



Results for DanBred Pigs 2024

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Main conclusion

DanBred delivers breeding progress on survival and bottom line.

DanBred pigs have a historically high productivity with an average of 35.3 pigs weaned per sow per year in 2023. Over the past two years, breeding progress for piglet survival has shown an annual increase of 4.1 percentage points, and it is the largest contributor to the total realised breeding progress measured in the DanBred nucleus.

In the coming years, the expectation is that the overall breeding progress will continue in a positive direction. Piglet survival and sow survival will be the largest contributors to the overall breeding progress.

Results for DanBred pigs 2024 include:

1. Production results for DanBred pigs
2. Breeding progress in the DanBred nucleus
3. Prognosis of breeding progress

1. Production results for DanBred pigs

DanBred pigs show a historically high productivity.

Herds with DanBred genetics have experienced an increase in productivity in both sow, piglet, and finisher herds from 2022 to 2023 [1]. For sow herds with DanBred genetics, the production results are historically good.

In 2023, the average number of weaned pigs per sow per year reached 35.3. This is the highest published average for any breeding company in the world. The increase adds up to one extra pig weaned per sow per year from 2022 to 2023. This result is primarily due to a reduction in piglet mortality of one percentage point and an increase of 0.2 more liveborn piglets per litter (Table 1). Approximately the same development is found in the National average productivity for Danish pig farms 2023, where piglet mortality was reduced with 0.9 percentage points from 2022 to 2023 [2]. Herds with DanBred genetics weaned 0.5 piglets more per sow per year on average, compared to the National average productivity for Danish pig farms 2023 [1] [2].

Table 1. Production level in sow herds using DanBred genetics. Key figures are calculated as medians of all years [1].

Period	2023	2022	2021	2020	2019
Number of herds	269	278	321	304	221
Number of herds with feed registrations	241	242	286	277	203
Ratios					
Sows per year, pcs ¹	773	731	718	720	762
FUsv + FUs0 per sow per year ²	1,525	1,511	1,516	1,527	1,509
Litter results					
1 st parity litters, %	22.8	22.4	22.7	21.9	21.6
Liveborn per litter, pcs.	18.5	18.3	18.0	18.0	17.7
Stillborn per litter, pcs.	1.9	1.9	1.9	1.9	2.0
Weaned per litter, pcs.	15.8	15.4	15.3	15.2	15.0
Lactation period, days	31	31	31	31	30
Weight at weaning, kg	6.0	6.1	6.1	6.2	6.2
Deaths until weaning, %	14.5	15.5	15.6	15.3	14.9
Total piglet mortality, %	22.5	23.5	23.5	23.2	23.5
Reproduction					
Non-productive days per litter	13-8	14.4	14.2	13.4	13.0
Days from weaning to mating	5.9	5.8	5.8	5.7	5.7
Returns, %	5.0	5.1	5.2	5.4	5.0
Farrowing percentage, %	87.8	87.8	87.9	87.8	89.1
Weaned pigs per sow per year, pcs.	35.3	34.3	34.3	34.2	33.9
Litters per sow per year, pcs.	2.24	2.23	2.24	2.25	2.27

¹The key figure for "Sows per year, pcs." is calculated as a simple average.

²FUsv + FUs0 per sow is only included from herds that are in the interval of 1,000-2,000 FU.

Mortality in DanBred herds producing weaners decreased by 0.5 percentage points from 4.0 % to 3.5 % (Table 2). This is 0.6 percentage points below the Danish average for 2023 [2]. Daily gain for weaners has shown an annual increase since 2019 and has reached 453 g per day in 2023. Feed efficiency (7-30 kg) has also improved since 2019 and is now at 1.76 FUsv per kg gain corresponding to 1.54 kg feed per kg gain in 2023 (Table 2).

Table 2. Production level in piglet herds using DanBred genetics. Key figures are calculated as medians for all years [1].

