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)
Our Activities

Layer Breeding

Turkey Breeding

Pig Breeding

Aquaculture Breeding

Traditional Poultry Breeding
Global: operations in 24 countries
Research & Technology

Breeding IT

Genomics & Diagnostics Laboratory
Pure line breeding

Grand parent stock production

Parent stock production

Laying hen production

Egg production

Egg packing & processing

Supermarkets, food services

Consumers
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

- Individual data collection important in the Pure Lines to maintain our strong market position
- More and more focus on floor housing systems worldwide
- 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??
• Individual data collection important in the Pure Lines to maintain our strong market position

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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
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
- Veranda breeder

Multi-tier automated housing system
- feed
- water
- aeration
- light
- egg collection
- manure collection
- closing nests
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Individual Automatic Nest with RFID identification system??
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

- 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
- Egg detection
- Time
- Number of visits
- Duration
- Quality eggs
- Number of eggs
- 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 change
What's next?

Future developments and opportunities
Thank you for your attention!