

Focusing on genetic selection to improve pig profitability

For several years, Nucléus has been committed to an intense selection programme in order to satisfy all sections of the pig industry. The company shareholders are totally involved in pig slaughtering and in meat processing activities, and Nucléus have focused a significant part of their breeding goals on carcase yield and meat quality.

by Julien Rogon,
Export Manager, Nucléus, France.
j.rogon@nucleus-sa.com

To slaughter one pig costs money, so the higher the carcase yield, the more profitable the slaughterhouse. That is why, today, more and more slaughterhouses are focusing on better carcase yields.

Nucléus shareholders' slaughterhouses are now collecting data with a 27 sensor scanner. From each carcase it collects the yield of each muscle, which allows the correct market to be selected according to these results.

On the genetic front, Nucléus works with these data to select animals with a larger ham and loin. To illustrate the importance of the carcase yield, one integrated farm of 10,000 sows obtained a yield of 80.5% with our Pietrain compared to another terminal boar getting a yield around 79%. The saving

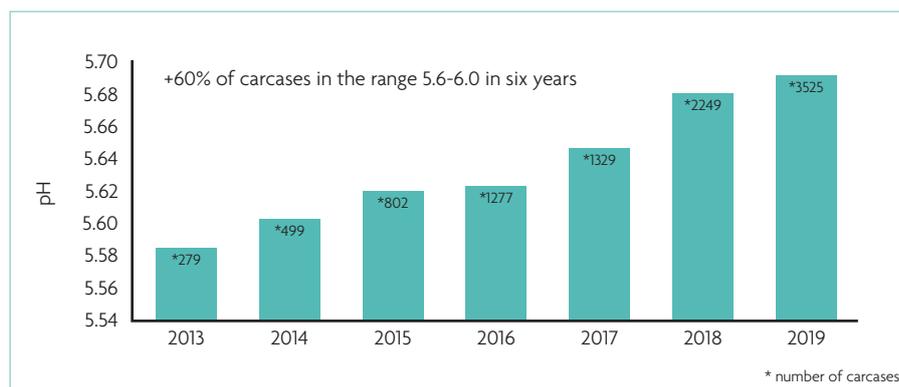


Fig. 1. Evolution of pH in ham at 24 hours in Pietrain NN (with number of carcasses measured).

represents more than €500,000 a year. These figures prove that farmers and slaughterhouses have to take these criteria into account to achieve higher profitability.

Improve the profitability of the meat processors

Following the same theme, since 2013 Nucléus have also integrated indicators like pH evolution, drip loss and cooked ham slicing yield into their selection programme.

In addition to carcase conformation information, Nucléus records the pH of

many animals. The pH is measured 24 hours post mortem in two places on the carcase: on the loin and the ham. Drip loss is also measured by collecting a muscle sample from the loin, which is weighed 24 hours and 72 hours after slaughter.

Figs. 1 and 2 show the improvements since Nucléus started to work on pH (24 hours after slaughtering) and drip losses.

The progress achieved in these two variables enhances meat quality and profitability of the meat processors. To be perfectly efficient on this topic, these two indicators are included in male and female line breeding goals.

With the expansion of farm size and the development of integrators on a world scale, it is a race against competitiveness. To be competitive, profitability has to be calculated on all levels, not just at the farm.

This hard work to obtain better results for slaughterhouses and meat processors is wholly complementary with the production objectives of the farmers. Ultimately, the farmers will benefit from these improvements.

Genetics at the service of the whole pig chain

Nucléus has over 30 years' experience in genetic improvement and is the number one in France. The company works to provide added value for all members of the pig

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chain, including pig producers, slaughterhouses, and meat processors.

Their GGP herd is composed of 6,000 GGP sows, making it the largest GGP herd in France (Large White, Landrace, Pietrain stress negative and Duroc).

Nucléus has several shareholders involved in the whole pig industry. Among them are Cooperl and Fipso, which are two French groups. They slaughter around seven million pigs per year, which is 30% of the French market. In Nucléus' vision, the whole pig sector is a chain of interdependent economic operators.

