



# Data Monitoring Insights Transforming Broiler Production

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**SenseHub**<sup>®</sup>

POULTRY

# AGENDA

1. **SenseHub Poultry Overview**
2. User Interface & Continuous Improvement
3. Management Dashboard & Exclusion Reporting

# MSD Animal Health Technology Solutions



# SenseHub Poultry- What do we do?



An insights platform to improve outcomes and performance on broiler farms & drive efficiencies in integrations.



Based on automated data collection from battery operated sensors at broiler house level.



The platform highlights variations from targets which are communicated to users via their phone, tablet or laptop.



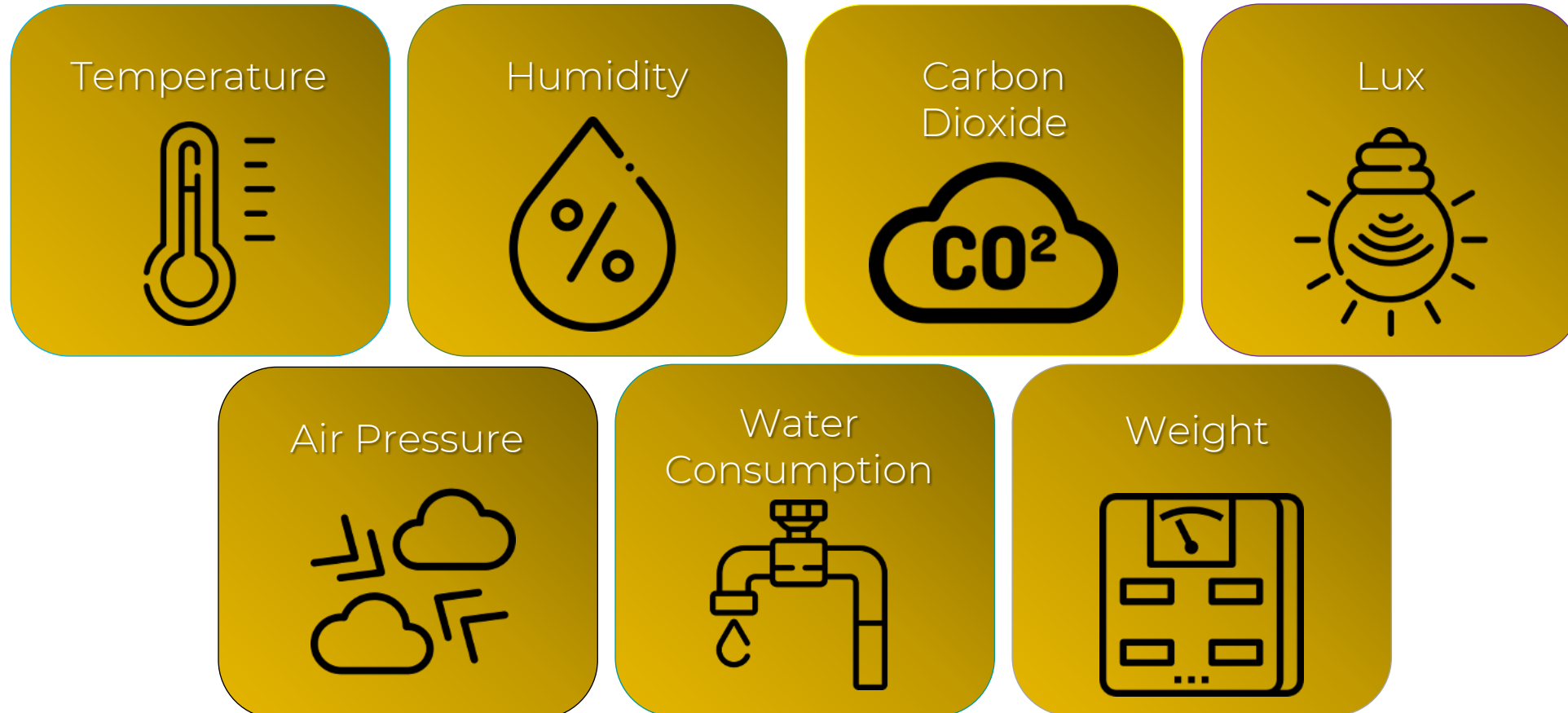
Management dashboards drive efficiencies in integrator resource allocation, route cause analysis and plant optimisation



SenseHub Poultry is complementary to broiler house control systems - it is not designed to automatically control them.

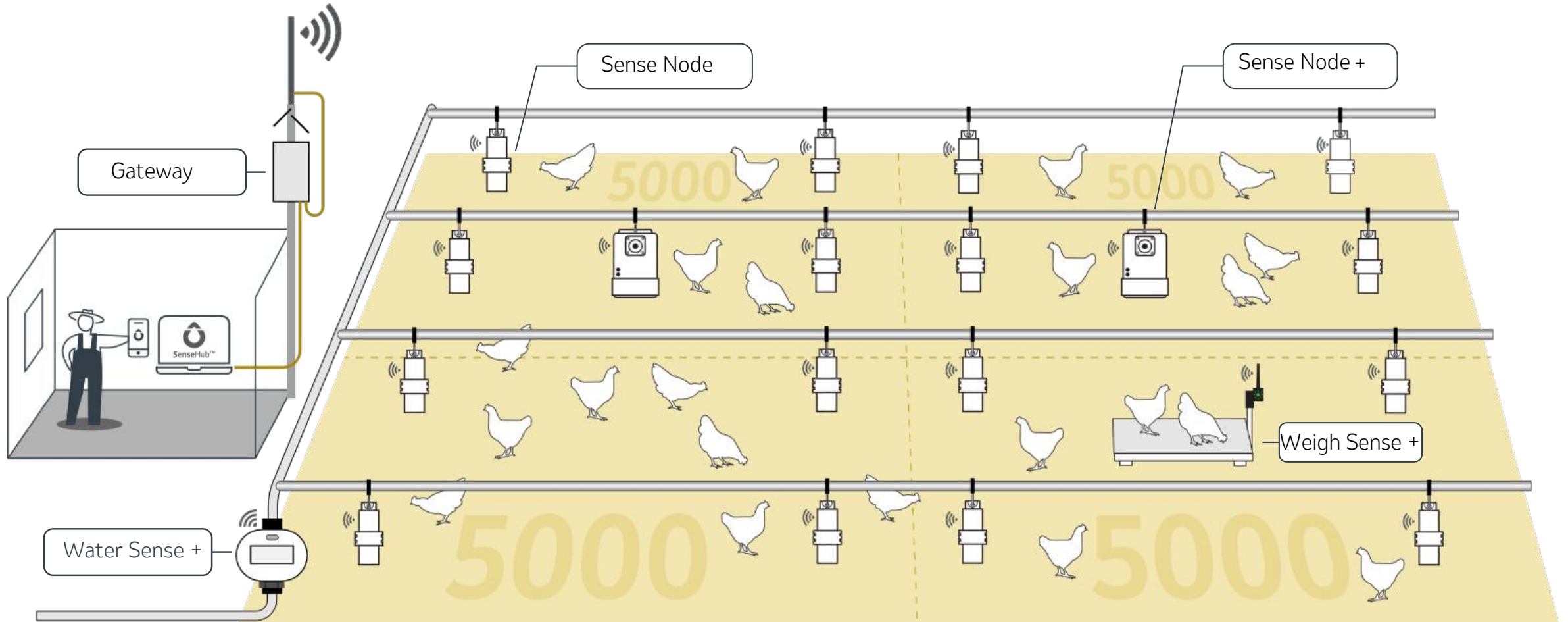
# SenseHub® Poultry - How do we do it?

