INTERNATIONAL IPPE PRODUCTION & PROCESSING EXPO

LA CUMBRE AVÍCOLA LATINOAMERICANA

PPP: Appliying Technology at the Farm & Results at the Processing Plant

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AGRITECH Livestock Spain

In collaboration with:

INTERNATIONAL IPE POULTRY EXPO

WATT GLOBAL MEDIA

ALA

The Farm Opossing Forces

- Increasing needs for protein supply beyond 2030

vs.

- Decreasing farmers & improving genetics

=

Well-proven Real-Time & Real-Life
Competitive **Technology 4 Productivity** (PLF)

- ❑ **Real-Time farm status info (early decisions)**
- ❑ **Farm processes Automation (valuable work)**
- ❑ **Traceability Evidences (breeding certification)**

Technology…what do you want it for? Key Benefits

Nowadays Breeding: **Productivity** Follow-up + Animal Welfare + Traceability

Proven-Technology means **better Transformation Index (FCR & IPE)**

- *… better survival ratio of chicks transport conditions from hatchery to farm and from farm to processing plant*
- *… better sanitary breeding conditions and Animal Welfare*
- *… increasing of transformation index during fattening*
- *… better prognosis of chicken weight for processing plant scheduling*

e.g.: Integration Turnover: 50 M€, EBITDA 3,5 M€

Improvement: 60 K€/year Profit

From IPE 380 to 408

Zootechnical Efficiency

&

Operational Profitability

Solution Integration is key : Technology 8 Steps Ecosystem

Real-Time Livestock Integrated System

How it Works?

Field & Cloud Data Registration and Analytics

Chick Transport

Air Quality NH3, CO2, Temp, RH

Automated Remote Weight Control

Silo Feeding Consumption Control

Water Consumption Control

Activity Farm (Vacc. Schedule, Mortality, An. Behaviour, visual observations)

Warning Alerts by Role (farmer, Medical, production manag.)

What our “real customer” needs?

