New developments in genetics

BU Layers

Gosse Veninga

Director Product Excellence

2025-09-03

Agenda

1. Update Pure Line farms
2. Improved robustness – RT farms
3. Realize the genetic potential – flock data
4. In ovo sexing
5. Summary

1. Pure line farms (expansion)

HG Layers Pure Line R&D Farms

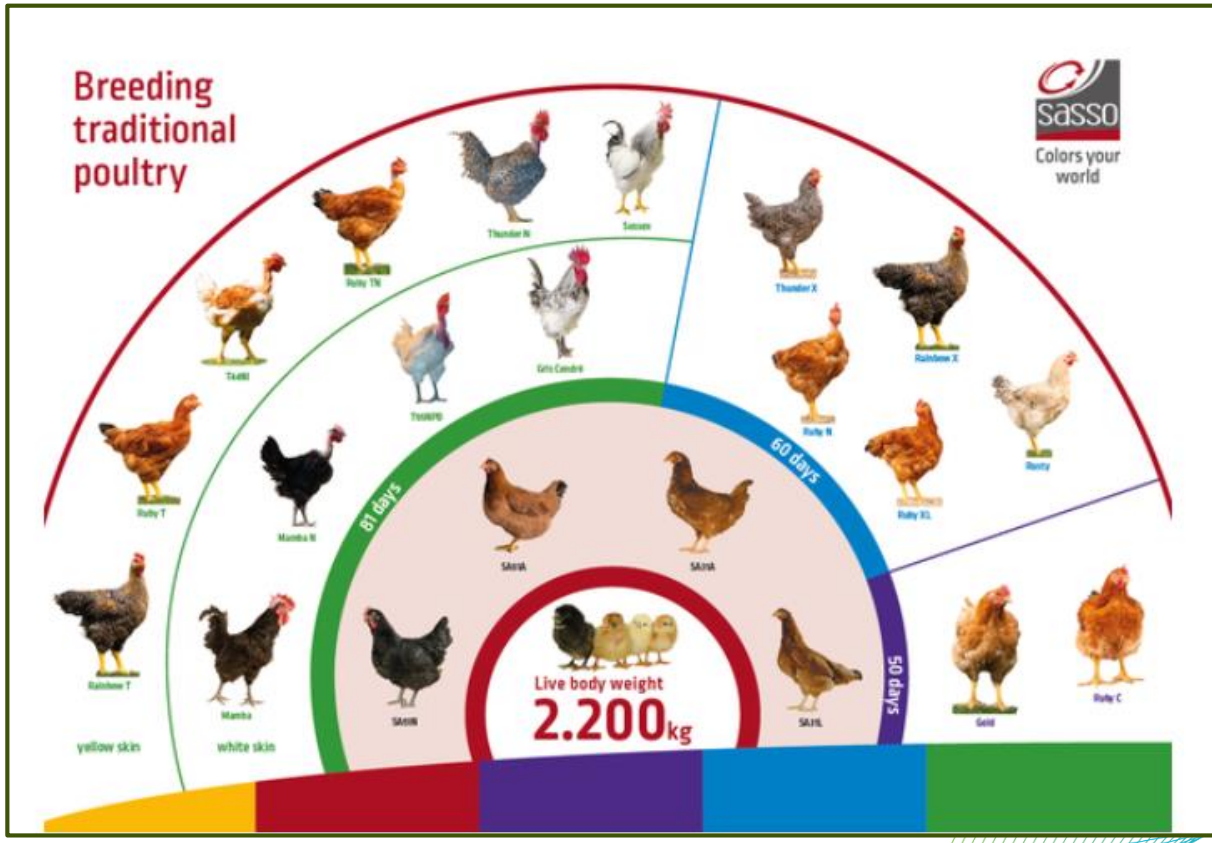
New Pure line farm

Objectives new pure line farm

- Expansion pure line populations
- Expansion of the production cycle
- Expansion of group housing at pure line level
- Expansion of Sasso product portfolio

Expansion of Sasso product portfolio

1. Rural Poultry – backyard and dual-purpose chickens
2. Slow Growing Colored Chicken – for organic/free-range markets and high-quality meat
3. Heavy Colored Broiler – for premium meat production
4. Industrial Slow Growing Broiler – focused on yield and feed efficiency



2. Improved robustness

Field testing

The Pure Line environment is not the average commercial environment

Testing of crossbred daughter groups in the field.
The Recurrent Tests.

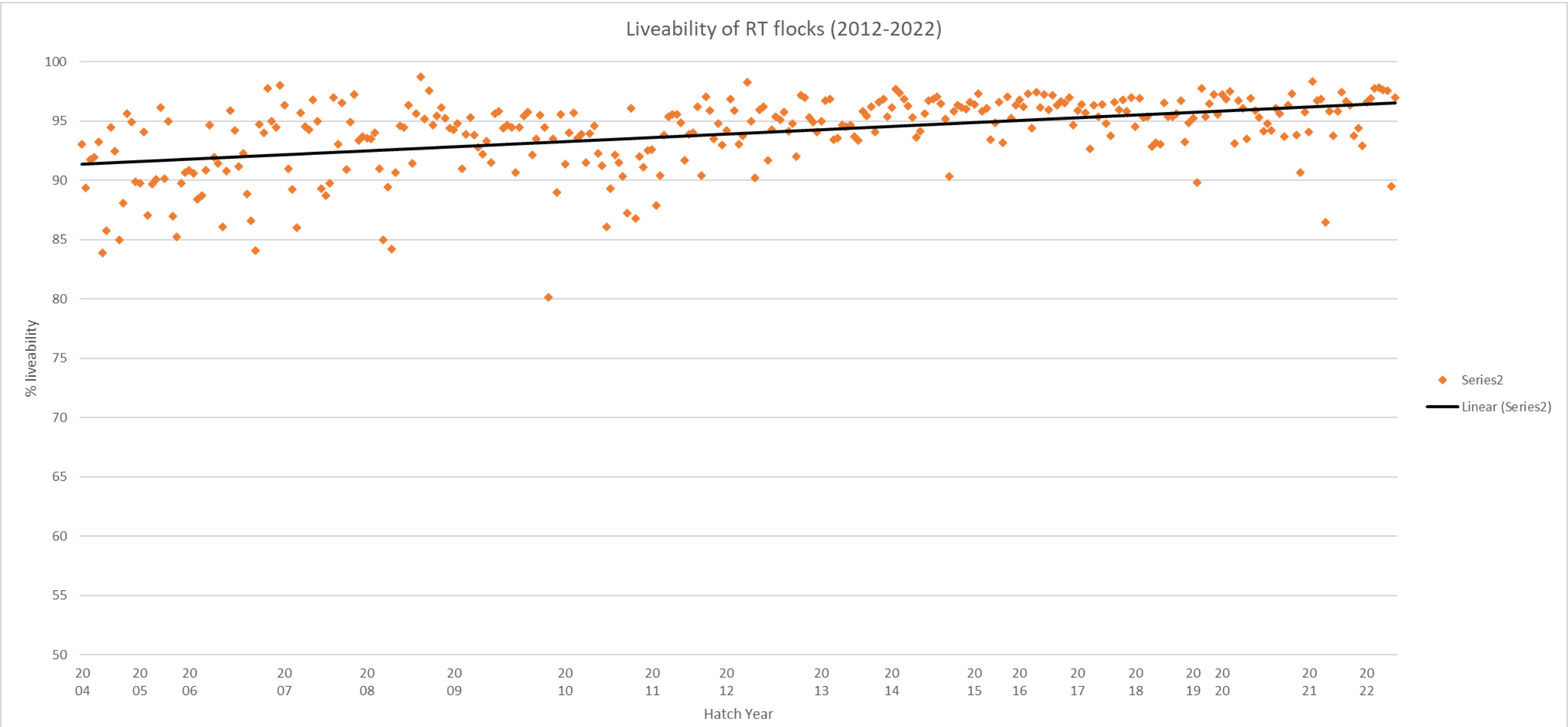
Improving livability: breeding the “social” hen

