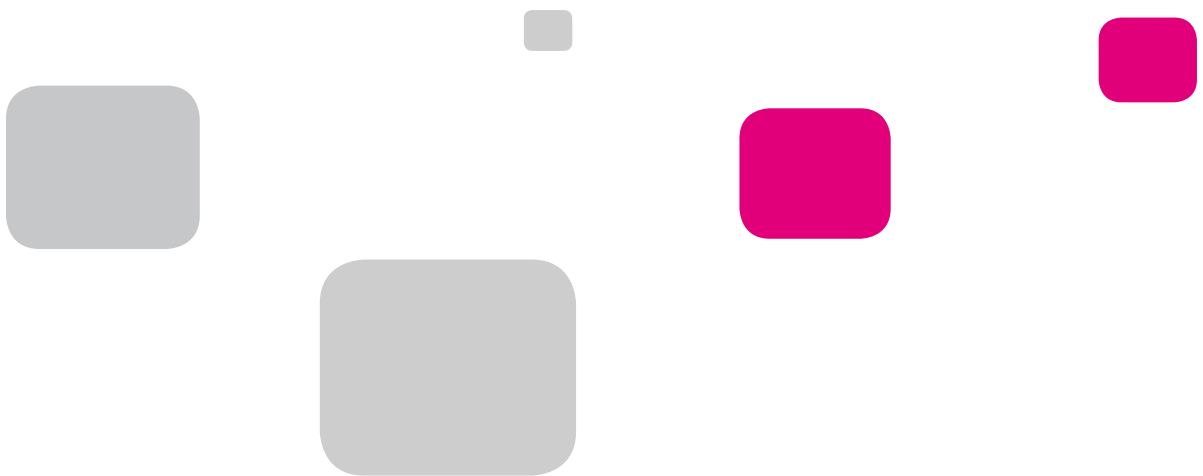


# Together we can create Pig genetics



# The French Leading company in pig genetic

NUCLEUS is a limited company involving in pig breeding for many years. Shareholders of NUCLEUS are 4 French cooperatives producing more than 7 Millions pigs a year. COOPERL, the major shareholder of NUCLEUS is the first pig cooperative in France. They are involved in feed, pig slaughtering, meat processing and manure treatment. They produce more than 6 Millions pigs.



**NUCLEUS markets 1 800 000 doses of semen  
and 150 000 gilts a year for 37.5% of the French**



## **The largest French GGP Herd**

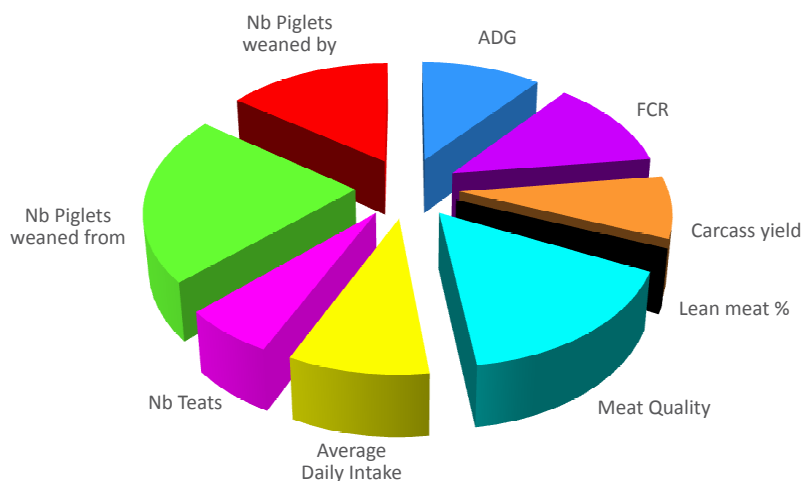
NUCLEUS owns the largest French GGP herd in Large White (1900 sows) and Landrace (670 sows). This big GGP herd insures the selection of the best animal in terms of prolificacy, maternal aptitudes and leg quality. Due to the big size of GGP herd of NUCLEUS, genetic improvement is faster. This improvement in GGP herd is offer to you.

