

# *Chickens go wireless*

Development of the automatic single nest

*A project of  
The Vencomatic Group and  
ISA (Hendrix Genetics)*



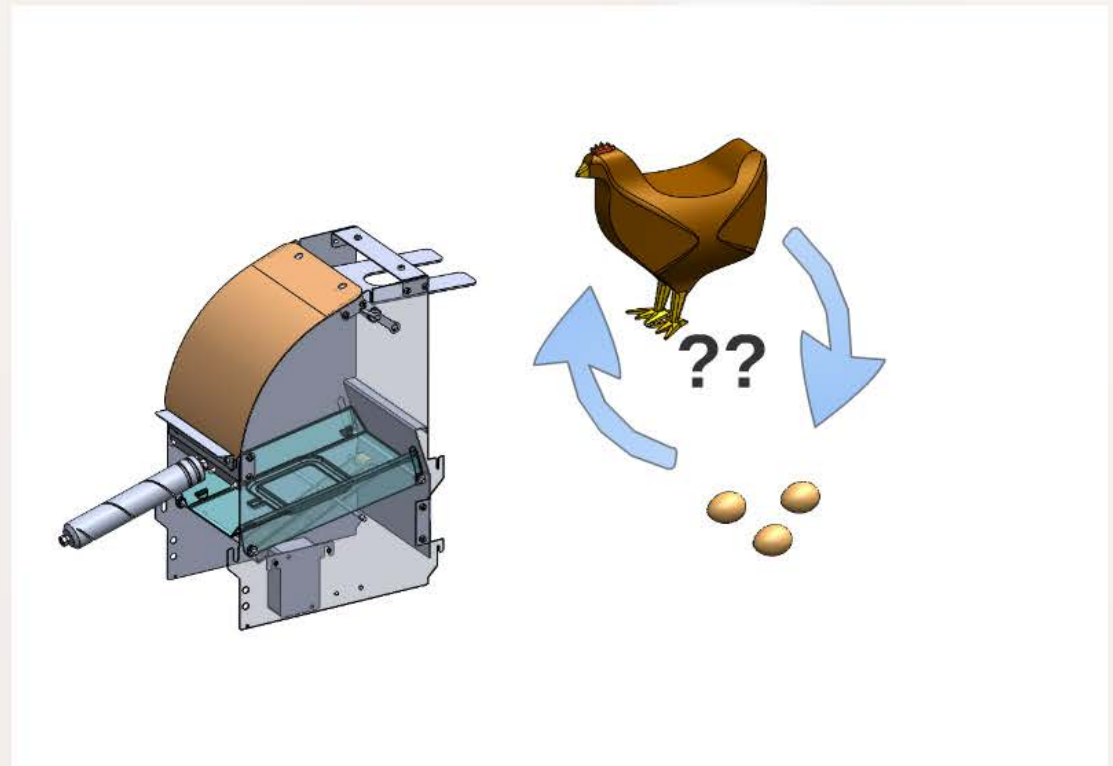
# Introduction

Hendrix Genetics / ISA: Company presentation  
(Esther van den Dungen)

The Vencomatic Group: Company presentation  
(Dick van de Ven)

The automatic single nest project  
(Dick van de Ven)

Future opportunities  
(Jack Abrahams)