Challenging the birds via their environment:

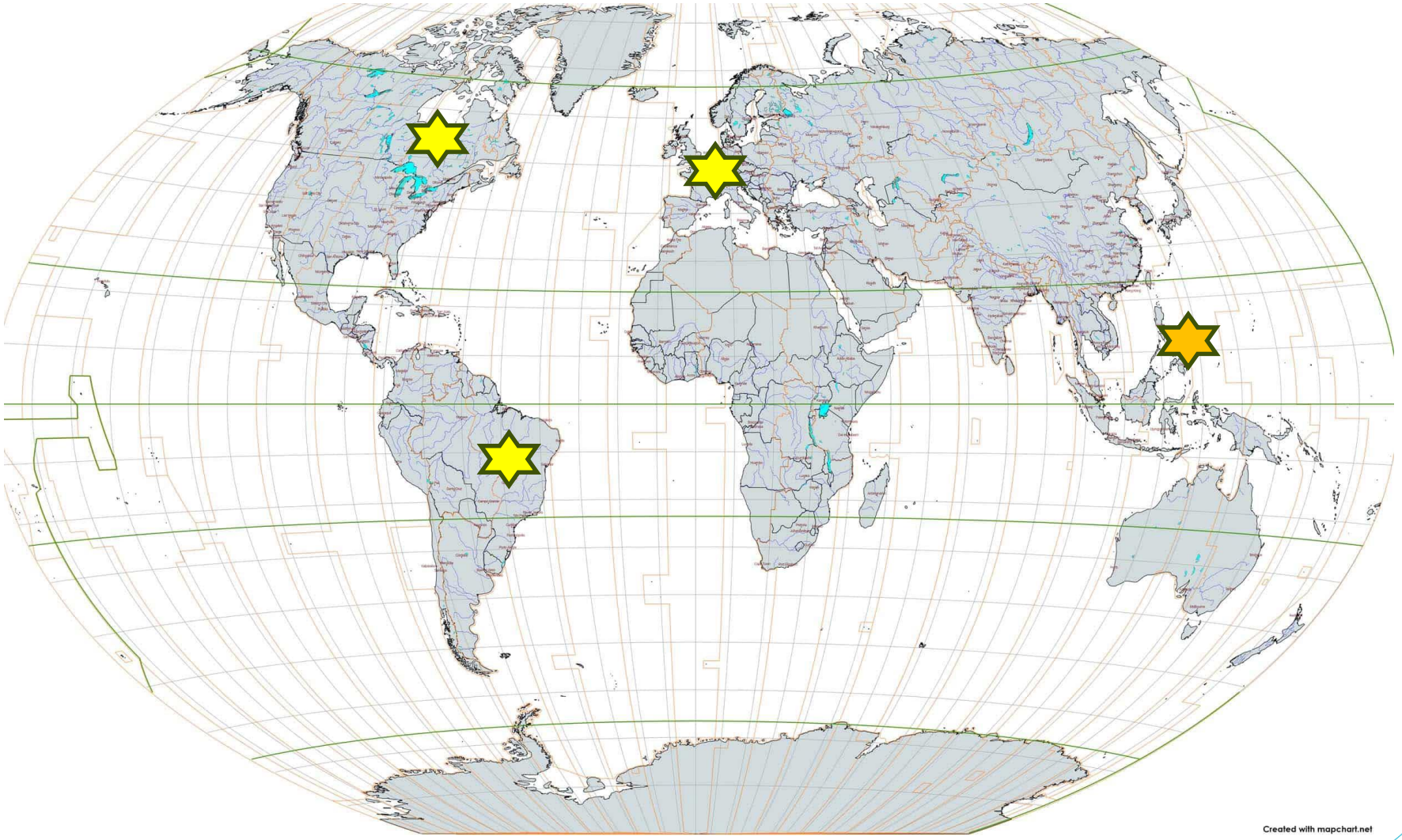
- Different bird densities
- Different light intensity
- Intact beaks

Goal: to identify the “Social” families with good production and use these families as parents for future generations

Phenotypic trend: Liveability at 80 wks (RT flocks 2004-2022)



Regions with RT farms worldwide

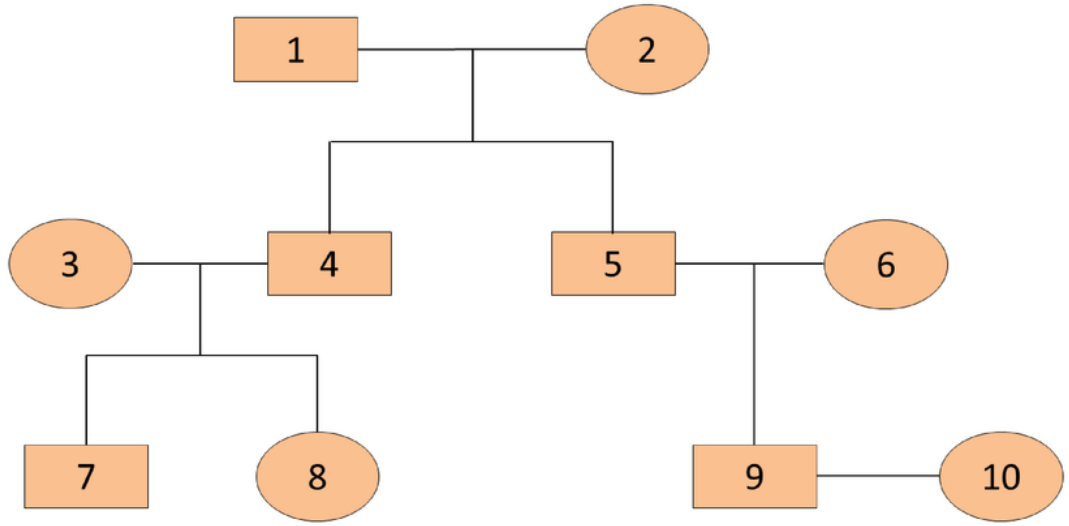


New opportunities – Genomics / DNA info

In the past:

A Pedigree relationship matrix

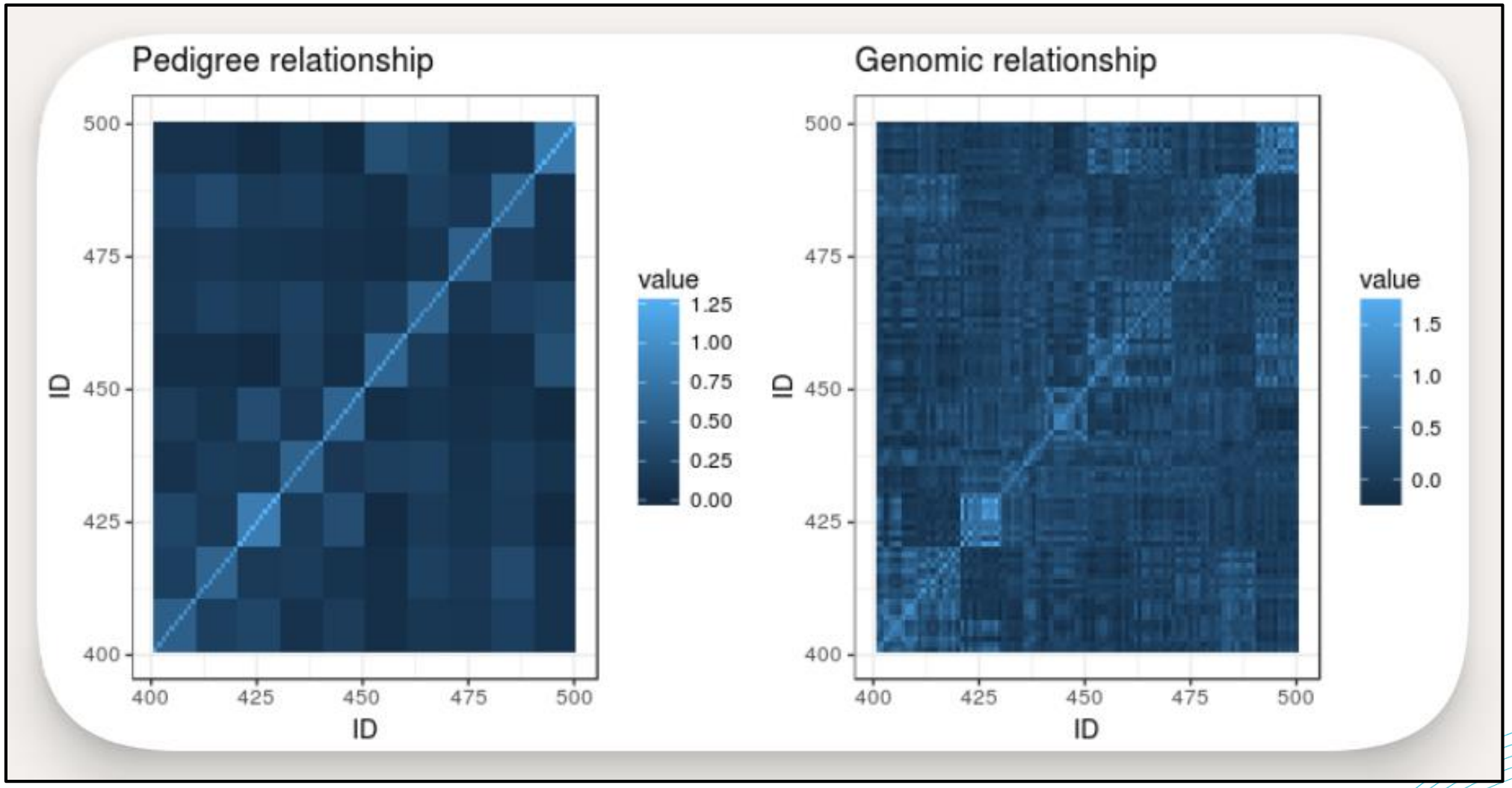
A Example Pedigree



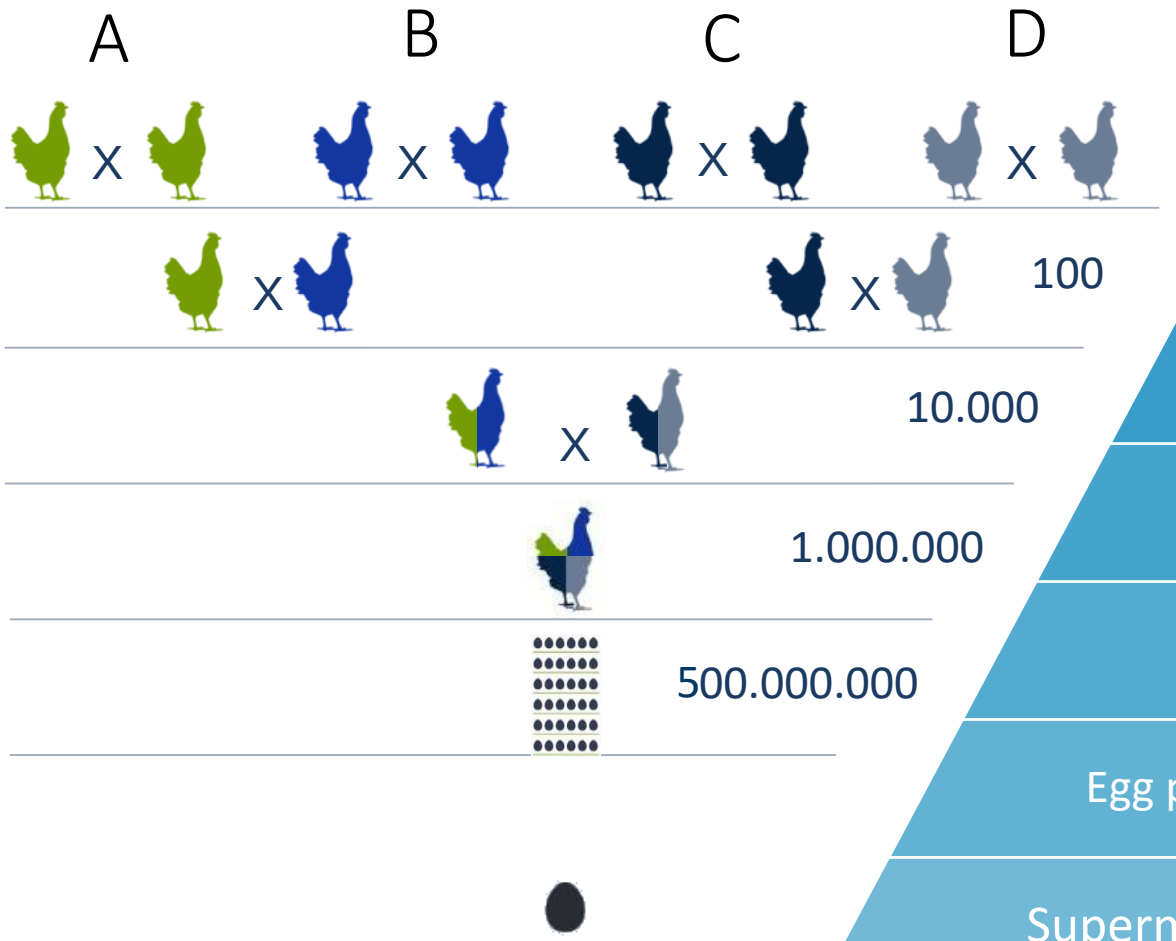
B Corresponding Additive Genetic Relationship Matrix