# Breeding work

NUCLEUS breeding work is done by breeders supervised by NUCLEUS geneticist. BLUP Animal model from INRA is used to calculate different genetic value:

## Growth Index

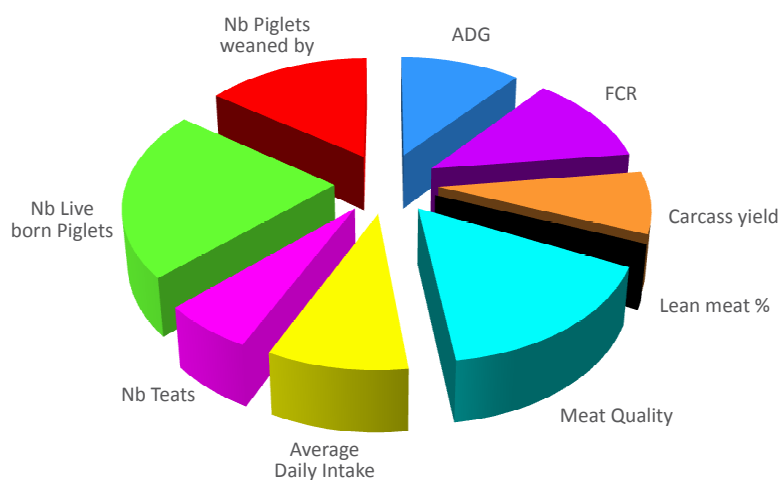
- Average Daily Gain
- Feed conversion Rate
- Average Daily Intake



## Breeding goals Large White

## Meat Quality Index

- Carcass Yield
- Lean Meat Percentage
- pH



## Breeding goals Landrace

## Maternal qualities Index

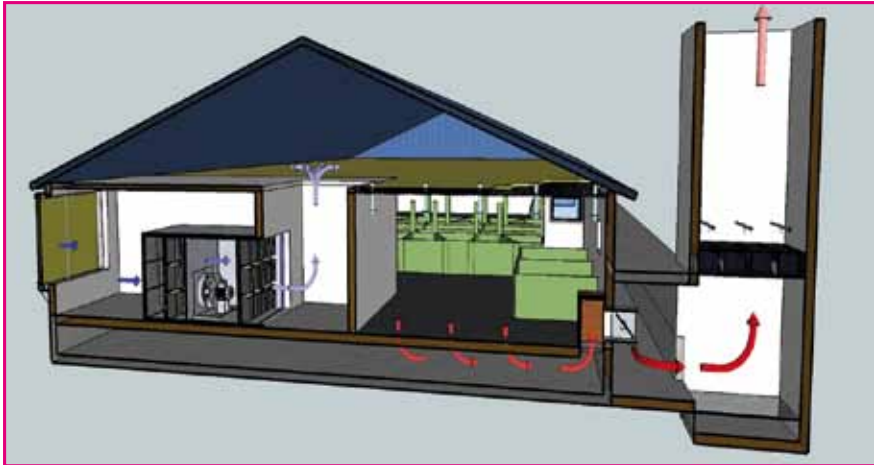
- Number of teats
- Number of weaned piglets from
- Number of weaned piglets by

The genetic value of animals is updated monthly according to performances of their descendants. Furthermore, all breeding animals are assessed for leg quality according to 7 criteria. Animals with bad legs quality are discarded of the breeding scheme. Phenotype of breeding animals is assessed for 4 criteria and only better animals are kept. Teats quality is also assessed and animals with defaults are discarded.

Lots of information is available in order to help the breeder to choose a boar: Performances of the mother, homogeneity of the litter (each piglet is weighed at birth and weaning), maternal qualities: sows behaviour, length of farrowing, easiness of farrowing, milk production and udder position.