# Hendrix Genetics / ISA (Esther van den Dungen)



Better Breeding Today. **Brighter Life Tomorrow.**



# Our Activities

## Layer Breeding



## Turkey Breeding



## Pig Breeding



## Aquaculture Breeding



## Traditional Poultry Breeding

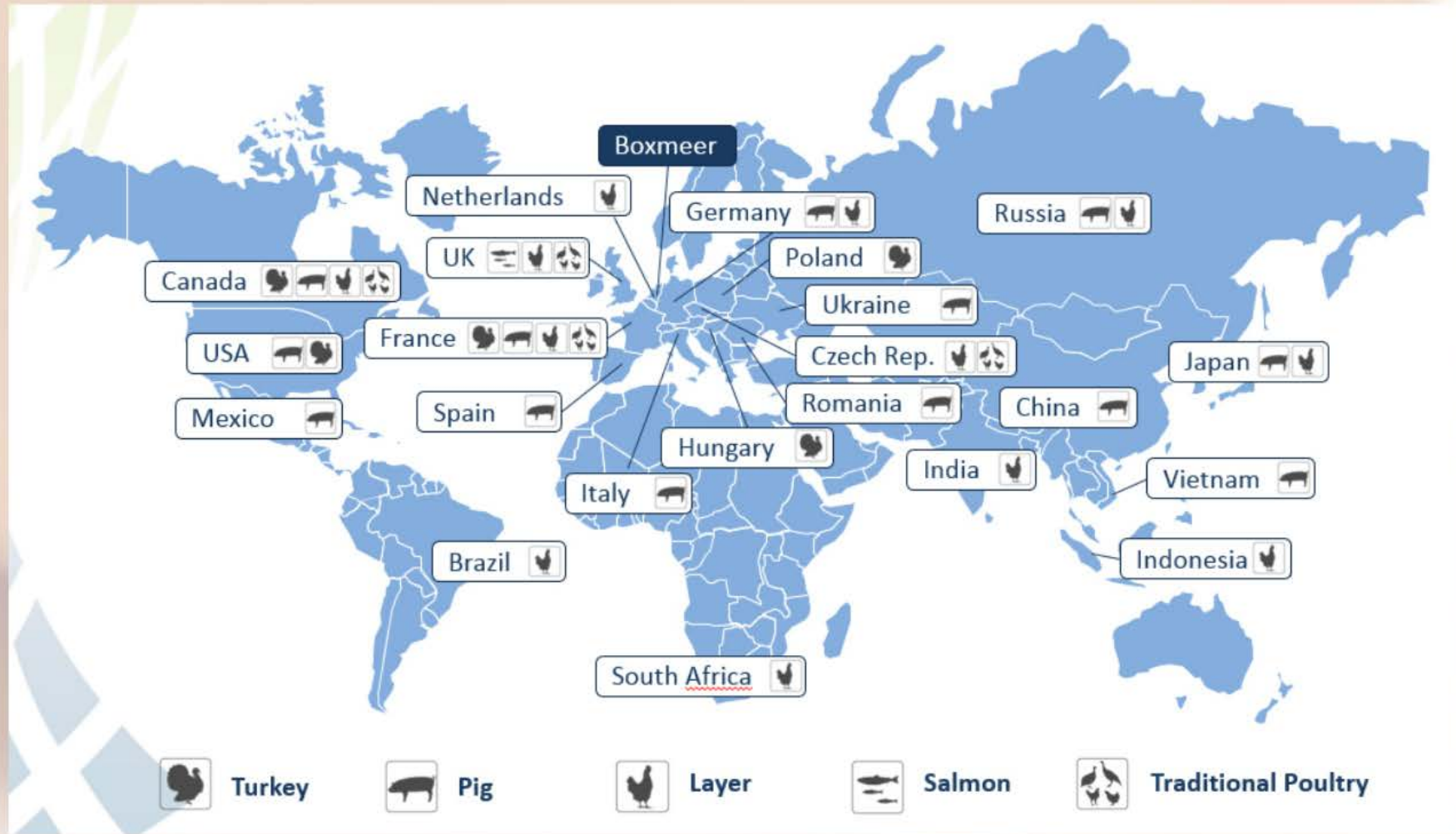


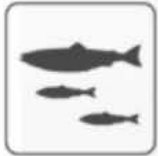
Caringa Sud Ouest



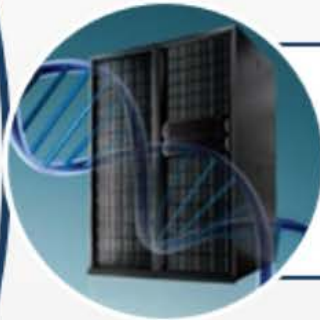


# Global: operations in 24 countries





Research & Technology

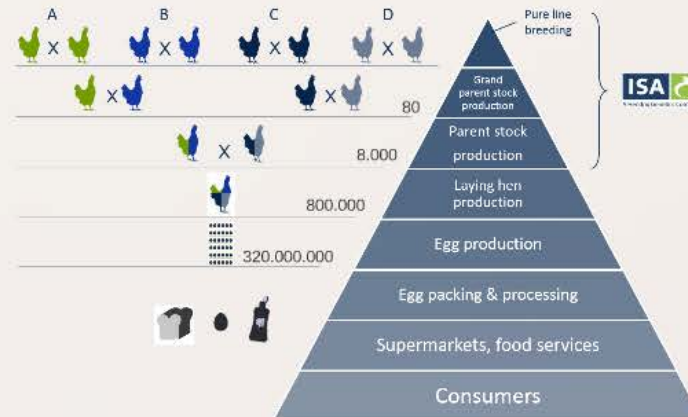


Breeding IT



Genomics & Diagnostics  
Laboratory

# The Layer Breeding Business Unit; Institut de Sélection Animale



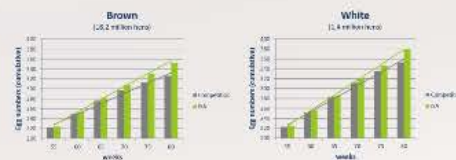
Know the individual chicken... Pure line hatch