SenseHub Poultry collects real-time data that is fundamental to outcomes and performance allowing broiler producers and integrations to make informed decisions



# Welcome to the SenseHub Poultry Virtual Farm

# SenseHub Poultry House Hardware layout





## Traditional House

VS

## SenseHub Poultry



- Low sensor coverage
- Manual data integration
- Few parameters and data points
- Manual performance analysis
- Farmer Know How



- Full house coverage by zone
- Automated data integration
- Live data for many parameters
  - (C°, HR%, CO2, Lux, Air Pressure, Water and Weight )
- Tools for easy analysis from any device
- Infrastructure for machine learning

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# User Interface

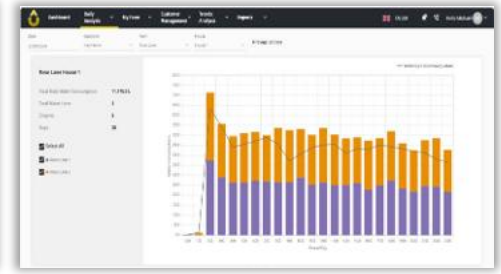
Farm Overview



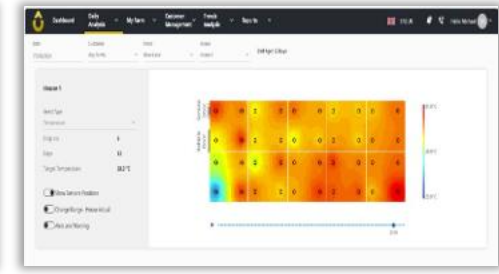
House Dashboard



Water Intake

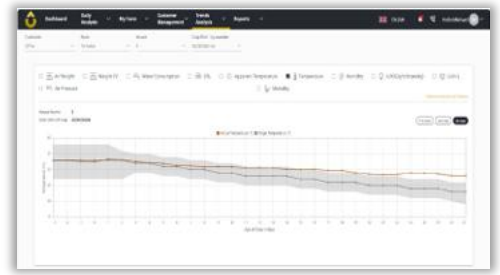


Heat Map



Daily Info

Temperature



Humidity



Weight vs Water



CO2



Analysis Graphs

# User Interface

## House Dashboard

Dashboard
Hello Michael M

Customer: -

Farm: -

House: House 1

Bird Age: 29 Days

Date: 24/09/2024

ADD THINNING

CLOSE CROP

### Quick Insight

|   |            |
|---|------------|
| Avr Weight (Last Hours) - no. of jumps 1207 | 1.584 Kg   |
| Temperature                                 | 23.9 °C    |
| CO <sub>2</sub>                             | 2,535 ppm  |
| Humidity                                    | 62 %       |
| Apparent Temperature                        | 23.1 °C    |
| Water Consumption (last 24h)                | 11,705.0 L |
| Predicted Clearance Bird Age                | 54 days    |

TOTAL SENSORS 50
ACTIVE SENSORS 48

### Birds Count (whole house) 41,250 chicks

|                                  |               |        |
|----------------------------------|---------------|--------|
| Previous day mortality           | 0             | 0      |
| Avg. daily mortality from 7 days | 31.55 chicks  | 1.68%  |
| Mortality to 7 days of age       | 560 chicks    | 1.36%  |
| Total Cumulative mortality       | 1,254 chicks  | 3.04%  |
| Total Cumulative thinning        | 0             | 0      |
| Birds Remaining (whole house)    | 39,996 chicks | 96.96% |

### Weight

WEIGHT PREDICTION

| Days | Target (Kg) | Actual (Kg) |
|------|-------------|-------------|
| 22   | 1.05        | 1.00        |
| 23   | 1.15        | 1.10        |
| 24   | 1.25        | 1.20        |
| 25   | 1.35        | 1.30        |
| 26   | 1.45        | 1.40        |
| 27   | 1.55        | 1.50        |
| 28   | 1.65        | 1.60        |

### Water Consumption

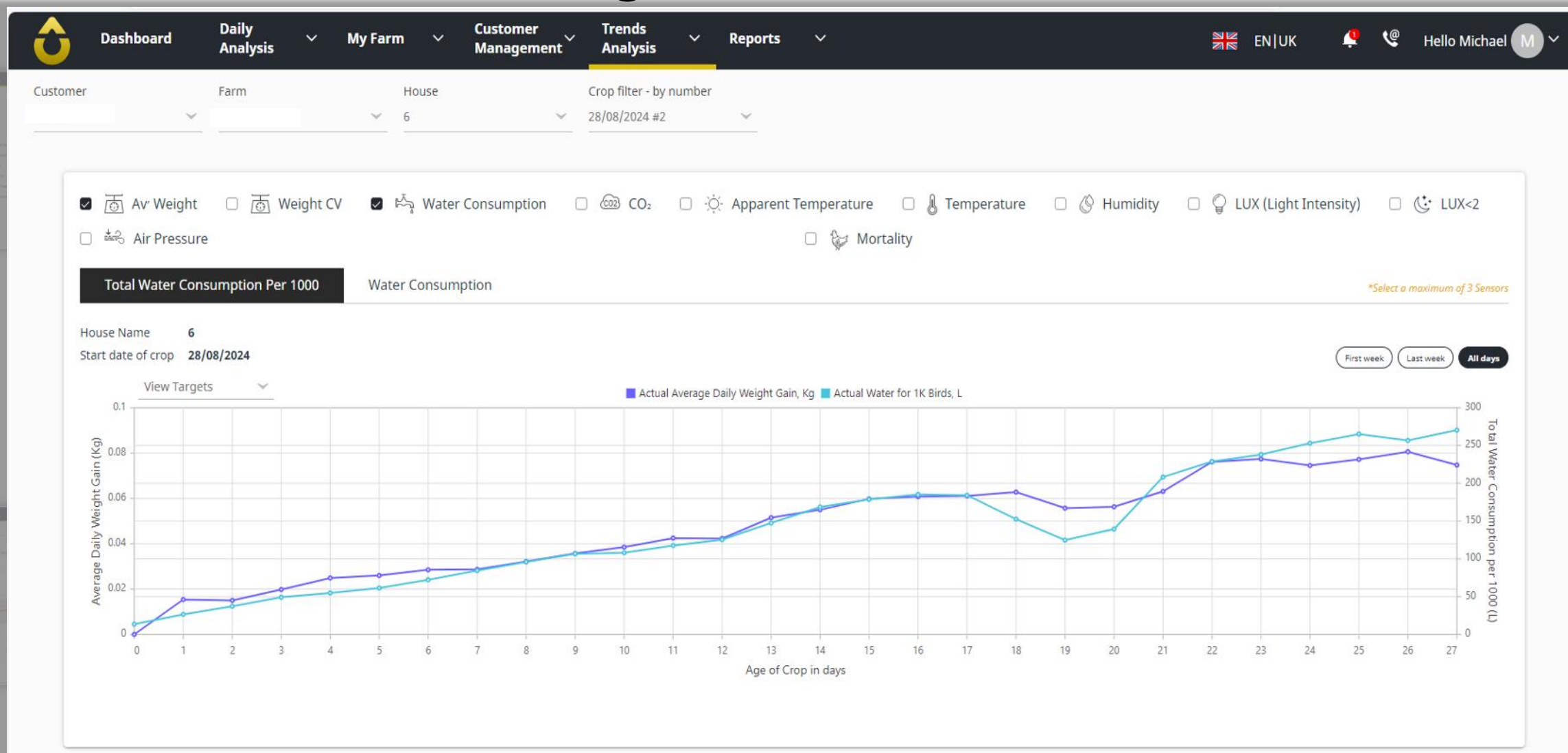
| Days | Target (L) | Actual (L) |
|------|------------|------------|
| 22   | 190        | 230        |
| 23   | 200        | 245        |
| 24   | 210        | 255        |
| 25   | 220        | 260        |
| 26   | 230        | 260        |
| 27   | 240        | 245        |
| 28   | 250        | 280        |

