



# Trends and Developments in the layer industry and breeding program

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**Focus 2021**  
**The Landmark Hotel**  
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# The Outline



- Trends in the layer business
- The development of performance of layers.
- New developments in the Layer breeding program.
- Conclusions.

# Trends in the layer business (1)



- In several area's, now mainly EU and USA, producers have to change to alternative systems.
- Legal pressure on a ban on bird treatments like beak trimming, de-combing and de-toeing.
- Pressure on more regulation for the use of antibiotics.
- Animal welfare pressure on bird management like for example molting and killing male doc in hatcheries.
- More influence of consumer demand concerning animal welfare and egg quality. ( eggsize, shell color and Haugh Units)

## Trends in the layer business (2)



- Segmentation in some markets (USA) for egg processing and table eggs. Importance of solids.
- More by-products as feed ingredients, eg. DDG's and canola from the biofuel industry.
- Call for efficient use of resources: feed, water, energy and land. Carbon footprint.
- Longer cycles for parentstock and commercial birds.

## Development of the layer business between 1990 and 2008



- The commercial layer has gained about **70 eggs**:
  - With the genetic improvement (+2,3 eggs / year)
  - With the extension of cycle (68 →75weeks)
  
- A PS female has gained about **15-20 CS females**:
  - With the genetic improvement (+0,5 to +1 DOC / year)
  - With the extension of cycle ( 64 →68 or more weeks)

Of course besides genetics: management, feed and disease prevention play an important role in this improvement.

# Development of the layer business by 2020



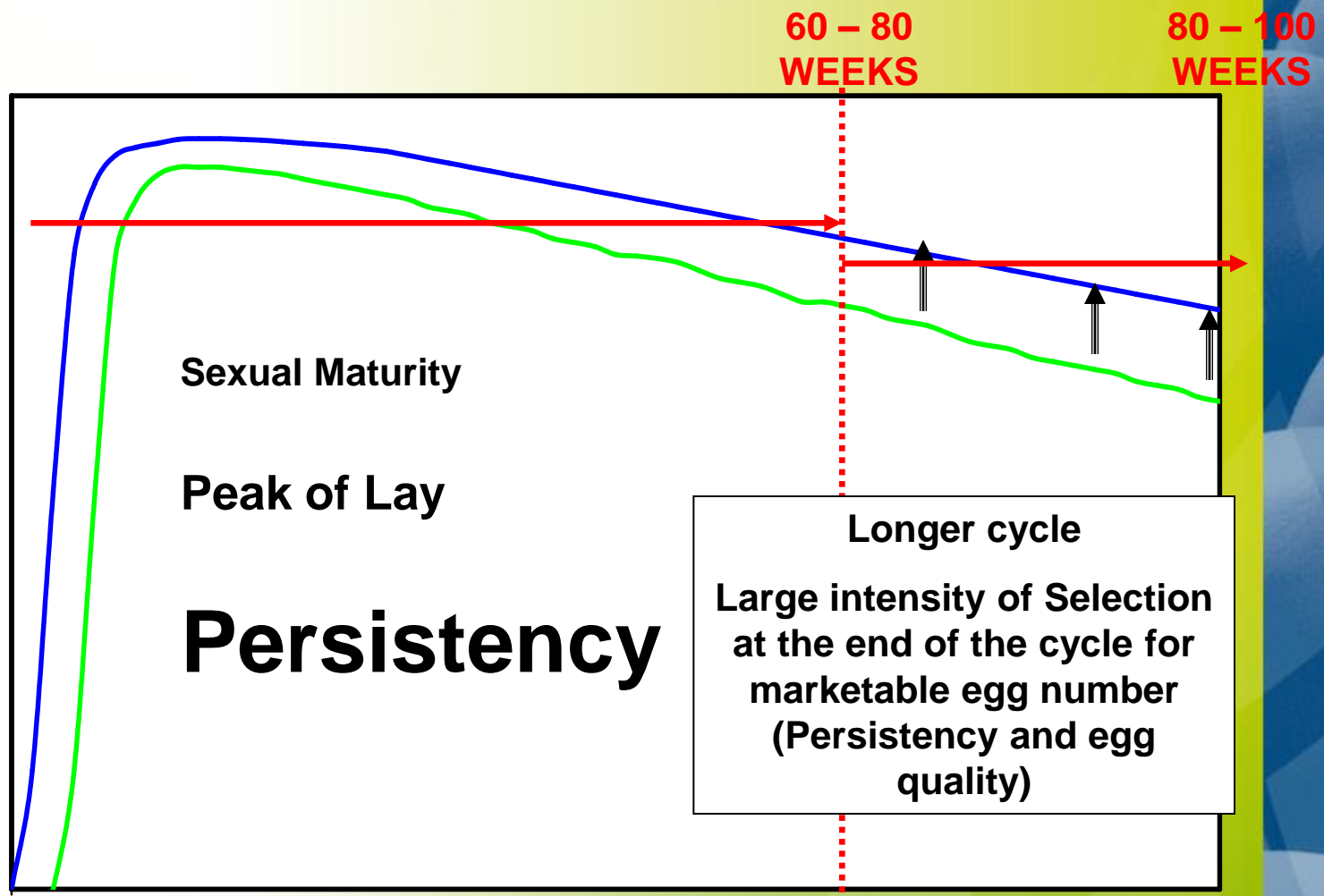
- The commercial layer will produce about **500 eggs**:
  - Cycle of Brown egg layers till 100 weeks (480 eggs),
  - Cycle of White egg layers till 110 weeks (520 eggs),
- Parent Stock female will produce about **120 DOC**:
  - Cycle of PS till 80 weeks of age.
- With the decreased number of commercial day old chicks, and with the increase of female DOC's produced per PS, the number of PS sold will decrease a lot. This has strong economical consequences.