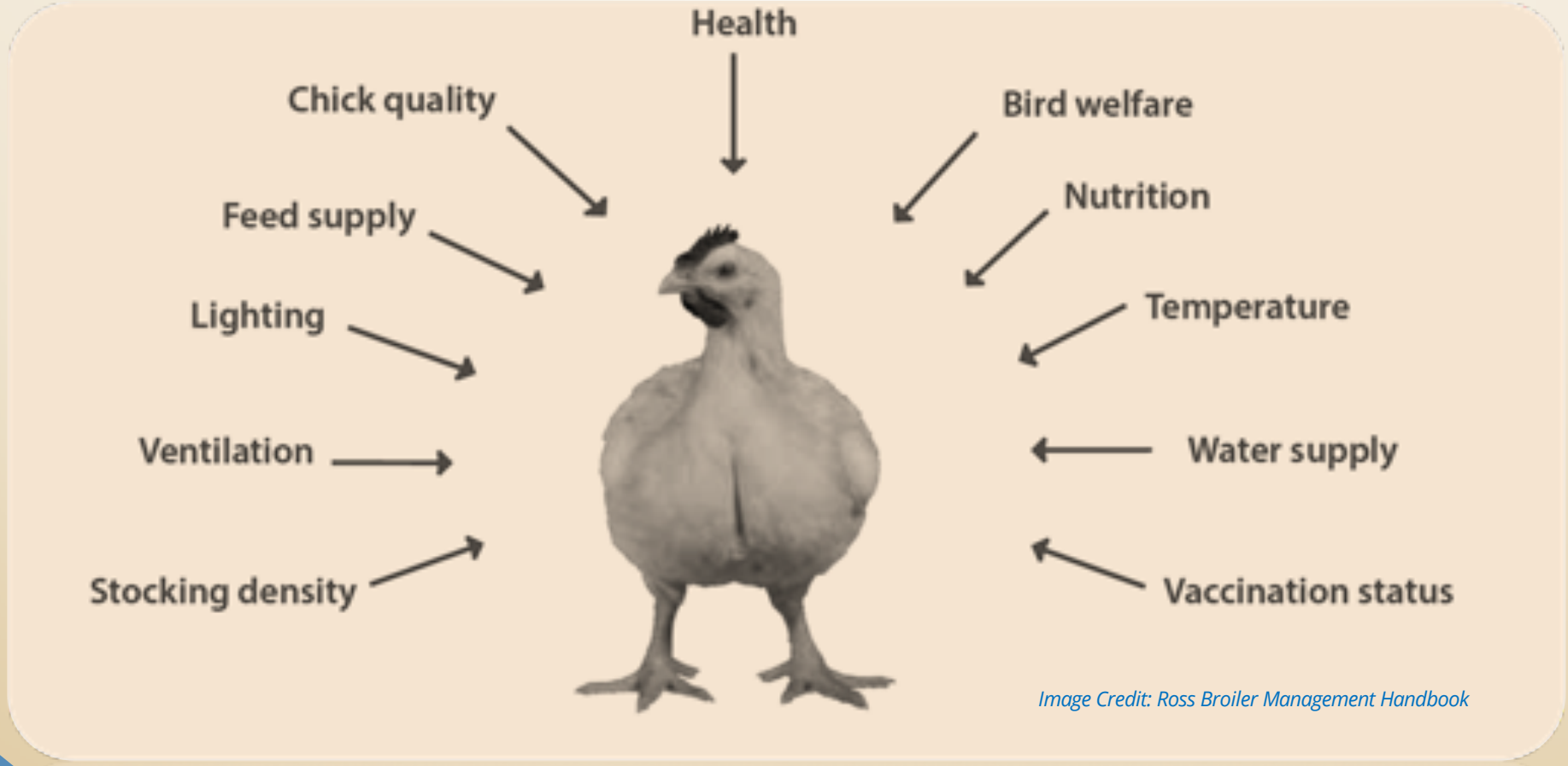


Image Credit: Ross Broiler Management Handbook

1: Hatchery Chicks To Farm

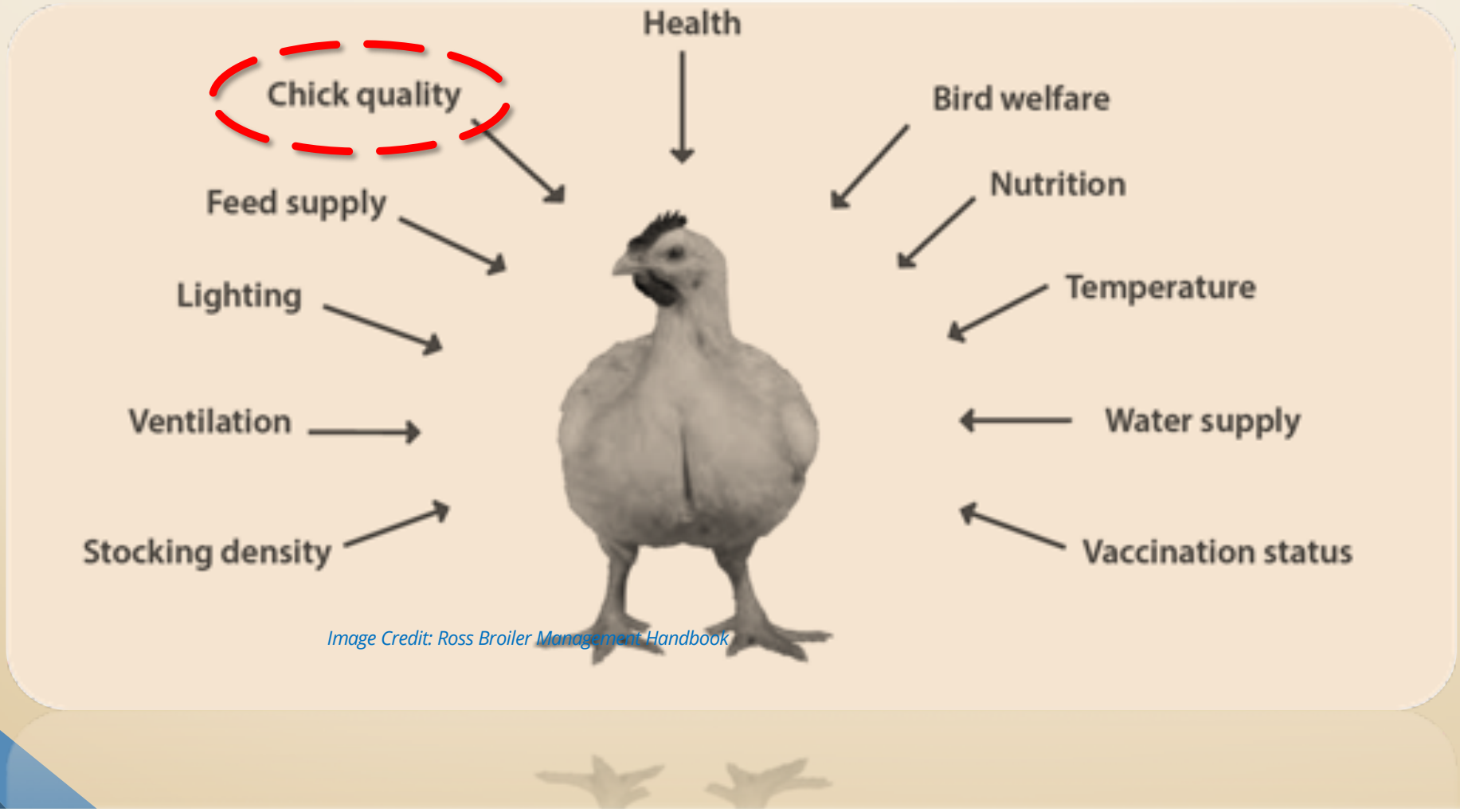


Image Credit: Ross Broiler Management Handbook

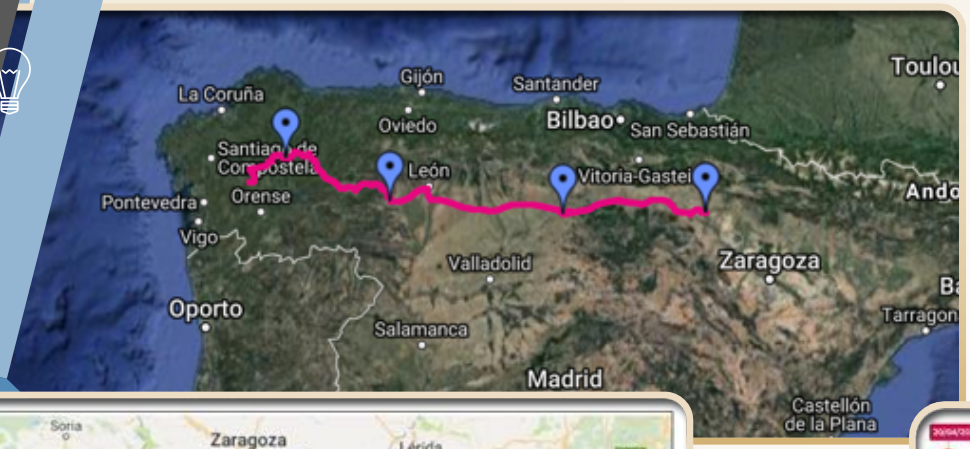
1: Tracking Transport and environmental control of chicks from Hatchery To Farm

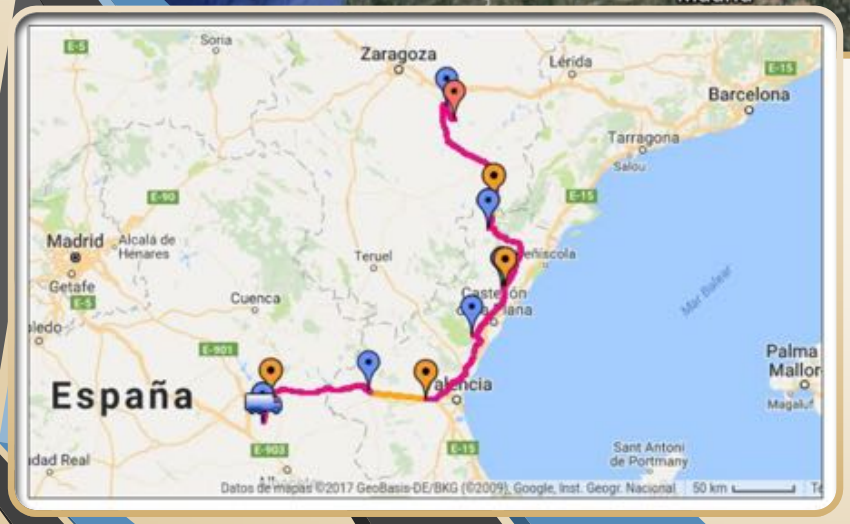
1: Autonomous IoT monitoring Track&Air Quality

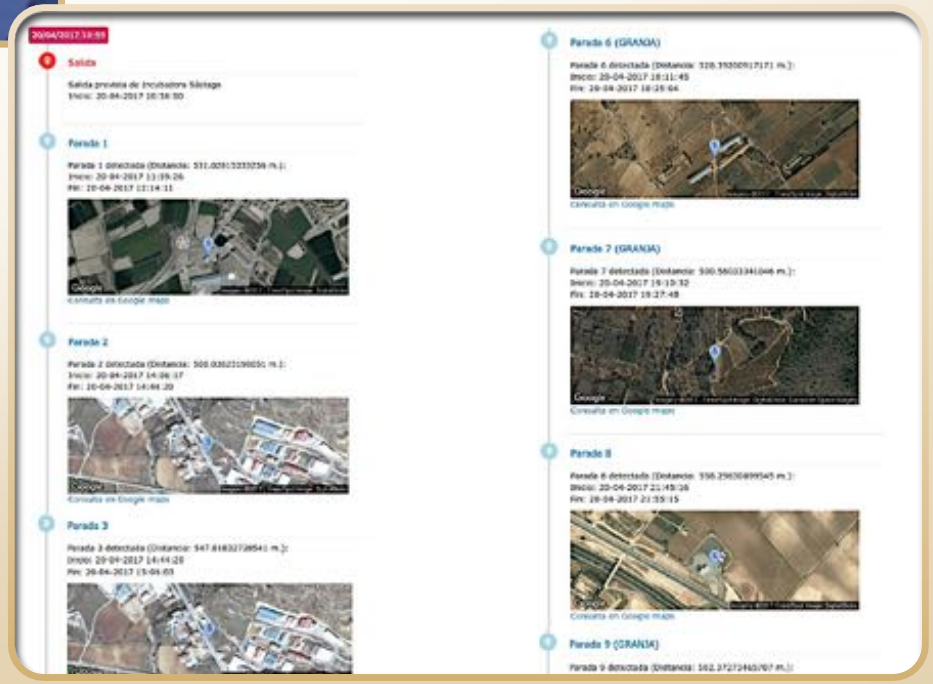
Cabeza Tractora		
Carro 1	Carro 3	Carro 5
17141801	17141804	17141807
17141802	17141805	17141808
17141803	17141806	17141809
Carro 26	Carro 28	Carro 30
17141810	17141813	17141816
17141811	17141814	17141817
17141812	17141815	17141818
		17141829
Carro 51	Carro 53	Carro 55
17141819	17141822	17141825
17141820	17141823	17141826
17141821	17141824	17141827

