

# Hi-Tech Poultry Production

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Presentation by: Coen Boonstra



**Big Dutchman**<sup>®</sup>

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**POULTRY ASIA**

06 07 08 SEPTEMBER 2023

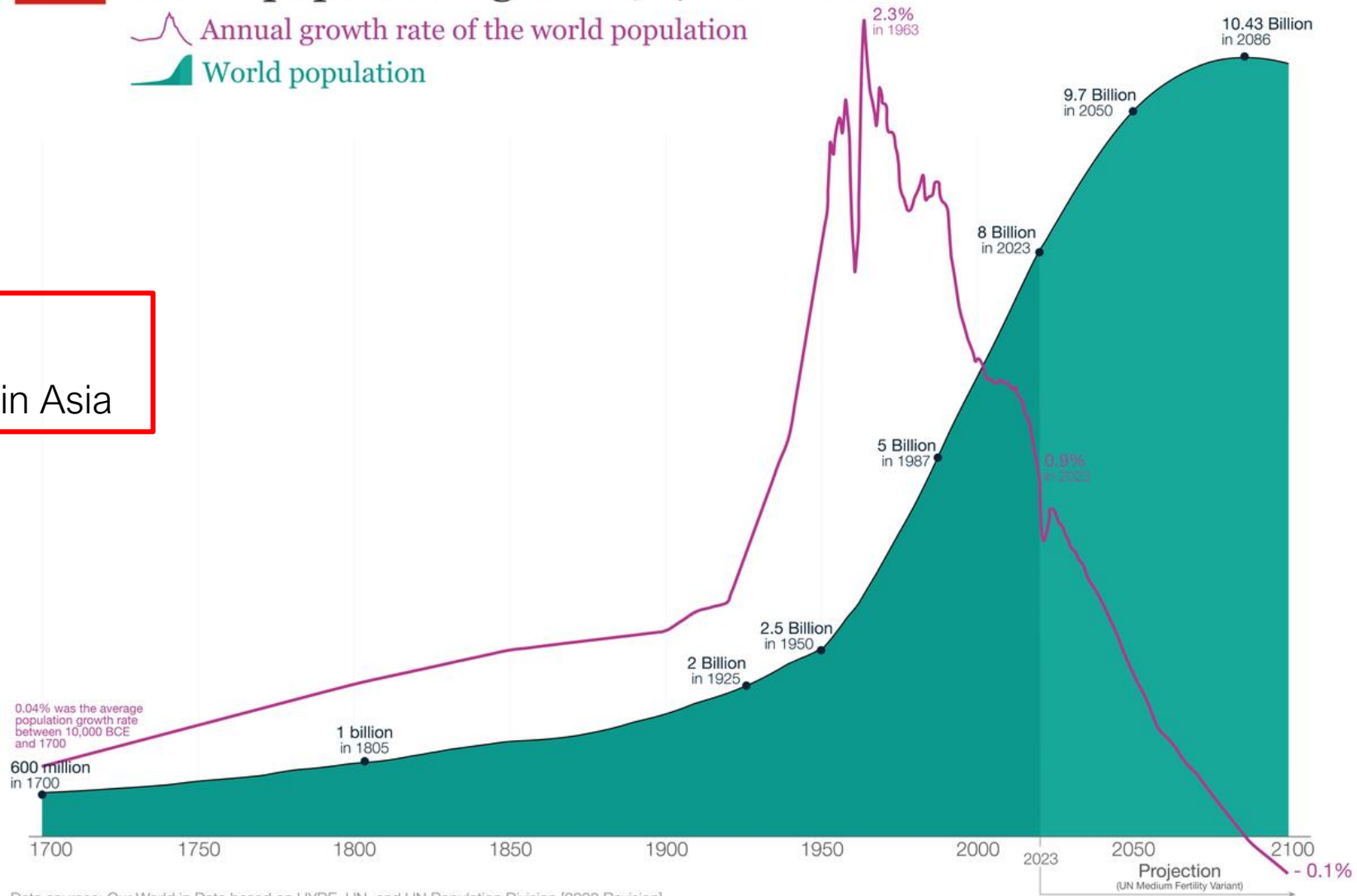
SETIA CITY CONVENTION CENTRE

# World population growth, 1700-2100

Annual growth rate of the world population

World population

55% of world population lives in Asia



Data sources: Our World in Data based on HYDE, UN, and UN Population Division [2022 Revision]  
This is a visualization from [OurWorldinData.org](https://OurWorldinData.org), where you find data and research on how the world is changing.