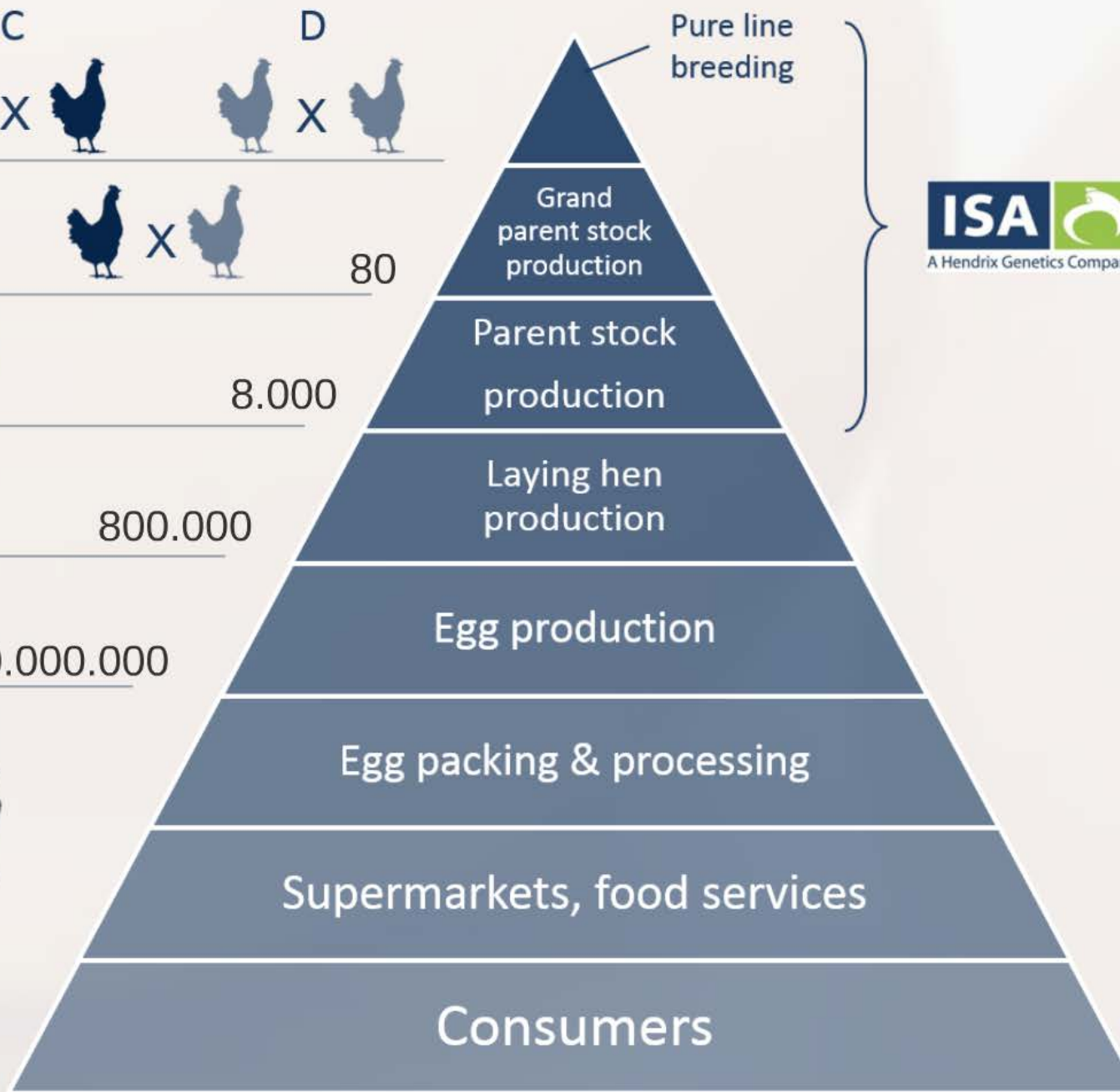
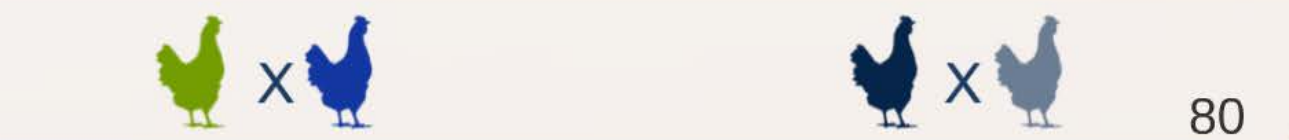


Breeding & Research  
egg quality



Breeding Results customer data (2006-2012)