Period	2023	2022	2021	2020	2019
Number of herds	130	134	163	160	112
Number of herds with feed registrations	119	118	153	144	97
Ratios					
Pigs produced per year, pcs.	23,784	23,432	20,402	19,567	19,529
Daily gain, g	453	451	458	454	449
Reference daily gain (7-30 kg), g ¹	460	460	469	460	460
Feed consumption per kg gain, FUsv	1.75	1.79	1.80	1.80	1.83
Reference feed efficiency (7-30 kg), FUsv per kg gain	1.76	1.78	1.80	1.79	1.84
Reference feed efficiency (7-30 kg), kg feed per kg gain ²	1.54	1.56	1.58	1.57	1.61
Died, %	3.5	4.0	3.6	3.5	3.2
Miscellaneous information					
Weight at introduction, kg	6.0	6.0	6.0	6.2	6.3
Weight at the time of sale, kg	30.3	31.0	31.4	30.8	30.7

¹Reference feed efficiency and reference daily gain corrects the measured averages to the standard weight range of 7-30 kg, thereby making it possible to compare the results achieved year by year.

²Reference feed efficiency has been converted from Feed Units to kg using the conversion rate 1.14 FU/kg feed.

Daily gain for finisher herds with DanBred genetics has increased with 13 grams per day from 2022 to 2023. In addition, a favourable improvement in feed efficiency from 2.66 FUsv per kg gain to 2.65 FUsv per kg gain was found or calculated as kg feed per kg gain feed efficiency improved from 2.52 kg feed per kg gain to 2.53 kg feed per kg gain. The mortality for finishers is at about the same level in 2023 as in 2022 (Table 3).

Table 3. Production level in finisher herds using DanBred genetics. Key figures are calculated as medians for all years [1].

Period	2023	2022	2021	2020	2019
Number of herds	86	84	73	62	61
Number of herds with feed registrations	64	66	62	48	53
Ratios					
Pigs produced per year, pcs.	5,706	6,891	7,994	6,461	9,091
Daily gain, g	1,033	1,038	1,021	1,007	974
Reference daily gain (30-100 kg), g ¹	1,037	1,024	1,012	1,012	966
Feed intake per pig daily, FUsv	2.74	2.75	2.77	2.75	2.66
Feed consumption per kg gain, FUsv	2.65	2.69	2.71	2.67	2.72
Reference feed efficiency (30-100 kg), FUsv per kg gain	2.65	2.66	2.68	2.63	2.71
Reference feed efficiency (7-30 kg), kg feed per kg gain ²	2.52	2.53	2.55	2.50	2.58
Miscellaneous information					
Weight at introduction, kg	31,3	31,3	31,8	32,6	31,8
Slaughter weight, kg (avg.)	88,3	87,9	89,7	90,1	86,9
Growth per pig produced, kg	84,6	84,3	86,4	87,0	82,2
Meat percentage (avg.) ³	60,5	62,4	62,0	61,6	61,4
Reference meat percentage	62,2	62,4	62,0	61,6	61,4
Discarded, %	0,2	0,2	0,2	0,1	0,1
Died, %	3,5	3,4	3,8	3,6	3,7

¹Reference feed efficiency and reference daily gain corrects the measured averages to the standard weight range of 7-30 kg, thereby making it possible to compare the results achieved in the individual years.

²Reference feed efficiency has been converted from Feed Units to kg using the conversion rate 1.05 FU/kg feed.

³Danish slaughterhouses made an adjustment to the calculation of meat percentage mid-2022. Therefore, the meat percentage for 2023 is corrected. See: National Average Productivity for Danish Pig Farms 2023 [2] for further information on adjusted meat percentage.

2. Breeding progress in the DanBred breeding nucleus

In the past two years, there has been a large overall breeding progress, and piglet survival has been the largest contributor.