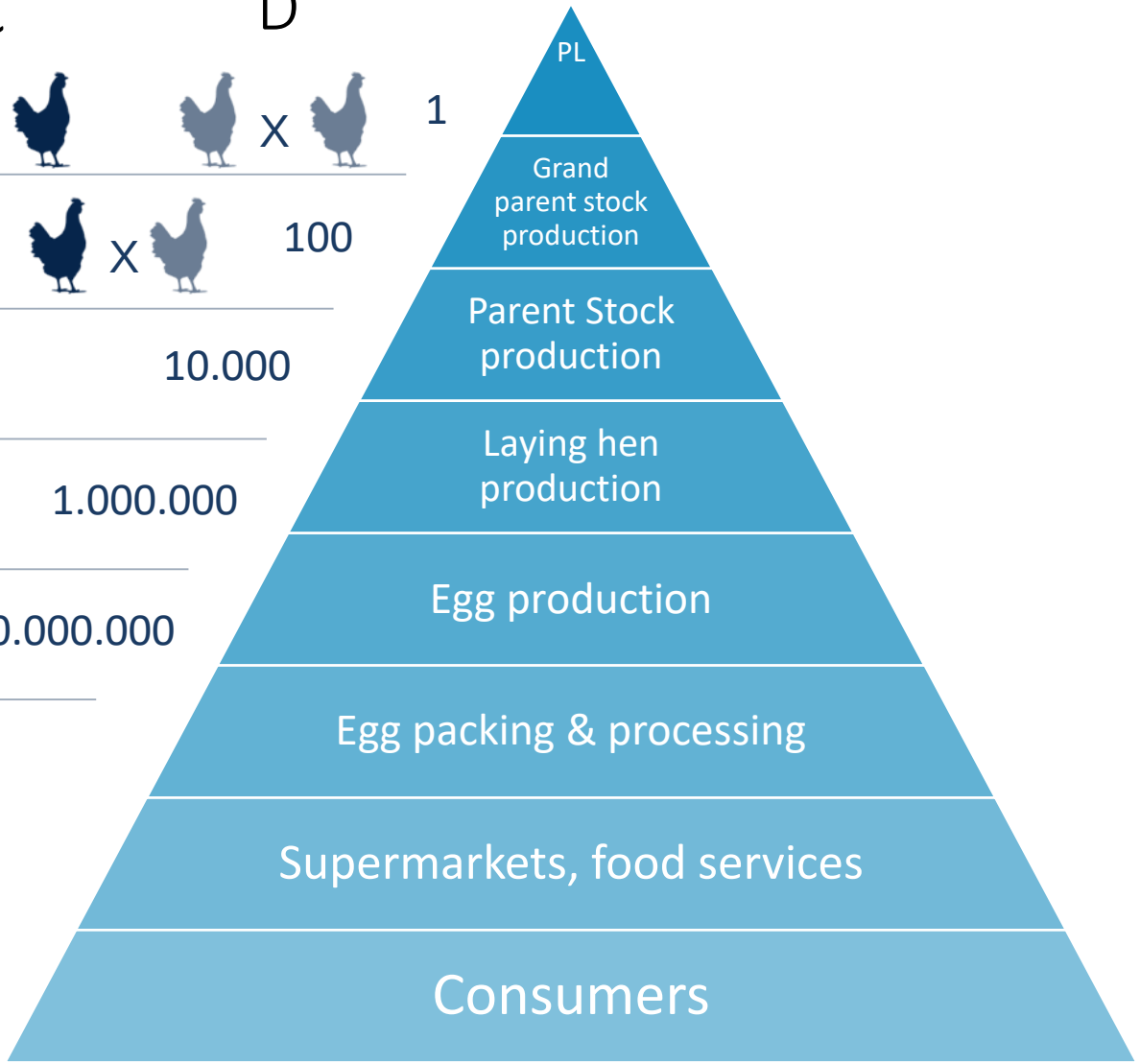
	1	2	3	4	5	6	7	8	9	10
1	1	0	0	0.5	0.5	0	0.25	0.25	0.25	0
2	0	1	0	0.5	0.5	0	0.25	0.25	0.25	0
3	0	0	1	0	0	0	0.5	0.05	0	0
4	0.5	0.5	0	1	0.5	0	0.5	0.5	0.25	0
5	0.5	0.5	0	0.5	1	0	0.25	0.25	0.5	0
6	0	0	0	0	0	1	0	0	0.5	0
7	0.25	0.25	0.5	0.5	0.25	0	1	0.5	0.125	0
8	0.25	0.25	0.5	0.5	0.25	0	0.5	1	0.125	0
9	0.25	0.25	0	0.25	0.5	0.5	0.125	0.125	1	0
10	0	0	0	0	0	0	0	0	0	1

