

AI and the Big Three

Outline

- Introduction
- The Big Three
- Are we still asking the right questions
- Change our thinking
- Change our Focus
- A Glimpse
- What's needed
- Conclusion

Introduction



Introduction

2 sets of problems

1. The world's
2. Our Own

The Big Three

The World's Big Three:

- Sustainability
- Environmental Challenges
- Animal Welfare

The Big Three

Our Own Big Three:

- Coccidiosis
- Bad Bacteria
- Diseases

That's the focus in the context of AI and Data.

The Right Questions

For Years now we have been measuring a lot of things.

For Years we have been measuring the same things.

Q1: Have we exhausted the data we are collecting?

Q2: What's needed to get more out of current data collected?

Q3: Are there new questions we need to ask?

Q4: What's needed to support those questions?

Q5: What's easy to measure versus important to measure?

Barn Card Part 1

Date	Barn 1 Main setpoint	Box Heater Center run time	Box Heater East run time	Box Heater West run time	Average RH Barn 1	Minimum RH	Maximum RH	Average temperature Barn 1	Minimum temperature	Maximum temperature
End of flock report										
This is a report from site Barn 1,										
2020/07/27 10:50:29 AM										
2020-06-20 10:50	95.8°F	05:50	12:06	13:36	55%	49%	61%	95.9°F	94.4°F	97.8°F
2020-06-21 10:50	94.8°F	07:57	10:49	13:33	61%	57%	66%	94.8°F	93.6°F	96.5°F
2020-06-22 10:50	93.8°F	08:36	11:37	13:53	64%	63%	69%	93.8°F	92.5°F	95.5°F
2020-06-23 10:50	92.8°F	06:37	07:13	11:29	66%	63%	69%	92.8°F	91.5°F	94.7°F
2020-06-24 10:50	91.5°F	05:14	04:56	09:58	68%	65%	71%	91.5°F	90.2°F	93.4°F
2020-06-25 10:50	90.1°F	06:28	06:11	12:22	69%	65%	71%	90.1°F	88.7°F	91.9°F
2020-06-26 10:50	88.8°F	03:05	05:49	07:59	66%	62%	71%	88.9°F	87.5°F	90.7°F
2020-06-27 10:50	87.4°F	02:43	06:09	07:54	67%	62%	71%	87.6°F	86.3°F	89.6°F
2020-06-28 10:50	86.4°F	06:23	06:02	12:33	67%	62%	68%	86.4°F	85°F	88°F
2020-06-29 10:50	85.7°F	07:04	03:52	13:29	67%	65%	71%	85.7°F	84.4°F	87.2°F
2020-06-30 10:50	84.6°F	05:45	02:59	09:51	70%	68%	71%	84.7°F	83.5°F	86.2°F
2020-07-01 10:50	83.5°F	05:07	02:40	10:43	72%	71%	74%	83.7°F	82.4°F	85°F
2020-07-02 10:50	82.4°F	02:41	02:02	05:16	70%	66%	74%	82.9°F	81.6°F	85.5°F
2020-07-03 10:50	81.3°F	03:38	02:28	03:11	66%	63%	72%	82.2°F	80°F	85.8°F
2020-07-04 10:50	80.2°F	05:20	03:44	10:18	63%	56%	71%	80.5°F	78.5°F	83°F
2020-07-05 10:50	79.7°F	07:42	05:28	14:36	64%	57%	73%	79.7°F	78°F	81.7°F
2020-07-06 10:50	78.9°F	05:08	02:24	13:47	64%	55%	73%	79.1°F	77.7°F	80.6°F
2020-07-07 10:50	78.2°F	02:21	03:23	09:44	66%	60%	75%	79°F	76.9°F	82°F
2020-07-08 10:50	77.4°F	01:51	05:20	08:35	71%	67%	75%	77.7°F	76.5°F	79.1°F
2020-07-09 10:50	76.6°F	03:10	06:44	05:25	71%	69%	75%	77.3°F	75.5°F	79°F
2020-07-10 10:50	75.9°F	00:15	02:21	00:54	70%	66%	72%	77.4°F	75.2°F	80.1°F
2020-07-11 10:50	75.1°F	00:56	01:08	01:07	67%	57%	72%	77°F	74.5°F	79.8°F