The realised breeding progress for the past two years shows a large breeding progress overall, where piglet survival has been the trait with the greatest contribution. In the DanBred finisher, piglet survival accounts for as much as 65 % of the total breeding progress. This is due to the fact that there has been a significant breeding progress for piglet survival from all three DanBred breeds, but especially from DanBred Duroc.

It is innovative that DanBred Duroc contributes to piglet survival, which is normally a trait that is improved through the female. The results clearly show that DanBred Duroc has been the overall driver of the great improvement in piglet survival that has occurred over just two years. Overall, the robustness traits have contributed with 66 % of the total breeding progress, the traits of productivity have contributed with 19 %, and the reproduction traits have contributed with 15 % (Figure 1).

In the past two years, the total breeding progress has been DKK 12.30 / EUR 1.65 per year per DanBred finisher pig. However, the actual total breeding progress is assumed to be even higher, since the trait 'sow survival' has not yet been included in the report. The reason is that the breeding progress for sow survival cannot yet be calculated accurately.

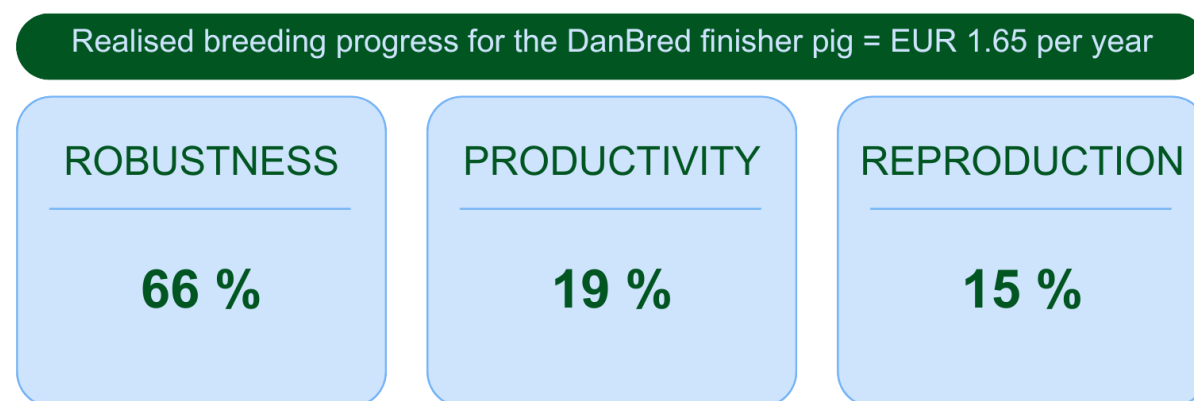


Figure 1. The realised breeding progress for the past two years has been DKK 12.30 / EUR 1.65 per year per DanBred finisher pig, but is presumed to be even higher, as the trait 'sow survival' cannot yet be included in the calculation. The expected breeding progress is divided into three categories: robustness (piglet survival and conformation), productivity (piglet and weaner growth, finisher growth, meat percentage, and slaughter loss) and reproduction (litter size).

Generally speaking, there is favorable breeding progress for all traits, except for meat percentage, where there is a slight decline (Table 4). The large, realised breeding progress for piglet survival stems both from the maternal effect on piglet survival, but in particular the piglet's own effect on piglet survival. This gives an overall breeding progress for piglet survival of 4.1 percentage points per year in the DanBred finisher pig (Table 4).

In the past two years, litter size has had an annual breeding progress of 0.29 pigs, and feed efficiency has had an annual breeding progress of 0.013 less FUsv per kg gain corresponding to 0.012 kg feed per kg gain (Table 4).

Half of the genetics in the DanBred finisher comes from DanBred Duroc and is the primary reason for the large breeding progress in piglet survival of 4.1 percentage points per year. The expectation is to see the breeding progress manifest from DanBred Duroc within less than a year. This corresponds with the production results for DanBred pigs, where piglet mortality has been reduced by 1 percentage point from 2022 to 2023 [1]. Thus, the expectation is an improvement of 2 percentage points in piglet survival for DanBred production herds in 2024. The impact of the breeding progress for DanBred Landrace and DanBred Yorkshire will always take longer to manifest. However, the majority of the progress should be visible in the results for DanBred production herds within 4-5 years, depending on how quickly the sows are replaced in the herd.