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MSD Animal Health

# User Interface

## Weight vs Water



# Data Insights and Performance

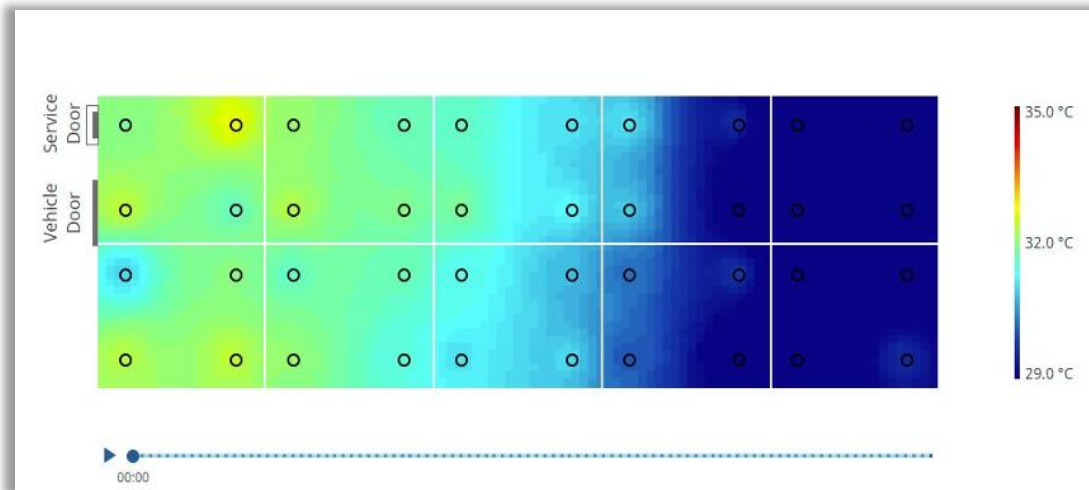
- Temperature Profile and Range
- Humidity
- Brooding
- CO2
- Lux
- Water Intake