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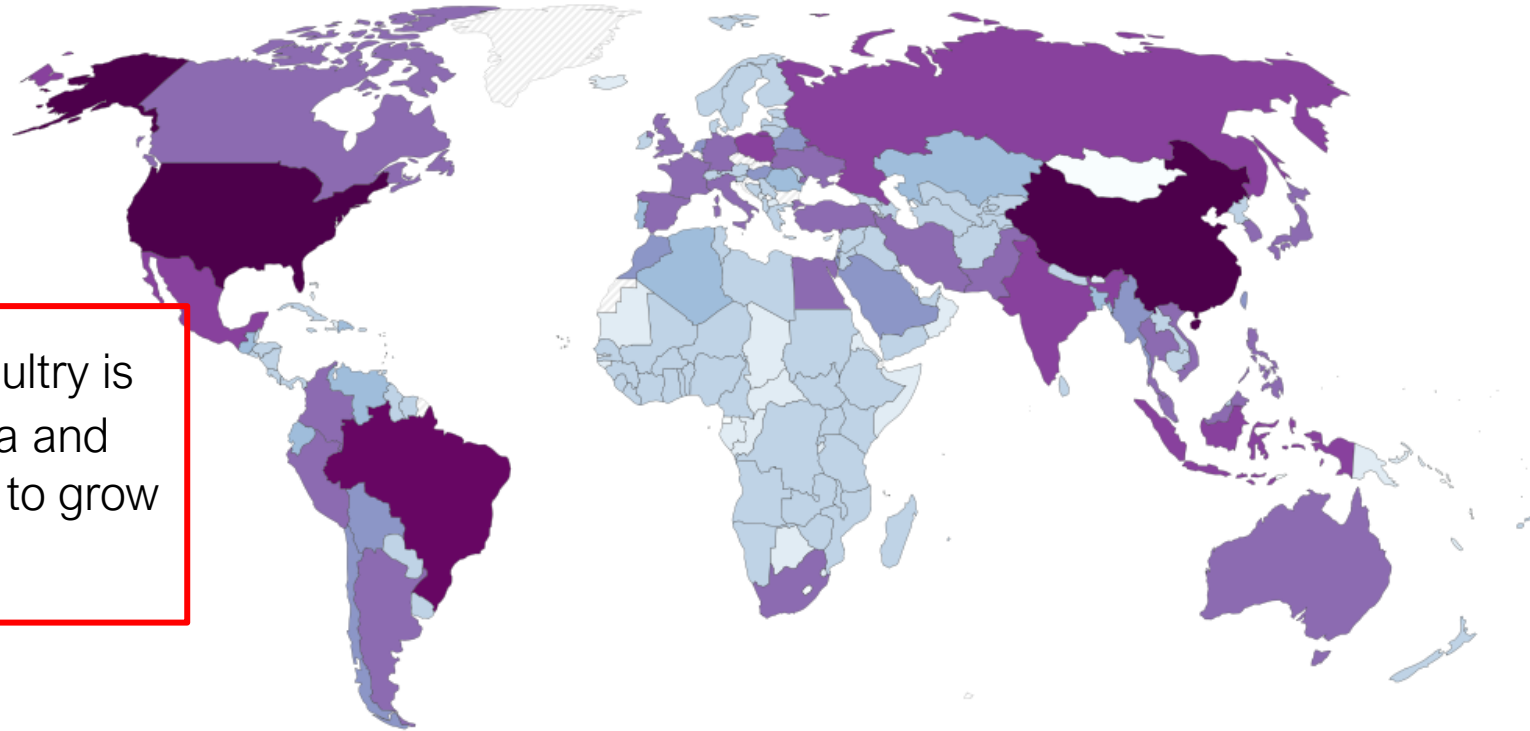


# Poultry production,

Our World  
in Data

World

**38%** of all poultry is produced in Asia and this is expected to grow with **16%**



No data 0 t 1,000 t 10,000 t 250,000 t 500,000 t 1 million t 2.5 million t 5 million t 10 million t 20 million t 25 million t



50% of habitable land is used in agriculture

# Key trends in our industry

## Fix foreign labour shortage

- Labor shortages
- Diseases
- Food safety and traceability
- Animal welfare
- Changing consumer trends
- Sustainability

### 'Shortage of workers still exists'

High demand, poultry disease among causes of insufficient chicken supply in S'gor, says exco rep

### 'Slaughtering processes in Penang should be upgraded'

## Green growth and sustainability for a better future



# Automation & Efficiency



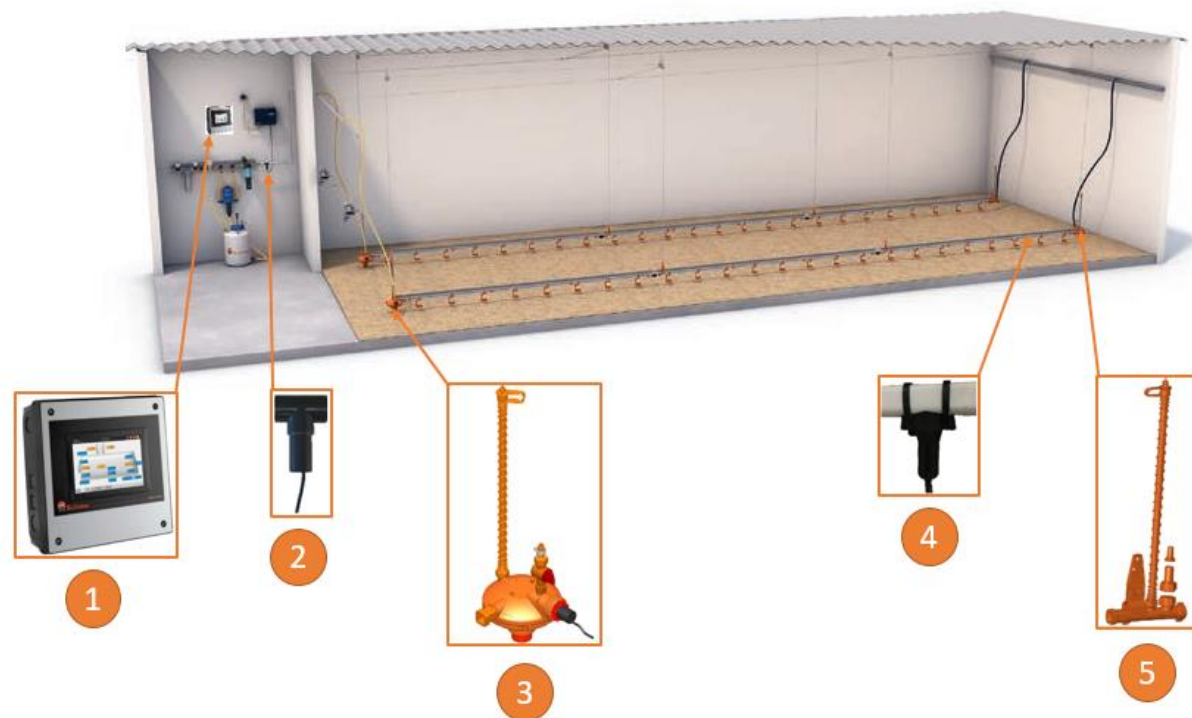
# Automation & Efficiency in broiler sheds

