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Nicolas Bedere, David Picard Druet, Frédéric Herault, Florian Herry, Sophie Allais, Amandine Varenne, Thierry Burlot, Pascale Le Roy

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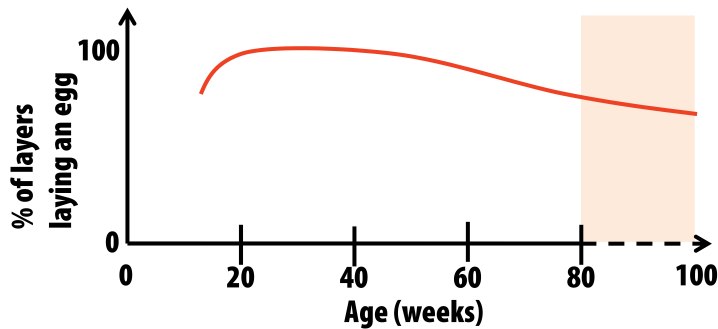
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GENETIC ARCHITECTURE OF ABDOMINAL FAT TISSUE AND RELATIONSHIPS WITH BODY WEIGHT AND EGG QUALITY IN RHODE ISLAND RED

BEDERE N.⁽¹⁾, PICARD DRUET D.⁽¹⁾, HERAULT F.⁽¹⁾, HERRY F.^(1,2), ALLAIS S.⁽¹⁾, VARENNE A.⁽²⁾, BURLOT T.⁽²⁾, LE ROY P.⁽¹⁾



Extending the laying period → **trade-off** between egg production and safeguarding body reserves in late laying period?

In aged roosters (80wk), a dichotomic phenotype has been observed: **lean** OR **fat**

What is the genetic architecture of the presence of abdominal fat in aged rooster?

How is it related to other selection criteria



research Project **UTOPIGE** (FR)

~9,500 **Rhode Island Red** layers: ...of which 987♂ were also:

- egg quality
- body weight at 70 wk
- phenotyped for abdominal fat tissue at 90 wk
- genotyped on the 600K Affymetrix® Axiom® HD genotyping array

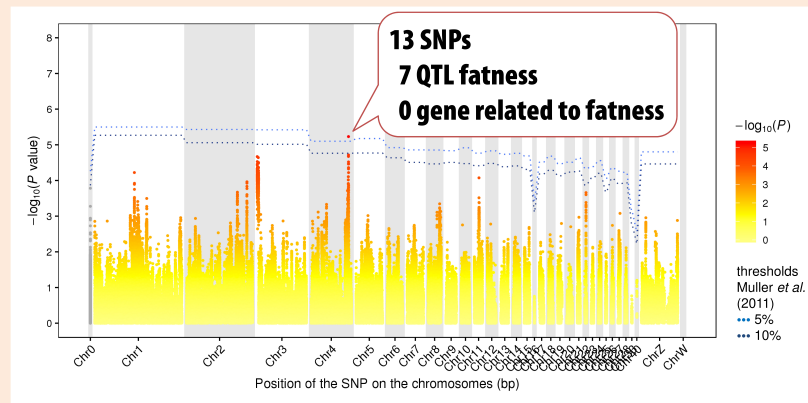
Variance components: **REMLf90**

GWAS: MULLER

Variance components

	Abdominal fat ♂	Body weight ♂	Body weight ♀	Egg weight	Egg Shell Colour	Egg Shell Strength	Albumen Height
Abdominal fat ♂	0.20	0.31	NA	NA	NA	NA	NA
Body weight ♂	0.21	0.43	NA	NA	NA	NA	NA
Body weight ♀	0.10	0.67	0.66	0.20	0.20	-0.05	0.01
Egg weight	0.00	0.38	0.40	0.45	0.04	0.04	0.13
Egg Shell Colour	0.02	0.11	0.39	0.16	0.40	0.09	0.11
Egg Shell Strength	-0.03	-0.08	-0.17	0.00	-0.02	0.20	0.07
Albumen Height	-0.05	-0.05	0.00	0.12	0.08	0.11	0.22

GWAS



→ diagonal = heritability estimates
upper matrix = phenotypic correlations
lower matrix = genetic correlations

The presence/absence of abdominal fat tissue in aged rooster:

- showed a **moderate heritability** estimate
- **Unsignificant genetic correlations** with egg production and little to moderate ones with BW

→ BW is easier to measure than AFT but **would not be a good predictor of AFT**

→ Further studies undergoing for high-throughput phenotyping in females