# Temperature and Range

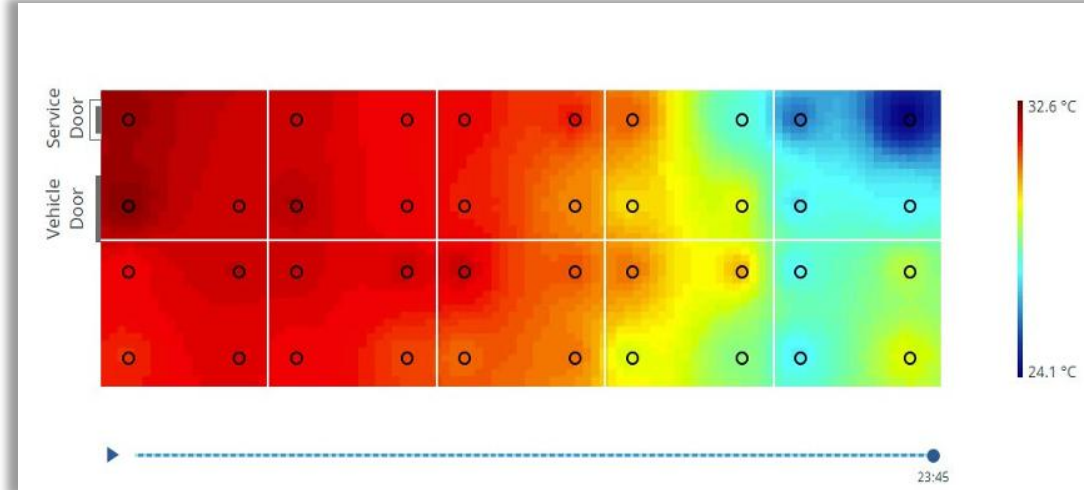


### Temp vs Target

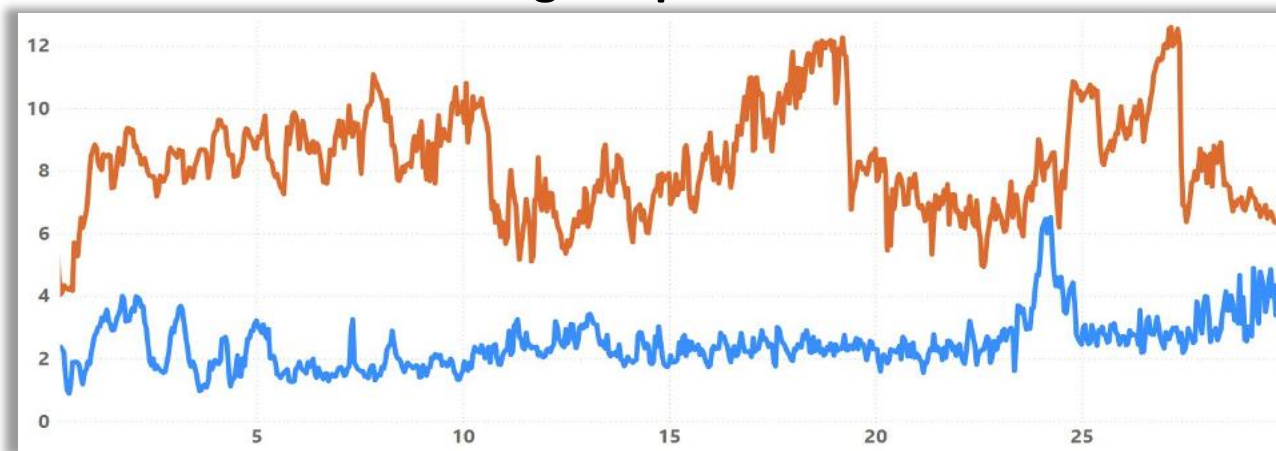


Day 1

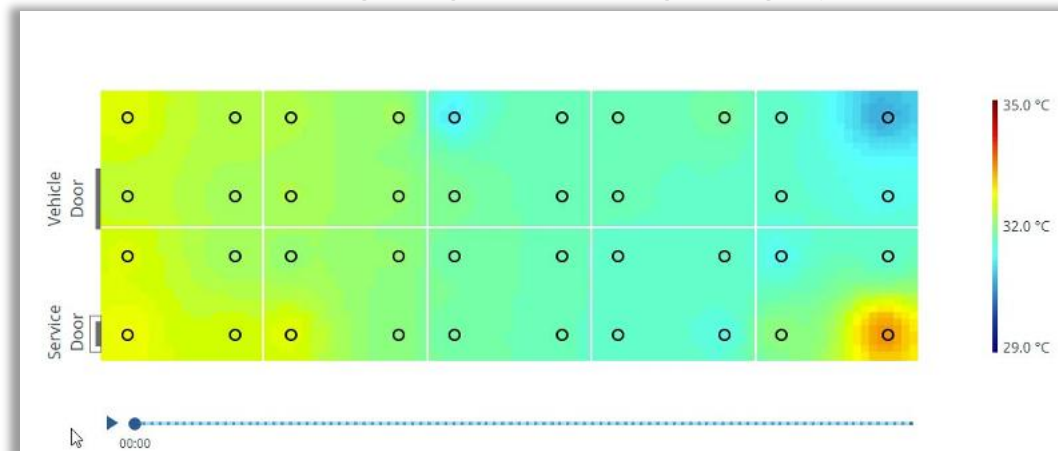
### Temp Max to Min



### Range Improvement



### Uniform Environment

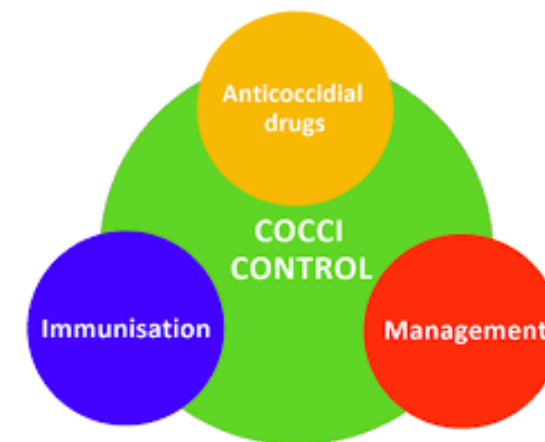


# Humidity

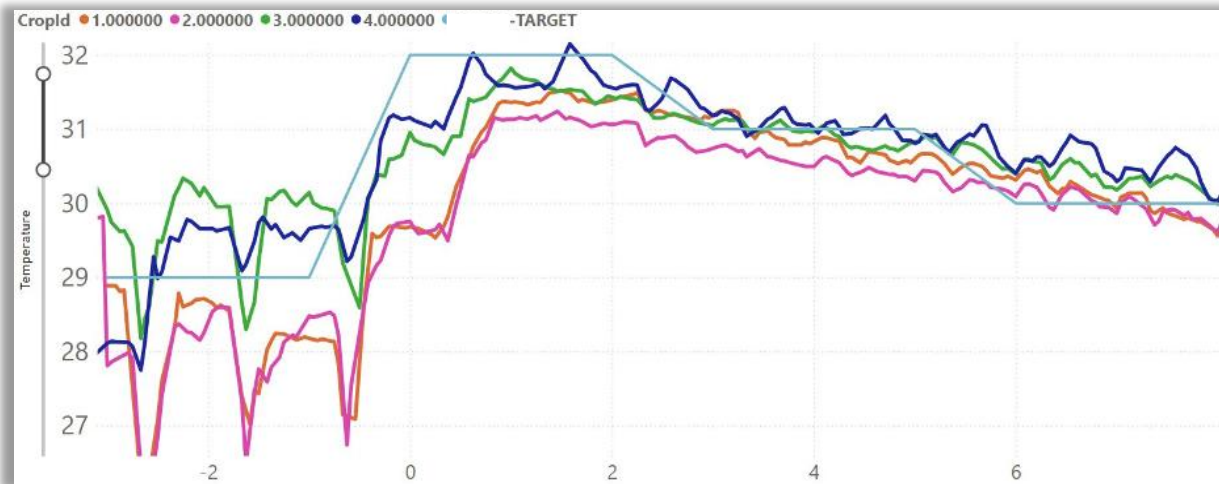
## Crop Humidity



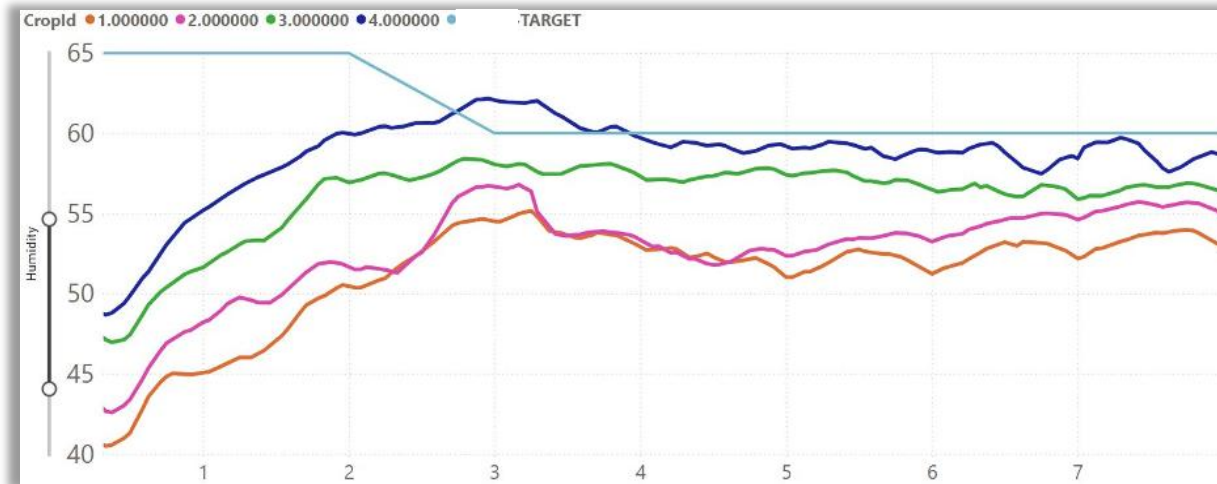
## Effects of Wet Litter



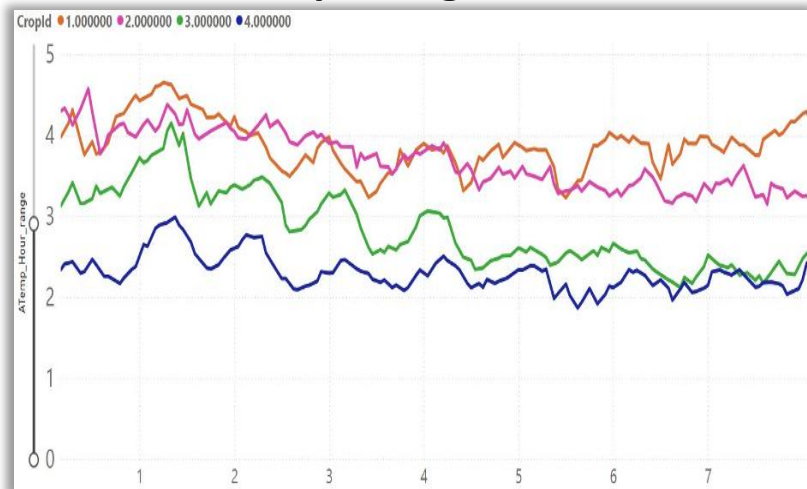