## Know the individual chicken... Pure line hatch



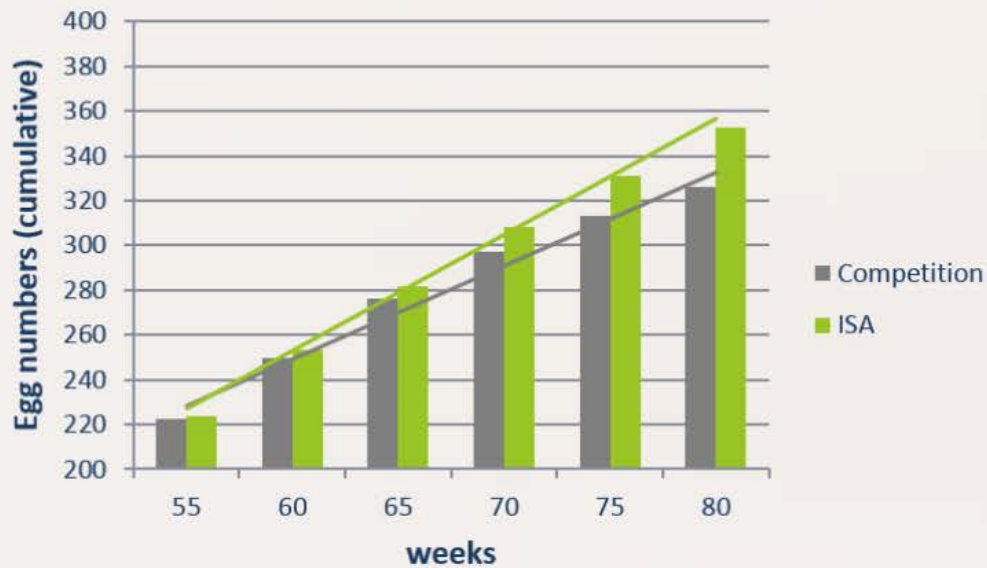
# Breeding & Research egg quality



# Breeding Results customer data (2006-2012)

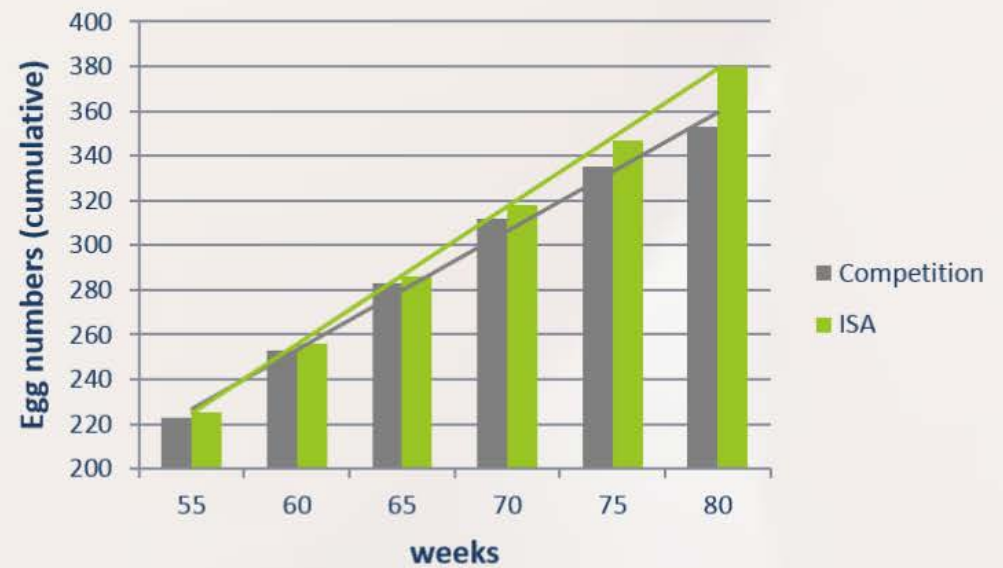
## Brown

(16,2 million hens)



## White

(1,4 million hens)





# Why an automatic laying nest?

## *Change in commercial housing systems*



*But who is who??*

- *Individual data collection important in the Pure Lines to maintain our strong market position*
- *More and more focus on floor housing systems world wide*
- *Therefore important to have part of our Pure Line animals in floor housing systems to measure "new" traits*
- *How to collect individual (production) data in floor housing systems?*

*Individual Automatic Nest with RFID identification system??*



# Change in commercial housing systems



*But who is who???*

***But who is who??***







- ***Individual data collection important in the Pure Lines to maintain our strong market position***
- ***More and more focus on floor housing systems world wide***
- ***Therefore important to have part of our Pure Line animals in floor housing systems to measure “new” traits***
- ***How to collect individual (production) data in floor housing systems?***

***Individual Automatic Nest with RFID identification system??***

# Vencomatic Group (Dick van de Ven)



An innovation driven family  
owned company with strong  
brands in the poultry sector







**Agro Supply**

Climate control for optimal poultry performance





# Prinzen

## Gentle and efficient egg handling





**Rondeel**

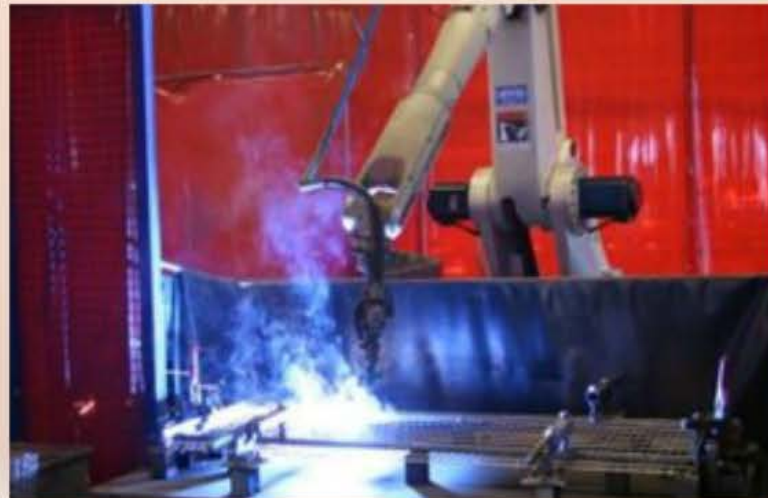
Sustainable table egg production





**Vencosteel**

Production facility for steel products







Sustainable and poultry friendly housing equipment

Founded in 1983 in Eersel (NL)

The Vencomatic Group has over 350 employees who serve thousands of customers worldwide.