Pedigree versus Genomic relationship matrix

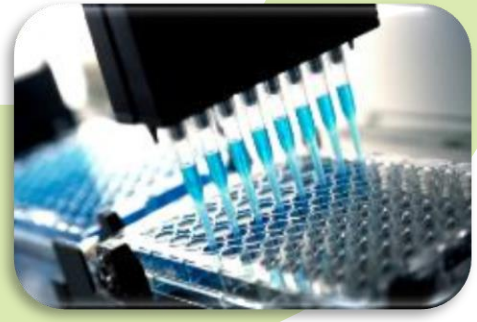


Overview of egg production supply chain



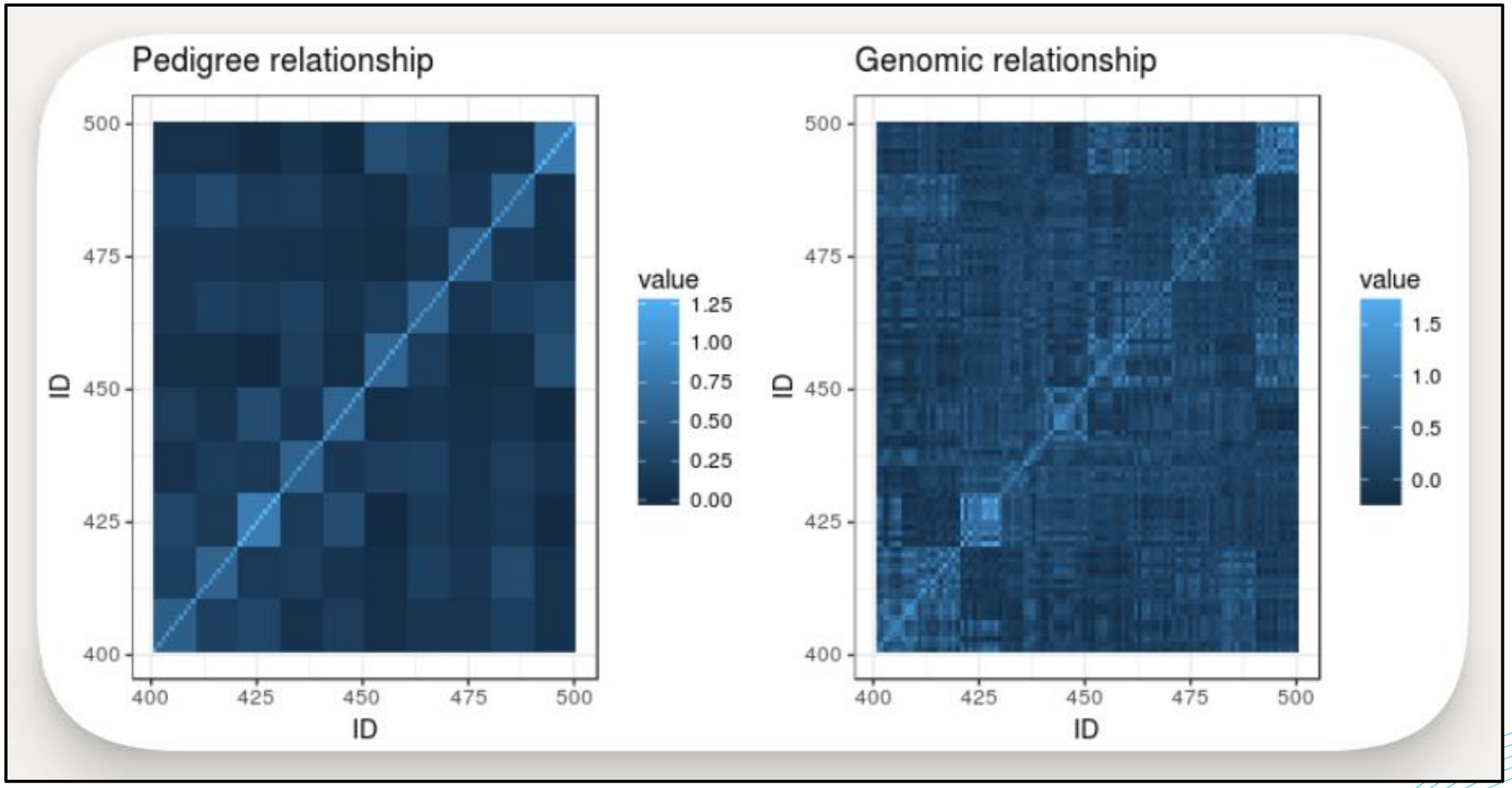


Genomic selection

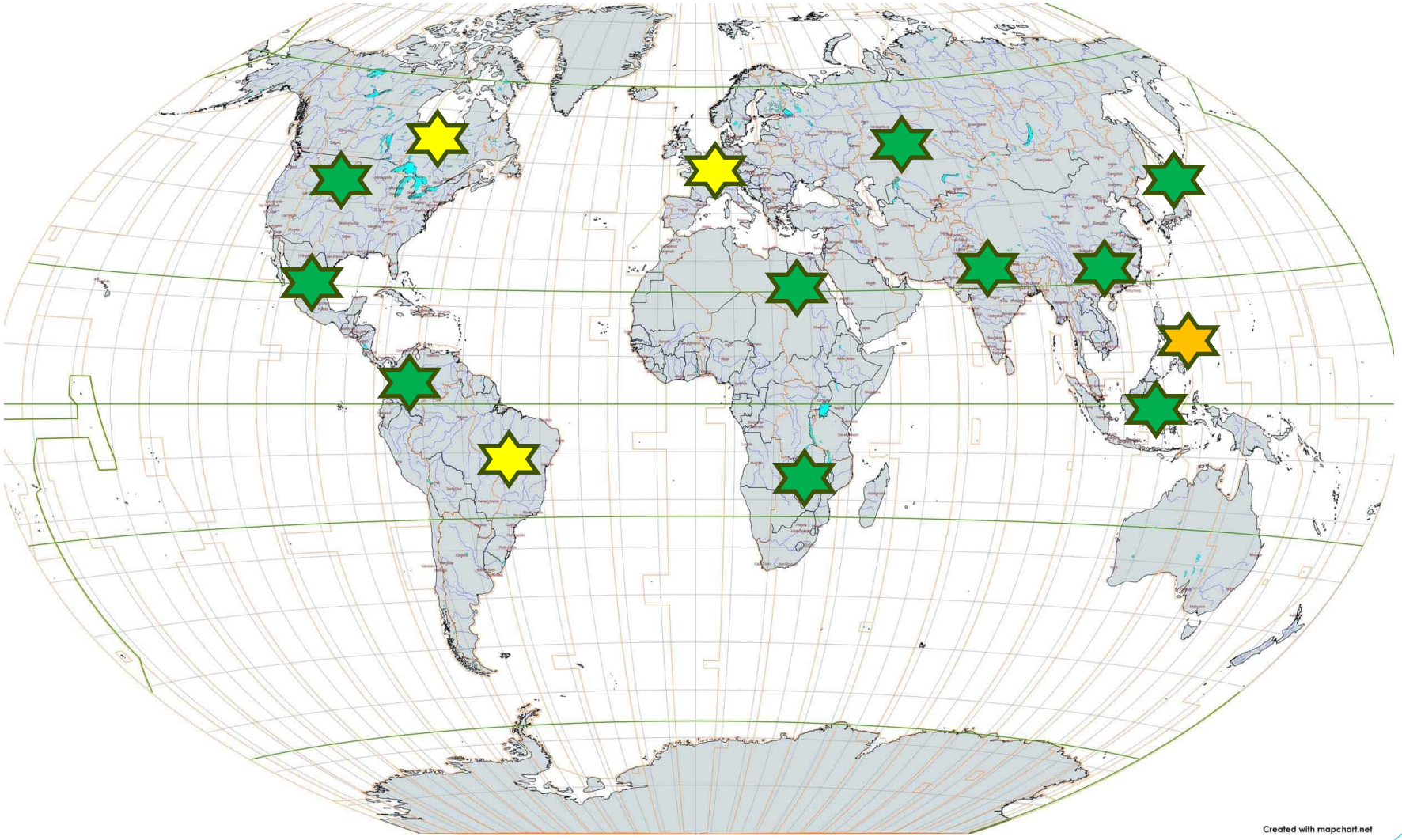


G-BLUP

Pedigree versus Genomic relationship matrix



Regions with RT testing worldwide



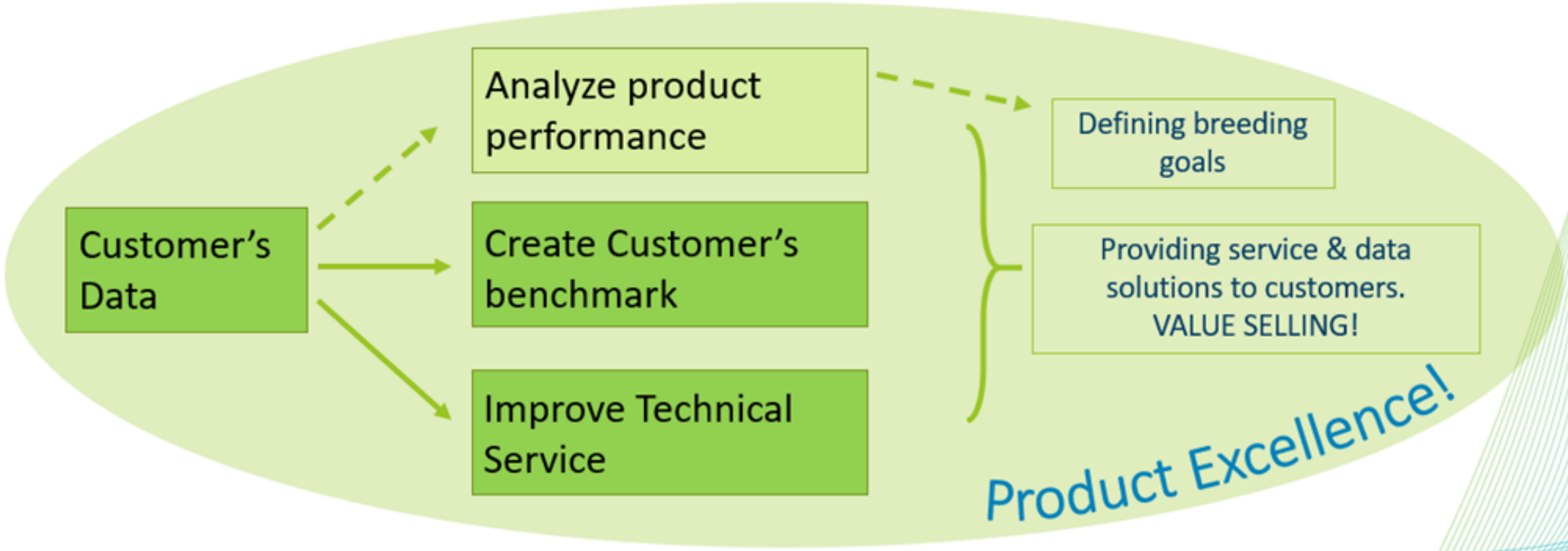
5. Flock Data – to realize the genetic potential

What happened (in the past) with Technical Service

- Problem at the customer
- Technical expert jumps in the airplane
- At arrival on the customer farm: no data shared yet
- **Situation today: a lot of automation & use of AI available**
- What can we improve in our (layer) industry?