# Selection for the most important traits



- Liveability
- Behaviour
- Adaptability
- Feathercover
- Egg Quality
  - Internal
  - External
  - Color
  - TMA
- Egg Numbers
  - Early maturity
  - Peak production
  - Laying percistency
- Feed Conversion
  - Feed Intake
  - Body Weight
- Egg Weight curve
  - Hatchability
  - Chick quality

# Selection on persistency and eggquality till 100 weeks





# Genomic Selection in important ISA lines with 60,000 gene markers



PRELEVEMENTS POUR EXTRACTION

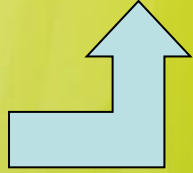
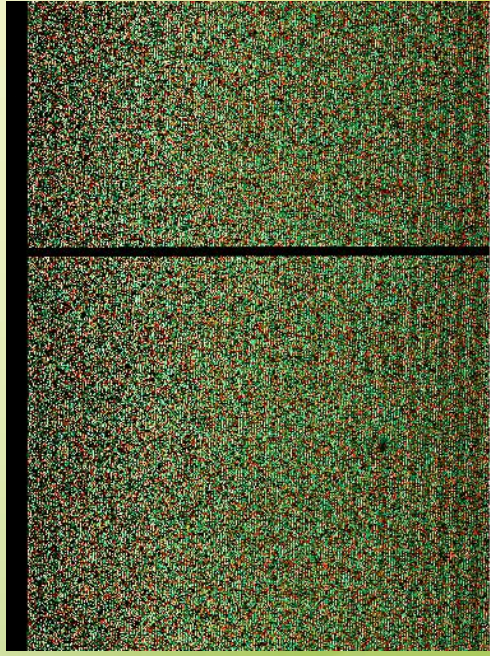
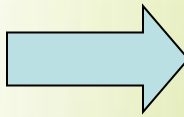
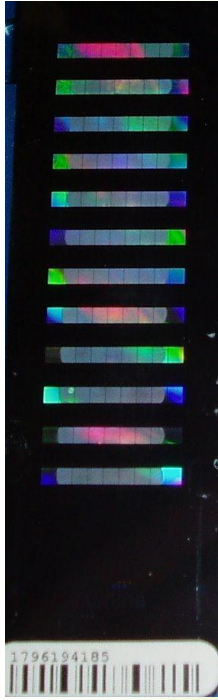
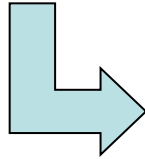
DATE PRELEVEMENT: 28/10/2008