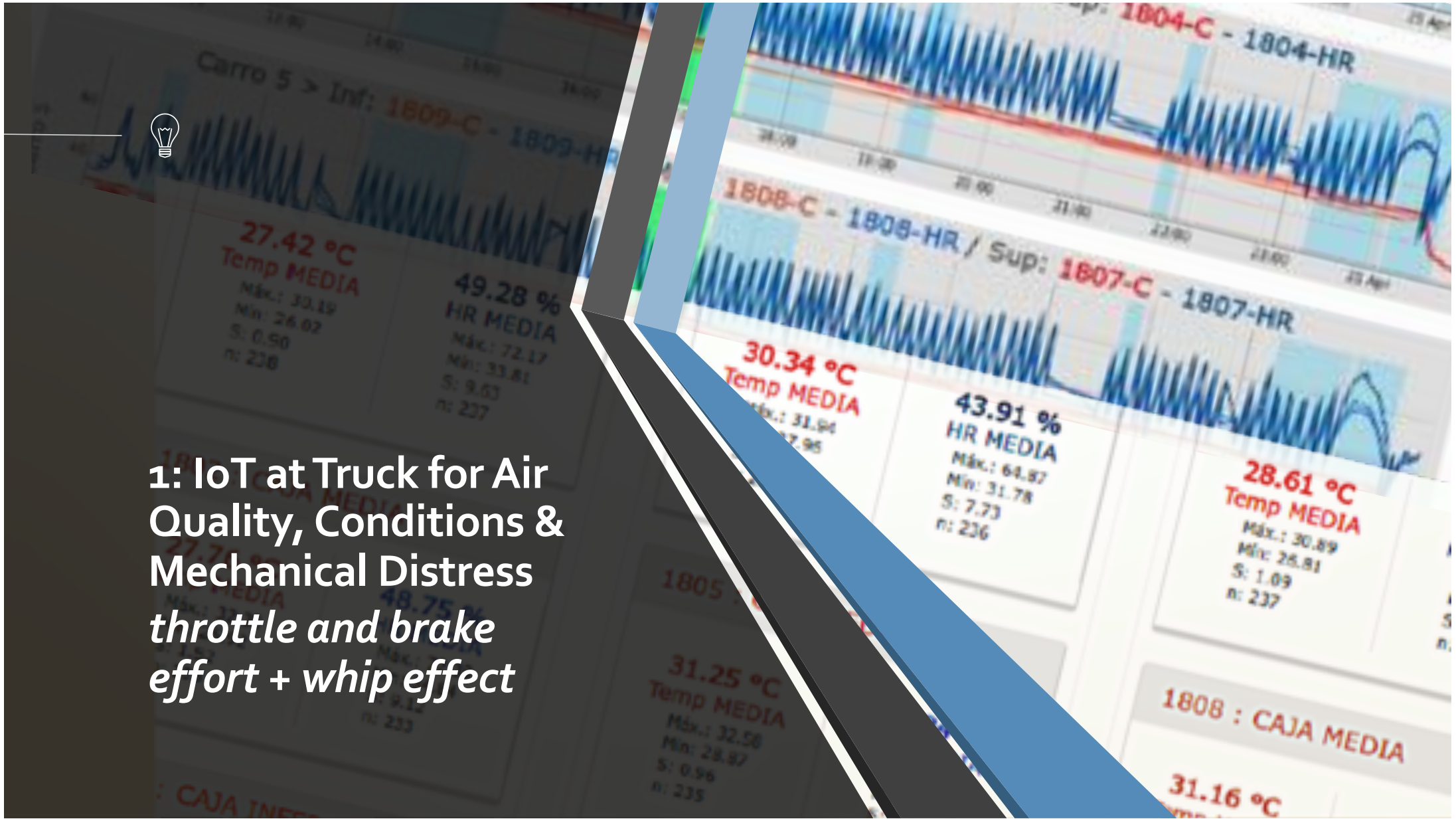
1: IoT monitoring box distribution

1: Truck Route Real-Time Tracking & Stops








1: IoT at Truck for Air Quality, Conditions & Mechanical Distress
throttle and brake effort + whip effect
1804-C - 1804-HR
1808-C - 1808-HR / Sup: 1807-C - 1807-HR
30.34 °C
Temp MEDIA
43.91 %
HR MEDIA
28.61 °C
Temp MEDIA
1808 : CAJA MEDIA
31.16 °C

2: Feeding Control

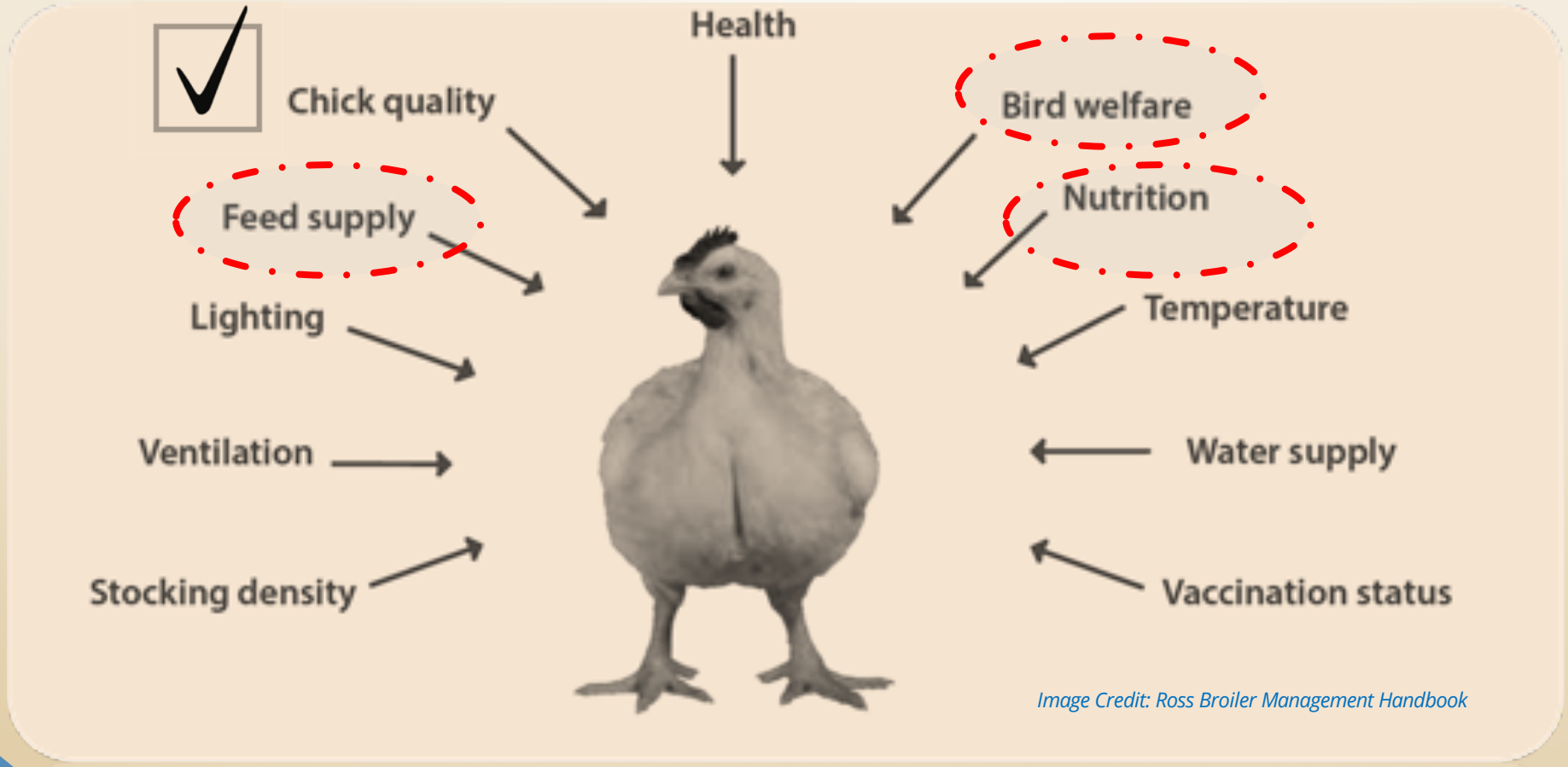
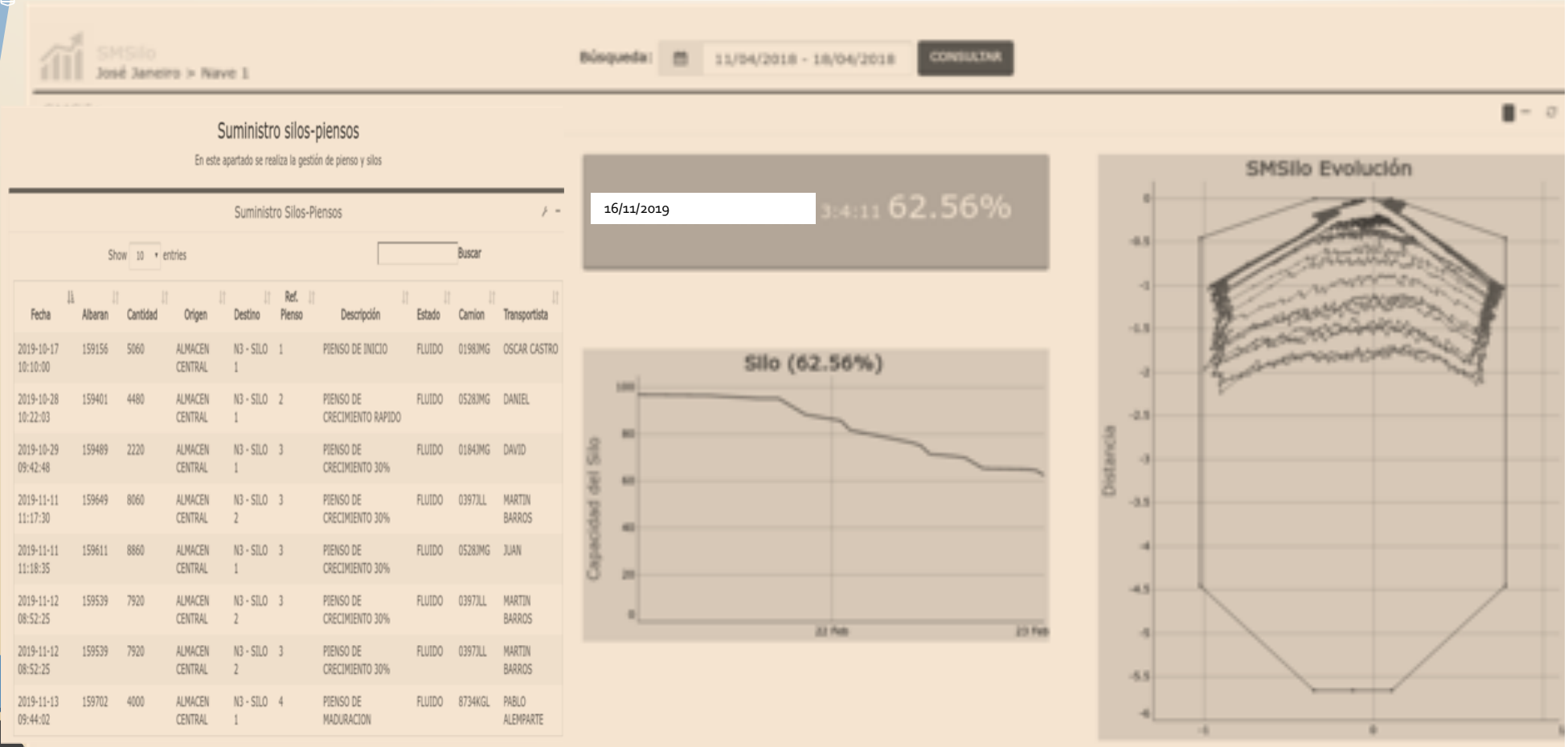