*Venco Campus in Eersel the Netherlands*





Active in 3 markets

*Breeders*



*Layers*

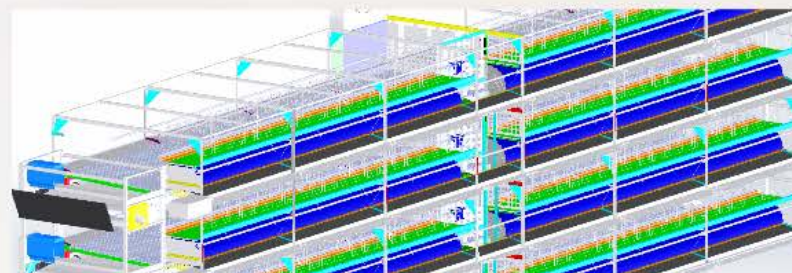


*Broilers*



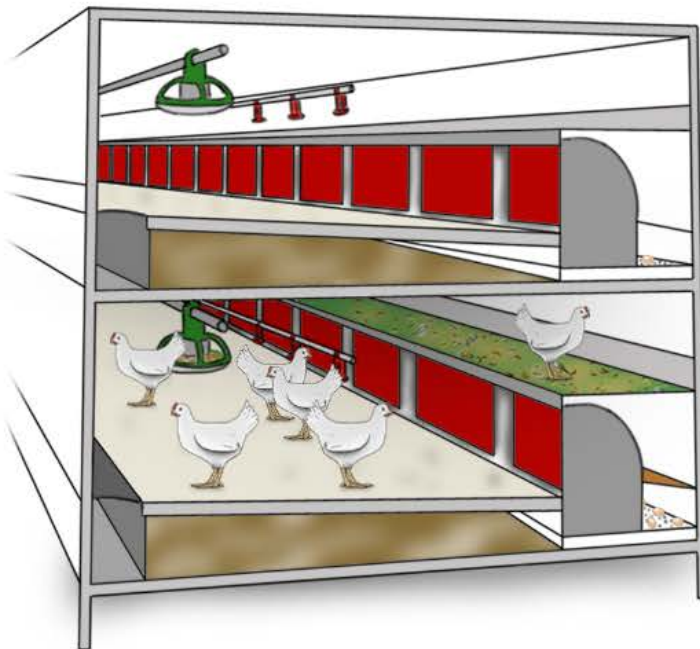
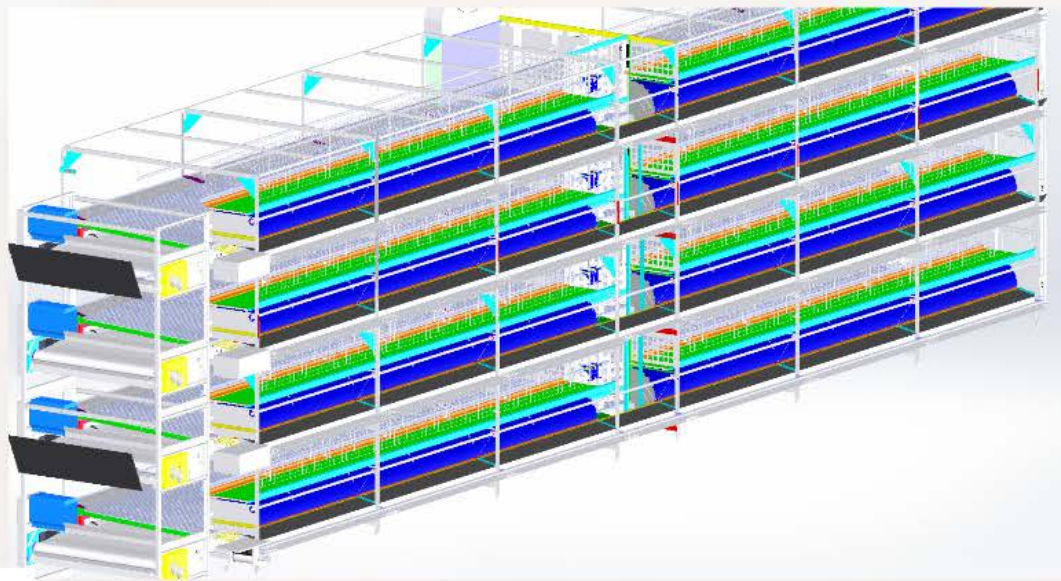
**Breeders**

Classic nest  
Grando nest



# Breeders

- Classic nest
- Grando nest
- **Veranda breeder**



## Multi-tier automated housing system

- feed
- water
- aeration
- light
- egg collection
- manure collection
- closing nests



## Change in commercial housing systems



*But who is who??*

- *Individual data collection important in the Pure Lines to maintain our strong market position*
- *More and more focus on floor housing systems world wide*
- *Therefore important to have part of our Pure Line animals in floor housing systems to measure "new" traits*
- *How to collect individual (production) data in floor housing systems?*