Table 4. Average annual breeding progress for each trait in the breeding goal for DanBred Landrace (LL), DanBred Yorkshire (YY), and DanBred Duroc (DD) as well as the total breeding progress, expressed in the DanBred DLY-finisher pig. The breeding progress is expressed biologically, corresponding to the trait's measured unit, as stated, and is based on the last two years.

Robustness	DanBred DLY-finisher pig	LL	YY	DD
Piglet survival, maternal effect (percentage points)	1.1	0.9	1.2	-
Piglet survival, pig effect (percentage points)	3.0	2.1	1.9	4.0
Conformation (points)	0.35	0.48	0.25	0.33
Reproduction				
Litter size, maternal effect (number of piglets)	0.23	0.30	0.15	-
Litter size, boar effect (number of piglets)	0.05	-	-	0.05
Productivity				
Piglet and weaner growth (grams/day)	0.4	-3.0	-1.2	2.9
Piglet and weaner growth, maternal effect (grams/day)	1.1	1.2	0.9	-
Finisher growth (grams/day)	3	8	7	-2
Feed efficiency (FUsv/kg gain)	-0.014	-0.023	-0.021	-0.005
Feed efficiency (kg/kg) ¹	-0.013	-0.022	-0.020	-0.005
Meat percentage (%)	-0.07	-0.06	0.06	-0.14
Slaughter loss (kg)	-0.09	-0,08	-0.14	-0.08

¹Feed efficiency has been converted from Feed Units to kg using the conversion rate 1.05 FU/kg feed.

3. Prognosis for breeding progress

In the future, it is expected that piglet survival and sow survival will be the largest contributors to a continued large overall breeding progress.

In the coming years, continued improvements for all traits in the breeding goal are expected. We strive to reach a total breeding progress in the DanBred nucleus of up to DKK 20.80 / EUR 2.79 per year per DanBred finisher pig.

The robustness traits will contribute with 65 % of the total expected breeding progress (Figure 2) and make DanBred pigs even more robust. The productivity traits will contribute with 29 %, and the reproduction traits will contribute with 6 % of the total expected breeding progress (Figure 2).

Prognosis for breeding progress for the DanBred finisher pig = EUR 2.79 per year

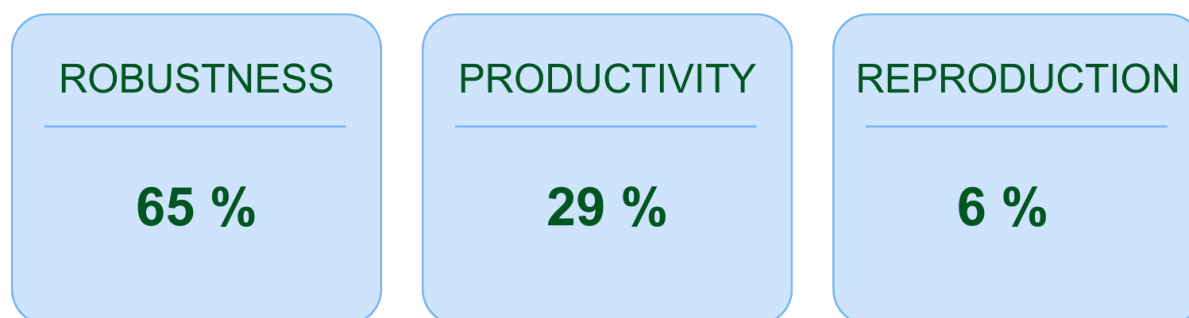


Figure 2. The prognosis for the breeding progress for the DanBred finisher pig in the coming years is DKK 20.80 / EUR 2.79 per year. The expected breeding progress is based on simulation models and is divided into three categories: robustness (piglet survival, sow survival, and conformation), productivity (piglet and weaner growth, finisher growth, meat percentage, and slaughter loss) and reproduction (litter size).