- Prevent birds from entering
- 47mm low rim height
- Easy inspection
- Easy cleaning
- Easy to use



# Automation & Efficiency in broiler sheds

- Automated flushing and ultra sonic cleaning
- Ideal water temperature 18-21 degrees

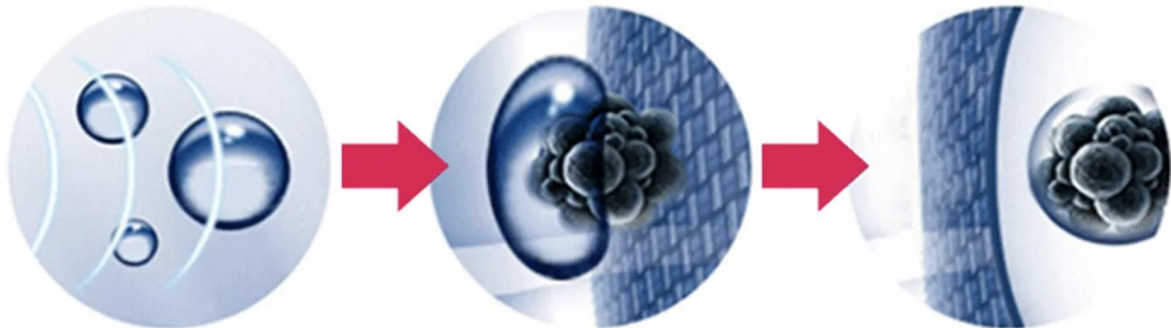


# Automation & Efficiency in broiler sheds

- Automated flushing and ultra sonic cleaning
- Ideal water temperature 18-21 degrees

## Principle of Ultrasonic Cleaning

Ultrasonic high-frequency vibration, bubbles adhere to blast and peel off dirt



Ultrasonic vibration frequency generates bubbles and grows rapidly

Closure of bubbles produces shock waves and damages stains

The solid particles are separated from the surface of the cleaning surface to complete the decontamination

Antibiotics and minerals: \$0.02 per bird  
Poor conditions: \$0.04 per bird.