*Individual Automatic Nest with RFID identification system??*





the chicken

location to detect animal  
from chickens

off nest box  
roll away

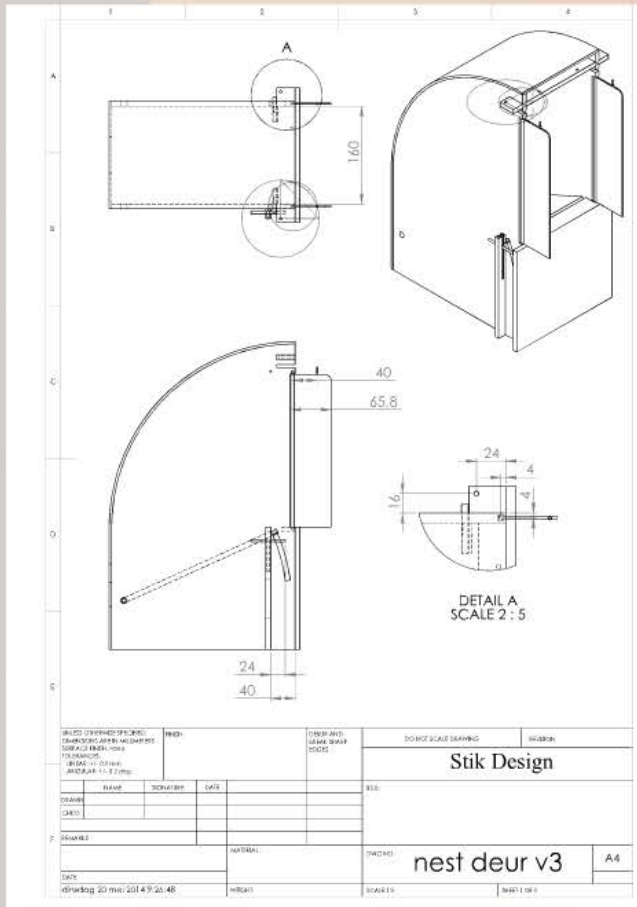


der  
nsport



## separating one chicken

- create individual location to detect animal
- separate eggs from chickens
- using weight to close off nest box
- allowing the egg to roll away



Collecting eggs



## Collecting eggs

- eggs can't crack
- need to be detected
- when desired eggs in correct order
- eggs marked before collection
- during production automated transport





## Detecting chicken

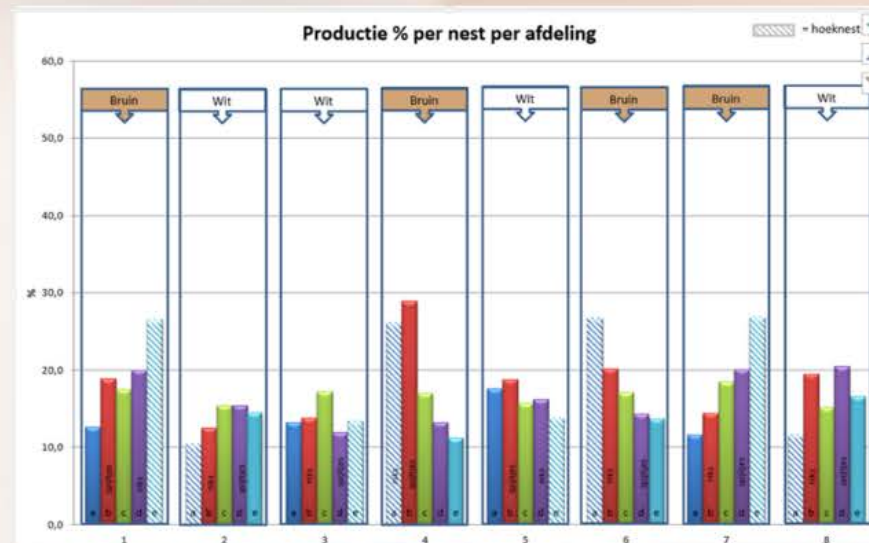
- using RFID antenna in nest
- attaching tags to the animals
- what materials to use
- range should be limited to the nest
- corrosion protection