The expectation is breeding progress for all three DanBred breeds, all of which will contribute to a large overall breeding progress for DanBred finisher pigs. In the DanBred nucleus, it is expected that piglet survival will increase with up to 2.5 percentage points per year, and sow survival will improve with up to 0.93 percentage points per year, when sow survival is defined as the percentage of sows that are not dead or euthanised (Table 5).

When the breeding progress is realised, it will manifest in the production herds gradually as the genetics are replaced in the production herds.

Table 5. The prognosis for the expected breeding progress for DanBred Landrace (LL), DanBred Yorkshire (YY), and DanBred Duroc as well as the overall breeding progress expressed in the DanBred finisher pig. The breeding progress is expressed biologically corresponding to the measured unit of the trait, as stated.

Robustness	DanBred DLY-finisher pig	LL	YY	DD
Piglet survival, maternal effect (percentage points)	0.5	0.8	0.3	-
Piglet survival, pig effect (percentage points)	2	1.4	1.5	2.6
Sow survival (percentage points) ¹	0.93	0.98	0.87	-
Strength (points)	0.48	0.23	0.25	0.48
Reproduction				
Litter size, maternal effect (number of piglets)	0.23	0.25	0.20	-
Litter size, boar effect (number of piglets)	-0.05	-	-	-0.05
Productivity				
Piglet and weaner growth (grams/day)	2.76	1.05	2.51	3.74
Piglet and weaner growth, maternal effect (grams/day)	0.97	0.95	0.99	-
Finisher growth (grams/day)	14.6	8.8	16.6	16.5
Feed efficiency (FUsv/kg gain)	-0.020	-0.020	-0.035	-0.013
Feed efficiency (kg feed/kg gain) ²	-0.019	-0.019	-0.033	-0.012
Meat percentage (%)	0.07	0.149	0.124	0.006
Slaughter loss (kg)	-0.202	-0.111	-0.155	-0.069

¹Sow survival is defined as the percentage of sows that have not died or been euthanised.

²Feed efficiency has been converted from Feed Units to kg using the conversion rate 1.05 FU/kg feed.

Technical explanations and disclaimers

In the Results for DanBred pigs 2024, data for DanBred pigs' productivity and realised breeding progress, as well as a forecast for breeding progress in the coming years has been published. Data is compiled based on production data, calculation of the realised breeding progress via statistical models with data from the breeding system. The forecast is based on simulation models that can simulate the entire breeding system.

Breeding progress in the DanBred nucleus

The realised breeding progress shows the breeding progress of traits in the breeding goal over the past two years for DanBred Landrace, DanBred Yorkshire, and DanBred Duroc as well as an overall improvement expressed in the DanBred finisher pig. The realised breeding progress is defined as an average annual breeding progress for each trait in the breeding goal based on the breeding values for sows with offspring that have completed individual testing in the DanBred breeding programme. The sow data included in this report is from a two-year period. Sow survival is not included in the calculation of the realised breeding progress, because the results cannot yet be calculated convincingly to be included, as the sow survival trait has only been a part of the DanBred breeding goal since March 2024. Preliminary data indicate breeding progress for sow survival.

Table 4 shows the annual breeding progress, expressed biologically, corresponding to the trait's measured unit. The total breeding progress, expressed in the DanBred finisher pig, is calculated as a weighted average of DanBred Duroc, DanBred Landrace, and DanBred Yorkshire.