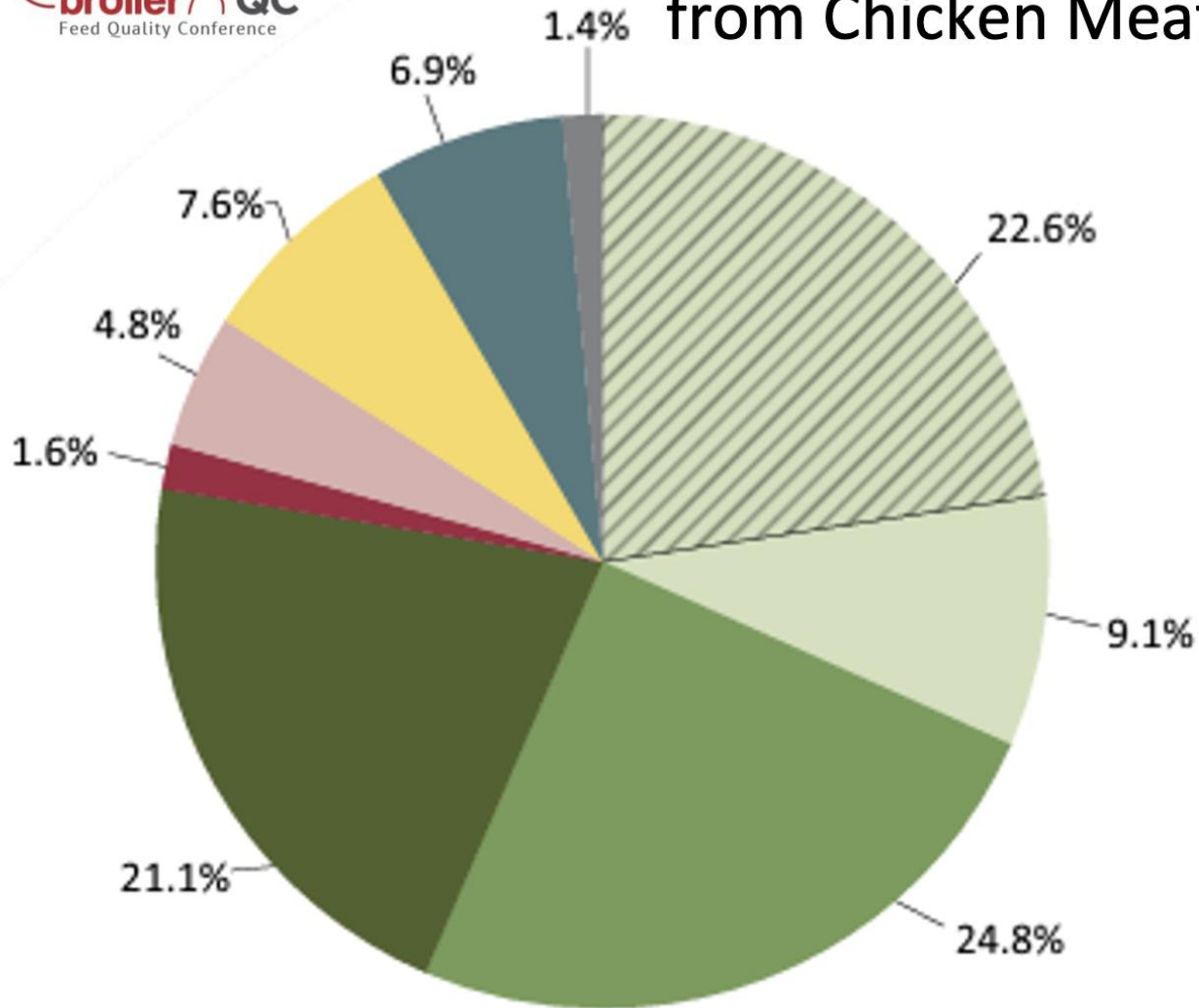
25,000 x 0.02 = **\$500** savings



Ceva Animal Health



# Sources of Emissions from Chicken Meat



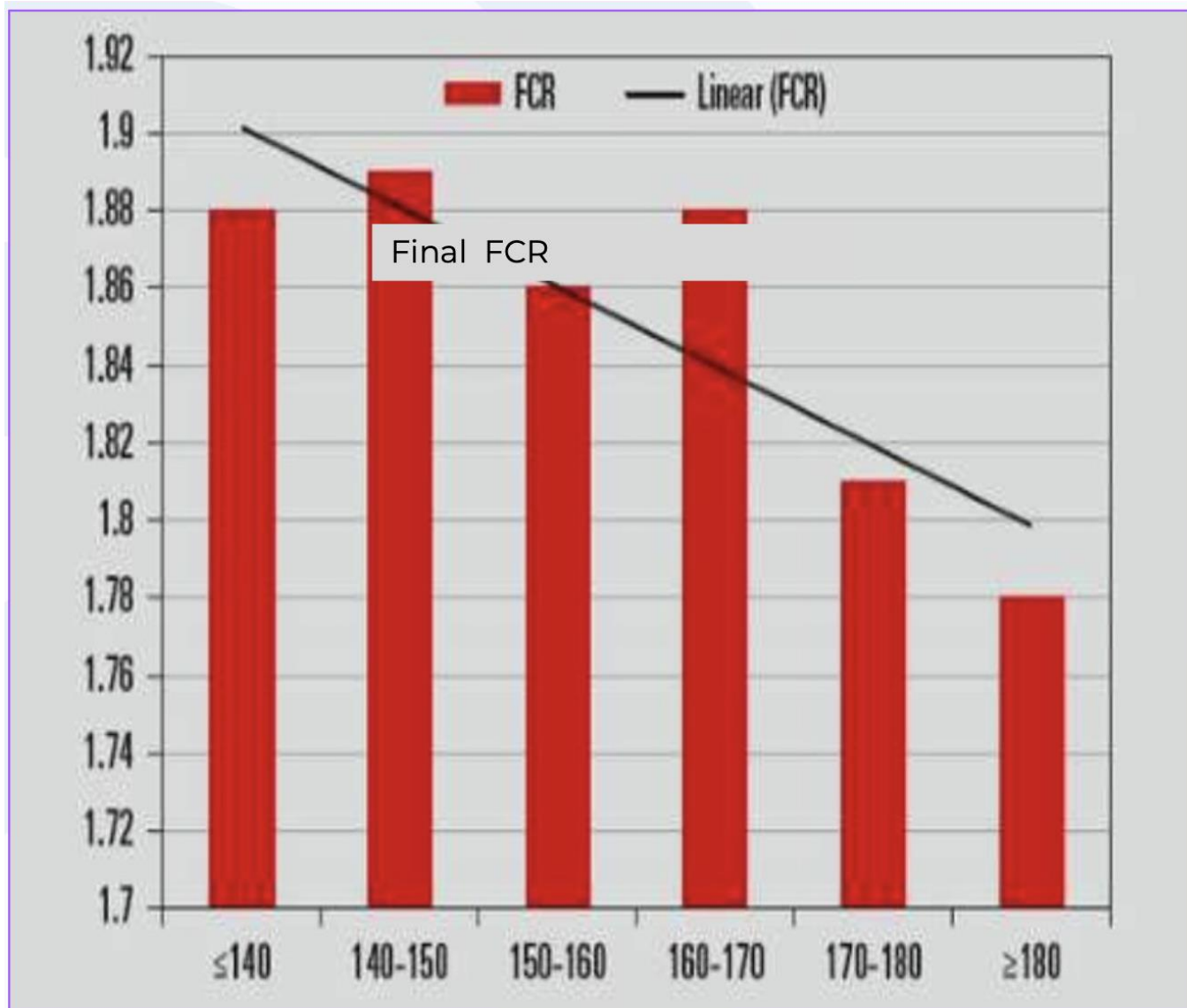
- Applied & deposited manure, N<sub>2</sub>O
- Fertilizer & crop residues, N<sub>2</sub>O
- Feed, CO<sub>2</sub>
- LUC: soybean, CO<sub>2</sub>
- Manure management, CH<sub>4</sub>
- Manure management, N<sub>2</sub>O
- Direct energy, CO<sub>2</sub>
- Postfarm, CO<sub>2</sub>
- Other\*

\* Includes "Feed: rice, CH<sub>4</sub>" and "Indirect energy, CO<sub>2</sub>".

Source: GLEAM.

