

The potential of Wallonia in animal genetics



**ProAniWal
Asbl**



**Promotion of the Walloon
Animal Productions**

Genetics and Selection - history of the actions

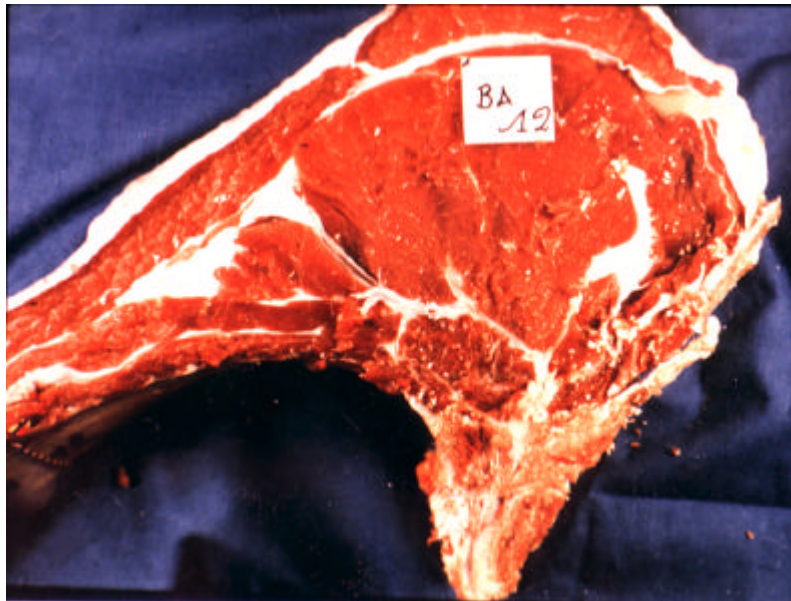
Several scientific institutions of Wallonia are interested with animal productions since dozens of years We developed mathematical models **of genetic evaluation of the reproducers** for the beef and dairy cattle.

Beside this work, we took part in the study of **the Belgian Blue White (BBB) bovine breed**, the most muscular bovine on a world level. In Wallonia, the hypermuscular bovines are called by the term "culards".

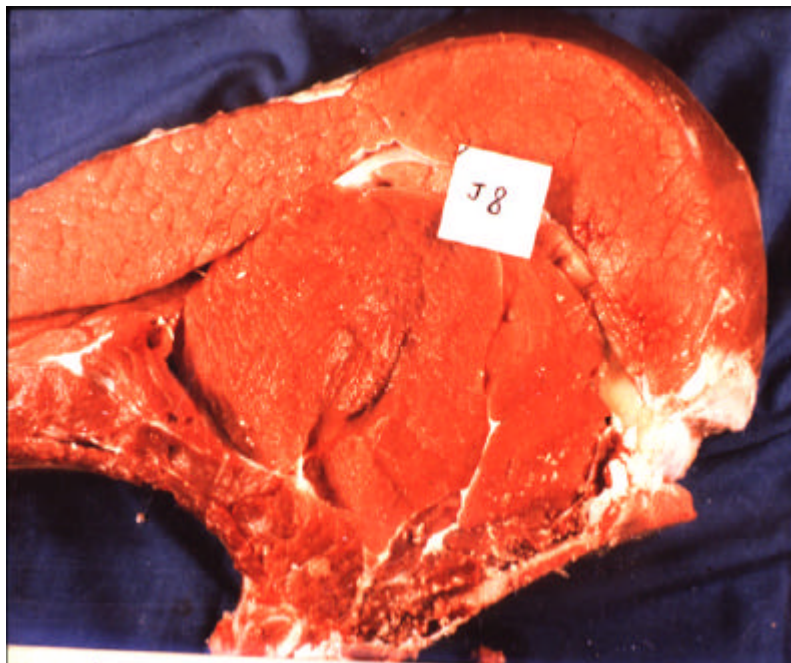
The responsible gene for the quantity of muscle of this type of ovine was recently discovered. The gene is called MH for "Muscular Hypertrophy". This discovery brought us world fame owing to the fact it was published in *Nature Genetics*, one of the most prestigious scientific reviews in the world. These animals, carrying the MH gene, have very high outputs, and one bull had for instance the following outputs: 642 kg at 13 months old, 2007 gr. average daily gain with a food efficiency of 4.5 kg concentrate, i.e. only 4.5 kg of grains to make 1 kg of growth.



