting services and supervision over the implementation of the black-and-white system of operation, and maintenance of high health status of the herd
- creation of a functional OS sow- piglet-fattening
- proposal of organization with respect to biological safety
- creation of disinfection programs (choice of solutions and the way of their application)
- monitoring of the efficiency of disinfection

SEVARON recommends setting up ones own corporate insemination centers. For this purpose we provide comprehensive consulting services including selection of animals, technology, lab equipment and employee training.

Other services provided

Monitoring of health using the DanAvl methodology:

- selection of monitored diseases;
- choice of methods used in laboratory tests;
- The frequency of examinations and the numbers of examined animals of the respective categories of the breeding points;
- laboratory examination in a laboratory accredited by the EU (additional fee applied);
- Proposal of an appropriate vaccination and medical program for the individual breeding farms.

Benefits of our offer:

- contract concluded directly between the farmer and the Danish party;
- wide breeding base;
- Size of the supplying farms;
- Long-term and clear development concept;
- expansion into many countries of the world;
- All information on breeding and state of health available to the public;
- simple system of crossbreeding;
- great genetic progress in the population;
- Consistent, comprehensive and sophisticated program of protection of the breeding points against infection by any disease;
- systematic supervision over disease situation at the breeding station;
- comprehensive consulting services;
- close cooperation with the leading scientific work-sites and universities;
- long-term follow-up, direct contact with the farmer (the owner of sold animals);
- many years of experience in the long-distance transport of animals and with the compliance with the principles of transport welfare

Time schedule for deliveries of animals for breeding

Schedule is adapted to the needs of the customer as much possible

Services

References from the Czech Republic

SEVARON was selected by the embassy of the Kingdom of Denmark for its comprehensive services offered with the supplied animals, including the examination of their state of health in a diagnostic laboratory accredited by the EU. SEVARON offers not only the mediation of the purchase of genetic material, but also provides subsequent service.

Our team of field workers already has experience with repopulation of breeding points with the DanAvl genotype in the Czech Republic. Our work starts with the choice of a source farm, examination of the state of health directly at the selected breeding station, pre-selection of animals, preparation for transport, their reception at the farm in the Czech Republic and launch of a newly populated operation, all this in a proper manner to ensure the achievement of the same health and breeding standards as those applied in Denmark.

As a part of our comprehensive service we arrange for the creation of the DDD program of the black-and-white operation system, we provide nutrition recommendations for all individual categories of pigs, equipment for the respective insemination centers at the breeding stations, and training of their employees. We also provide veterinary consultation, direct veterinary service at these breeding stations, including breeding, zootechnical and zoohygienic service. Our staff is in constant contact with the Danish Pig Production specialists, and all the newly gained knowledge is immediately implemented at Czech farms.

At present, around 10 000 gilts were imported in the Czech republic, being F1 crossbreeds, and 53 boars of the Danish Duroc breed currently located at three corporate insemination centers.

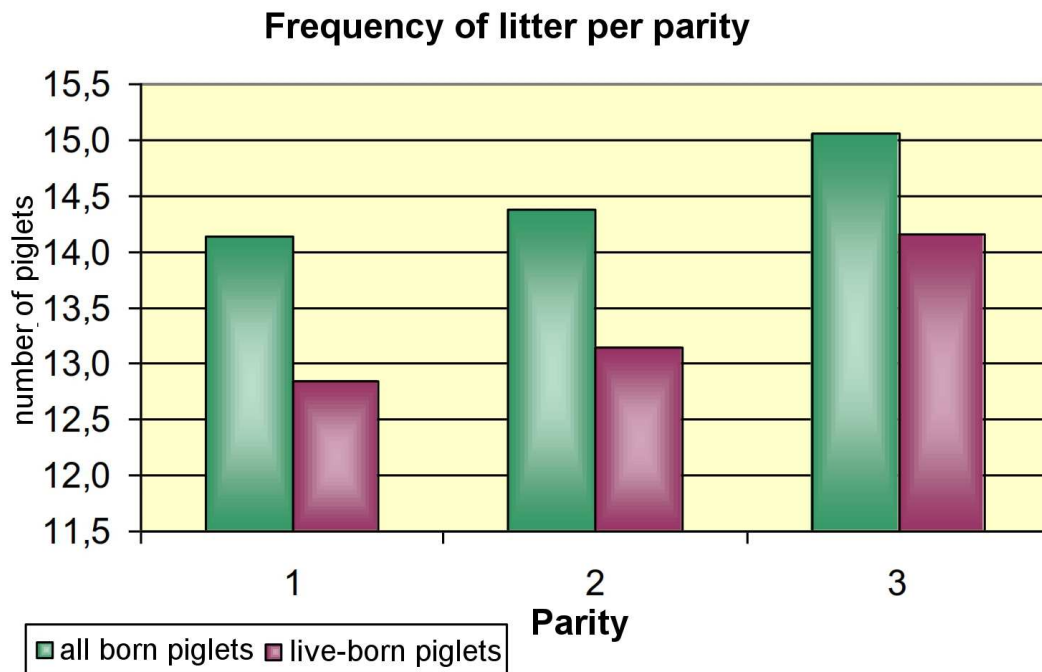
In addition, we also arranged for the import of around 150 pure-bred gilts of the Danish Landrace breed, and around 100 pure-bred gilts of the Danish Yorkshire breed, and of course including boars of the Danish Landrace and Danish Yorkshire breed. This pure-bred population will be used for the reconstruction of fattening herds themselves. We secure genetic progress by importing insemination doses from high index boars.

Results of breeding stations in the Czech Republic repopulated with the DanAvl genetic material, and achieved thanks to our comprehensive services:

Reproduction:

- ✓ pregnancy after the first artificial insemination of gilts - 95,0 %
- ✓ insemination - 83,8 %
- ✓ insemination period - 12,2 days
- ✓ number of heifer days - 21,0 days
- ✓ culling in the first year - 15,5 %
- ✓ All piglets born in the litter - 14,3 pcs
- ✓ All live-born piglets per litter - 13,0 pcs
- ✓ weaning per litter 12,1 pcs
- ✓ pre-weaning mortality 6,9 %

Frequency of litter per parity:



pre-feeding:

- ✓ average daily increase - 379 g/day
- ✓ Losses (mortality, selection) - 1,98 %

Fattening herd

- ✓ average daily increase - 859 g/day
- ✓ Losses (mortality, selection) - 1,15 %
- ✓ feed conversion - 3,056
- ✓ slaughter weight - 114 kg
- ✓ average conformation - 58,9 %

Pigs for fattening

State of health

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References from the Czech and the Slovak Republic

Services of SEVARON are also used for the purchase of pigs for fattening by different customers, both in case of individual purchases and in case of long-term purchase contracts. Until now, approximately 100 000 animals on various levels of the state of health have been put in stock within the SPF system.

Average results of completed rounds:

average daily increase	957 g
Feed conversion	2,67 kg/kg
Mortality rate	1,14 %
Other losses	0,95 %
The average picking weight	118.24 kg
The average conformation	57,94 %