



Genetics

Hermitage AI



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LANDING HIGH HEALTH GENETICS



For the past 10 months, PIC has established a new production base for all their genetic lines on Hermitage Farms and AI stations in Ireland and the U.K. This process has involved flying 7 cargo planes bringing the Highest Index GGP boars and gilts to Hermitage AI studs in Ireland and the U.K. from North America.



Hampshire Weaned Pigs in Muckalee

PIC HERD RESTOCK

Hermitage Muckalee herd has been completely destocked and restocked with an entire PIC herd to produce Terminal Boar Lines 337, 327, 359 and 280 for Ireland and the U.K. Hermitage nucleus farms, Freneystown and Muckalee have also had several imports of PIC lines and will produce Maternal line boars and gilts and terminal line 337, 359 and 280. C-sections are being performed regularly to transfer the top index PIC progeny to the Freynestown farm.

PIC 337



PIC Line 337 at Freneystown - Producing high lean yield progeny

BREED 337	BOAR	GILT
Number tested	98	100
Days on test	44	44
Start weight (kg)	58.8	58.9
End weight (kg)	112.4	109.2
ADG (kg)	1.223	1.141
FCR	2.10	2.28
Backfat (mm)	8.1	7.5
Muscle depth (mm)	71.8	76.2



PIC 337 Weaners in Muckalee

PIC 359

The 359 is a hybrid boar produced by mating the 337 and 327. The progeny of Line 359 are predominantly white when mated to white hybrid sows. The 359 has become the most popular boar in the USA due to its robustness and low fall out from birth to sale and excellent food conversion.



PIC 359 - Strong, robust piglets



PIC 359 Weaners in Muckalee

PIC®

PIG PRODUCERS WORLDWIDE BENEFIT FROM GENETIC PROGRESS

New genetic techniques are increasing the production, efficiency and yield of PIC pigs at a remarkable rate. This increased rate of genetic progress in recent years is now showing as accelerated improvement in commercial pig farms. And we believe there is more to come.

The 2013 introduction of Relationship-Based Genomic Selection (RBGS) into PIC's genetic program has helped to accelerate the growth in commercial profit potential. RBGS has replaced the assumed pedigree-based relationship between animals in the genetic evaluation by the actual genomic-based relationship between animals. This has increased the traditional rate of genetic progress by over 35 percent per year for all traits, lines and commercial products.

A specific example of this additional value is the impressive change in both total born and average piglet birth weight. PIC has been measuring individual piglet birth weight for a number of years and has incorporated it into the selection process while implementing RBGS. As a result, the PIC genetic farms have realised an improvement in total born of over 1.5 pigs per litter. Simultaneously, direct selection on individual piglet birth weight has led to an increase of birth weights by over 100 grams per piglet. Total born is a critical measure of success on a sow farm, but if birth weight and survivability of piglets is low, the value of increased total born is minimal. Now that birth weight is also increasing, these additional pigs will increase the producers' productivity and profit potential. Linked to the improvements in birth weight, pre-wean survival also saw a sharp improvement of 0.8 percent average per year for the last five years.

PIC SELECTION TRAITS

Maternal Lines Only	All Lines	
Total Born	Scrotal Hernia	Lifetime Growth
Number of Stillborns	Umbilical Hernia	Backfat
Prewaning Mortality	Cryptorchid	Loin Depth
Birth Weight	Wean-to-Finish Mortality	Leg Score
Weaning Weight	Semen Quality	Feed Intake
Wean-to-Estrus Interval	Intramuscular Fat (280)	pH
Teat Number	Feed Conversion (indirect)	Lactate (337)

Maternal improvements at the genetic farm level take approximately 2-3 years to disseminate through a multiplication system to the commercial level. Now, approximately four years after implementation of RBGS, customers are starting to see the impact from this improved rate of gain at their commercial sow farms. The full benefits of these genetic changes in PIC lines are being observed as commercial finisher pigs start reaching market.

PIC maintains a customer database of commercial performance data. The database includes reproductive results from over 710 thousand sows and performance data of 6.3 million growing pigs. The performance data are showing strong year-over-year gains. The phenotypic trends of traits ranging from total born to feed conversion to average daily gain are showing trends equal or greater than the predicted genetic trend.

For PIC customers, implementation of RBGS and the continued growing investment in industry leading data capture program like GNXbred, help deliver the annual improvements necessary in an increasingly competitive industry. Numerous traits, including total born, survivability and efficiency, are improving at an increased rate and create greater benefit for PIC customers.