Barn Card P2

Feed cons/head feed lines Barn 1	Feed conversion Barn 1	Feed conversion Cross Auger	Animal age Barn 1	Animals shipped Barn 1	Average weight mixed Barn 1	Daily gain	Coef. variation (CV) mixed Barn 1	Mortality Barn 1	Culls Barn 1	Nb weighings mixed Barn 1
2g	0.333	1	1	0	48g	0g	0	0	0	0
10g	0.36	9	2	0	73g	25g	10.9	36	3	3459
7g	0.411	7	3	0	90g	17g	17.5	0	0	5024
10g	0.523	10	4	0	111g	21g	15.2	0	0	4723
28g	1.2	10	5	0	136g	25g	16.1	0	0	4538
21g	0.814	10	6	0	163g	27g	15.4	99	63	3207
26g	1.148	10	7	0	191g	28g	14.8	0	0	2610
30g	1.142	10	8	0	219g	28g	14.4	10	4	2182
37g	0.928	10	9	0	261g	42g	14.9	6	6	2037
44g	1.352	10	10	0	295g	34g	14.5	5	0	2019
49g	1.243	10	11	0	337g	42g	14.1	24	6	2206
44g	1.046	10	12	0	379g	42g	13.9	10	2	2488
54g	1.142	10	13	0	429g	50g	13.9	13	1	2707
59g	1.089	10	14	0	486g	57g	13.8	14	3	2919
66g	1.254	10	15	0	542g	56g	13.6	0	0	2821
76g	1.351	10	16	0	596g	54g	13.6	55	20	2823
76g	1.271	10	17	0	655g	59g	13.2	15	0	2795
86g	1.164	10	18	0	728g	73g	13.3	9	0	2756
93g	1.12	10	19	0	804g	76g	13.4	0	0	2704
92g	1.685	10	20	0	858g	54g	12.7	15	0	2792
100g	1.24	10	21	0	937g	79g	12.9	51	4	2661
106g	1.371	10	22	0	1.02kg	79g	12.8	0	0	2745

Exhaustion of current Data?



Flock Summary

Flock #	Birds Placed	Birds Shipped	Mortality	Avg Wt	Gain	FCR	Feed price	Wheat	Return/KG	Return/Bird	Return/feed	Index	Days	Cond
167	25265	23914	5.35%	2.43	59.27	1.88	\$496.37		\$0.44	\$1.02	\$25,640.18	299	41	0.78%
168	25500	23886	6.33%	2.41	60.25	1.66	\$525.13		\$0.54	\$1.22	\$31,020.32	340	40	0.54%
169	23460	21528	8.24%	2.29	57.25	1.78	\$529.93		\$0.53	\$1.09	\$25,644.57	295	40	0.86%
170	21440	20628	3.79%	2.34	58.50	1.79	\$555.87		\$0.50	\$1.11	\$23,806.03	313	40	0.78%
171	23460	22590	3.71%	2.37	59.25	1.7	\$561.06		\$0.59	\$1.33	\$31,090.39	336	40	0.76%
172	25500	23472	7.95%	2.33	58.25	1.73	\$590.20		\$0.46	\$0.98	\$24,887.56	310	40	0.82%
173	25500	23448	8.05%	2.52	61.46	1.65	\$604.56		\$0.53	\$1.21	\$30,831.84	341	41	0.68%
174	24990	23077	7.66%	2.33	58.25	1.75	\$640.67		\$0.40	\$0.85	\$21,141.41	301	40	1.12%
175	24480	23016	5.98%	2.31	59.23	1.66	\$662.26		\$0.50	\$1.09	\$26,643.19	334	39	0.47%
176	22440	20854	7.07%	2.41	58.78	1.62	\$687.72		\$0.57	\$1.26	\$28,276.44	337	41	0.64%
177	22848	21764	4.74%	2.18	55.90	1.78	\$722.94		\$0.45	\$0.93	\$21,251.39	299	39	1.14%
178	24480	23128	5.52%	2.36	57.56	1.74	\$675.64		\$0.63	\$1.40	\$34,335.17	312	41	0.60%