# Preheat and Brooding Temperature



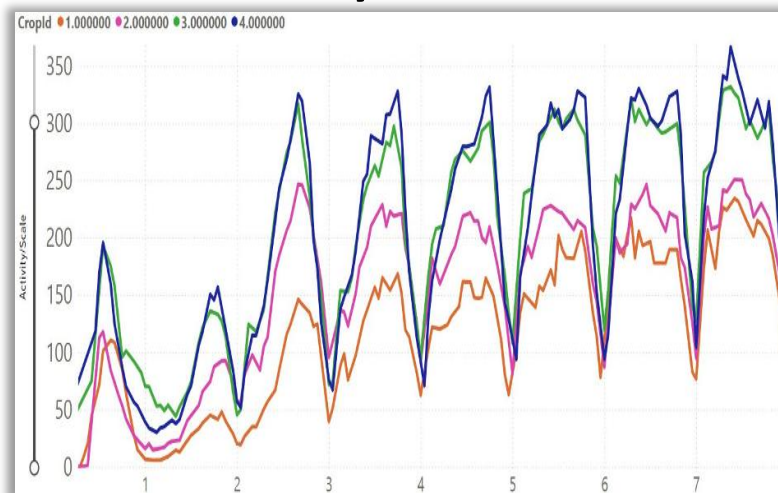
# Humidity



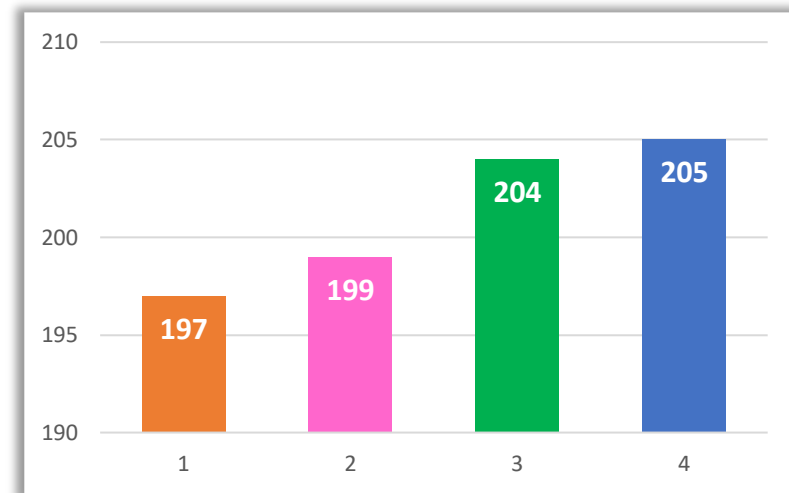
# Temp Range



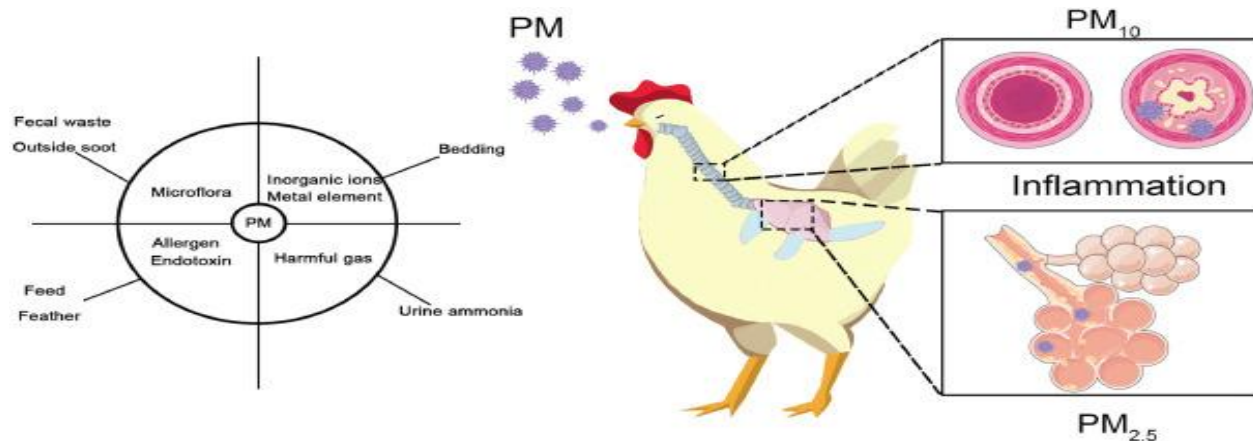
# Activity Per Scale



# 7 Day Weight



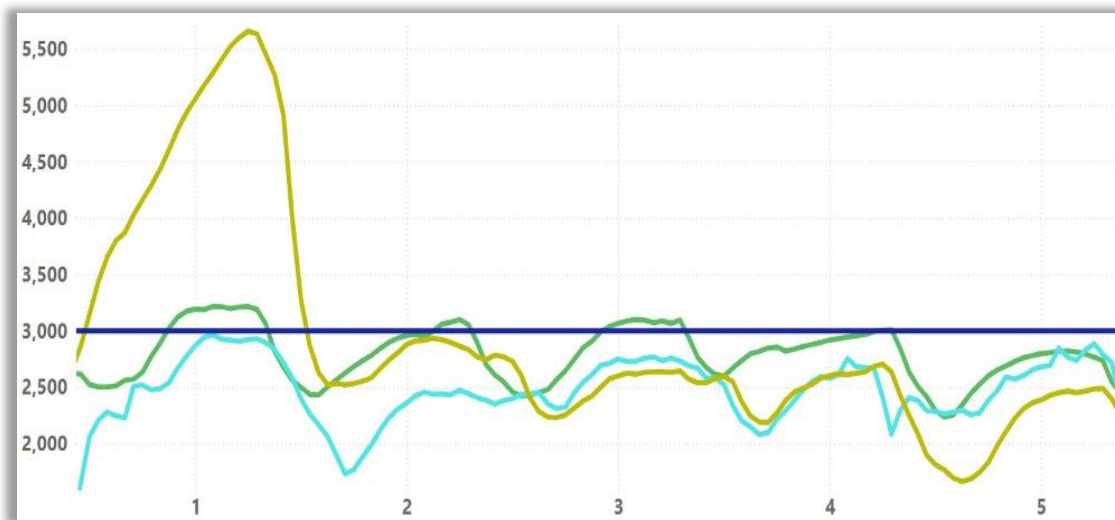
# CO2



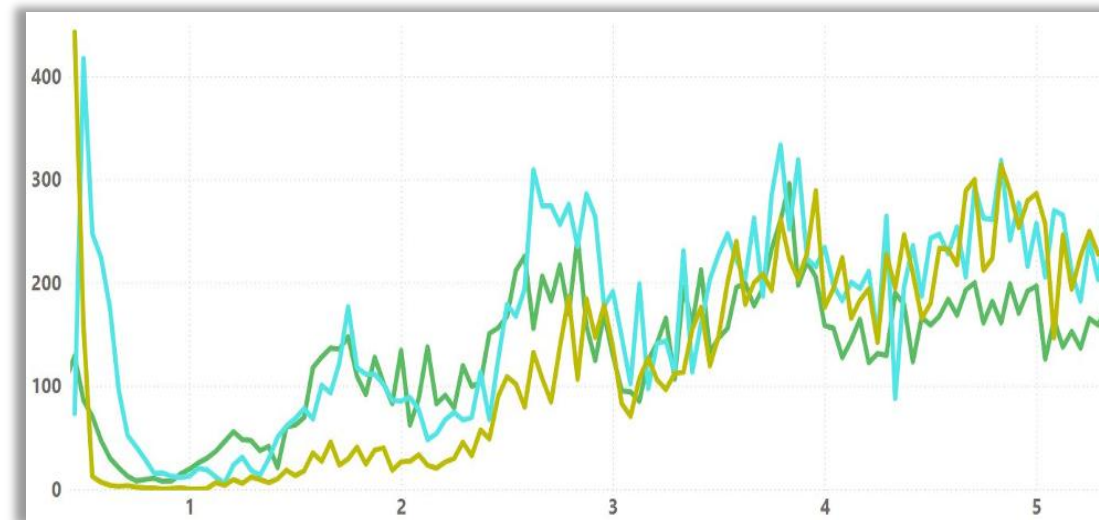
## Air Quality

- Higher CO2 = Poorer air quality
- More harmful gases
- Increased particulate matter
- Impact on health and performance