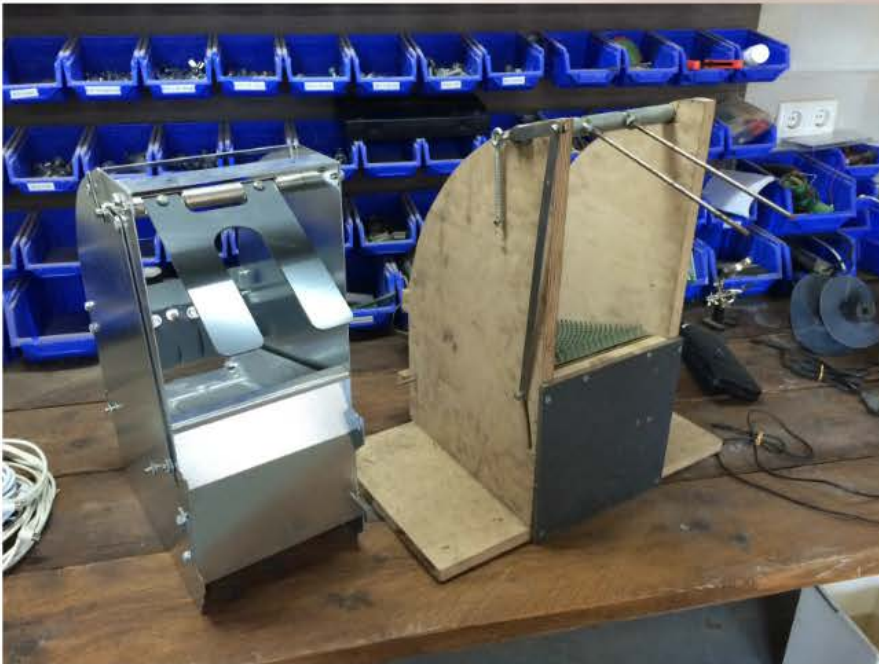


## Testing

- > 6 months duration
- 240 animals
- 8 pens
- 40 nest boxes
- variations in size and materials
- early tests RFID system MOTZ recording data and test with camera's



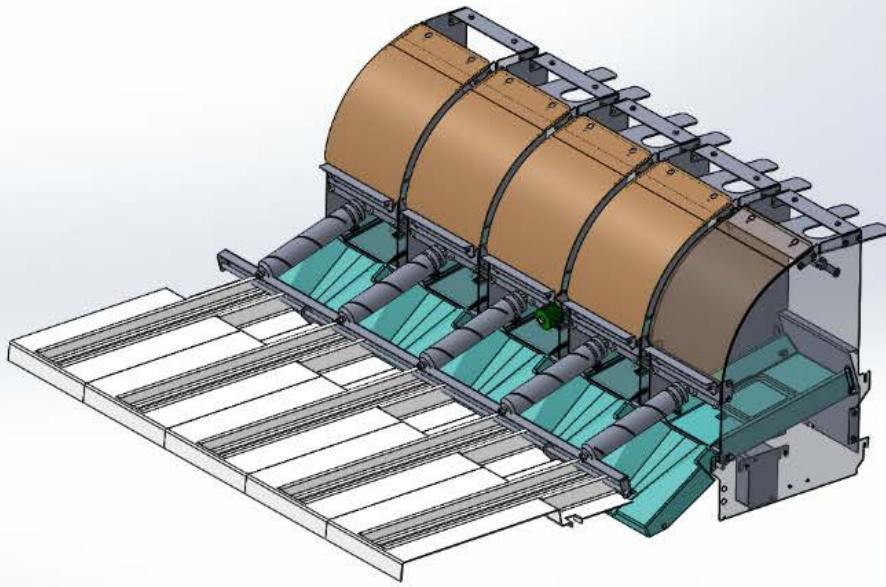
## Next generation



- implementing gained knowledge
- integrating in Vencomatic Veranda
- preparing for large scale production
- integrating RFID system
- combining egg data with RFID data

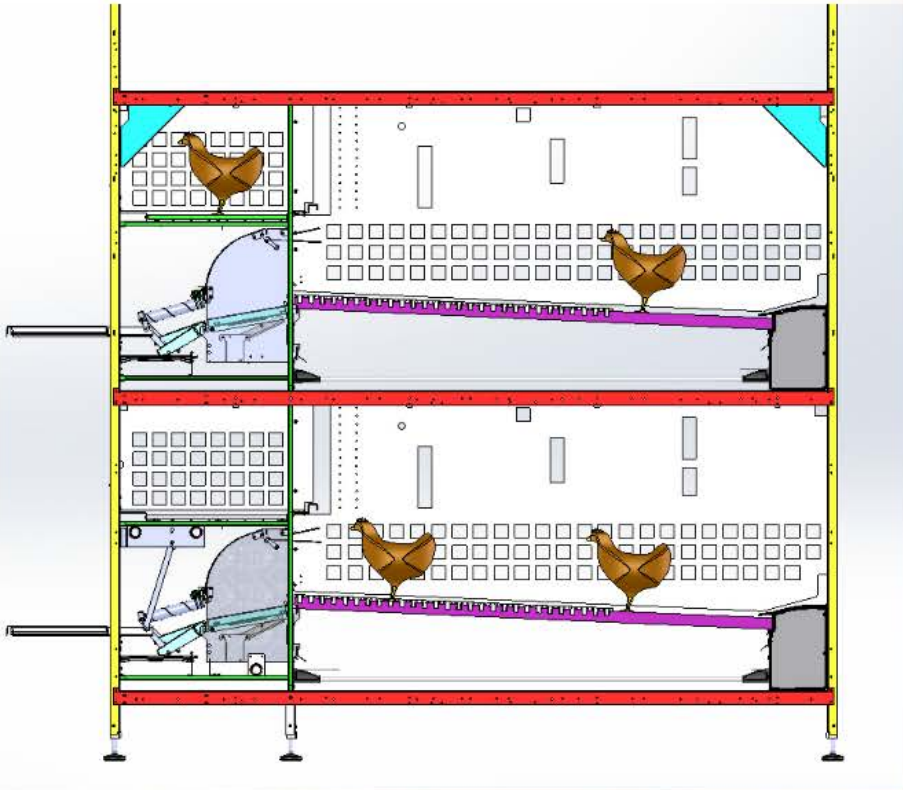


## Sets of 5 nests



- steel boxes
- plastic bottoms
- antennas integrated in each box
- automatic egg detection/ collection/storage