Prognosis of breeding progress

The prognosis for the breeding progress is a calculated estimate that expresses the expected breeding progress in the coming years, provided that the breeding goal does not change. The premise is also that the current breeding system as well as genetic and non-genetic variances remain stable. The prognosis is calculated using complex computer simulations that model the DanBred breeding system from DNA string to herds and breeding decisions. A development project in breeding for breeding progress of litter growth is underway and is expected to contribute to breeding progress for both robustness and productivity, as the trait will contribute to more robust piglets and increased litter weight at weaning. When litter growth is introduced into the breeding goal, a new prognosis will be presented.

Appendix

Average results for DanBred breeding and multiplication herds

The average results for DanBred breeding and multiplication herds show a continued high level of production for DanBred breeding animals. Table 6 shows the results for the reproductive traits in DanBred breeding and multiplication herds over the past year. Table 7 shows the results for individually performance tested boars at the test station Bøgildgård, and Tables 8 and 9 show the results for individually tested boars and sow gilts in the breeding herds in the past year, respectively.

Table 6. Average results for reproductive traits in DanBred breeding and multiplication herds over the past year.

Breed	Boar breed	Litter type	Number	Total number born	Piglet survival
DD	DD	Purebred (DD)	5,597	10.2	74
LL	LL	Purebred (LL)	9,340	17.7	83
YY	YY	Purebred (YY)	10,114	18.0	83
LL	YY	Crossbred (YL)	36,060	19.1	85
YY	LL	Crossbred (LY)	26,362	20.4	84
Total			87,473		

The total number of breeding pigs that have undergone performance testing in the past year is 125,399. This is an increase of 11,236 pigs compared to last year. The increase is partly due to improved management in the breeding and multiplication herds, and that piglet survival has increased significantly in the past year, which means that there are more breeding pigs that complete the performance testing.

The breeding pigs that undergo performance testing form the data basis for the calculated breeding value figures, which are used to select the best breeding pigs for future generations. This larger data will contribute to a greater breeding progress, as a larger data amount will provide an opportunity to increase the selection intensity.

Table 7. Average results for individually tested boars at the test station Bøgildgård over the past year.

Breed	Number	Daily gain, 30-100 kg	Feed efficiency (FUsv/kg)	Meat percentage (%)	Conformation	Killing-out (%)	Back fat (mm)	Scan Weight
DD	2,548	1,296	1.89	63.0	2.86	25.51	6.0	102.3
LL	2,678	1,169	1.97	65.1	3.04	25.96	5.5	106.1
YY	2,093	1,122	1.95	63.5	3.08	26.49	5.6	105.7
Total	7,319							

Table 8. Average results for individually tested boars in breeding herds over the past year.

Breed	Number	Daily gain, 30-100 kg	Daily gain, 0-30 kg	Meat percentage (%)	Conformation	Back fat (mm)	Scan Weight
DD	8,327	1,351	389	61.97	2.94	7.1	101.3
LL	21,191	1,179	364	64.65	3.00	6.4	105.6
YY	24,218	1,145	351	63.11	3.10	6.8	105.5
Total	53,736						

Table 9. Average results for individually tested sows in breeding herds over the past year.

Breed	Number	Daily gain, 30-100 kg	Daily gain, 0-30 kg	Meat percentage (%)	Conformation	Back fat (mm)	Scan Weight
DD	11,029	1,241	392	62.37	3.05	6.6	100.6
LL	26,857	1,105	368	64.92	3.17	6.0	104.4
YY	26,458	1,105	355	62.89	3.17	7.1	104.4
Total	64,344						

Technical explanation

Productivity in the DanBred nucleus are average results measured on all DanBred breeding pigs for selected productivity and reproductive traits. Data was collected during the test period at the test station Bøgildgård and in breeding and multiplication herds.

References

- [1] Hyttel, H. L. (2024): Brancheanalyse for produktivitet i 2023 i et udsnit af besætninger som anvendte DanBred-genetik. Note no. 2410, SEGES Innovation.
- [2] Hyttel, H. L. (2024): Landsgennemsnit for produktivitet i produktion af grise i 2023, Note no. 2408, SEGES Innovation.