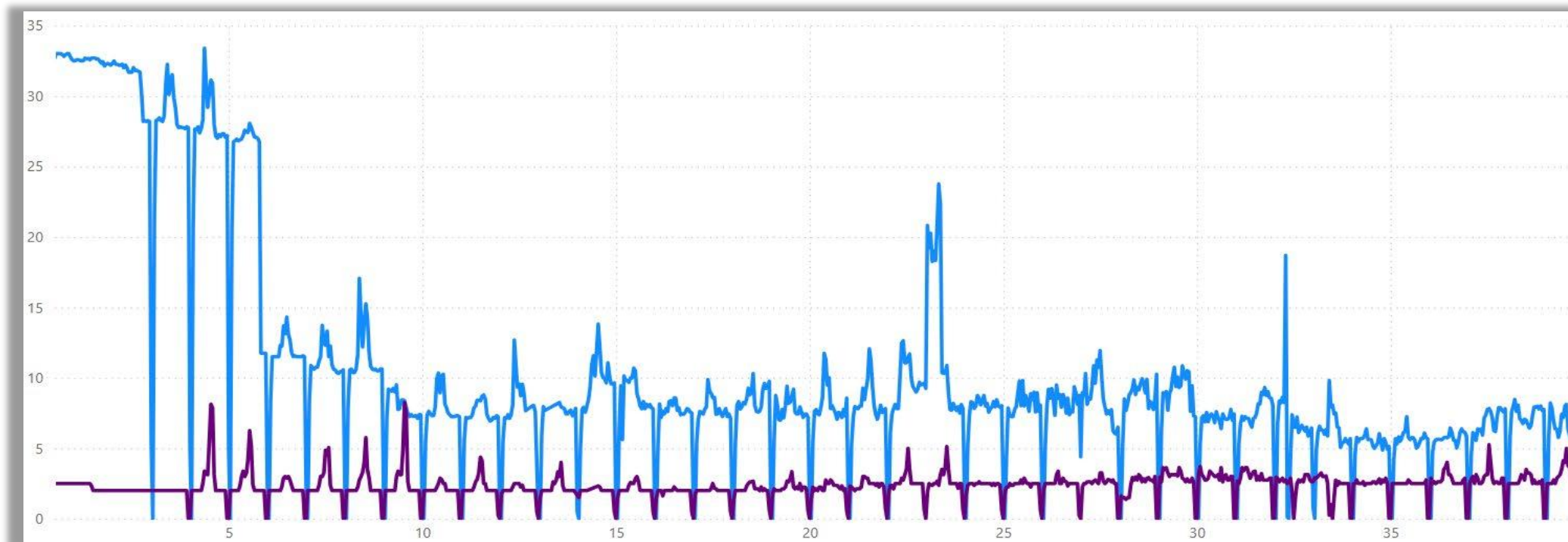
# CO2



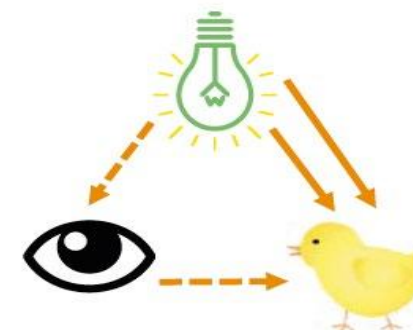
## Activity Per Scale



# Light Intensity

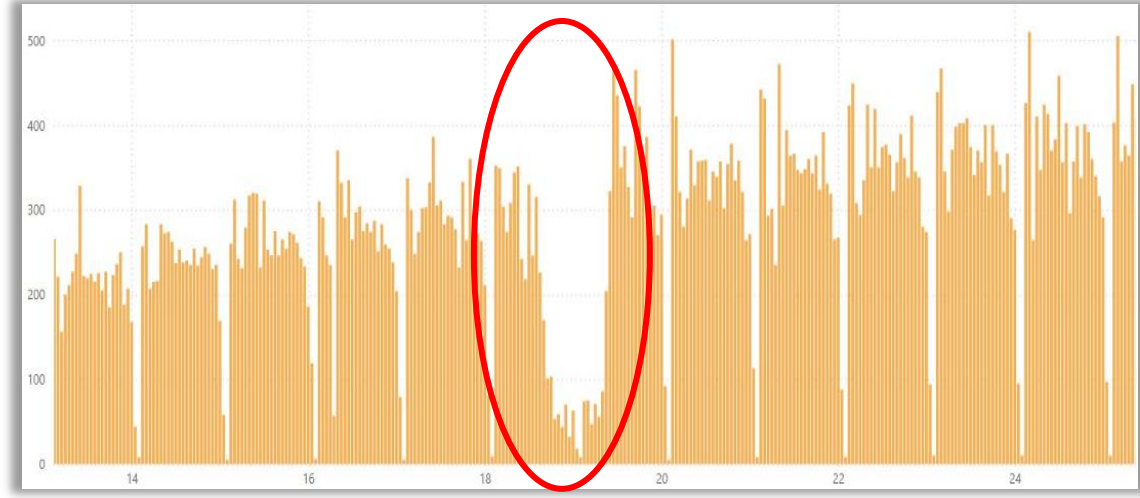


- Great variation
- Intensity – natural light / artificial light periods
- Dark periods – Time and duration



