

## CASE STUDY 8

# Genetic Diversity of Dutch pig Landrace breeds/lines revealed by genome-wide SNP markers

**Leading IMAGE partner:** Wageningen Research (Centre for Genetic Resources, the Netherlands)

**Other IMAGE partners involved:** WU

**Other non-IMAGE partners and actors involved:** Pigs breeding company Topigs Norsvin,

**IMAGE WP and Task:** WP2 / Task 2.3

### Objectives and expected results/output:

The current commercial pig breeds are a result of consolidation of the pig production and breeding industry during the last few decades. As the breeding industry became more concentrated, various breeds and lines were taken out of production or were merged together over the past decades. The aim of our research was to assess the level of genetic diversity that is still present in commercial breeding lines in comparison to former breeding lines in the gene bank collection of CGN.

### Material and methods

The Centre for Genetic Resources, the Netherlands (CGN) of Wageningen UR has cryopreserved genetic material of former pig breeding organizations in the Netherlands. In the period 1995 to 2003 CGN has collected genetic material of breeding lines of breeding companies existing at that time. These companies were finally merged into one pig breeding company (Topigs Norsvin). From 2010 to 2015 CGN has also preserved some additional genetic material of the Dutch Landrace breed. In total 7 Dutch Landrace breeds/lines were sampled and genotyped with the 80K porcine SNP chip. A total of 187 Landrace pigs were genotyped. For our study, typical analyses were performed eg. analysis of population structure, identifying relationships between and within populations, performing “Eding method” to identify population(s) that harbor unique genetic diversity and identification of selection signatures.

Results were presented at the IMAGE 3<sup>rd</sup> annual meeting in 2019 and at the EAAP in 2018.

A scientific manuscript is published in Genetics Selection Evolution (GSE). Hulsegge, I., Calus, M., Hoving-Bolink, R. et al. Impact of merging commercial breeding lines on the genetic diversity of Landrace pigs. Genet Sel Evol 51, 60 (2019) doi:10.1186/s12711-019-0502-6

### Contact for further information

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