Image Credit: Ross Broiler Management Handbook

2: Feeding Control by Dynamic Silo Levelling



2: Feeding Control by Silo Level monitoring

3: Hidratation – Drinking Water supply

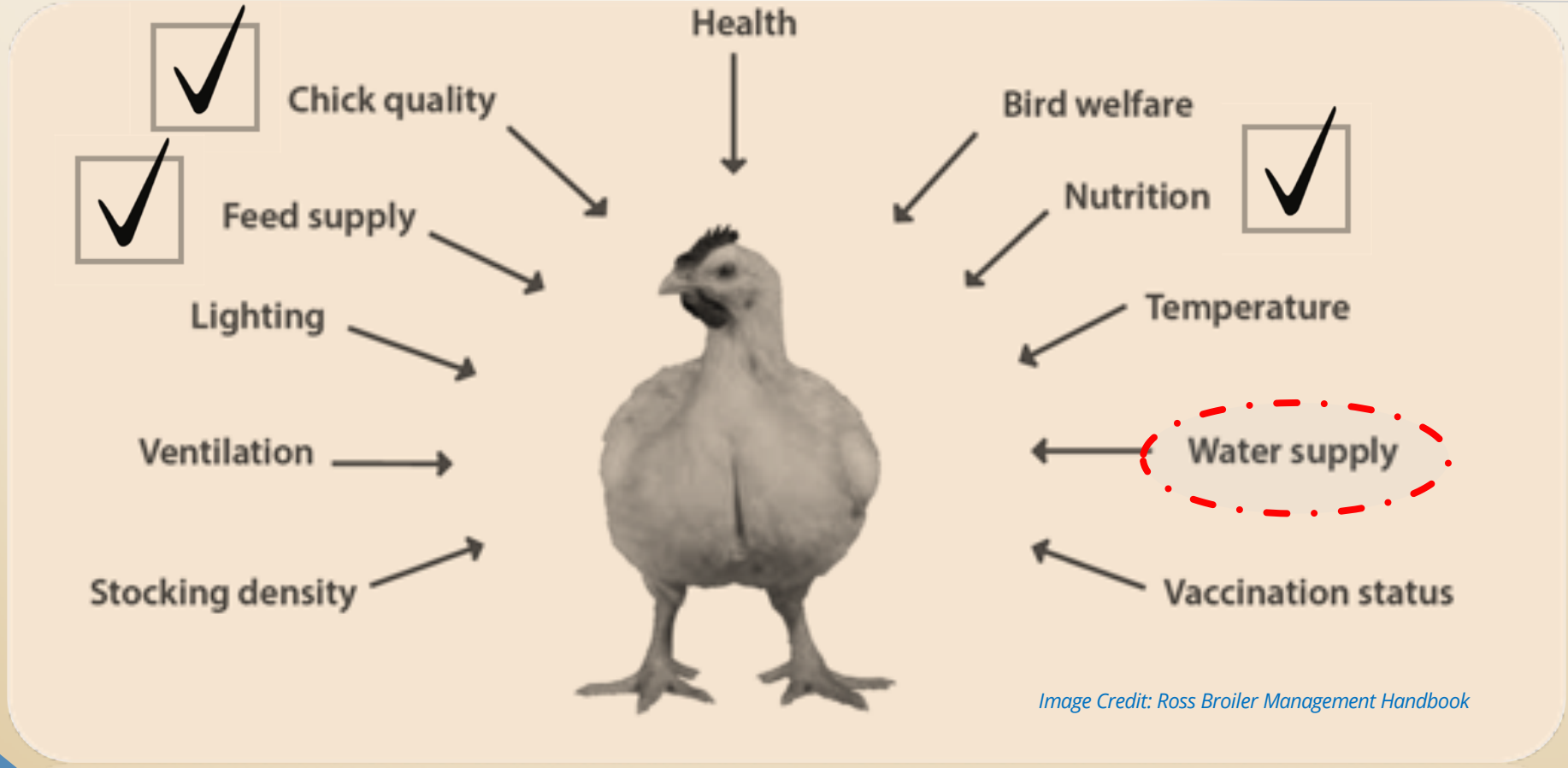
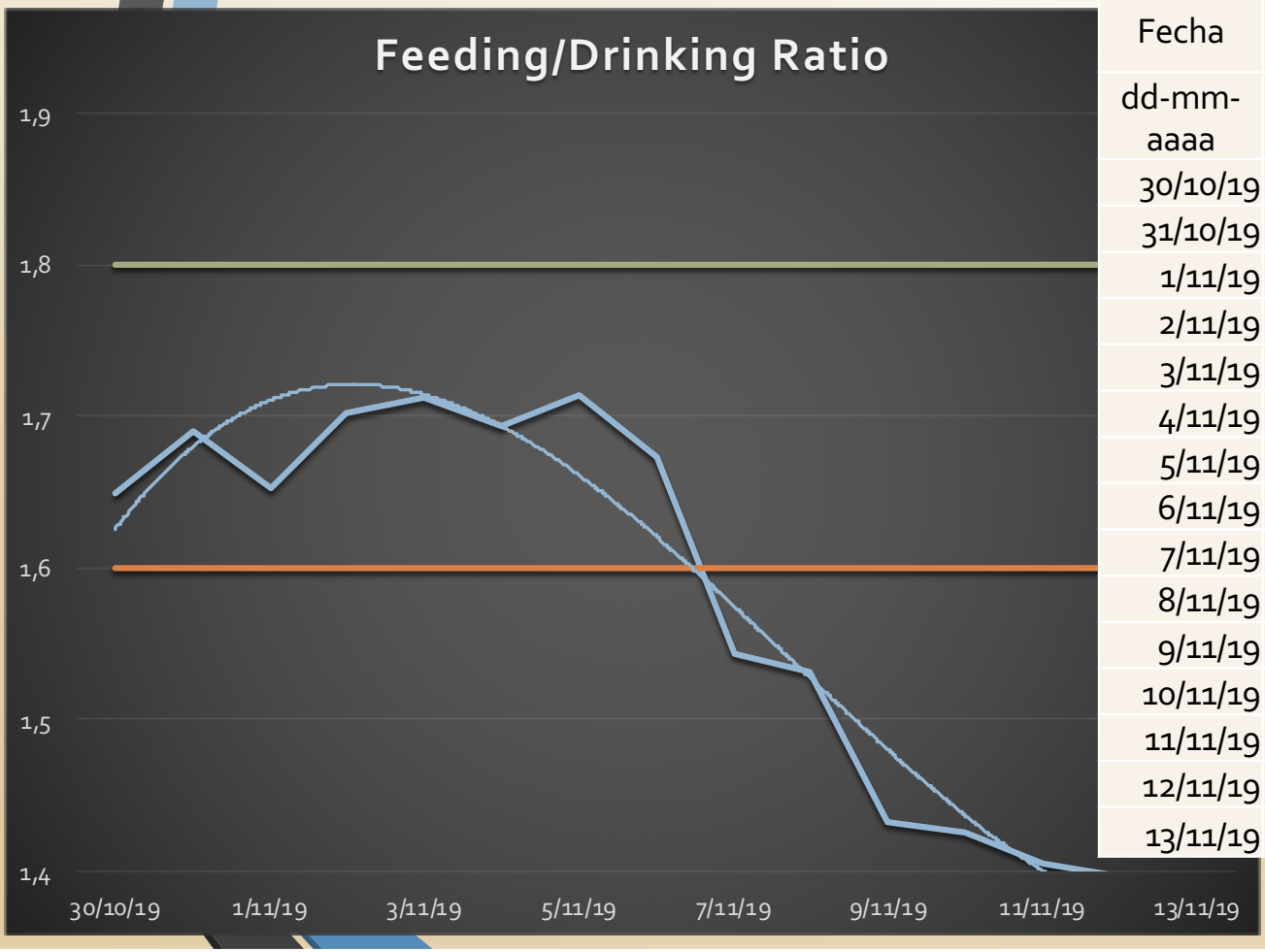


Image Credit: Ross Broiler Management Handbook

3: Hidratation – Drinking Water supply

4: Ratio & KPI Evolution & Treshold Evaluation



Fecha	Consumo Pienso Nave	Consumo Agua Nave	Ratio D/F
dd-mm-aaaa	(kg)	(litros)	(l/kg)
30/10/19	1845	3044	1,65
31/10/19	1896	3204	1,69
1/11/19	1971	3259	1,653
2/11/19	2022	3443	1,703
3/11/19	2073	3550	1,713
4/11/19	2123	3597	1,694
5/11/19	2174	3726	1,714
6/11/19	2199	3679	1,673
7/11/19	2249	3471	1,543
8/11/19	2275	3485	1,532
9/11/19	2300	3294	1,432
10/11/19	2325	3314	1,425
11/11/19	2351	3303	1,405
12/11/19	2376	3317	1,396
13/11/19	2376	3222	1,356