## 78% of Emissions are related to Feed

Tackling Climate Change Through Livestock, UN-FAO, 2013, based on 2005 data



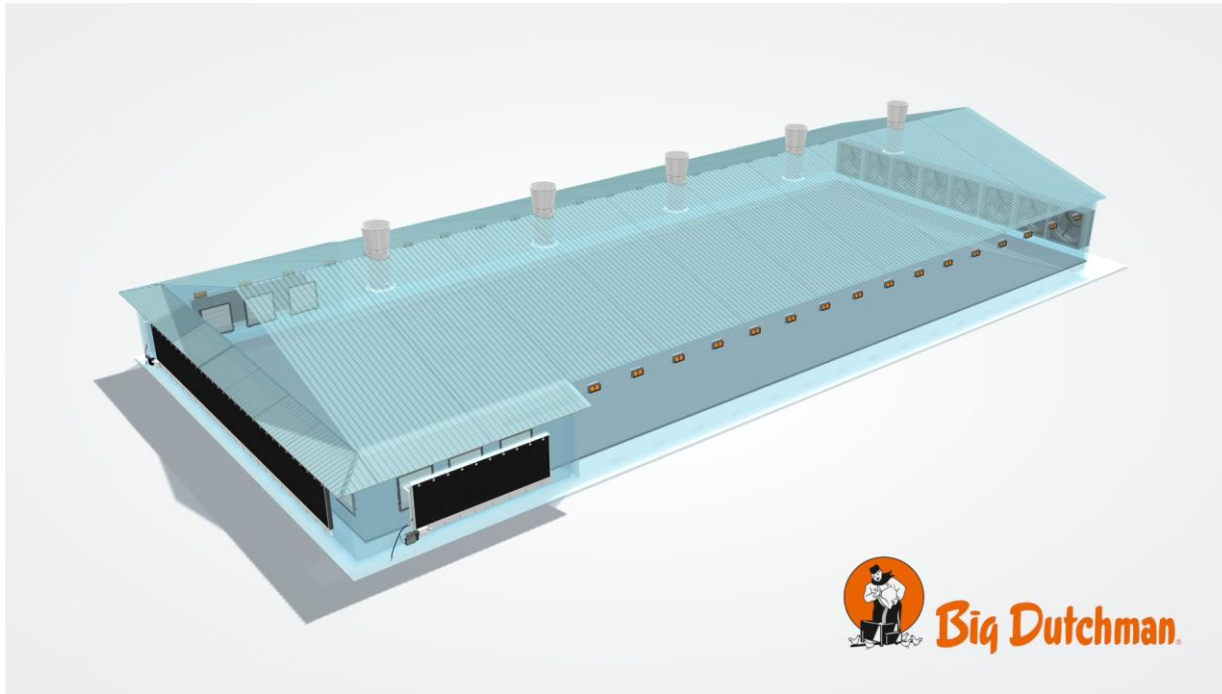
7d LW (g)

**Mike Block**  
 Aviagen Technical Manager  
 Asia Pacific



# The right climate conditions

- Tunnel ventilation → Combi-tunnel ventilation



Trail conditions in Indonesia  
Outside temperature: 36 – 25 degrees Celsius  
The humidity: 85% - 51%  
Number of birds: 30,000 @ 2kg  
Batch length: 35 days

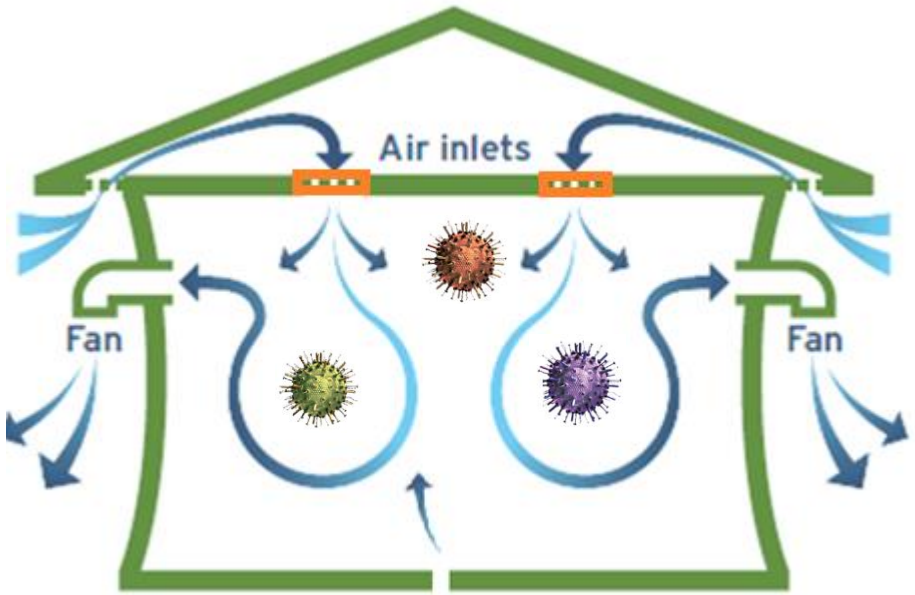
Electricity price: \$0.11 per kw  
LPG price: \$0.48 per kg  
Feed price: \$0.49 per kg

