Title
Towards the Optimal Use of Genomic Information in pyramid schemes

Acronym
UTOPIGE

Duration
Four years from January 2011 to December 2014

Coordinators
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Content
The project aims at elaborating realistic strategies for the implementation of genomic selection in breeding schemes which use crossbreeding through a pyramid structure with selection in pure breeds and production by crossbred animals, like in pigs and poultry. The ultimate objective is to improve the breeding scheme efficiency by increasing the accuracy of breeding values considering the opportunity offered by high density genotyping provided by the recently released SNP Chips. The methodological challenge is the development of the best evaluation procedure considering both purebred and crossbred information, taking (or not) into account non-additive effects. The operational challenge is the estimation of real-life benefits of genomic selection and to propose a viable genotyping strategy respecting accuracy and bearable. The aim of the project for pig production is to give the information necessary to implement genomic selection. Resource populations, purebred and crossbred (about 3000 pigs in total), will be created and controlled for a large number of traits. The constitution of a valuable resource population is a large
part of the program. In pig, as boar taint is a major issue, we seek to enter in test station pure- and crossbred entire males. This needs a drastic change for the breeding organizations in order to produce piglets for test-station. Phenotypes proposed in the project deal with welfare (aggressive behavior using skin lesions as indicators), health (lameness, blood formula as an indicator), and product quality (technological meat quality, boar taint). Genotyping will be carried out thanks to high density SNP Chips (64K already available). Different methods of genomic evaluation will be compared according to their ability to predict accurately the genetic values of the reproducers in these situations (genetic type, environment). Data sets will be also exploited to optimize the breeding schemes.

**Academic partners**

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Bioporc France: ADN, Gene+, Nucleus, Pen ar Lan

**Budget**

~1.5 M€

**Financial support**

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