# Sanitary Status

NUCLEUS F1 gilts are produced from farms with a high health status. The majority of GGP farms uses the system of air filtration with air suppression in farm. In those farms, no animals enter the herd. Only semen from AIC under air filtration enters the farm for genetic variability. GP farms are always delivered by the same GGP farm. Production farms are also always supplied by the same GP farm.



Detailed scheme about air filtration: dust which carries viruses and bacteria is stopped by the filter: NUCLEUS animals are safe of all major contaminants.

In all GGP and GP farms, a high level of biosecurity is applied: restricted entrances, showers and clothes changed before entering the farm. This high biosecurity level is a guarantee for a delivery of NUCLEUS F1 gilts with a high sanitary status allowing a good expression of their high genetic potential.

## Clinical and serological tests

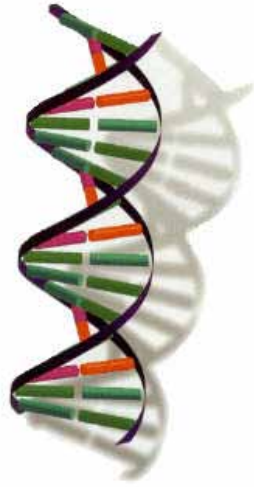
Every GP farms has to realize every three months clinical and serological analysis by a veterinary. Those tests are validated by the Official French Veterinary Services. In addition to serological analysis asked by Official French Veterinary Services, NUCLEUS built its own certification.

NUCLEUS animals are free of:

- ✓ *Mycoplasma hyopneumoniae*
- ✓ *Actinobacillus pleuropneumoniae* (ser 1,2,9,11)
- ✓ Atrophic rhinitis
- ✓ PRRS
- ✓ Swine dysentery

# Genomic Research

Since 2006, NUCLEUS has been involved in Genomic research done by INRA and in collaboration with IFIP and Bioporc. A high budget has been engaged (7.5 Million Euros) for genomic selection.



## Research programs for genomic researches

- ✓ **Biomark (2006-2009):** Fine detection of 6 QTL for a marker-assisted selection
- ✓ **Immopig (2007-2009):** Genetic and genomic studies of some parameters of the immune response
- ✓ **Delisus (2008-2010):** Estimated effects of selected and setting up of a marked assisted selection
- ✓ **SwAn (2009-2011):** Birth defects: fine genetic mapping of genes underlying
- ✓ **UtOplGe (2011-2013):** Towards optimal use of genomic information in pyramid schemes

Only characters with low heritability are studied: Birth defects, boar taint, maternal qualities, immune responses to diseases.

Furthermore, a database of 5000 DNA samples is stored by NUCLEUS linked with data about technical results and meat quality. All these data allows NUCLEUS to improve the use of genomic selection in pig breeding.



# Recognized high performances

High performances of NUCLEUS F1 genetic are recognized by our customers in France and many foreign countries. Furthermore, the French Ministry of Agriculture designated NUCLEUS as the best breeding scheme in France in 2007 and 2009 based on growth performances, carcass quality and meat quality of fattening pigs.

## Economical Gain

Economical gain using NUCLEUS genetic instead of other ones has been estimated to 3.77€/pig by the French Ministry of Agriculture allowing a gain of 377 000 euros for a production of 100 000 slaughter pigs a year.