ORIGINE: Société Civile du Grand Puits Le Colombier 10290 CIVRAY

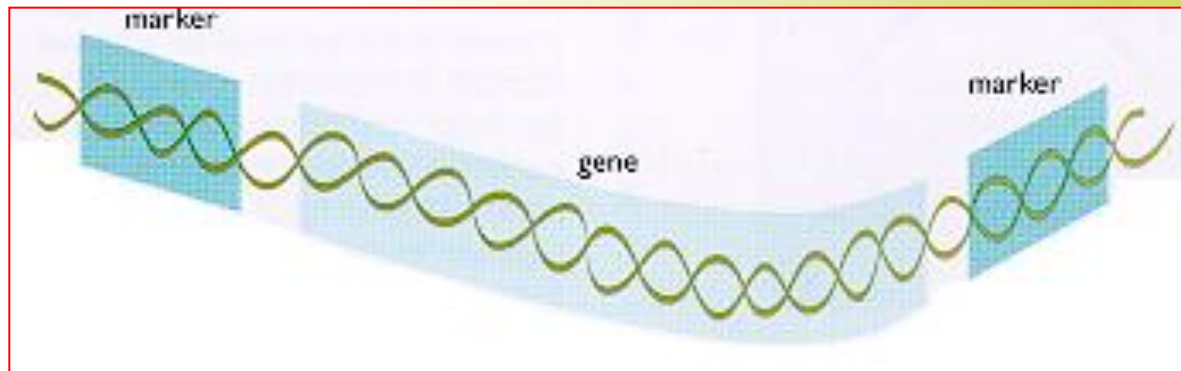
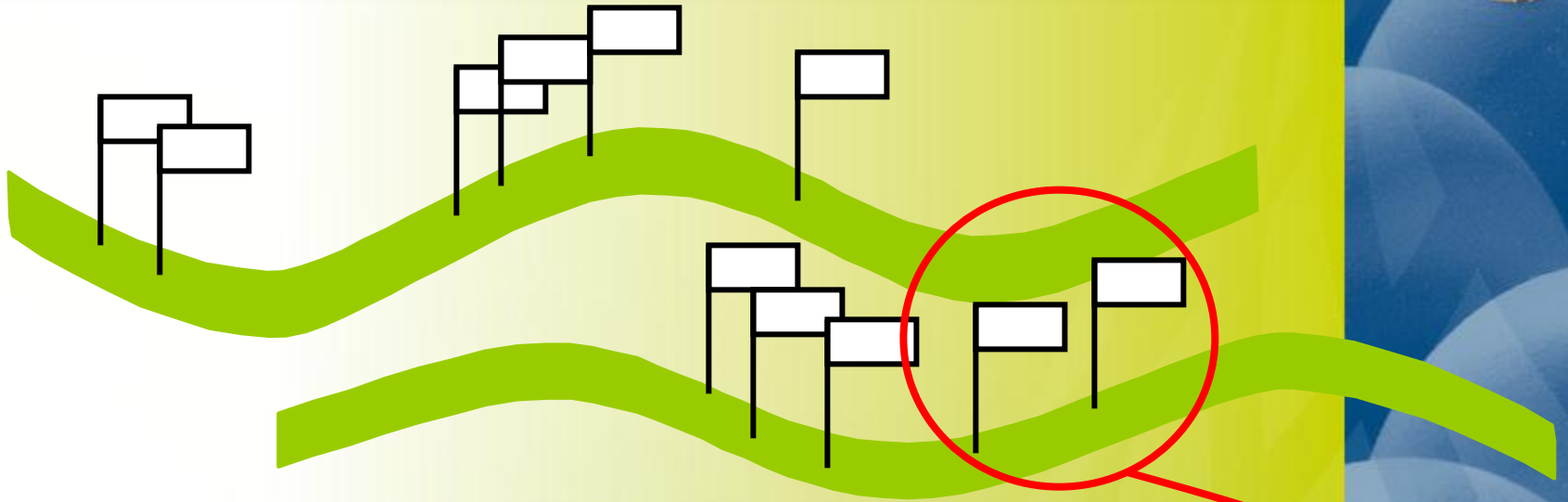
18LNF 803763