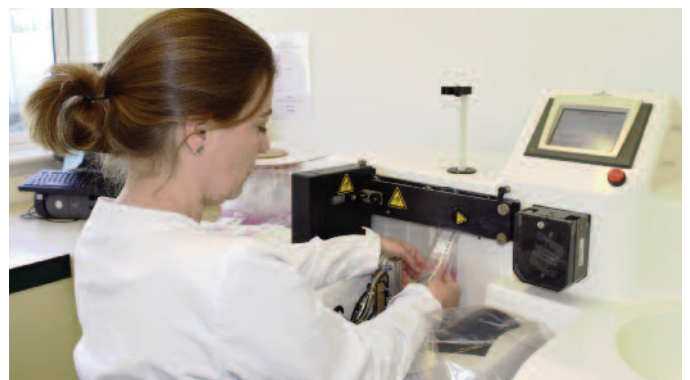
NEW TECHNOLOGY AT HERMITAGE AI CENTRES

Gesipor 3.0 and Magavision I

At PIC-Hermitage we have incorporated the latest in specialised semen evaluation equipment and boar management software into our boar studs.

Magavision is a semen quality evaluation system designed specifically for boar semen analysis. This system allows PIC-Hermitage to achieve the highest level of quality in terms of motility and morphology in all AI doses.

The Gesipor 3.0 boar management software interfaces directly with the Magavision semen evaluation system. Gesipor allows all PIC-Hermitage controlled boar studs full traceability and quality control of each seminal dose produced from each stud.





PIC INDEXING - SYSTEM CHANGE

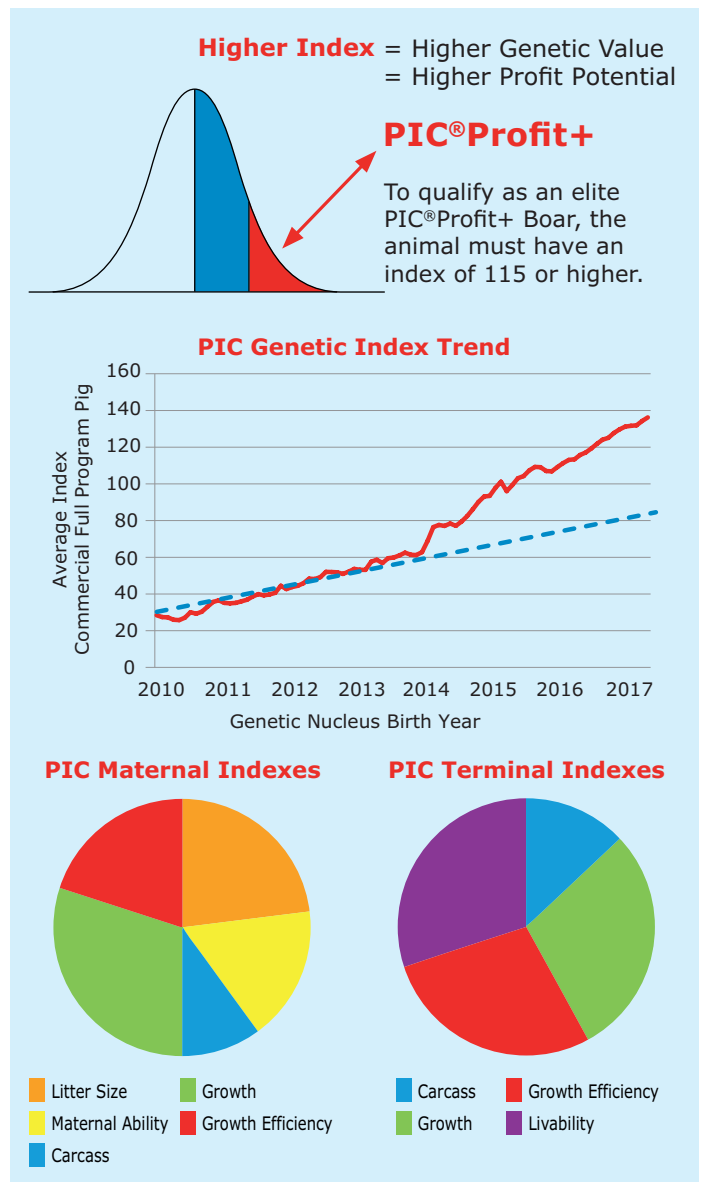
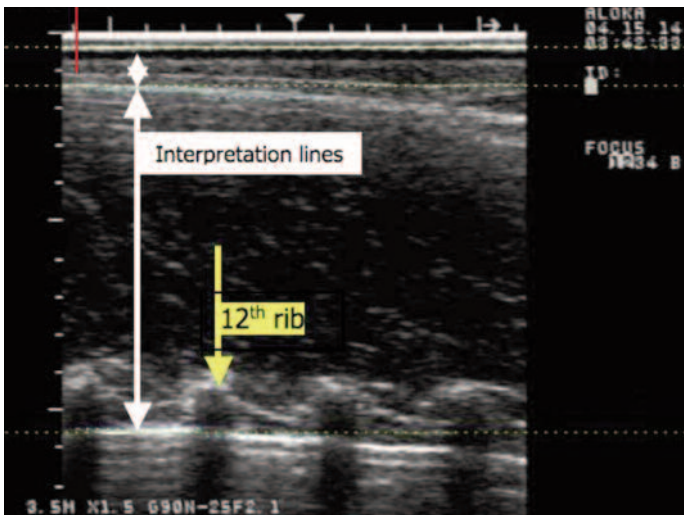
Hermitage Genetics traditionally used a 'Fixed Base Index', whereby the average of the population was fixed to a base year. PIC 'PICTraq' uses a 'Rolling Base Index'.