Other Right Questions

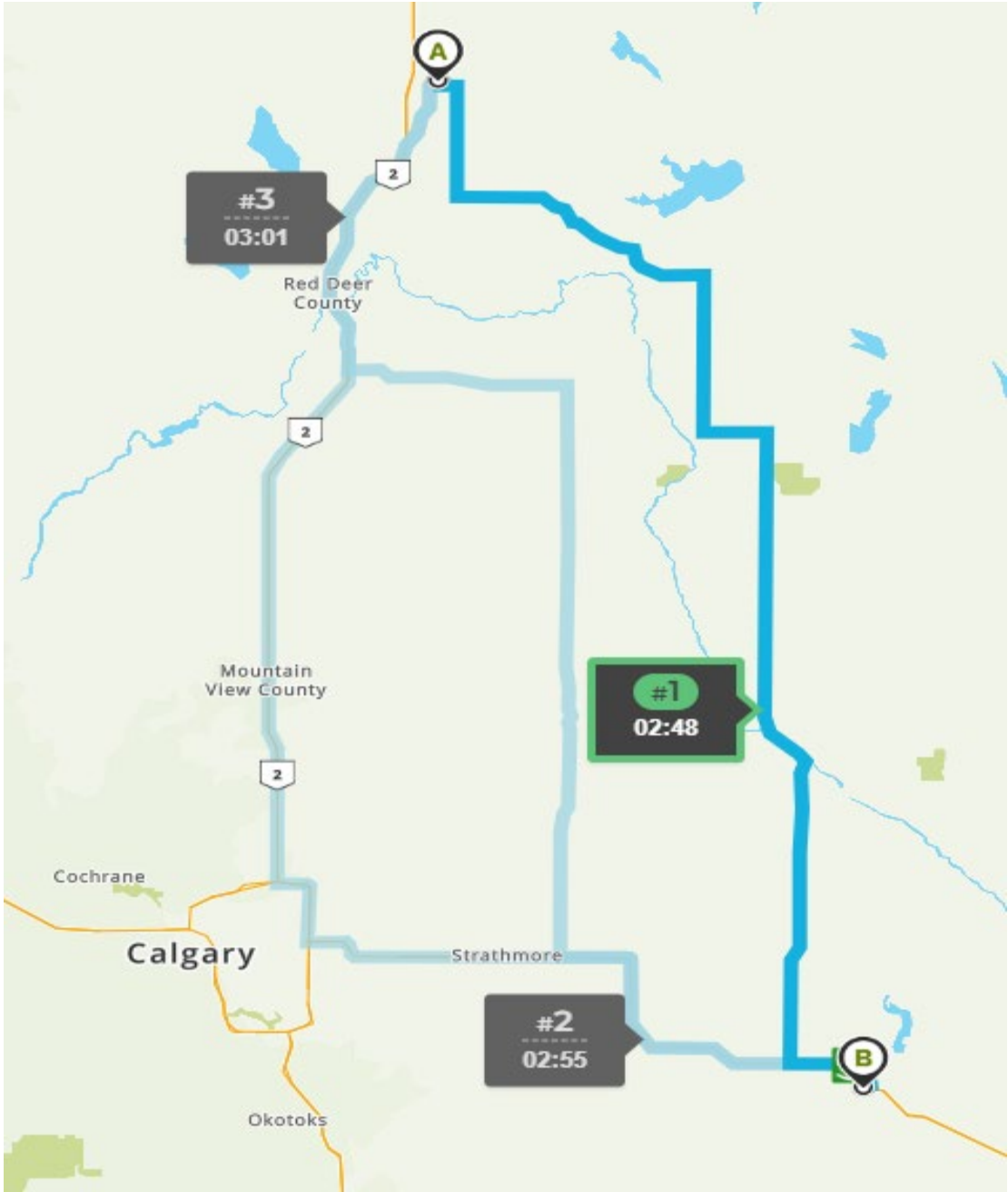
- What was the cocci score in each week of production?
- What is the bacteria load in the barn like, including the water?
- What are disease levels in birds in each week of production?

New questions

- How can we measure and manage Cocci quicker and better?
- How can we manage bacteria counts quicker and better?
- How about live blood sampling to determine flock health?