Total savings per batch: **\$3,795.00**

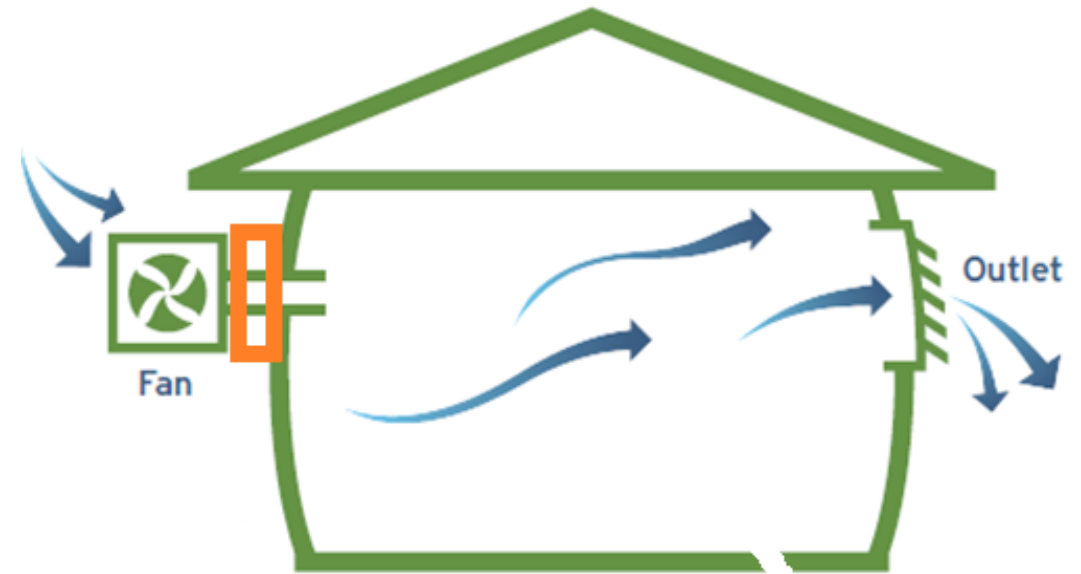
Total investment: **\$12,650.00**

# Air filtration

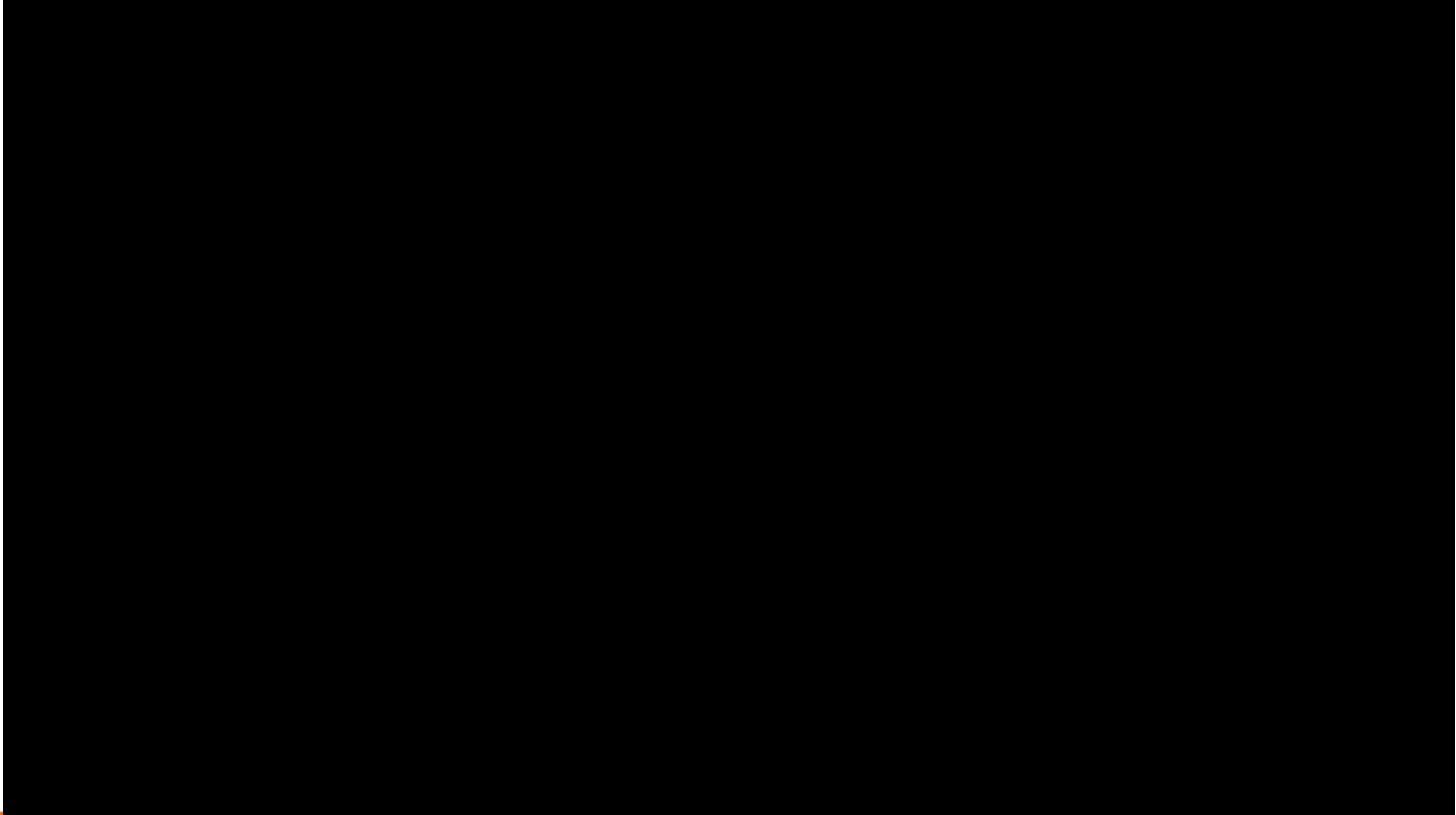
Negative pressure



Positive pressure



# Automation in breeder farms



# Data collection and sharing



## In the barn

All in One Computer

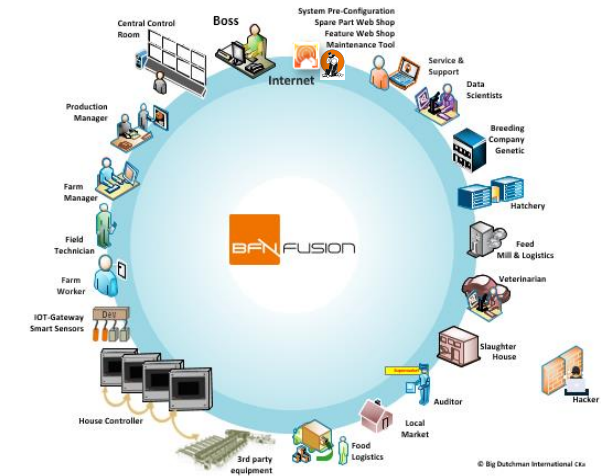
- Climate & Production



## At the farm office

Complete Farm Overview

- Quick reaction of Irregularities
- Evaluate performance & optimize production
- Peace of mind on the go



## Value Chain

All Farms in one overview

- Unified platform & ecosystem
- Smarter farming across value chain
- Big Data & AI predictive

## Survey:

The Survey dashboard displays a table with columns for Farm, Batch, Day, Temp, CO2, Humidity, Bird dead, FCR, Bird weight, Water/ink, Feed/bird, and FEF. The table lists data for multiple farms and batches, including details like temperature, CO2 levels, humidity, and feed efficiency.