Numero National	Type Génétique	Sexe
18LNF803763	FH016	M
18LNF804345	FH025	M
18LNF804413	FH016	M NN
18LNF804788	FH012	M
18LNF805373	FH016	M Nm
18LNF805446	FH016	M NN
18LNF805596	FH016	M NN
18LNF805763	FH004	M
18LNF806465	FH004	M
18LNF806714	FH012	M

More genetic progress  
Faster genetic improvement  
Focus on difficult traits



# Genetic markers are labels for chromosome locations (map positions)



DNA markers are labels for genes

# Genomic Selection in important ISA lines with 60,000 gene markers



PRELEVEMENTS POUR EXTRACTION

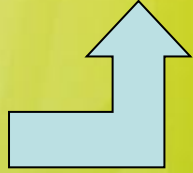
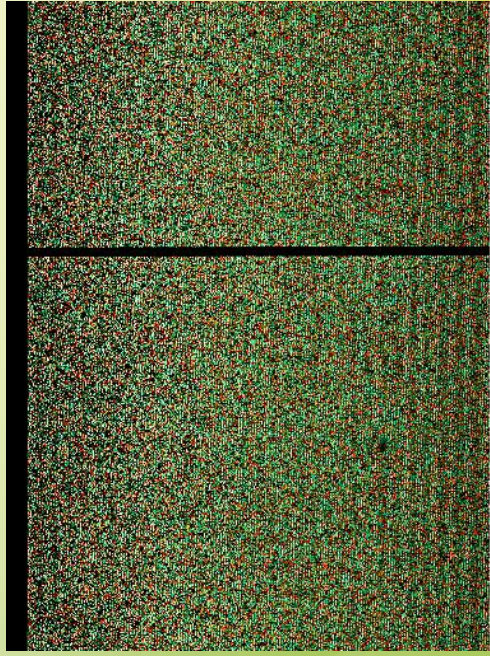
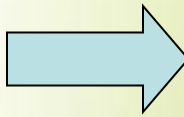
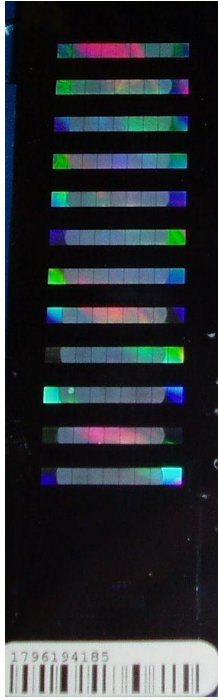
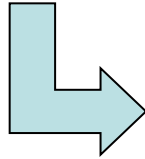
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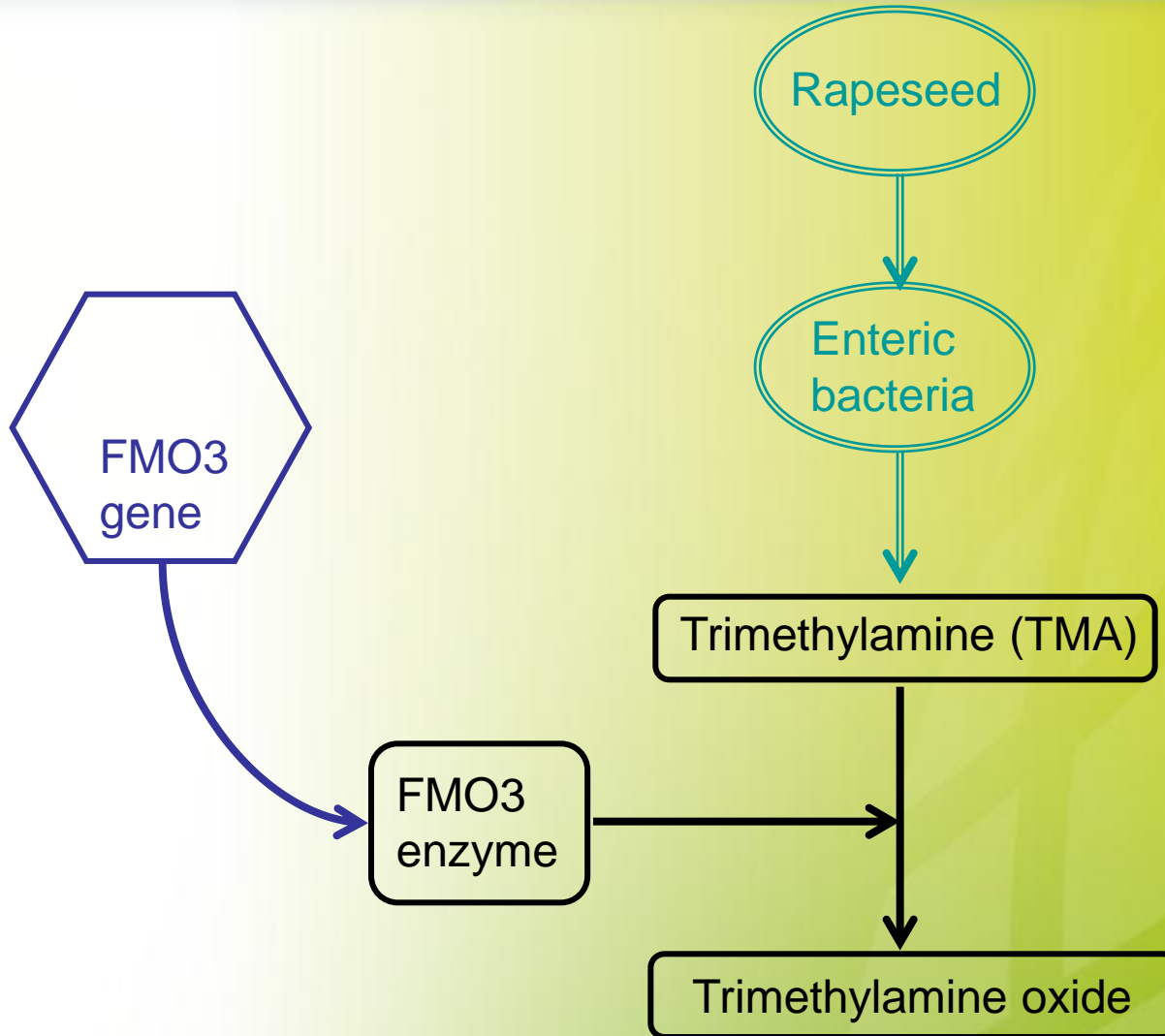