5: Stocking Density, Distribution & B.W. Uniformity

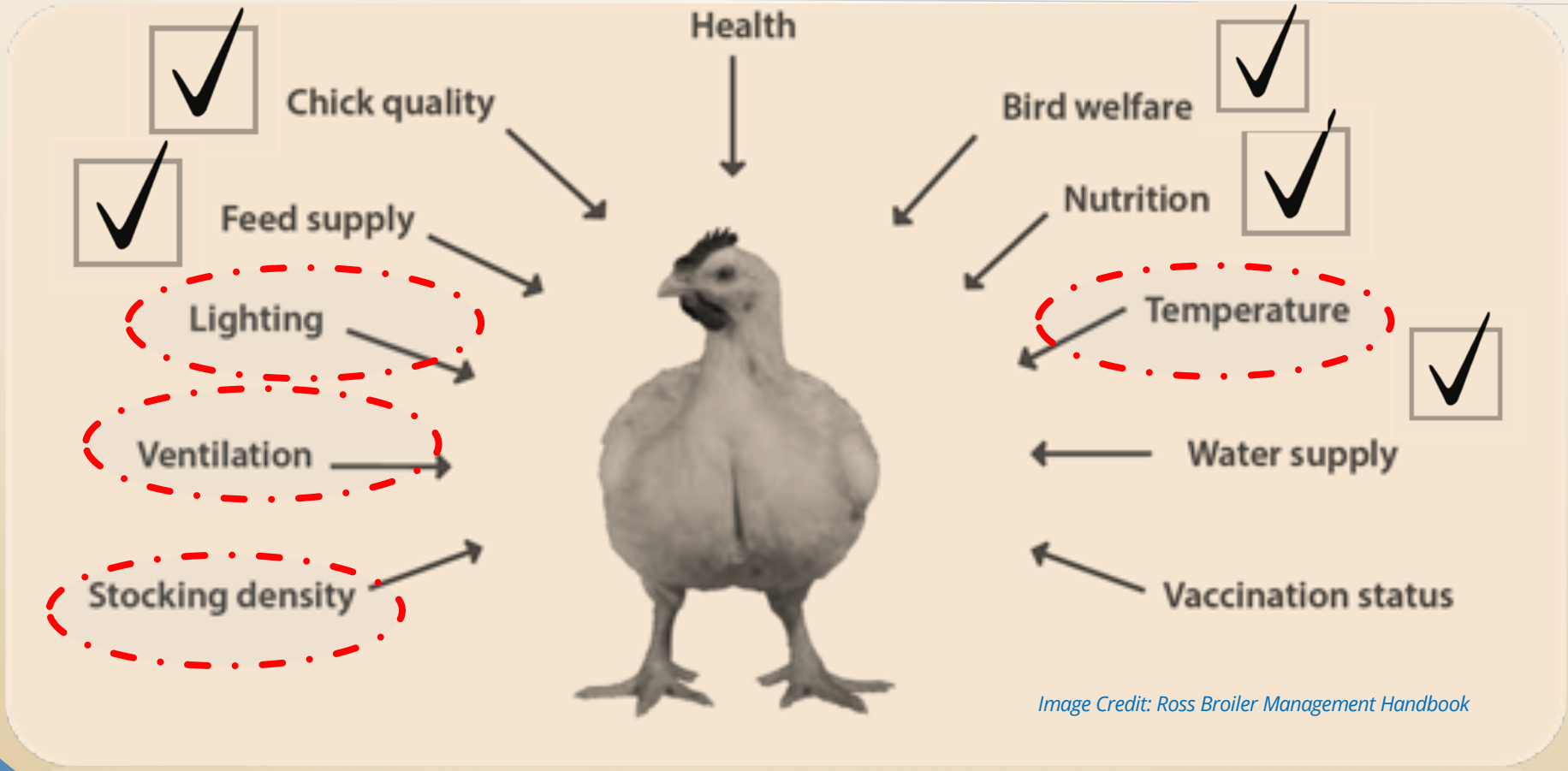


Image Credit: Ross Broiler Management Handbook

5: Flock Stock CV trough Environmental Control

6: Fattening up and Transformation Index

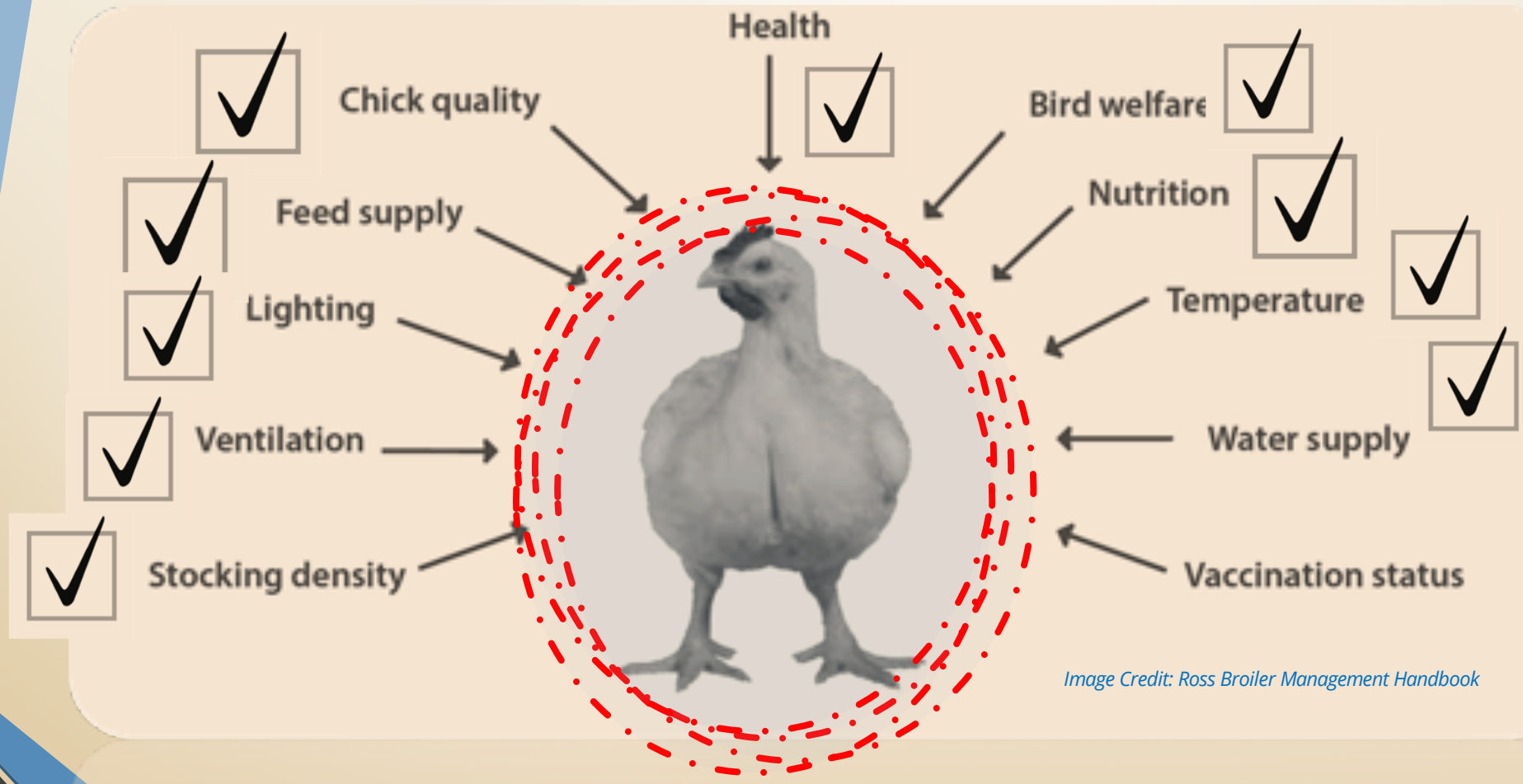


Image Credit: Ross Broiler Management Handbook

6: Transformation – AutoWeight Control beyond gravity

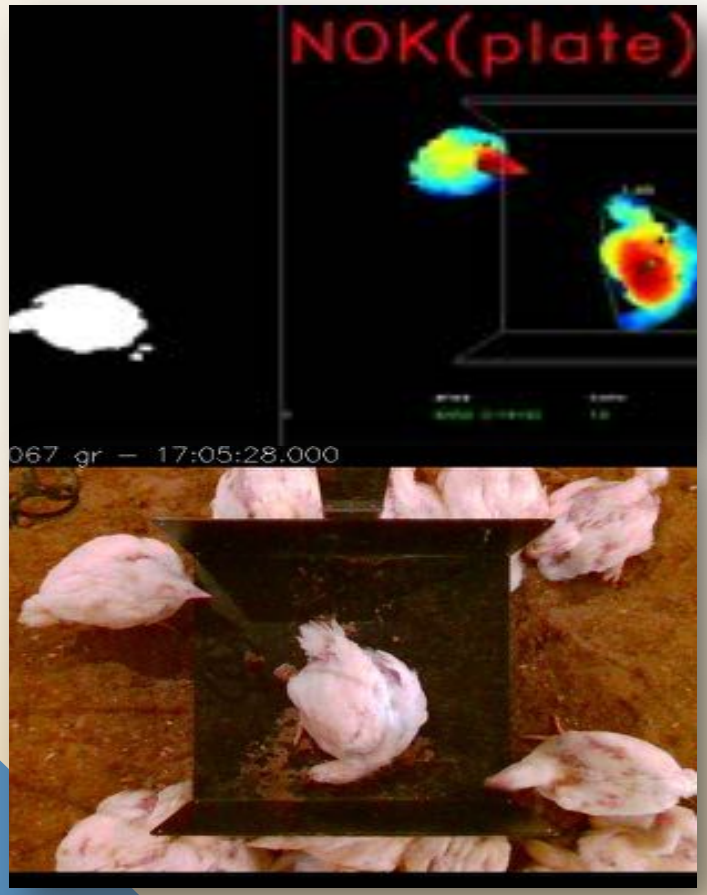
No gravity principle (roman scale)

No modelling … how to distinguish a good female from a bad male ?