Change our Thinking





Change our Thinking

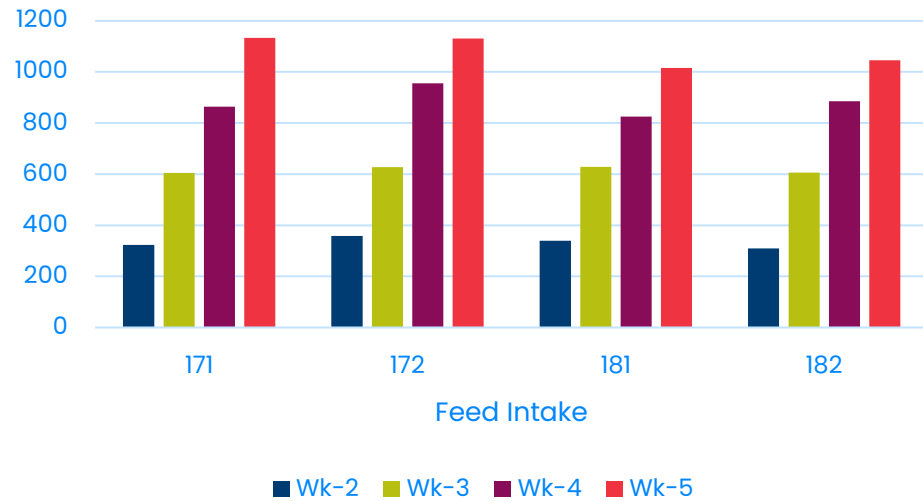
- GPS Example
- Trusting our Gut is not going to cut it.
- Move from looking back to calculating ahead

Change Our Focus

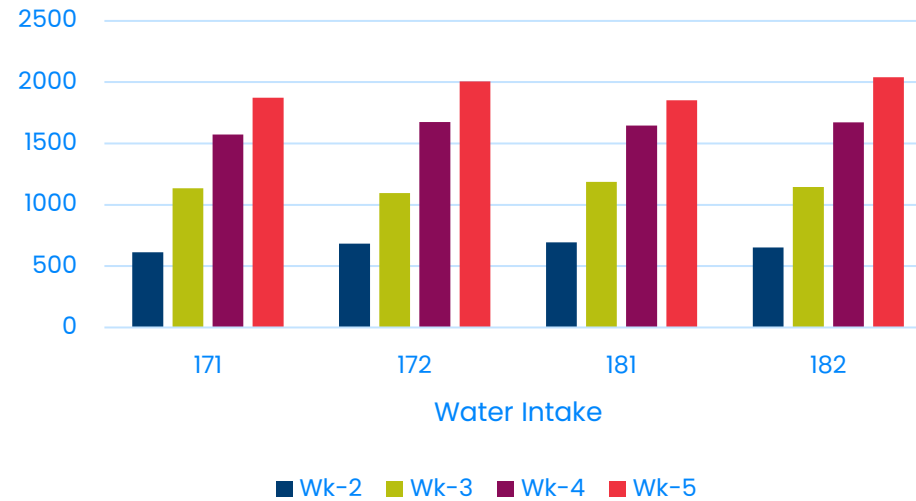
Do we need to focus on weekly evaluations to narrow the Gap?

Weekly Evaluation?