## Fishy taint

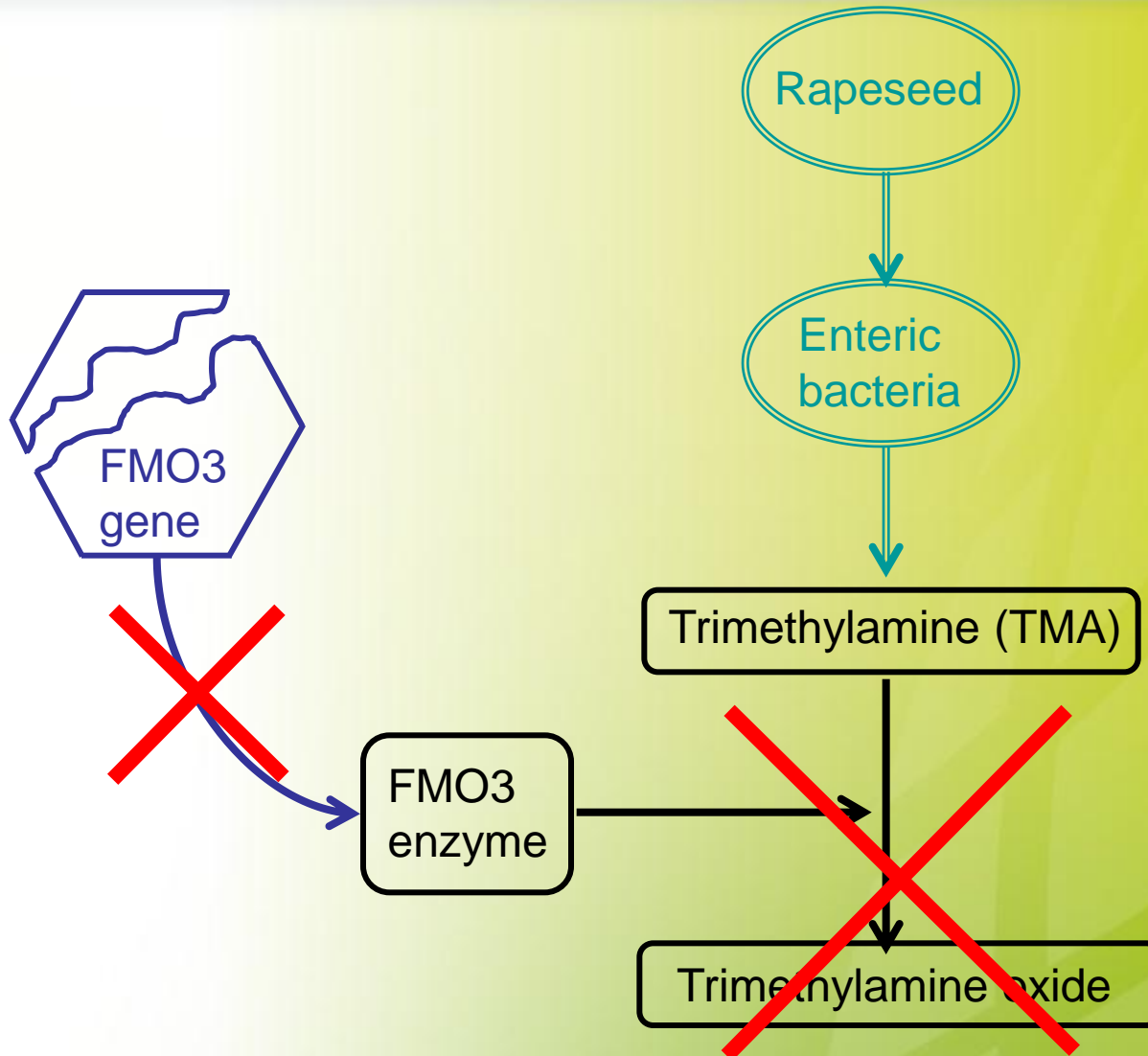


- ISA has developed the DNA technique to eliminate fishy taint in eggs caused by TMA in layers
- ISA has obtained the exclusive rights to perform genetic testing against fishy taint in chicken
- Brown layers free of this mutation are much more flexible to differences in feed ingredients such as rapeseed.
- ALL Brown Parent Stock are TMA free.