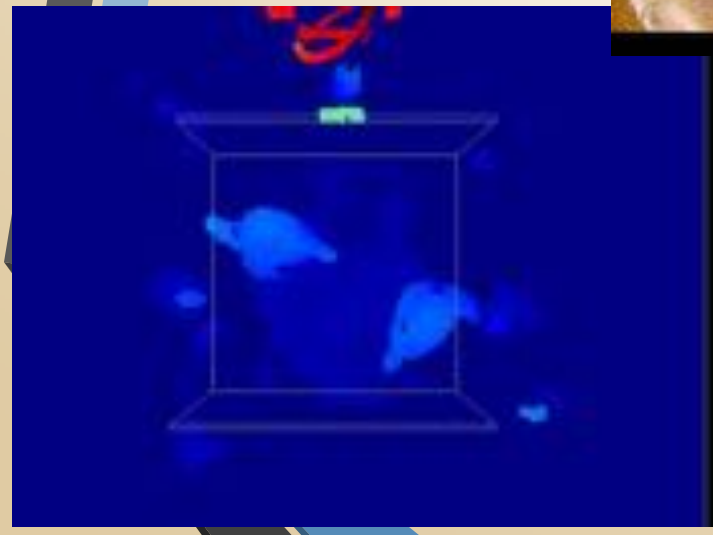
How many animals am I Weighing?

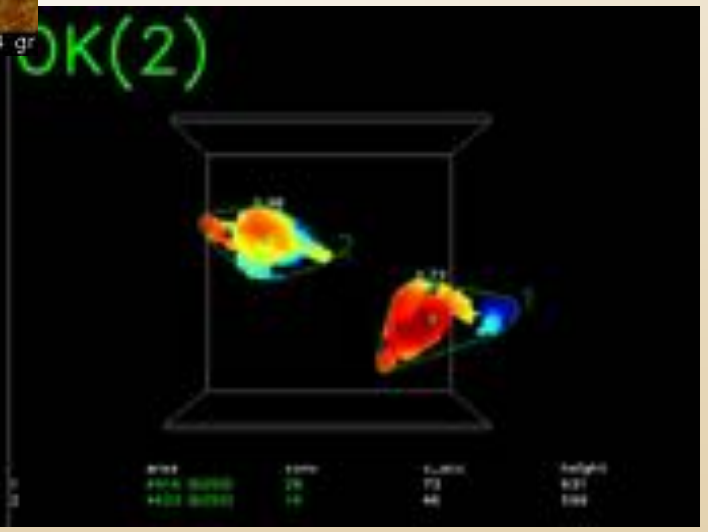
6- it is good to believe … but better to control