Farm	Batch	Day	Temp	CO2	Humidity	Bird dead	FCR	Bird weight	Water/ink	Feed/bird	FEF
Kingma Farm	F1107 Batch 1	4	27.3°C	1,478.9 ppm	45.0%	1,71.0	1.78	1,874.8 g	8,119.8 ml	1,878.0 g	1
Coopsa Farm	F1101 Batch 3	4	23.6°C	1,389.9 ppm	40.0%	1,232.9	1.28	2,796.0 g	8,137.0 ml	1,840.0 g	1
Brandari Farm	F11011 Batch 1	76	21.8°C	1,811.9 ppm	57.0%	1,388.8	1.36	1,075.0 g	3,871.0 ml	1,187.0 g	1
Brandari Farm	F11043 Batch 3	21	24.4°C	1,201.0 ppm	63.0%	1,636.0	1.29	1,037.0 g	2,840.0 ml	1,334.0 g	1
Brandari Farm	F11011 Batch 1	71	20.7°C	1,908.9 ppm	50.0%	1,775.8	1.34	1,071.0 g	2,719.0 ml	1,170.0 g	1
Munchi Farm	F11041 Batch 3	21	24.2°C	1,910.9 ppm	50.0%	1,725.9	1.24	1,073.0 g	2,720.0 ml	1,232.0 g	1
Munchi Farm	F11011 Batch 1	76	21.8°C	1,811.9 ppm	57.0%	1,388.8	1.36	1,075.0 g	3,871.0 ml	1,187.0 g	1
Munchi Farm	F11042 Batch 3	21	25.5°C	1,201.0 ppm	50.0%	1,514.8	1.20	1,050.0 g	2,890.0 ml	1,326.0 g	1
Munchi Farm	F11011 Batch 1	71	20.7°C	1,201.0 ppm	60.0%	1,638.0	1.20	1,067.0 g	2,940.0 ml	1,264.0 g	1

- Central & always up-to-date overview of the production parameters across all production sites
- Personalized view
- Simple and intuitive operation
- Direct comparison of all locations
- Current and historical production data

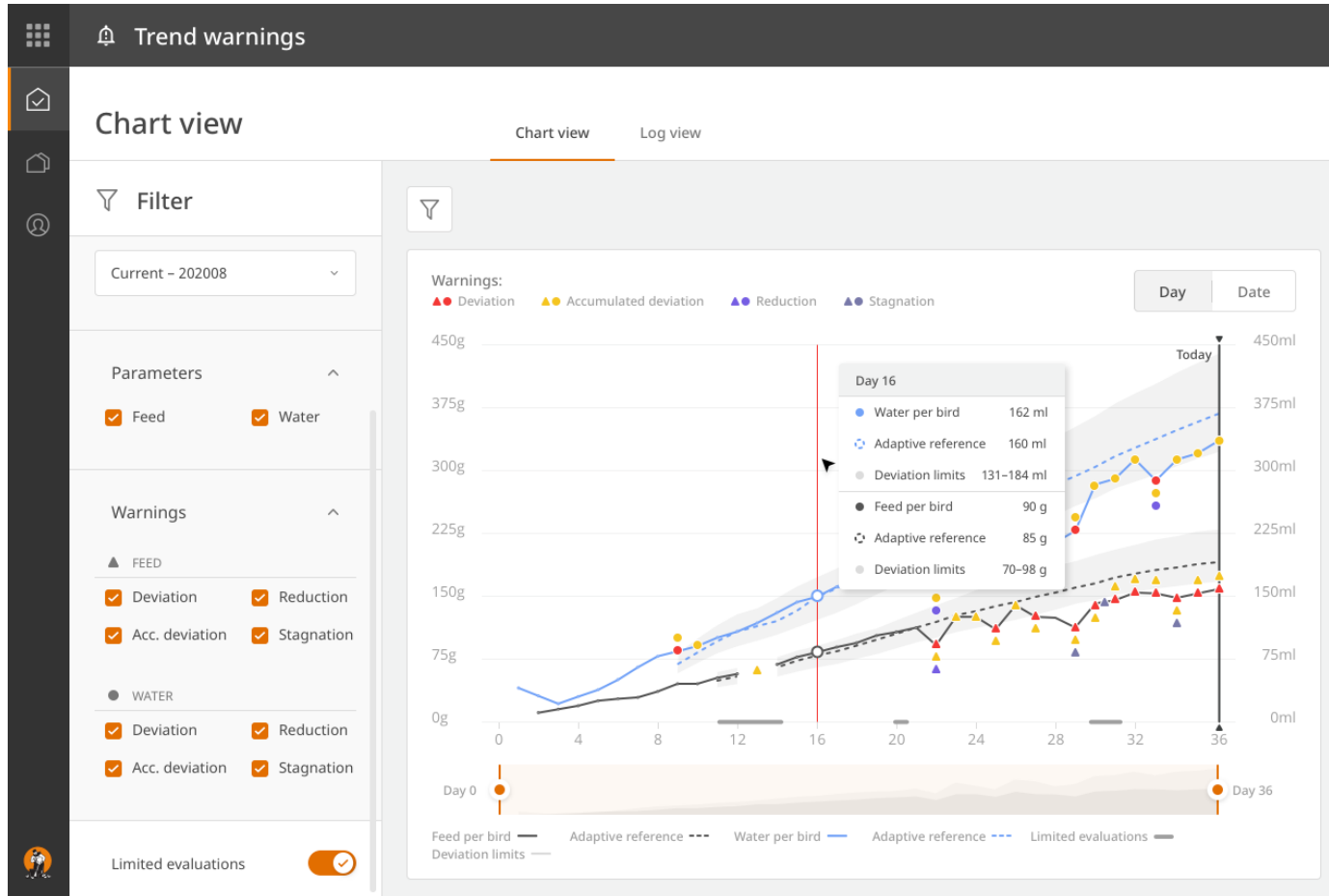
## Silo:

The Silo dashboard provides an overview of silo status, including fill levels and forecasts for the next few days. The table includes columns for Farm, House, Silo, Status, Fill level, and a forecast for Today, +1, +2, and +3 days.