Flock data

- Data support >> to realize the genetic potential at customer level!
- Data services - next to genetic products - will become a component of genetic companies
  - Improved technical service WITH “real-time” flock data



Eggbase: Five opportunities for the future

1

Global expansion & continued development

Eggsense

Unlock the power of data

Distributor user level

Layers & parent stock

2

Global expansion & continued development

Avisense

Unlock the power of data

= 6 x Eggsense market

Distributor user level

Broilers & turkeys

3

Carbon footprinting

Global expansion & continued development

CARBON FOOTPRINTING ASSESSED BY EGGBASE

4

Environmental indicators

H_2O

Air

NH_3

Habitat

5

Integration not competition

Global expansion & continued development

Eggbase

Eggbase as the hub for standardisation & correlation

Two scenarios

- Implementation by Eggbase – subscription per bird per month
  - *Providing software and training*
  - Phase: implemented with existing customer base
- Implementation by Hendrix Genetics OR ? – subscription per bird per month
  - *Providing software and training*
  - Providing technical service
  - Revenues dependent on technical performance
  - Phase: start with a few key projects

Extra performance, EUR / CS doc

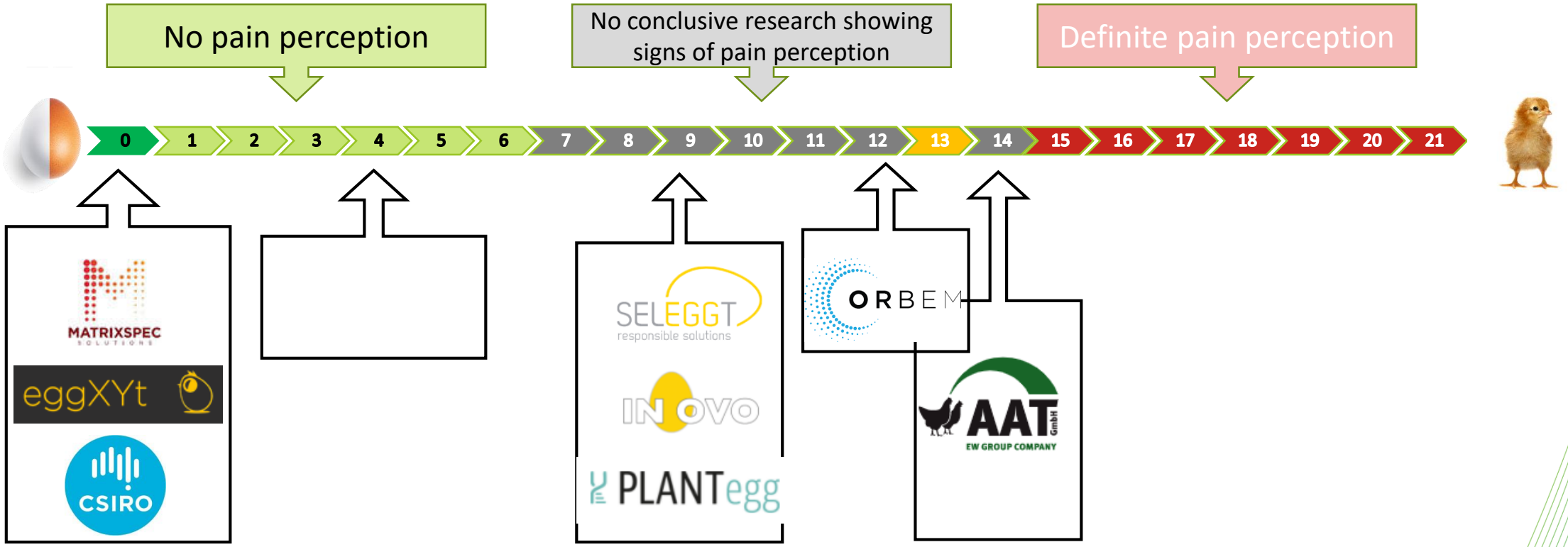
Progress # eggs	additional margin (EUR)	extra margin per CS (EUR)
10	0.04	0.40

Flock Data – to realize the genetic potential

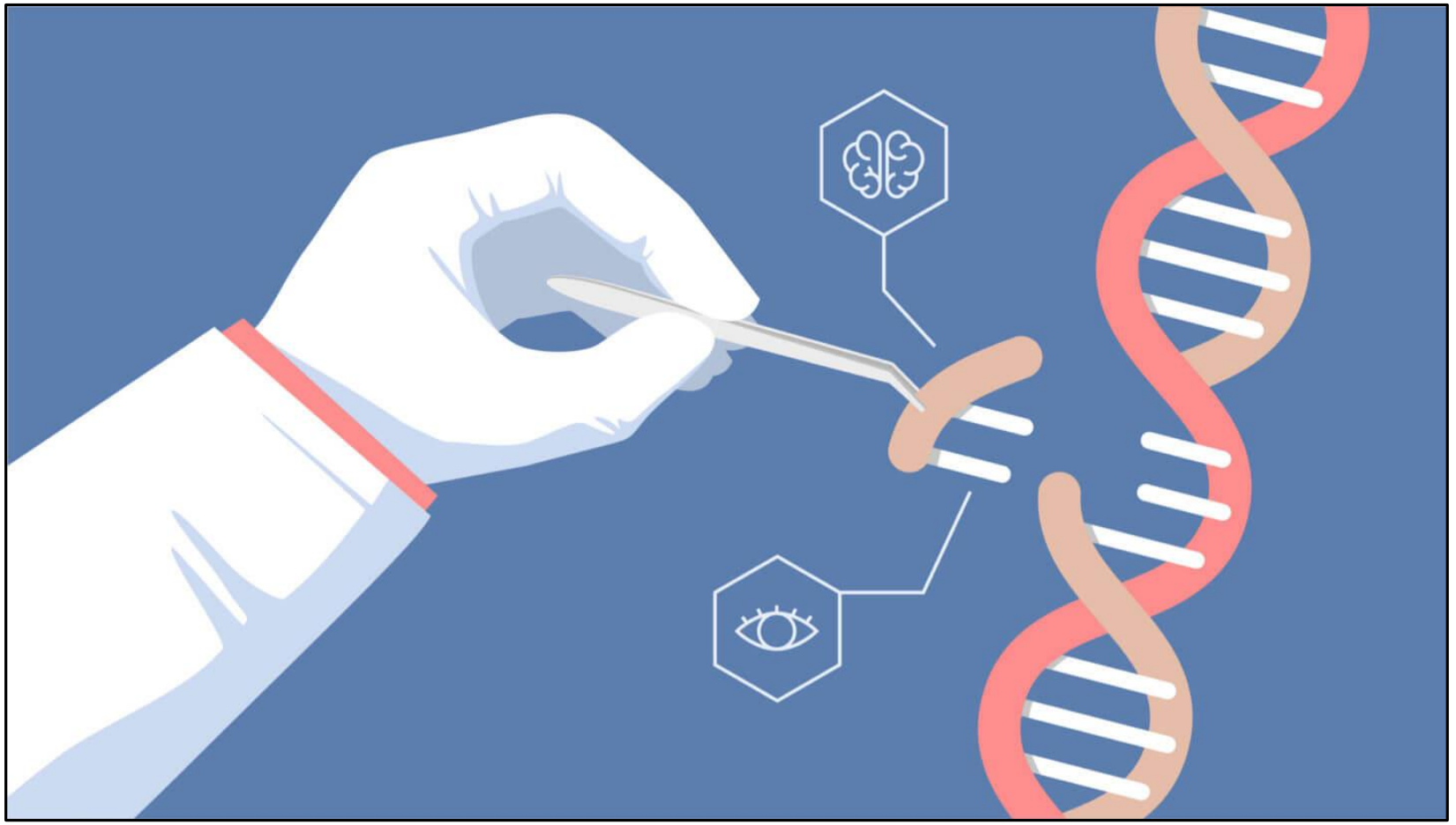
- Let’s use more advanced & available technology
- Realize the genetic potential
- And realize happy customers