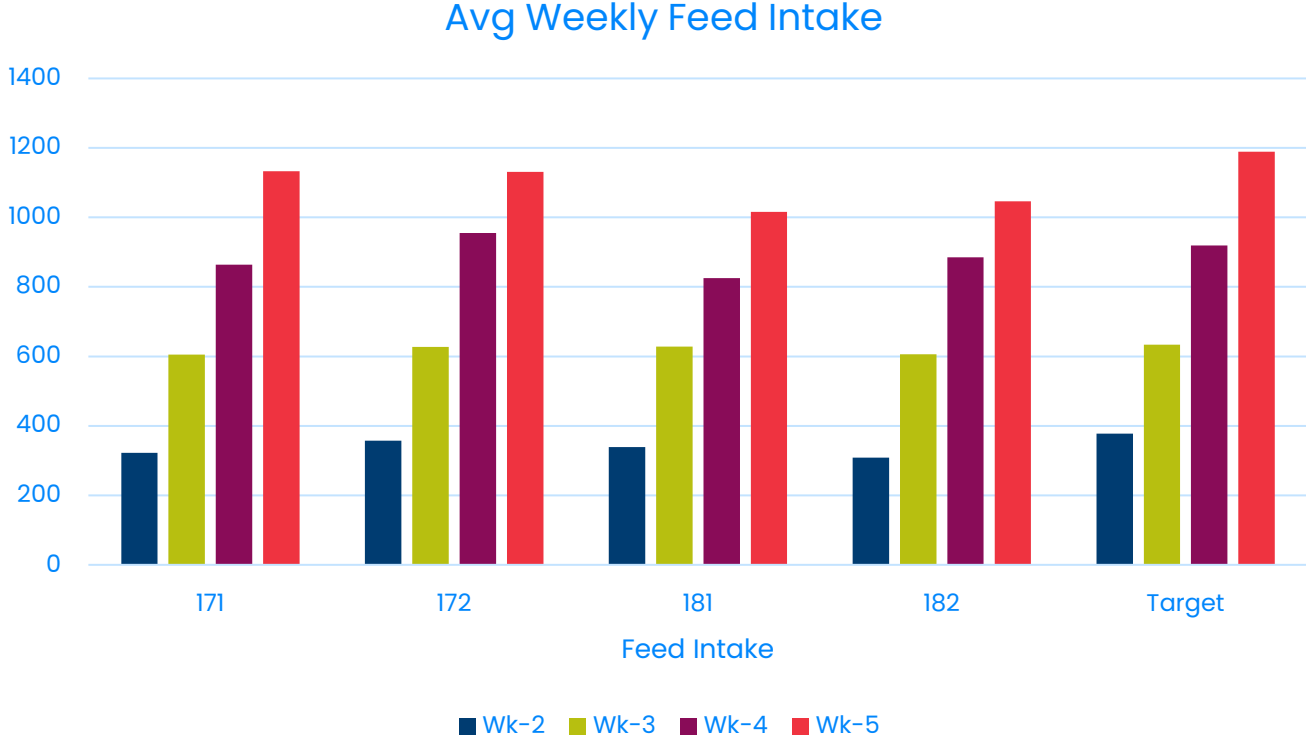
Avg Weekly Feed Intake



Avg Weekly Water Intake



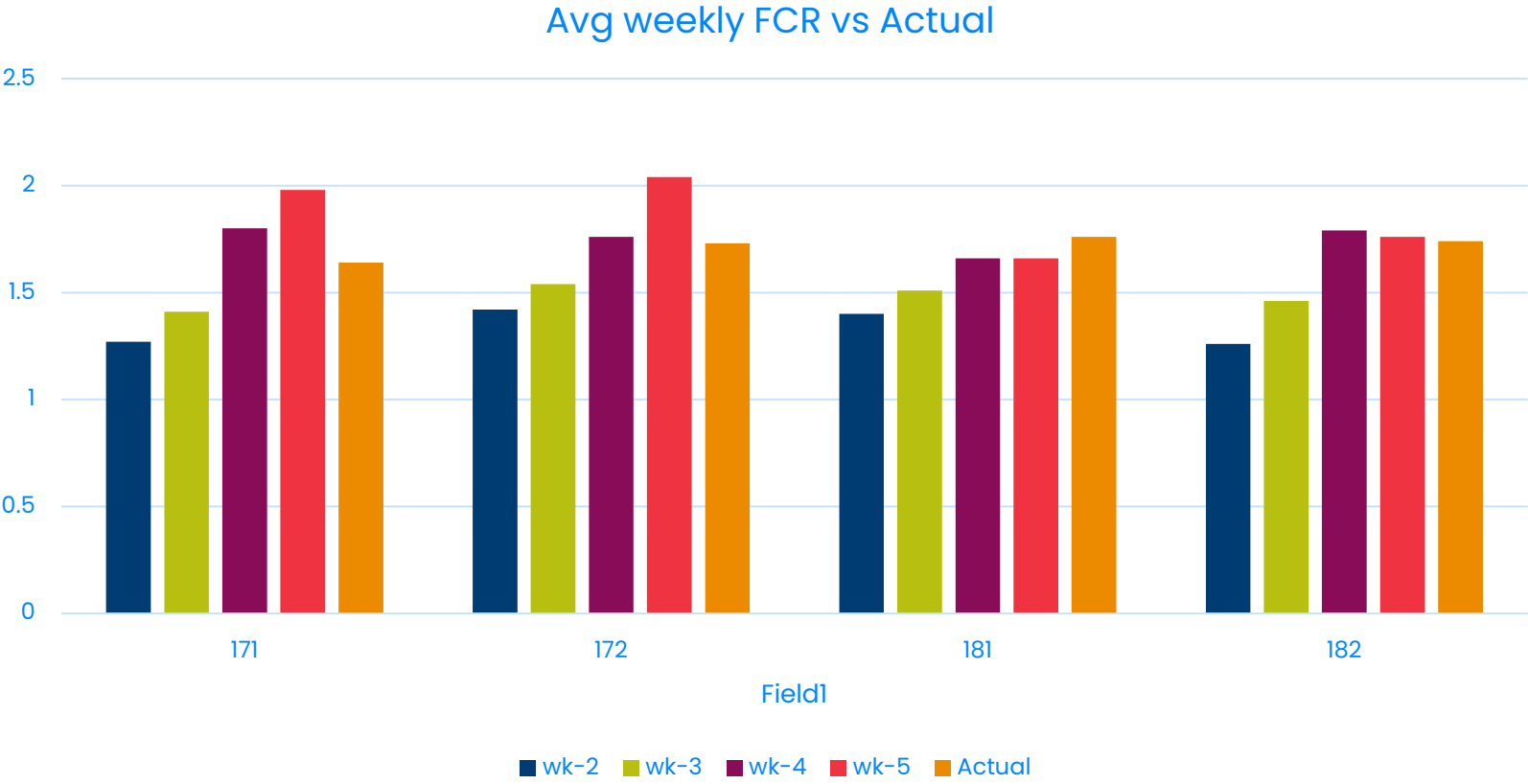
Weekly Evaluation



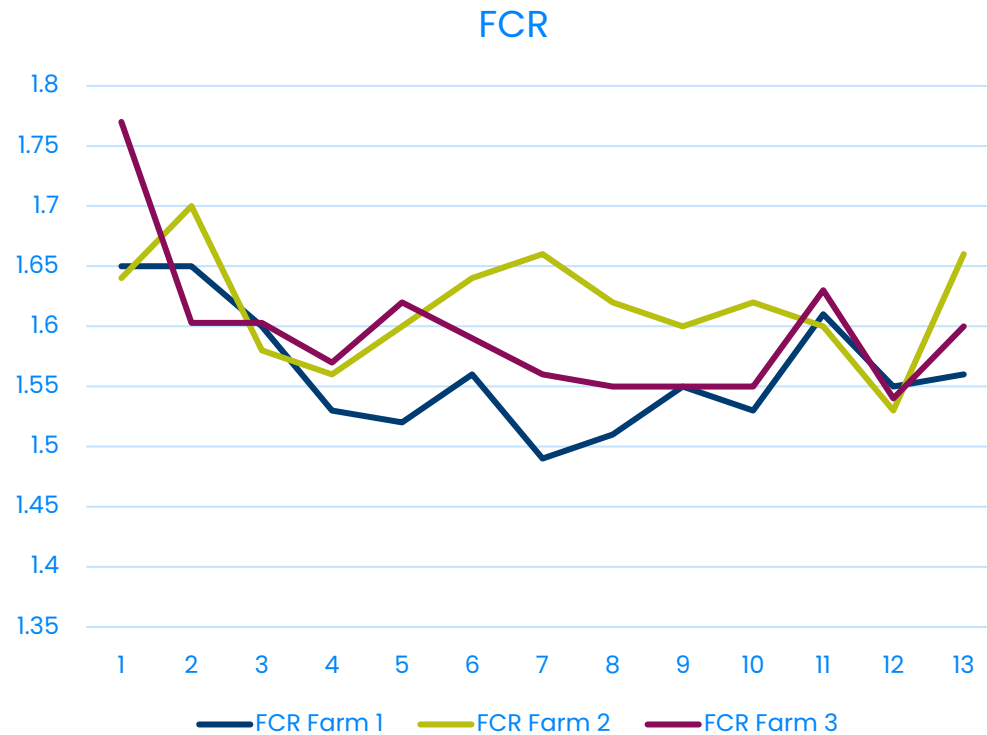
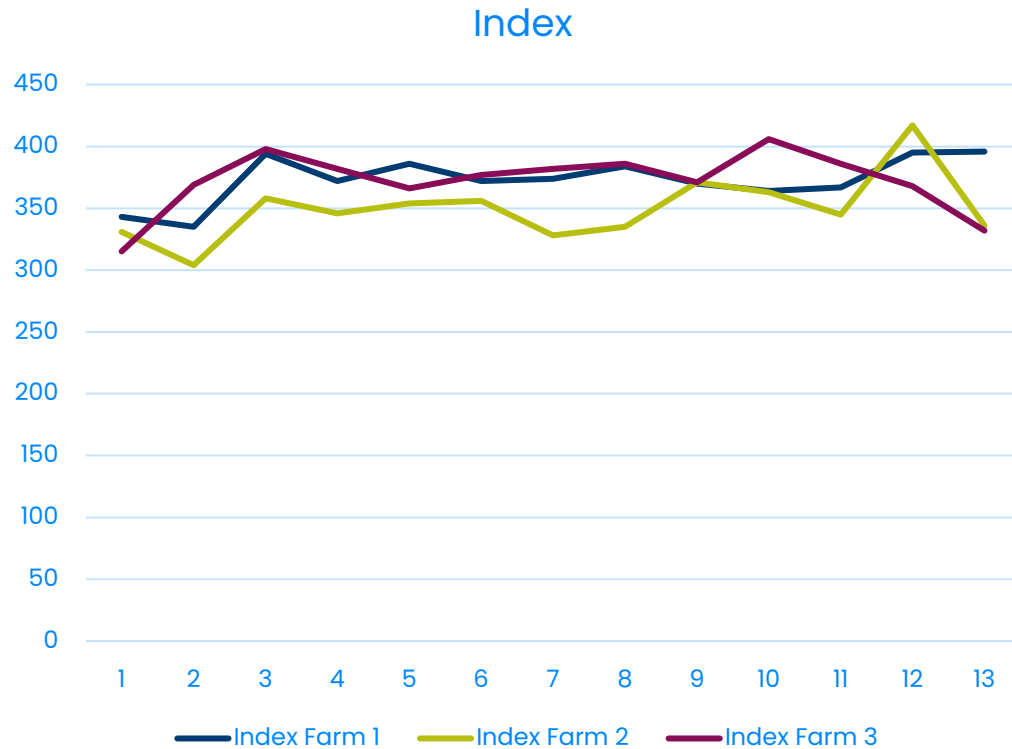
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Different Data Option



Evaluating Current Data



Potential

- .15 kgs at \$650.00 per ton feed * 60,000 kgs shipped = \$6,000.00

AI and context?

Old ranch owner John farmed a small ranch in Montana. The Montana Wage and Hour Department claimed he was not paying proper wages to his workers and sent an agent out to interview him.