## Integrated in Veranda



- 2 sections 2 floors
- 240 animals
- automatic feed and water disposal
- automated manure collection
- nest close automatically



## Data collection

RFID bird tags

time

quality eggs

egg detection



number visits



number of eggs

duration

behavior of chicken



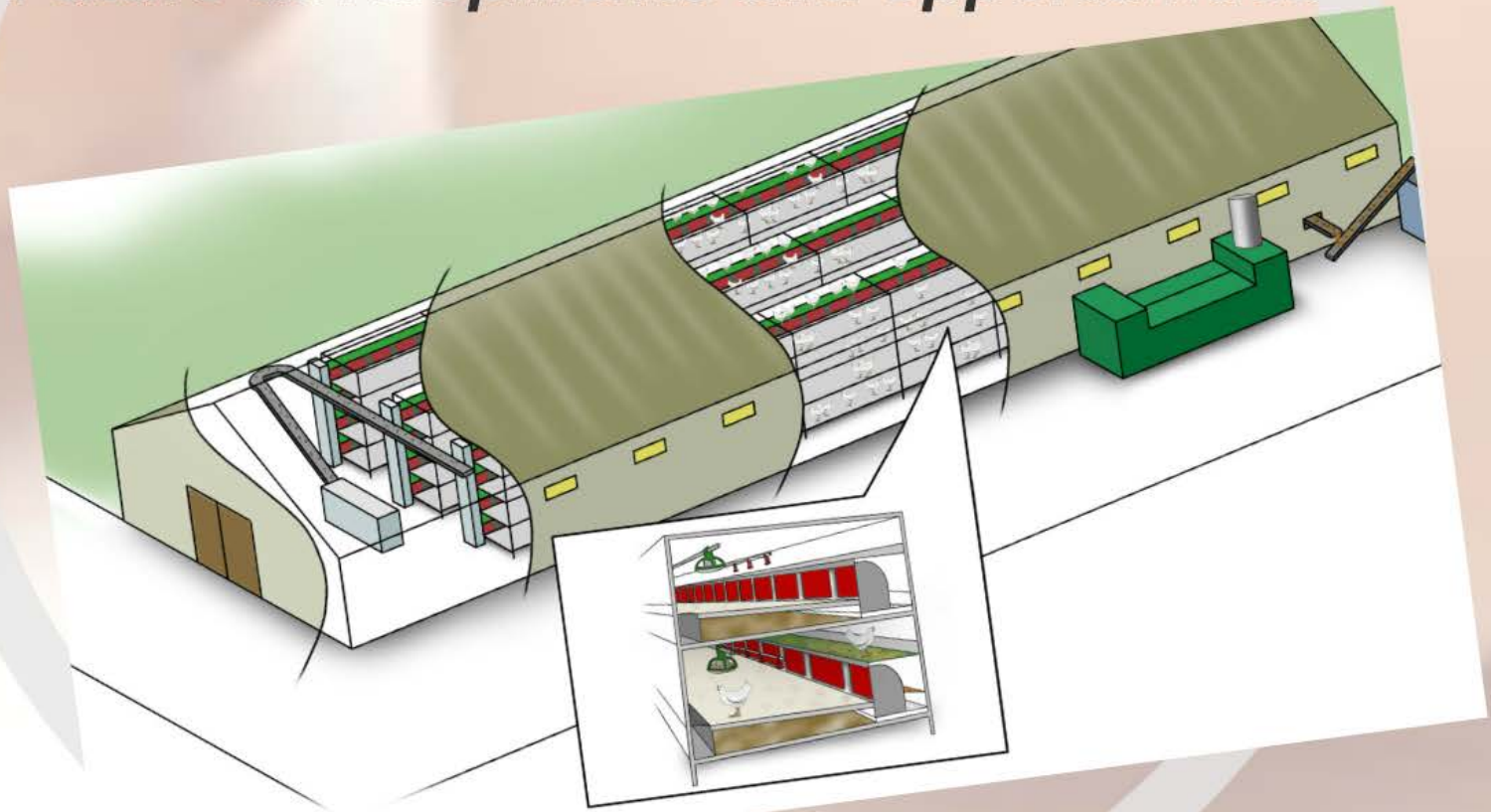
**Secure individual quantitative data  
for breeding selection**

# RFID details

- rectangle shaped antenna
- range only in the nest!
- 125 Khz
- Manchester code
- pigeon race mode transponder
- detection height +/- 10 cm
- transponder speed 46 ms
- reading 5 times per second
- sending every 3 seconds unless state cha

# What's next?

*Future developments and opportunities*



Thank you for  
your attention!



**Thank you for  
your attention!**