View of the 7th rib on the right side of carcass of normal and culard (BBB) beef



(conventional animal)



(culard)

In the ovine species, our **Texel culards** are also well known. They present a killing out percentage higher than 52% in average, with a high percentage of meat and little fat. These sheep are rather unique and usable in terminal cross with ewes of prolific maternal lines. This type is largely used, in particular in England.



In the porcine species, our **Piétrain** pigs are also well known, with their killing out percentage of 83% in average, and with a percentage of 60% of meat and little back fat thickness. These pigs are used everywhere in the world as terminal boar, or form part of the genome of the boars utilised for crossing at PIC, Agrocères, Dahland, etc.

AS these animals were presenting some problems of which the susceptibility to the stress (of which thermal stress), we developed a new line not susceptible to stress and we called it **Piétrain Stress Negative (Pietrain^{CC} and Pietrain^{CT})**. These new types of Pietrain (homozygote and heterozygote) present all the Pietrain qualities, but now without the susceptibility to the stress. The stress negative Pietrain has a future in Europe, as the consumer wishes not to see anymore tranquillising the pigs before the transport. We currently have at our disposal more than 500 subjects at the University of Liege. It is a joint project with the Detry Group from Aubel, Belgium.





Results of the works in progress

Our working methods proved reliable and we are always interested to share our experience in the cattle breeding goal oriented management, with a perspective of profit, while integrating nutrition, health, management and genetics in a vast programme of improvement for the bovine, porcine and ovine productions. We are indeed convinced that if the less favoured countries want to export, they should do it starting from products whose quality is always improving. What is supposing an optimisation of the concerned sectors. Moreover, within the framework of **diversification**, we can propose alternatives leading to quality and thus to a higher profit.

We give underneath some examples of achievements in South America, Africa and Asia.

Optimisation of the bovine production – Crossing Belgian Blue White with Zebu Nelore in Brazil (Bahia State)

The crossing of the **BBB with the Zebu Nelore** leads to a type of bovine presenting more muscle and less fat, while observing the local conditions of ranching and environment. It is obvious that this technology transfer requires a certain follow-up.

Nelore (Londrina)



Belgian Blue White X Nelore (Bahia State)



Belgian Blue White x Zebu Gobra in Senegal

Farms : Niacoulrab, Wayembam, and Abdou Ndiaye, SENEGAL



Zebu Gobra (Senegal). Photo Dr Bagoré Bathily.



Belgian Blue White x Zebu Gobra (Senegal). Photo Dr Bagoré Bathily.

Examples of results

Identity	Date of birth	Age (month)	Breed	Sex	Weight (Kg)	Thoracic perimeter (cm)	Height at withers (cm)
Wayemb	01/12/98	8	BBB x Zebu	M	202	133	104
Wayemb	01/12/98	15	BBB x Zebu	M	509	Slaughtered at 15 month 350 Kg of carcass killing out 68%	

Use of Pietrain Stress Negative in Asia (Vietnam)

In Vietnam, the pig Pietrain Stress negative is used either on sows of the local breed Mon Cay, or on cross sows. The experiments take place with the Agronomic University of Hanoi (UAH) and the Agronomic Institute of the South Vietnam (IAS).

Pietrain boar (on the right) in Vietnam and its cross products (in the centre and on the left)



The cross pigs Pietrain x Mon Cai in Vietnam



The cross pigs Pietrain x (Yorkshire x Mon Cai) in Vietnam



Partners

University of Ouagadougou (Burkina Faso)



Tropical Agro-Veterinary
Centre of Kinshasa (DRC)



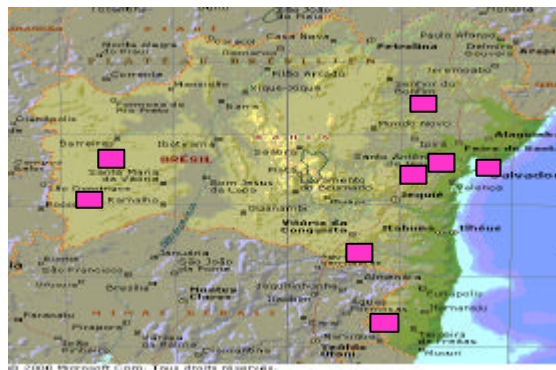
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