If wrong … discard and only quality data



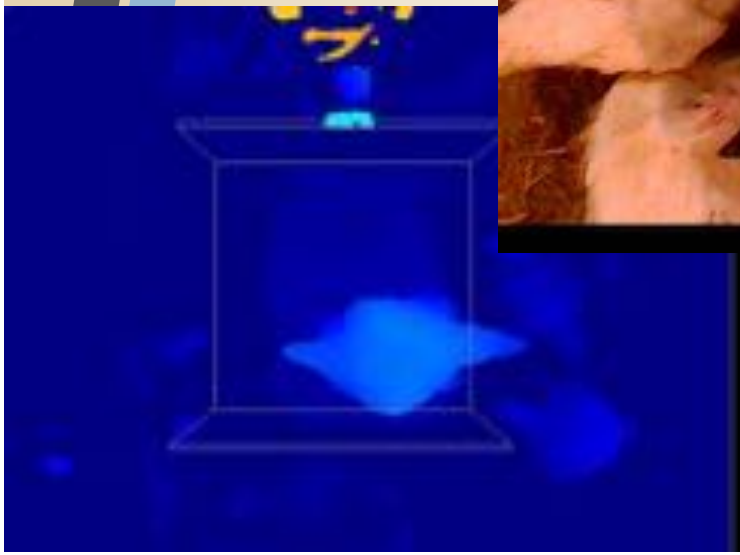
6- Breeding: day 20

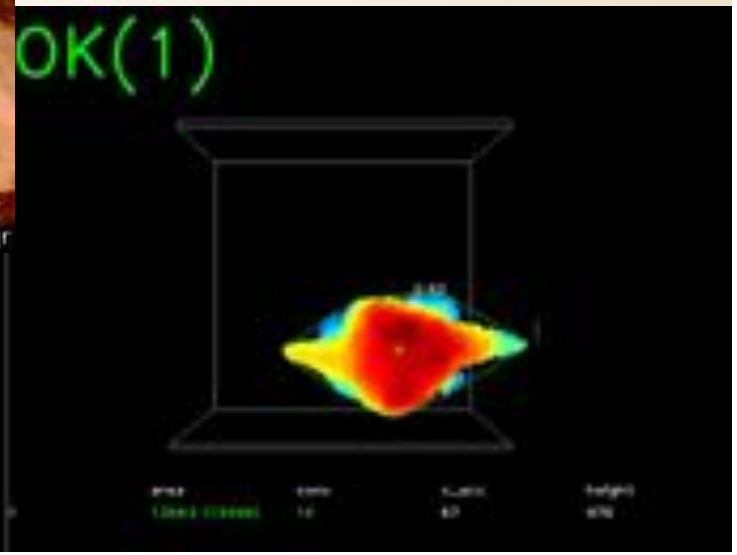




6- Breeding: day 30

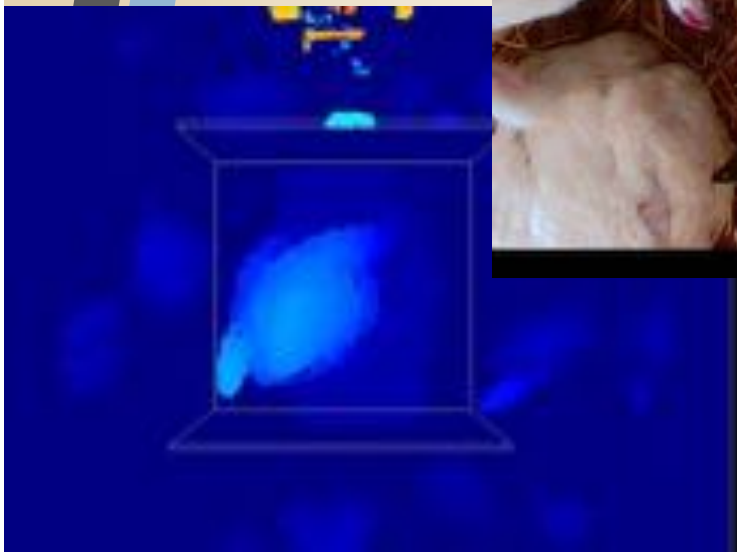
6- Breeding: day 35

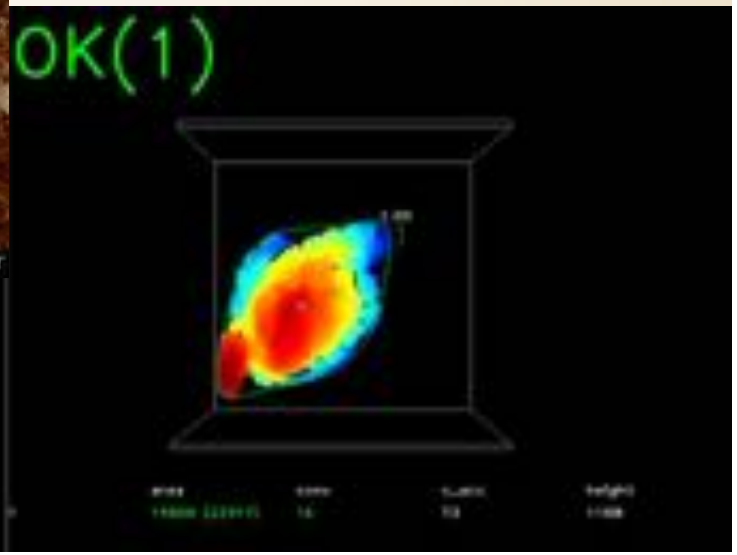




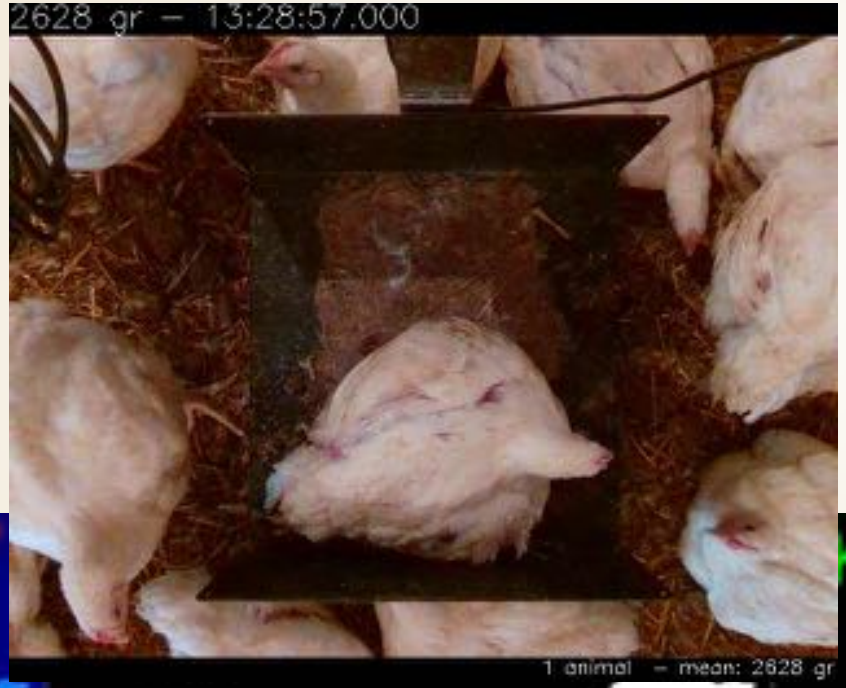
Pesada Automática: datos d40

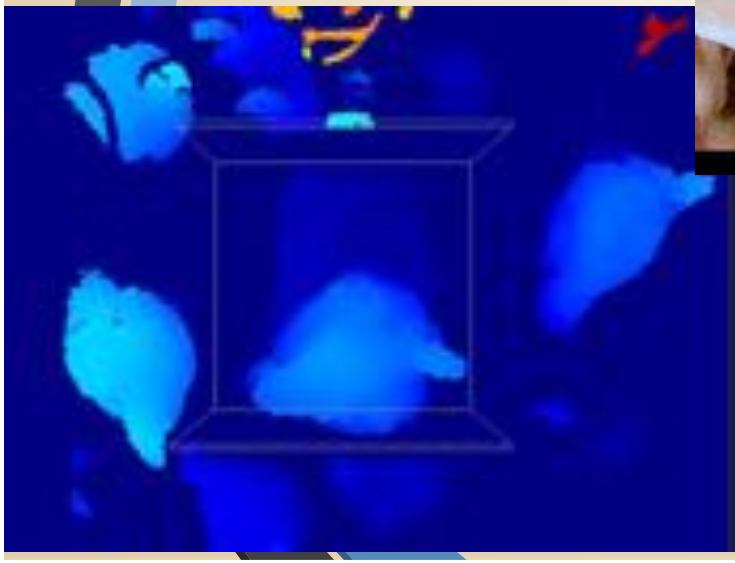
6- Breeding: day 40

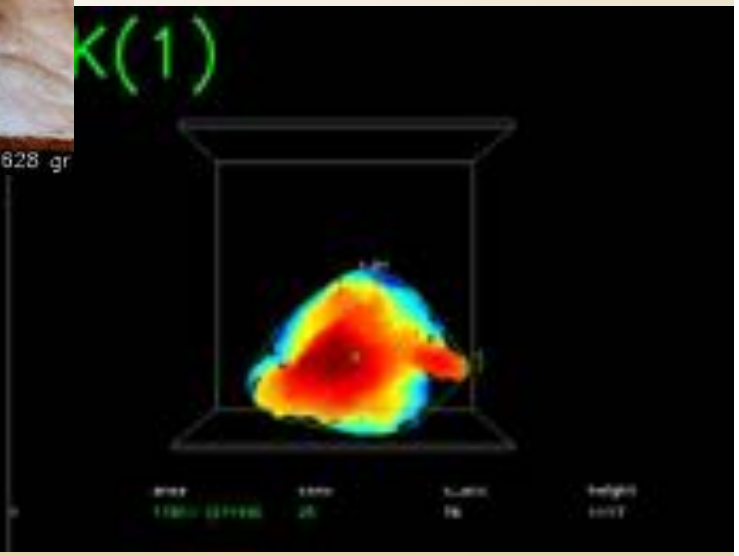




6- Breeding: day45





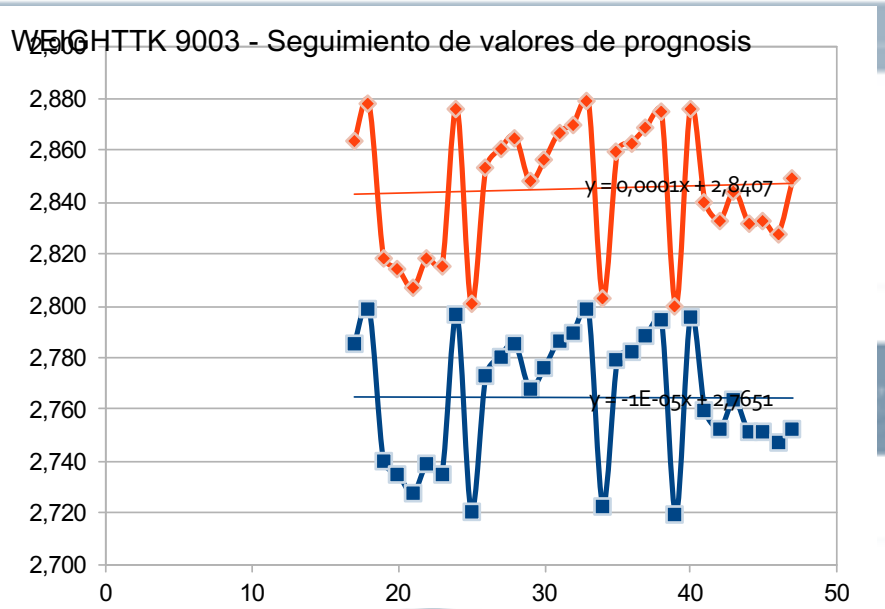


6- Real-Time Weight Evolution Data

6- Daily forecast extraction dates for batch (weight prognose)

PROGNOSIS Y TEÓRICA WEIGHTTK 9003

LOTE	FECHA	DÍA LOTE	PESO M. PROGNOSIS	PESO M. TEÓRICO	DIFERENCIAL MATADERO
003	2019-10-07	7	0,172	0,188	
003	2019-10-08	8	0,208	0,220	
003	2019-10-09	9	0,239	0,254	
003	2019-10-10	10	0,273	0,292	
003	2019-10-11	11	0,304	0,333	
003	2019-10-12	12	0,338	0,376	
003	2019-10-13	13	0,379	0,423	
003	2019-10-14	14	0,433	0,473	
003	2019-10-15	15	0,478	0,526	
003	2019-10-16	16	0,523	0,582	
003	2019-10-17	17	0,582	0,640	
003	2019-10-18	18	0,653	0,701	
003	2019-10-19	19	0,704	0,765	
003	2019-10-20	20	0,756	0,831	
003	2019-10-21	21	0,830	0,899	
003	2019-10-22	22	0,892	0,969	
003	2019-10-23	23	0,943	1,042	
003	2019-10-24	24	1,017	1,116	
003	2019-10-25	25	1,063	1,191	
003	2019-10-26	26	1,146	1,268	
003	2019-10-27	27	1,227	1,347	
003	2019-10-28	28	1,289	1,427	
003	2019-10-29	29	1,375	1,507	
003	2019-10-30	30	1,465	1,589	
003	2019-10-31	31	1,549	1,671	
003	2019-11-01	32	1,640	1,754	
003	2019-11-02	33	1,726	1,838	0,4%
003	2019-11-03	34	1,785	1,922	