One of the strategic links in this chain is the genetic breeding programme which aims to meet the expectations of all working in the pork industry.

Focusing on continuous improvement

The Nucléus genetic programme focuses on continuous improvement. Started more than 30 years ago, the company continues their important selection programme on meat quality to meet the needs of the industry.

Breeding is, of course, the first part of this chain. Production aims are simple – increase productivity, while decreasing production costs in order to maximise profitability.

To do this, Nucléus continues its investment policy in research and development. Genomic selection is used as routine in Large White and Landrace breeds to accelerate the genetic progress on productivity.

The genomic method allows gains to be made in accuracy and ensures the animals with the highest genetic potential are selected.

Over the last five years, Nucléus have observed an evolution of 1.6 additional piglets weaned per sow per year.

On their two terminal lines Nucléus pays important attention to feed efficiency and fattening performance. Annually, several thousand animals are individually tested for FCR and ADG directly on the selection farms.

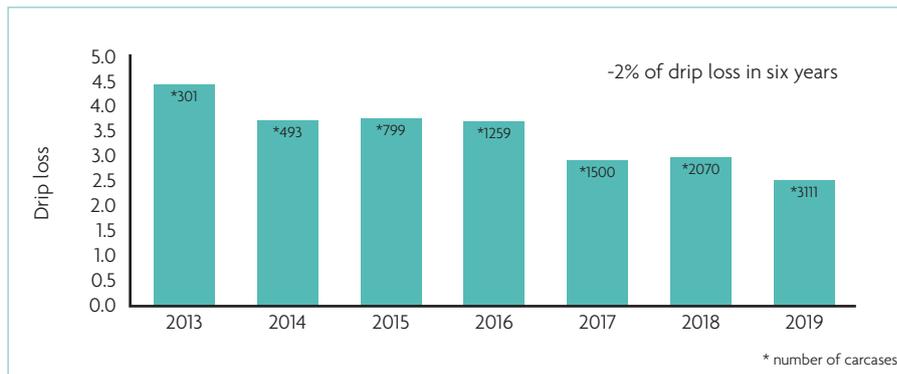


Fig. 2. Evolution of drip loss in Pietrain NN (with number of carcasses measured).

Slaughter activity is crucial because it defines the level of remuneration of the farmer according to the lean meat percentage and the carcass yield.

Genetic work done by Nucléus consists of selecting animals with the highest genetic performance for these traits.

Beyond carcass quality, meat processors also take into account a technological criteria – the pH level.

On their purebred Pietrain population, Nucléus routinely carries out carcass pH measurements on the loin and on the ham at different times after slaughtering (six and 24 hours after slaughter). For example, in 2019 more than 7,000 hams were measured. They reached a pH 24 of 5.72, whereas the average was 5.60 five years ago.

From 2013-2019, the number of hams classified on the range [5.6-6] for pH 24 increased considerably (+60%). This progress has significantly reduced drip loss and improved ham cutting yield; two key indicators for meat processors.

In addition, consumers are also looking for meat with excellent organoleptic qualities, such as juiciness, taste and tenderness. Nucléus has developed a specific method of selection to increase the percentage of marbling to ensure better quality meat.

Furthermore, pig production will have to face new challenges, such as animal welfare.

'Zero castration' is one example of a new challenge. Nucléus and the National Institute of Research and Agronomy (INRA) have validated an equation to predict the risk of boar taint.

Each Nucléus' terminal boar going to the artificial insemination centre is labelled 'INO', which means a boar without boar taint. Since 2012, Nucléus and its main shareholder have produced around 18 million male pigs without castration.

This innovation allows farmers to significantly reduce their global FCR and increase their added value thanks to leaner carcasses.

Innovation and anticipation

Innovation and anticipation are the strengths of Nucléus. They are the only swine genetic company taking the data and the specific requests of the meat processors into its genetic programme.

This singularity makes Nucléus the privileged partner of companies involved in the whole pig chain. ■