Definition of Rolling Base

- The base of the PIC index is the last two years of off tested animals at the nucleus farms.
- Each week a new group of off-test animals is added and the group from two years ago is removed. The base is then reset to 100 so an animal will reduce in index over time as the base moves.
- The 'average' is fixed to 100. One standard deviation is 20.
- If genetic trend is being made, the same animal's index will decline in the future (farm indexes look like they are not going up).
- We get accustomed to what a 'good index' is; i.e., 130 is very good.
- Indexes are not comparable between breeds.

ALOKA REAL TIME SCANNING AT HERMITAGE NUCLEUS FARMS

Over 600 pigs per week are real time scanned for P2 and eye muscle depth. This involves taking an x-ray like image at test weighing. This image is then analysed and accurate data is transferred to the PIC PICTraq program along with all the other individual pig trait information to produce the PICTraq index.





MØLLEVANG



There has been a significant change in the Danish Breeding organisation in the past year. The Danish breeders have formed three independent breeding groups; “Danaval (renamed Danbred)”; “Danish Genetics” and “Møllevang Danish Genes”.

Hermitage AI stations have sourced Danaval/Danbred genetics from three high health Danish farms for the past four years including Møllevang genetics, one of the largest breeders in Denmark.

Møllevang Genetics now supply Danish LR, LW and Duroc to Hermitage AI stations and to Møllevang customers internationally. The Møllevang genetic base continues to expand and the Møllevang genetic team work with their own geneticist and selection index. From July 1 2018 Møllevang Genetics will enter into a strategic relationship with PIC which will further strengthen the genetic offering. Hermitage AI station customers have access to Møllevang genetics today.

THE MØLLEVANG TEAM

Møllevang Genetics is operated by highly-skilled and motivated individuals.

The breeding goal focuses on traits that are commercially relevant to producers and generate the most profit. The program utilizes the latest advancements in BLUP, genomic selection, and animal performance testing.

The Møllevang production team is running the nucleus and multiplication efforts with high focus on animal care to ensure the best Danish breeding stock can be delivered to customers.

The Møllevang new sustainable breeding program includes selection pressure for the following traits:

MATERNAL LANDRACE AND LARGE WHITE

The Maternal line average is over 16 Born Alive

- Improved birth weight and litter weaning weight.
- Robust large litters.
- Strong focus on teat number, quality and weaning capacity.
- Structure and confirmation for long, productive herd life.



MV Danish Duroc now available in Ireland and the UK

TERMINAL DUROC

- Rapid and robust growth.
- Efficient utilization of feed.
- Maximum carcass value with increased lean yield and improved meat quality.



HERMITAGE AI STATIONS ARE APPROVED SUPPLIERS AND DISTRIBUTORS OF PIC-HERMITAGE GENETICS, DANAVL/DANBRED DANISH DUROC AND MØLLEVANG DANISH GENETICS

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