

**Detection of QTL influencing egg production in layers receiving various diets**

H. Romé<sup>1,\*</sup>, A. Varenne<sup>2</sup>, F. Hérault<sup>1</sup>, H. Chapuis<sup>3</sup>, C. Alleno<sup>4</sup>, P. Dehais<sup>5</sup>, A. Vignal<sup>5</sup>, T. Burlot<sup>2</sup>, and P. Le Roy<sup>1</sup>

<sup>1</sup>INRA, UMR1348 PEGASE, 35590 Saint-Gilles, France

<sup>2</sup>Novogen, 22800 Le Focil, France

<sup>3</sup>SYSAAF, 37380 Nouzilly, France

<sup>4</sup>Zootests, 22440 Ploufragan, France

<sup>5</sup>INRA, UMR0444 LGC, 31326 Castanet-Tolosan, France

\*[helene.rome@rennes.inra.fr](mailto:helene.rome@rennes.inra.fr)

**P-04.** Egg production in layers is affected by quantitative trait loci (QTL) and by environmental factors, such as the diet composition. The aim of the research was to identify QTL involved in egg production and to estimate interaction effects between QTL and diet. A population of 440 sires was genotyped using a high-density SNP *Affimetrix* chip (600K). A total of 31,539 crossbred daughters were phenotyped in 3 hatches in collective cages of 12 hens. One half of the birds were fed on a high energy diet (2881 Kcal) and the other half on a low energy diet (2455 Kcal). Egg number per cage was recorded every day from 18 to 75 weeks of age and eggs were collected at two ages, at 50 and 70 weeks, for quality measurements. Two “phenotypes”, one per diet, were calculated for each sire as the mean of his daughters’ phenotypes. Several methods were used to search for QTL involved in egg production and quality traits. The QTL stability according to diet was variable. These results highlight the importance of taking into account genetic x environment interactions in the genetic evaluation of layers.