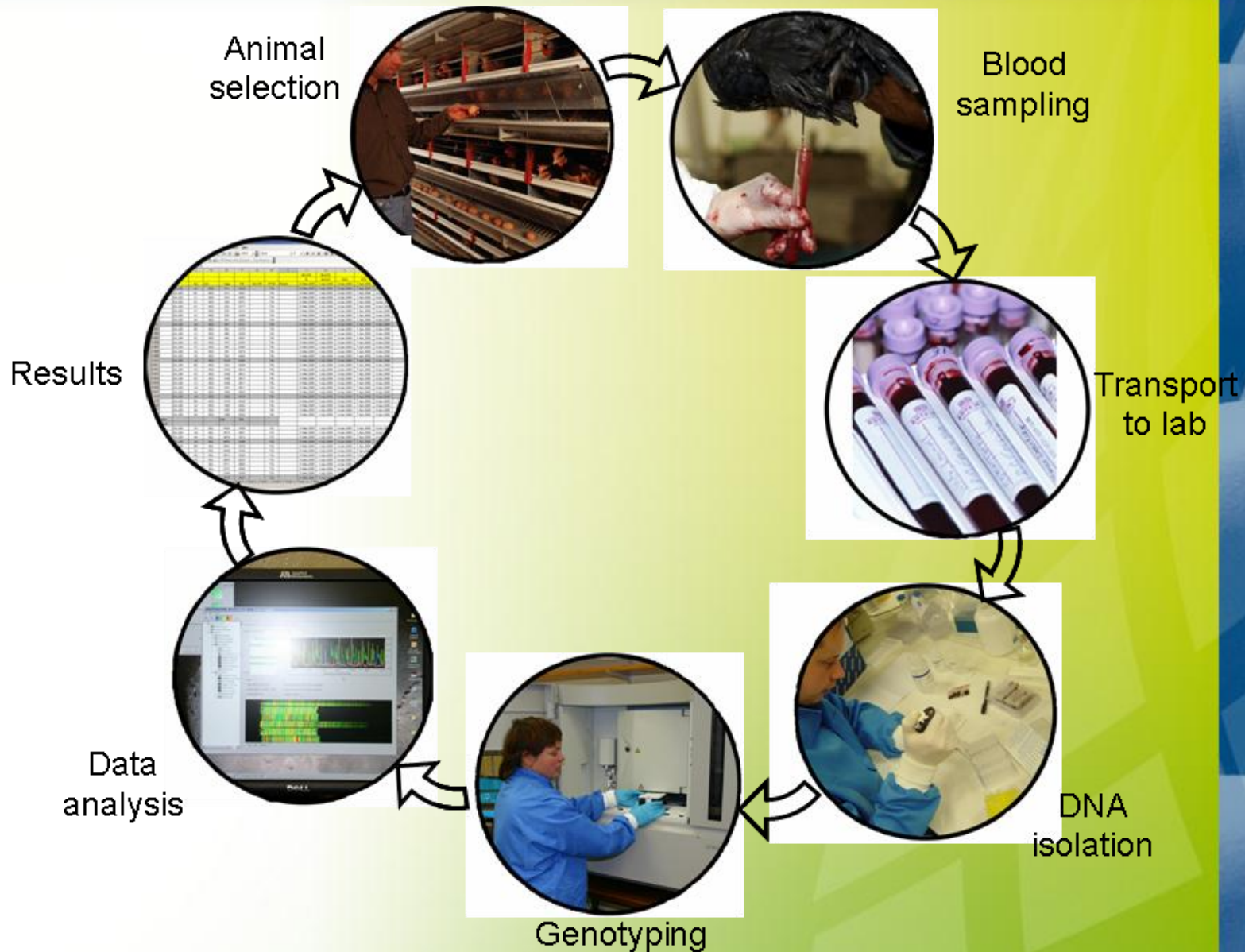
# Normal chicken



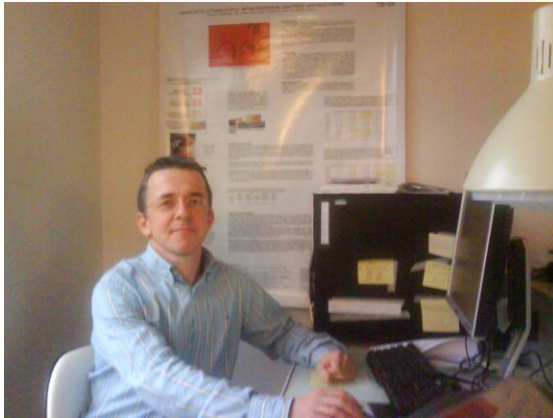
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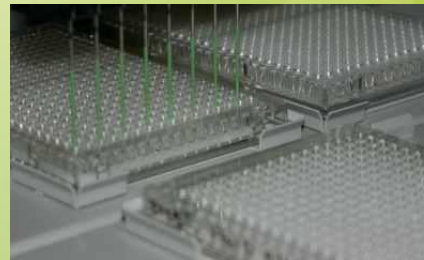
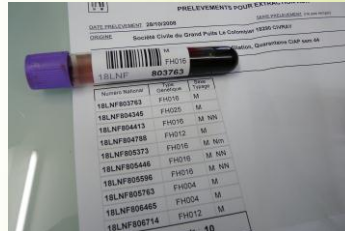
# TMA Selection Procedure



# Hendrix Genetics RTC BioBank



## Molecular Genetics & Reproduction



**Hendrix  
BioBank**

# BIOBANK: central facility for sample logistics, storage and processing



Central BioBank facility  
for HG in France



Automated sample normalization, hit-picking, re-arraying