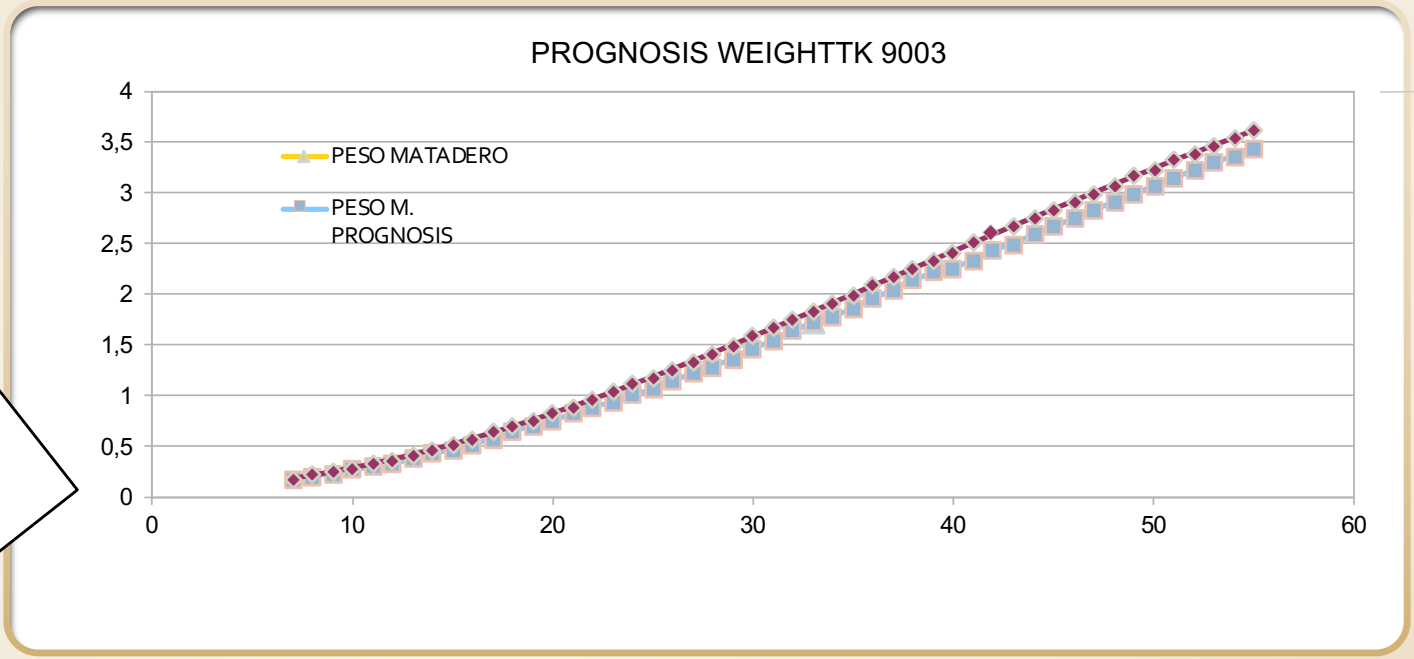
CURVA PROGNOSIS Y TEÓRICA WEIGHTTK 9003

DÍA LOTE ANÁLISIS	DEVICE	ID LOTE	FECHA	DÍA LOTE	PESO M. PROGNOSIS	PESO M. TEÓRICO	DIFERENCIAL MATADERO
46	9003	1003	2019-10-07	7	0,172	0,188	
46	9003	1003	2019-10-08	8	0,208	0,220	
46	9003	1003	2019-10-09	9	0,239	0,254	
46	9003	1003	2019-10-10	10	0,273	0,292	
46	9003	1003	2019-10-11	11	0,304	0,333	
46	9003	1003	2019-10-12	12	0,338	0,376	
46	9003	1003	2019-10-13	13	0,379	0,423	
46	9003	1003	2019-10-14	14	0,433	0,473	
46	9003	1003	2019-10-15	15	0,478	0,526	
46	9003	1003	2019-10-16	16	0,523	0,582	
46	9003	1003	2019-10-17	17	0,582	0,640	
46	9003	1003	2019-10-18	18	0,653	0,701	
46	9003	1003	2019-10-19	19	0,704	0,765	
46	9003	1003	2019-10-20	20	0,756	0,831	
46	9003	1003	2019-10-21	21	0,830	0,899	
46	9003	1003	2019-10-22	22	0,892	0,969	
46	9003	1003	2019-10-23	23	0,943	1,042	
46	9003	1003	2019-10-24	24	1,017	1,116	
46	9003	1003	2019-10-25	25	1,063	1,191	
46	9003	1003	2019-10-26	26	1,146	1,268	
46	9003	1003	2019-10-27	27	1,227	1,347	
46	9003	1003	2019-10-28	28	1,289	1,427	
46	9003	1003	2019-10-29	29	1,375	1,507	
46	9003	1003	2019-10-30	30	1,465	1,589	
46	9003	1003	2019-10-31	31	1,549	1,671	
46	9003	1003	2019-11-01	32	1,640	1,754	
46	9003	1003	2019-11-02	33	1,726	1,838	0,4%
46	9003	1003	2019-11-03	34	1,785	1,922	
46	9003	1003	2019-11-04	35	1,871	2,006	
46	9003	1003	2019-11-05	36	1,960	2,090	
46	9003	1003	2019-11-06	37	2,051	2,175	
46	9003	1003	2019-11-07	38	2,139	2,259	
46	9003	1003	2019-11-08	39	2,220	2,344	
46	9003	1003	2019-11-09	40	2,266	2,428	
46	9003	1003	2019-11-10	41	2,343	2,512	
46	9003	1003	2019-11-11	42	2,436	2,595	
46	9003	1003	2019-11-12	43	2,506	2,678	
46	9003	1003	2019-11-13	44	2,590	2,761	
46	9003	1003	2019-11-14	45	2,667	2,843	
46	9003	1003	2019-11-15	46	2,753	2,924	
46	9003	1003	2019-11-16	47	2,834	3,005	
46	9003	1003	2019-11-17	48	2,913	3,085	
46	9003	1003	2019-11-18	49	2,993	3,165	
46	9003	1003	2019-11-19	50	3,070	3,243	

6- Weight Distribution and CV

Or how to Prevent hidden losses at Processing Plant

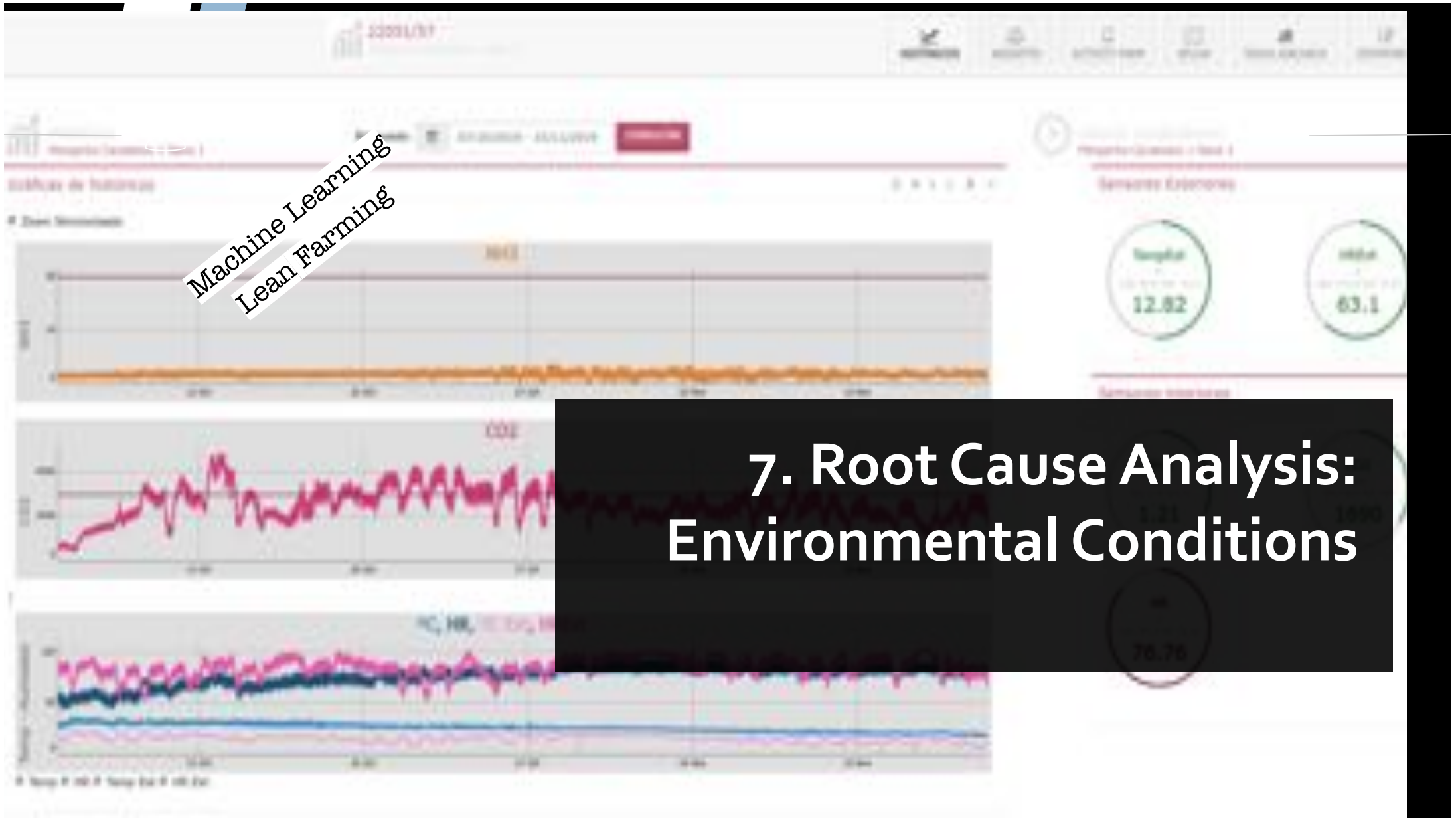
Planning for Sales & Logistics



6- Weight Prognose for commercial planning of stock availability for customers supply

Early Alerts (when still in control)

7. How to proceed when something went wrong?



7. Root Cause Analysis: Environmental Conditions

8- When not automation … digitalization

(breeding batch, mortality, operating conditions, biosecurity control, …)

Connected Barn
Smart Management