Farm	House	Silo	Status	Fill level	Fill level forecast				
					Today	+1	+2	+3	
Farm 1	House 3	Silo 10	10%	2,700 kg	1,748 kg	1,782 kg	918 kg	empty	27
Farm 4	House 5	Silo 8	35%	9,450 kg	1,239 kg	1,312 kg	1,476 kg	1,641 kg	27
Farm 1	House 6	Silo 6	40%	12,150 kg	1,430 kg	1,591 kg	1,781 kg	1,890 kg	27
Farm 3	House 2	Silo 2	45%	17,550 kg	1,860 kg	1,741 kg	1,838 kg	1,956 kg	27
Farm 4	House 5	Silo 3	65%	24,300 kg	1,434 kg	1,353 kg	1,478 kg	1,533 kg	27
Farm 3	House 3	Silo 12	90%	18,900 kg	1,209 kg	1,365 kg	1,467 kg	1,534 kg	27
Farm 2	House 8	Silo 7	70%	16,200 kg	1,629 kg	1,734 kg	1,845 kg	1,988 kg	27
									27
									27
									27
									27

- Simple overview of the fill levels of all silos
- Forecast of the fill levels for the next few days and the time when the silo will be empty
- Historical overview of feed deliveries and withdrawals

# Trend warnings & recommendations



- Early detection
- Notifications to farm staff
- Suggestions to resolve issues

**Warning details**

Farm 1, House 2, Batch 202008

**Stagnation** Day 33 15.08.2020, 00:00

**MESSAGE**

Feed intake is stagnating

**DESCRIPTION**

Feed intake yesterday did not increase and feed intake today continues to drop compared to yesterday at the same time. This warning is available from day 7.

**ADDITIONAL DATA**

Feed per bird until now: 149 g  
Feed intake compared to same time yesterday: -5 g

**SUGGESTIONS**

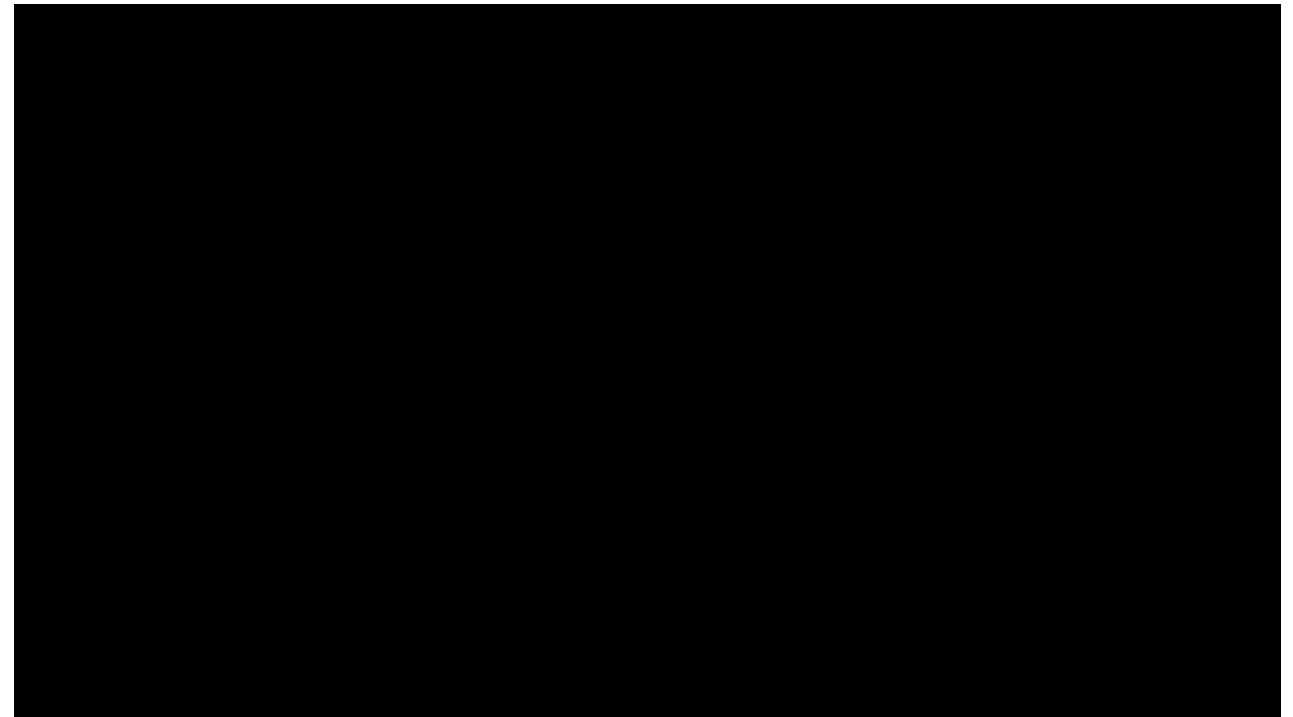
1. Check feed quality. Smell or taste the feed. If needed take.
2. Check if silos are clean.
3. Check water to feed ratio. A change can be a sign of changes in feed quality.
4. If water to feed ratio has not changed, feed intake can be influenced by reduction in water intake.
5. If water to feed intake has decreased, it can be caused by uncomfortable climate conditions.
6. Are the birds too cold or too hot? Are the broilers less active? Check ventilation, heating, and cooling. Low activity may reduce feed intake.
7. A stagnation in feed intake can be a sign of low bird activity or low house temperatures. Both can be a sign of changes in feed composition.

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# Robotics

- VIM (Vitality Monitoring)
- Self charging
- Quite and no stress



# Robotics

- Accurate analyses of performance per tier per row
- Easy to use and IP69K

# Poultry housing

- Airtight building
- Insulation
- Practical design



# What to invest in...

- This depends on your current situation
- New or existing farms
- Your customers
- Government legislation



THANK YOU!



Big Dutchman.