Quality of the final product is illustrated by the 1st place

- at the 28th Public Terminal Test – year 2007 -
- at the 29th Public Terminal Test – year 2009 -

*Public terminal tests assess growth performances, carcass quality and meat quality of fattening pigs. Public terminal tests are organized by the French Ministry of Agriculture.*

## GGP farms

	Total Born (/litter)	Born alive (/litter)	Weaned (/litter)	Weaned (/sow/year)
Large White	14.9	13.9	12.4	31.0
Landrace	14.3	13.1	12.0	30.1

## GP and Production Farms

	Total Born (/litter)	Born alive (/litter)	Weaned (/litter)	Weaned (/sow/year)
GP Herds	14.8	14.0	12.9	33.1
Production Farms	15.5	14.5	13.0	33.5



# Our Products

## Female Line

- ✓ Large White (Yorkshire) female line
  - High prolificacy
  - Good growth
  - Good rusticity



## Female Line

- ✓ French Landrace
  - Excellent Maternal Qualities
  - Good prolificacy
  - Good leg quality

## Sire Line

- ✓ Pietrain
  - High lean meat percentage
  - Excellent carcass yield
  - Low FCR



## Sire Line

- ✓ Duroc
  - Excellent carcass quality
  - Good growth
  - Good rusticity

## Sire Line

- ✓ Large White sire line
  - Excellent growth
  - Low FCR
  - Good Carcass quality



# Export at NUCLEUS

For many years, NUCLEUS has exported animals in more than 25 countries around the world. The enhanced genetic potential of NUCLEUS pigs, leded NUCLEUS to launch its genetic abroad during the 90's. Only 15 years later, the very high technical and economical performances of NUCLEUS are well-known worldwide.

## Asia, Europe, America: NUCLEUS genetic is present all around the world

- ✓ SPAIN: Biggest integrators and cooperatives chose NUCLEUS genetic: Vall Company's, Coren, Mazana or Guissonna Cooperative
- ✓ EASTERN EUROPE: NUCLEUS delivered purebred and F1 animals to several farms
- ✓ CHINA: NUCLEUS exported several thousand purebred animals to China



### Foreign customers of NUCLEUS

	Total Born (/litter)	Born aliv (/litter)	Weaned (/litter)	Weaned (/sow/year)
Large White	15.5	14.5	13.0	33.5

Foreign customer managed to get good technical results with their purebred females.



# Collaboration

NUCLEUS proposes to support you in your genetic project. In order to express the high genetic potential of NUCLEUS breeding stock, technical management of herd becomes a key-point. NUCLEUS experts will give you advices in order to allow the full expression of the exceptional breeding potential of NUCLEUS animals. You want to produce F1 gilts yourself? NUCLEUS gives you advices on the management of your GGP and GP herds . NUCLEUS give you access to the know-how of our genetic experts to select best animals according to your breeding goals.

## Benefit of NUCLEUS experience in pig breeding!

- ✓ Technical visits to give you tracks of improvement
- ✓ Complete audit of the farm
- ✓ Genetic evaluation of your herd
- ✓ Advices for selection