In ovo sexing

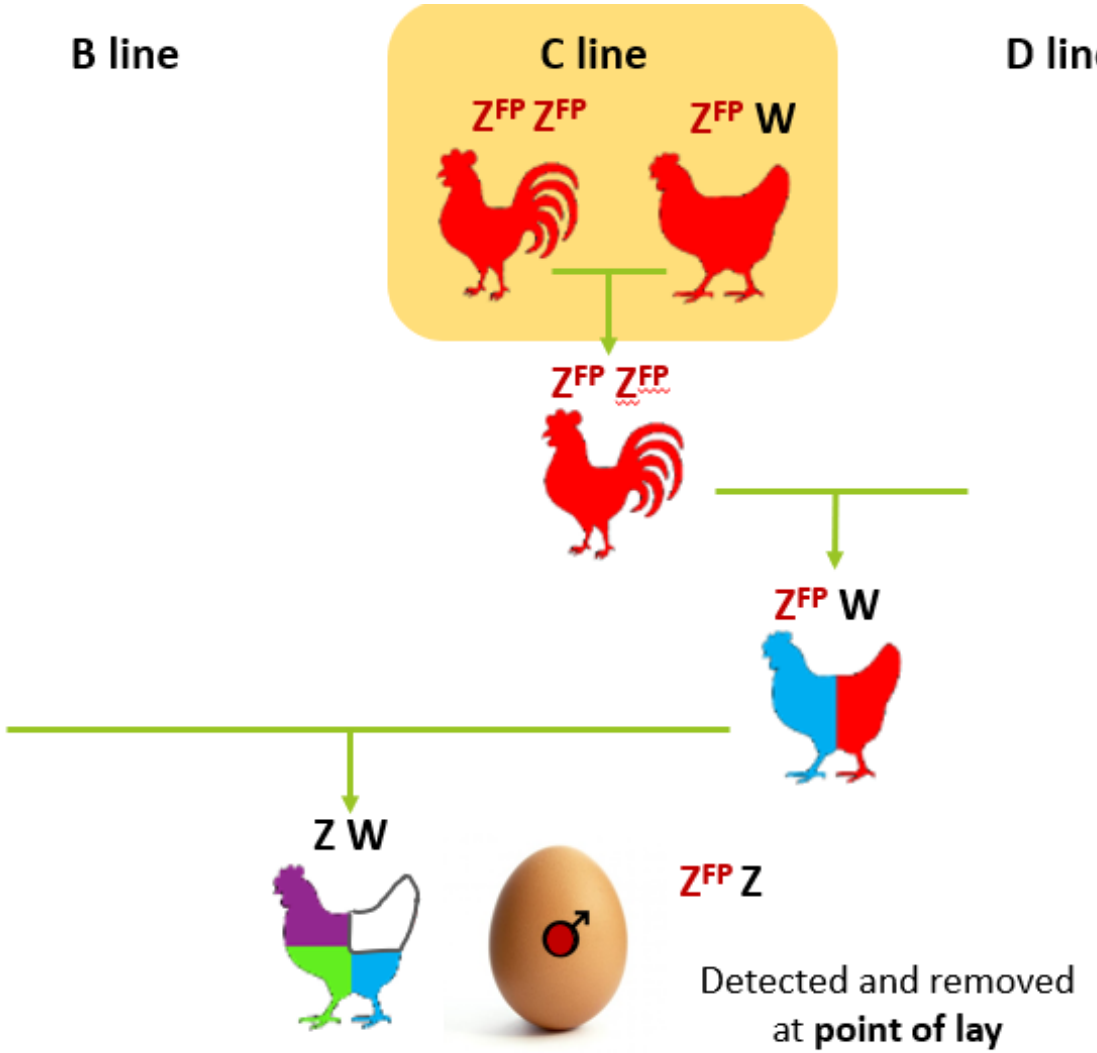
In-ovo sex determination



What is gene editing?



How the sex-linked gene flows through the production pyramid



Top Pedigrees (Pure Lines)
Great Grand Parent Lines
Genetic selection and improvement
- Thousands

Grand Parent Lines
- ~1,000,000

Parent Lines
- ~50,000,000

Commercial Layers
- ~6,000,000,000
- ~1,000,000,000,000 eggs

Pictures of generation 0 – 1 – 2

Generation 0 (egg)

Generation 1 (Pinkie)

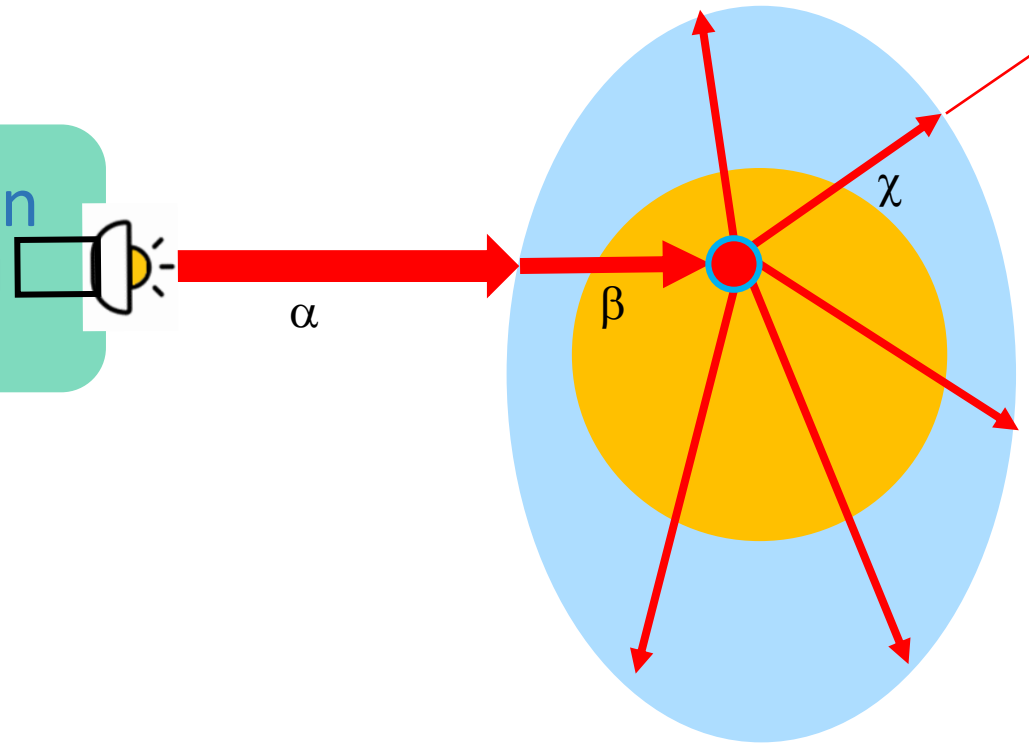
Generation 2 (offspring)

DETECTOR DEVELOPMENT FOR MARKER ASSISTED SEX SORTING

Key consideration:
Energy drop from illumination to detection

Detection system
(tight wave band ~600nm)