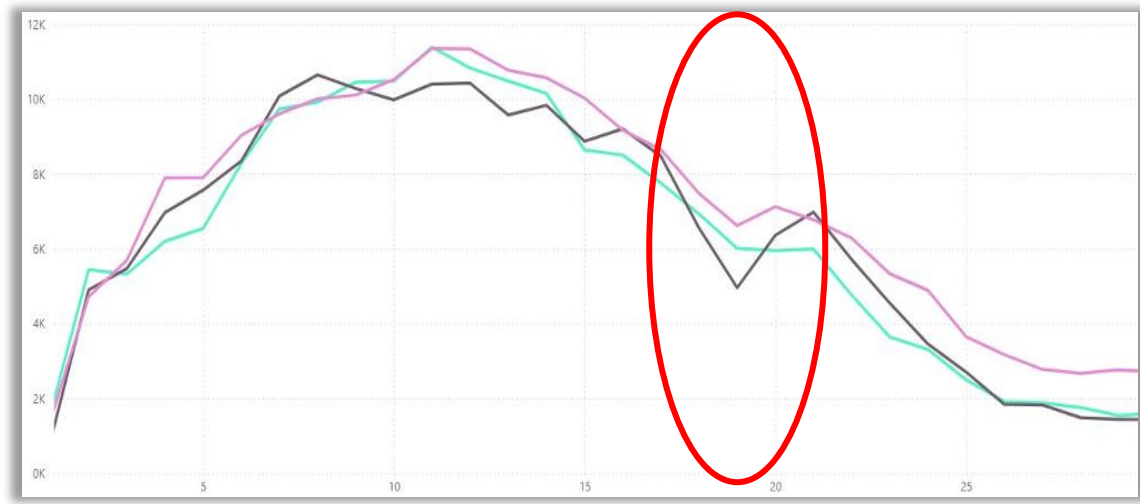
# Water

## Hourly Water

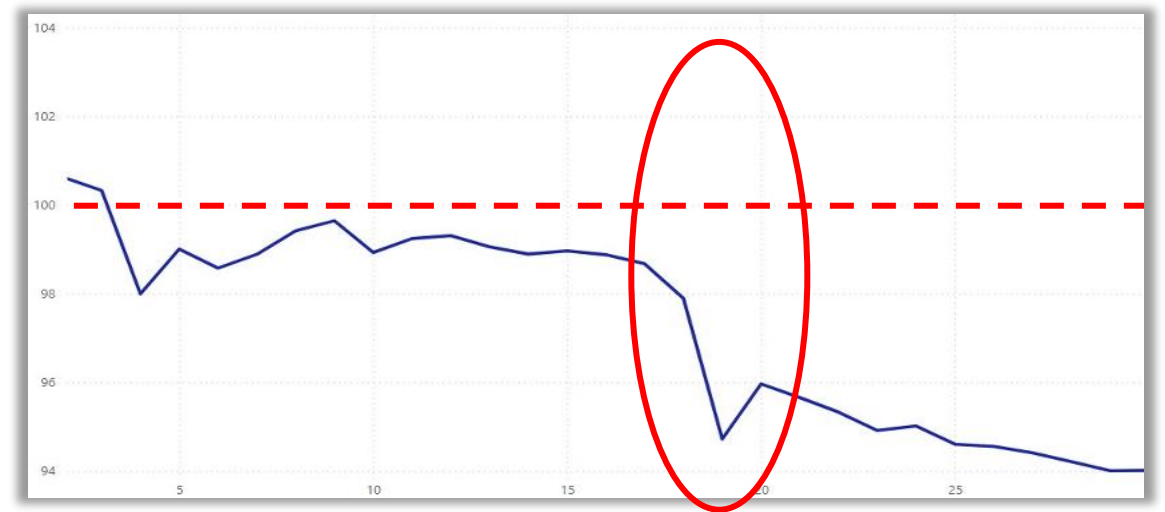


- Water intake disruption
- Knock on effects
  - Activity
  - Weight gain

## Daily Activity Per Scale

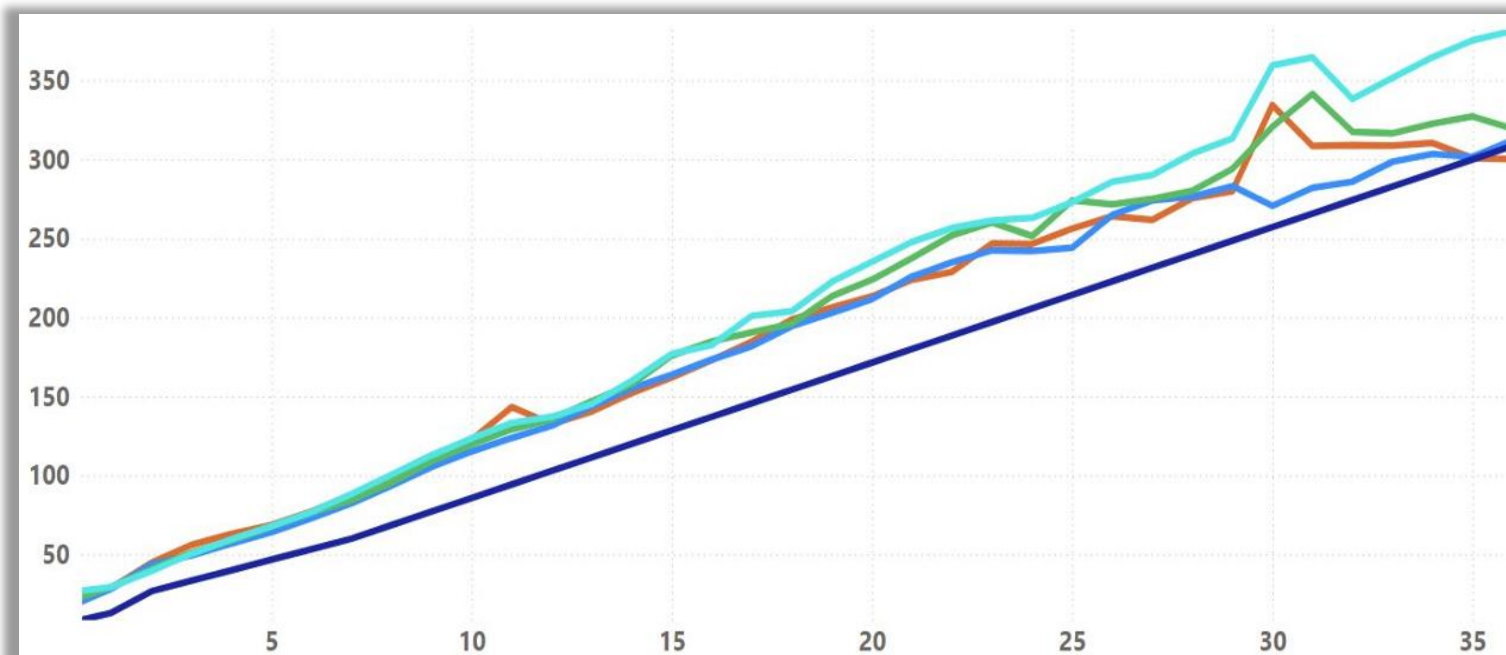


## Daily Weight % From Target

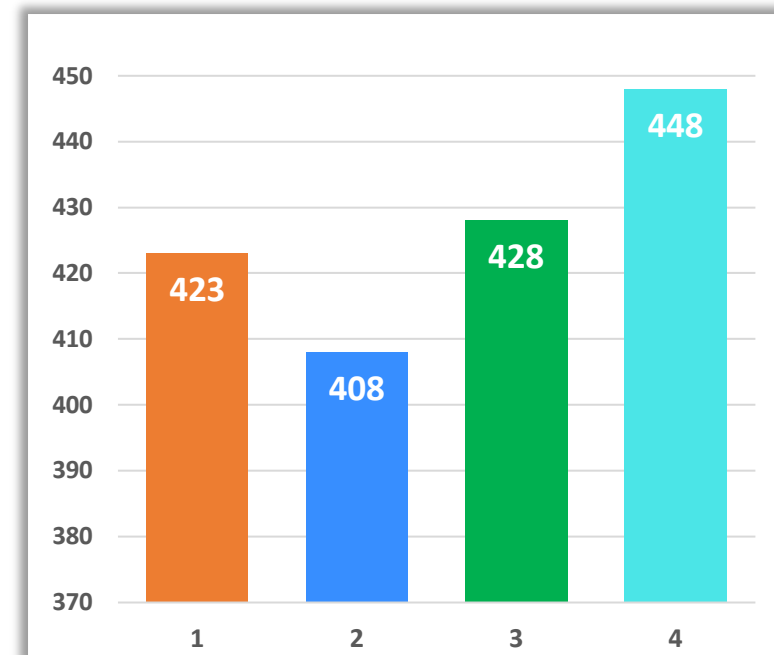


# Water

## Water Intake / 1000



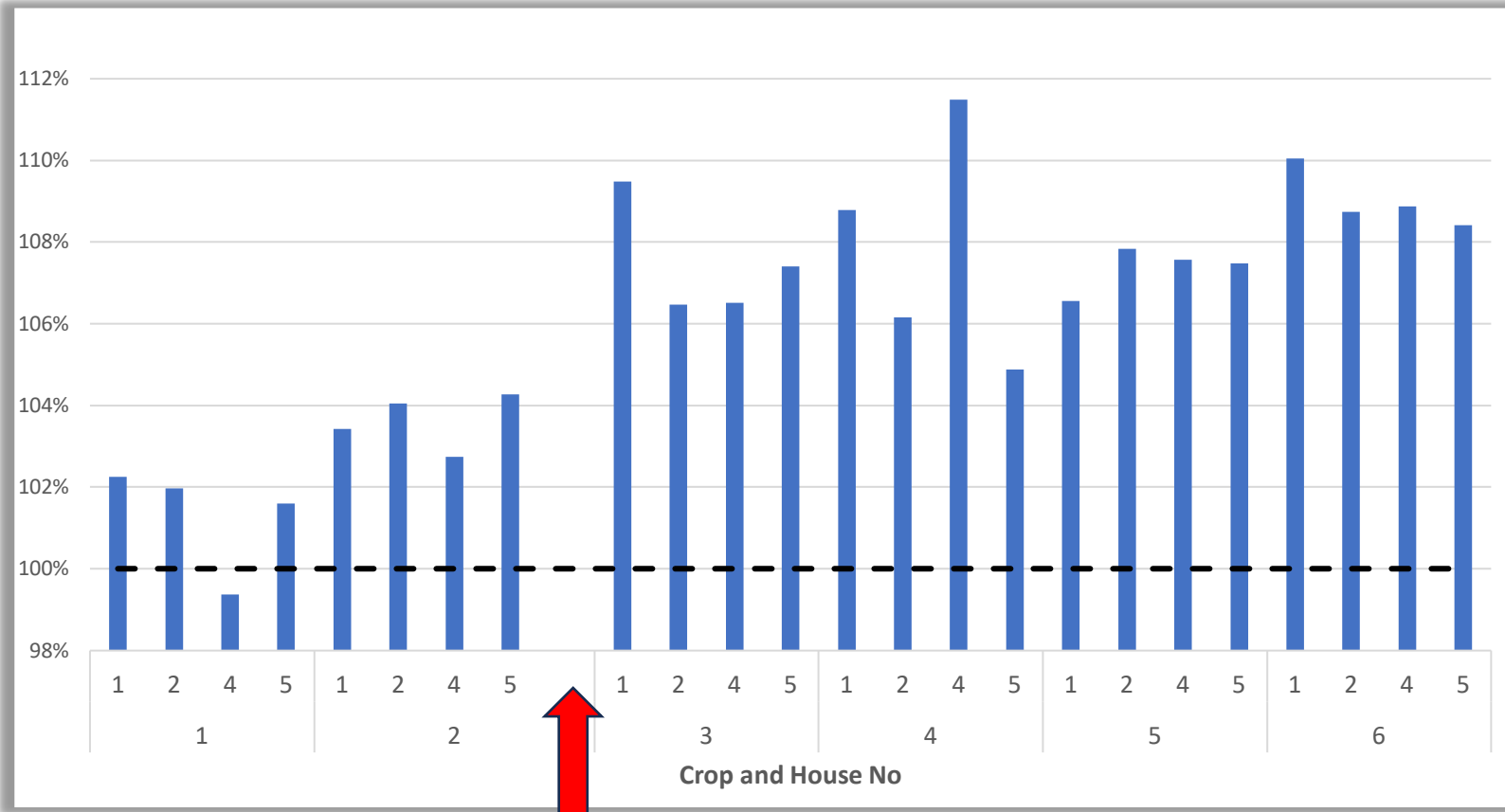
## EPEF



- Performance indicator
- Disease incidence / prediction
- Feed / Water outages
- Vaccination
  - Date / time
  - Post vaccine impact
- Feed changes / patterns