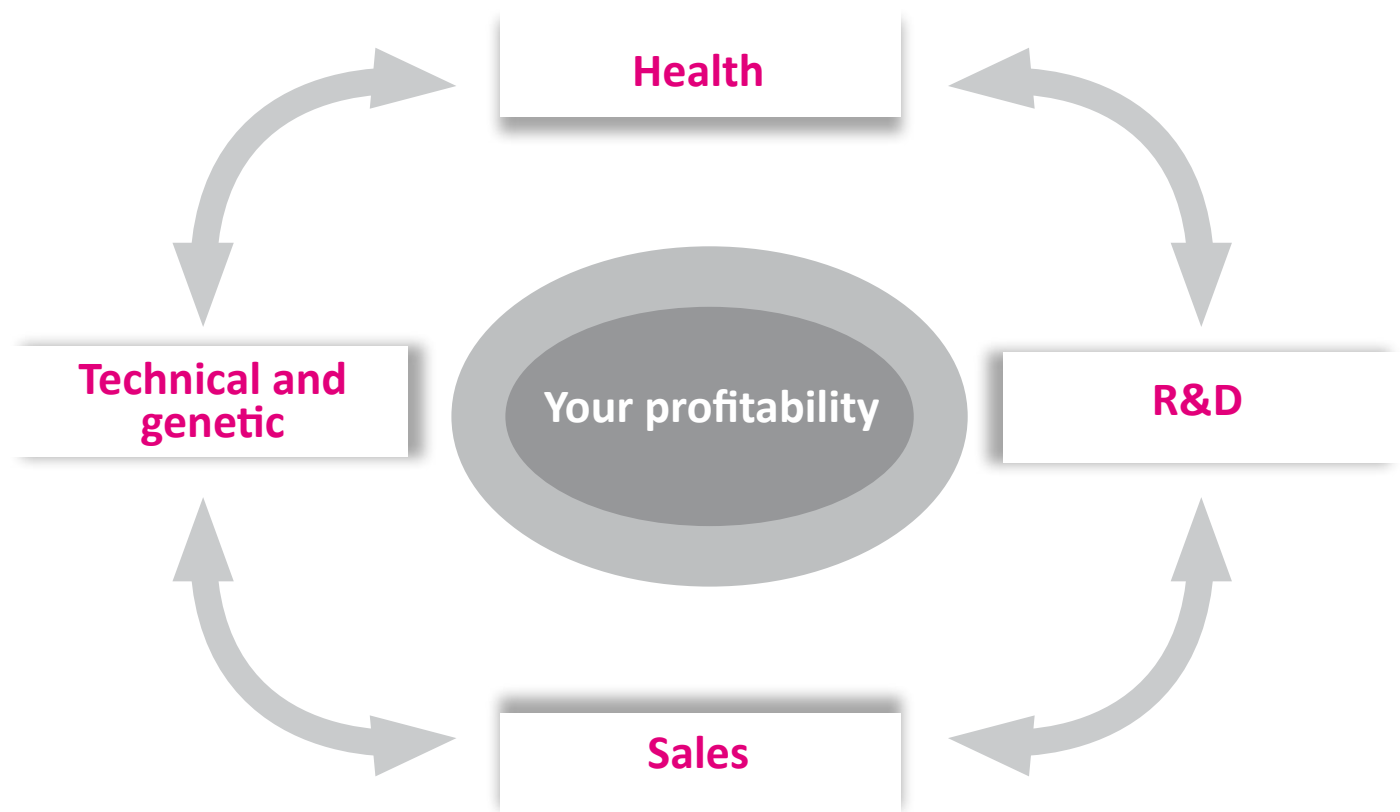
## Breeding evaluation of your herd

Using DELTA G, software used by NUCLEUS in its GGP farms, you have access to genetic evaluation of your breeding stock. Thus, you have all information to select the best animal in your herd and to maximize genetic improvement.



# NUCLEUS: dynamic and reactive company

All NUCLEUS departments are at your services in order to success in your genetic project. For NUCLEUS, all aspects of pig genetic are important in order to maximize performances. Also, all departments works on the same objectives: provide you the best genetic in terms of genetic values, health status and profitability.



In NUCLEUS pig breeding company, all department works in collaboration in order to propose you best animals with high genetic potential and high health status. Those two points are key-point of the success of your company, in terms of profitability and sustainable pig production. Producing animals with high and long production is our aim. Today, you can benefit from our work and experience.

# Сотрудничество



Benoît JOSSELIN

Europe, Russia

Tel: 0033 299 145 146

Mob: 0033 675 160 422

E-mail: [b.josselin@nucleus-sa.com](mailto:b.josselin@nucleus-sa.com)



Arnaud BUCHET

Europe, Asia

Tel: 0033 299 146 481

Mob: 0033 674 410 383

E-mail: [a.buchet@nucleus-sa.com](mailto:a.buchet@nucleus-sa.com)



7, rue des Orchidées  
35650 - LE RHEU - FRANCE  
Тел.: 0033 299 146 481  
Факс : 0033 299 146 480

E-mail: [contact@nucleus-sa.com](mailto:contact@nucleus-sa.com)  
[www.nucleus-sa.com](http://www.nucleus-sa.com)