Illumination
(tight wave band ~570nm)

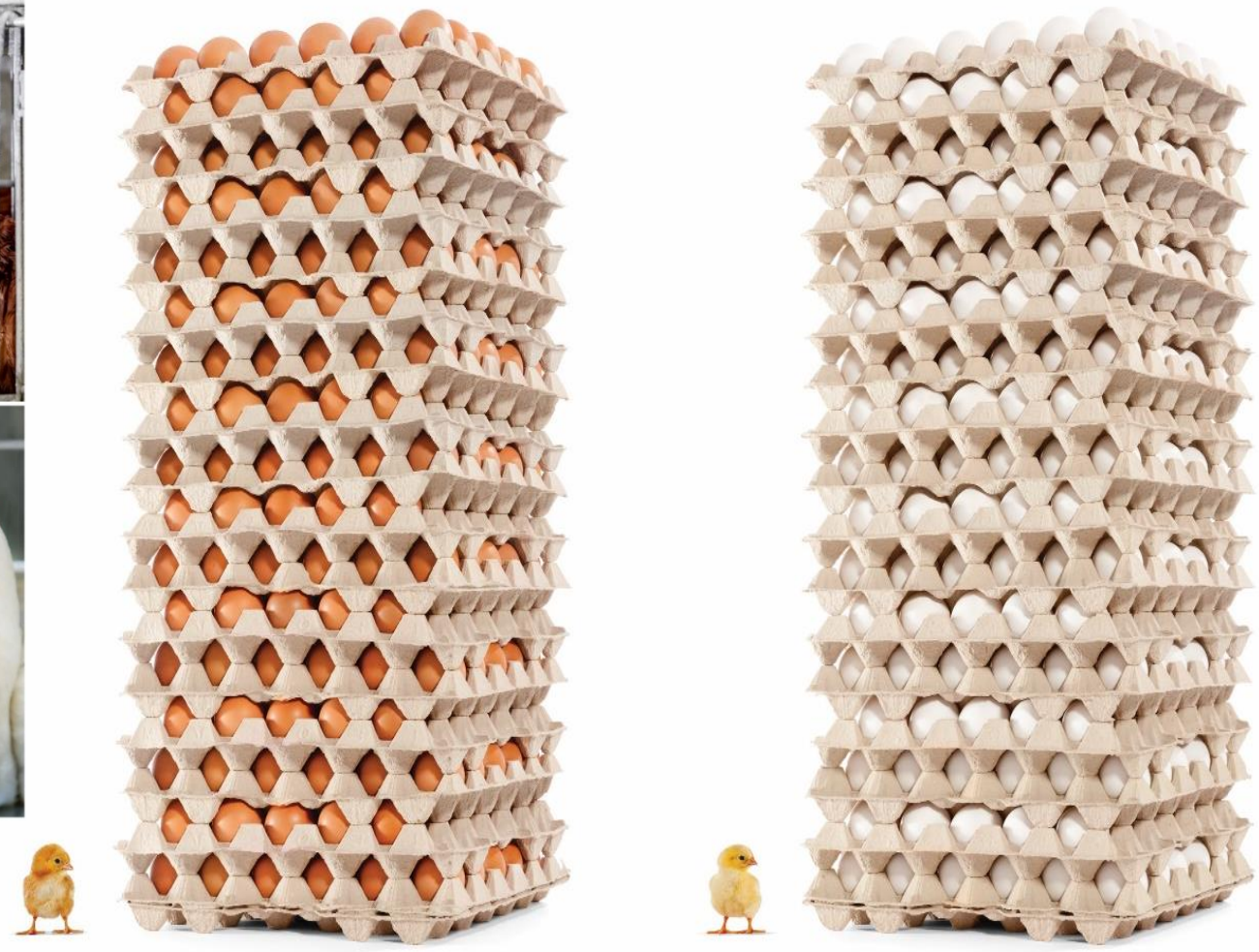


Final system must fit into breeder/hatchery workflow

ENERGY INPUT α > β > χ > δ ENERGY OUTPUT

Summary

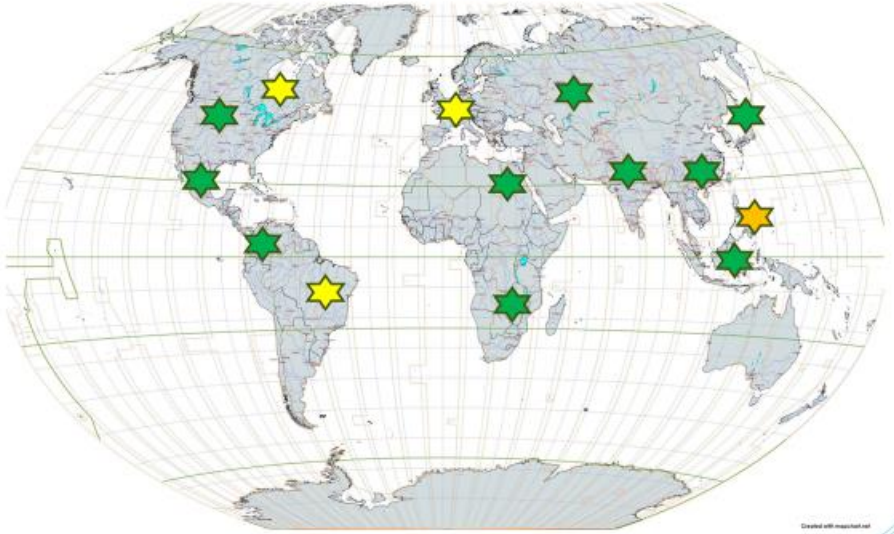
Our focus: 500 1st Quality eggs per hen housed in 100 weeks…



We continue to invest in R&D …

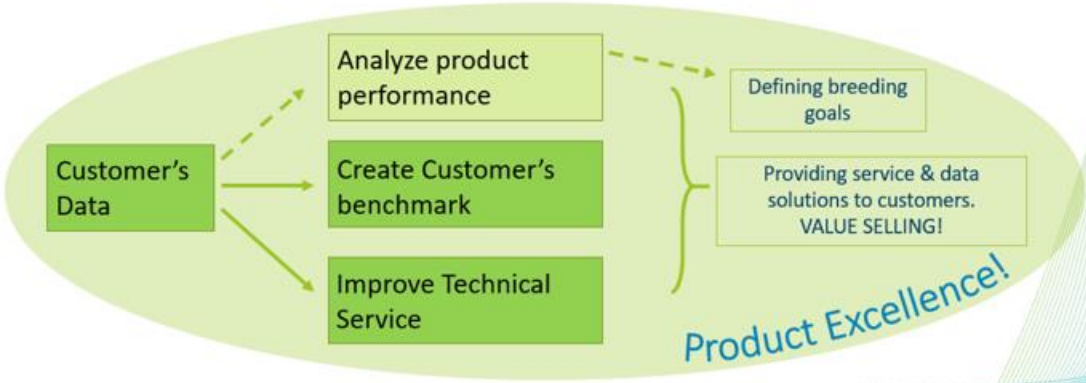
More focus on:
“To realize the genetic potential at Customer level”

Regions with RT testing worldwide



Flock data

- Data support >> to realize the genetic potential at customer level!
- Data services - next to genetic products - will become a component of genetic companies
  - Improved technical service WITH “real-time” flock data



By Team Work!

Gracias por su atención!

Better Breeding Today. Brighter Life Tomorrow.

HENDRIX GENETICS

Gracias por su atención!