# Performance

## Processing Weight % From Target



### Good performing farm

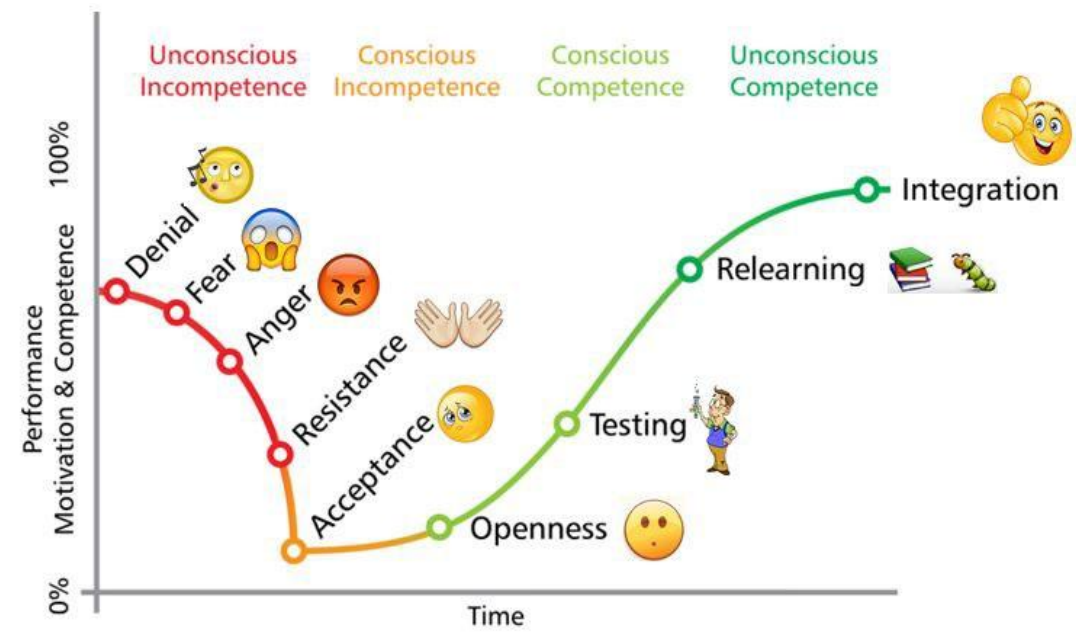
- 102% of target prior
- Inconsistent results

### Performance improvement

- ~+100g heavier at same age
- 2-point FCR reduction

SenseHub Poultry changes implemented

# SenseHub Poultry – Change Management Process



- Understand info and establish baseline
- Implement changes
- Observe outcomes
- Refine

Customer Journey per crop

| Parameters        | Crop 1                   | Crop 2                   | Crop 3                              | Crop 4                              |
|-------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| Preheat and Brood | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature       | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Humidity          | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temp Range        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| CO2               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Activity          | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water Intake      | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mortality         | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| LUX               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |

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# Management Dashboards



## Trend Analysis

- High level analysis
- Understand performance over time
- Assess impact of changes made
- Benchmark



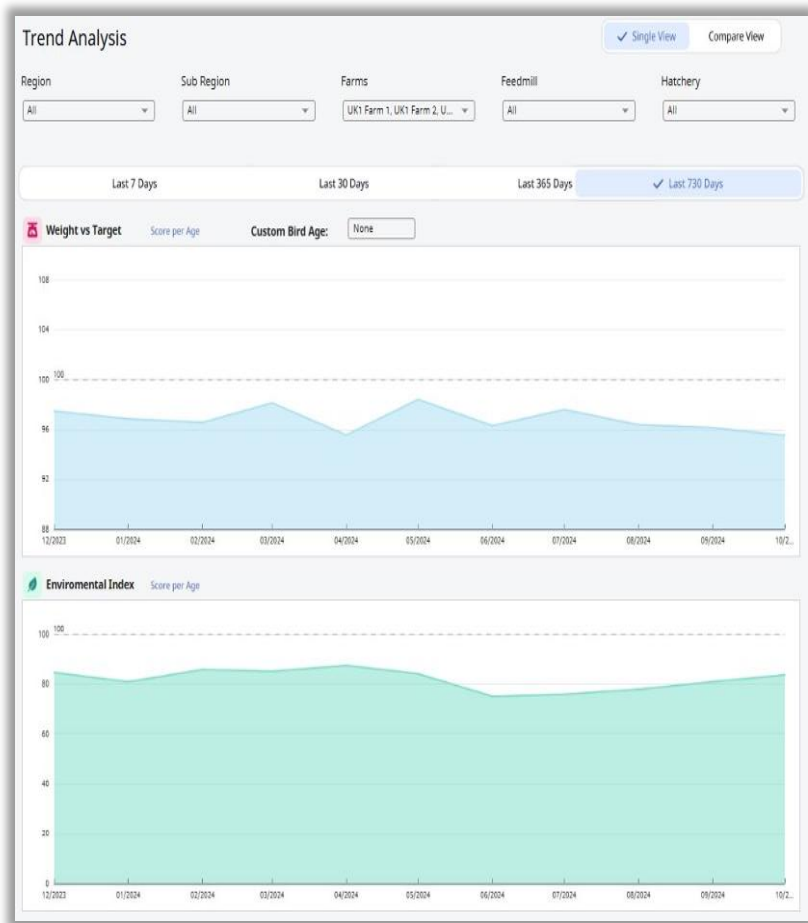
## Outlier Reports

- Farm level – Day to day
- Exception reporting
- Alert to potential issues
- Reactive quick response

# Trend Analysis

Drill down by

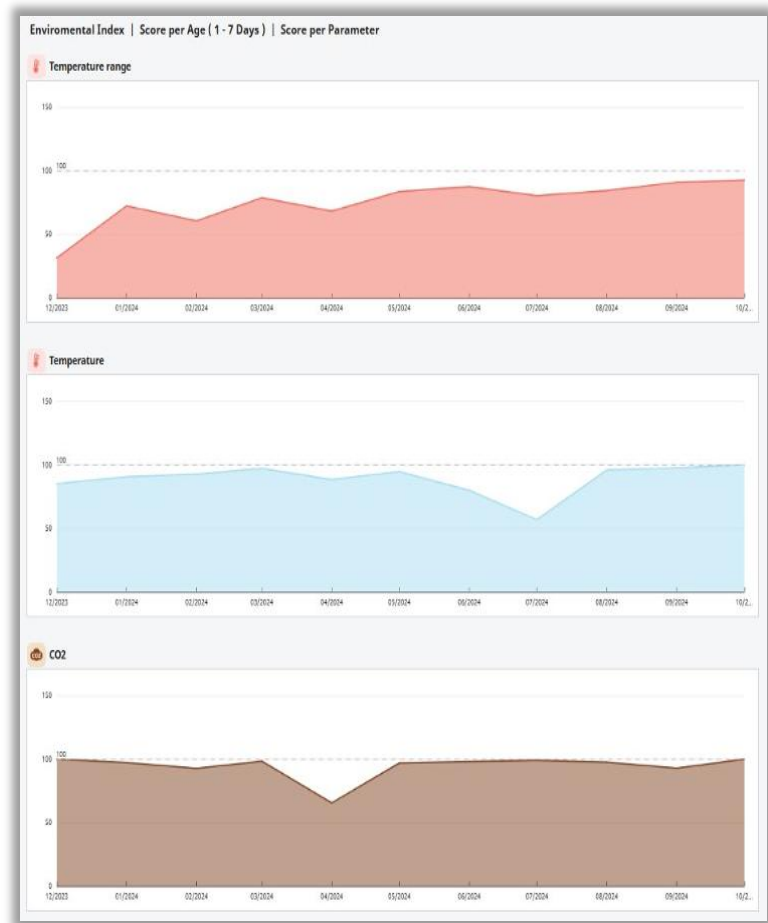
## Overview



## Bird Age






## Parameter



# Outlier Report

## Outlier Report

Region 
 Sub Region 
 Farm 
 Crop Week 
Farms View Houses View

| Farm Name | Age | <br>Avg. 57 /100<br>Activity Index | <br>Avg. 83 /100<br>Environment Index | <br>Avg. 63 /100<br>Weight Index |
|-----------|-----|---|--|---|
| Farm A    | 25  | 26 <span>Target (100)</span>  | 81 <span>Target (100)</span>   | 60 <span>Target (100)</span>  |
| Farm B    | 6   | 87 <span>Target (100)</span>  | 86 <span>Target (100)</span>   | 78 <span>Target (100)</span>  |
| Farm C    | 34  | 52 <span>Target (100)</span>  | 97 <span>Target (100)</span>   | 64 <span>Target (100)</span>  |
| Farm D    | 35  | 55 <span>Target (100)</span>  | 82 <span>Target (100)</span>   | 57 <span>Target (100)</span>  |

# Thank you

Questions??



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