“I need a list of your employees and how much you pay them,” demanded the agent.

“Well,” replied old John, “There’s my ranch hand who’s been with me for 3 years. I pay him \$600 a week plus free room and board. The cook has been here for 18 months, and I pay her \$500 a week plus free room and board. Then there’s the half-wit who works about 18 hours every day and does about 90 percent of all the work around here. He makes about \$10 per week, pays his own room and board, and I buy him a bottle of bourbon every Saturday night.”

“That’s the guy I want to talk to, the half-wit,” says the agent.

“That would be me,” replied old rancher John.

A Glimpse

The possibilities of AI:

- AI's greatest benefit to you, will require collaboration.
- Massive Data is key.
- The goal: AI solutions, that forecast's as it's receiving data.
- It's already here (other industries), it's a matter of figuring out how.

A Glimpse



**Other Level's
Farm Management
Dashboard 2022**

Statistics Overview

Current Monthly Performance

Monthly

Yearly



Net Profit
139,401,092
€€



Expenditure
564,327,850
€€



Operational Profit
142,253,270
€€



Revenue
706,581,120
€€

77,654 €€ Workers Salary

35,533 €€ Transportation

54,332 €€ PAYE

96,543 €€ Veterinary Service Fee

35,321 €€ Maintenance

43,232 €€ Security

74,244 €€ Utility



**Monthly Working
Capital Expenditure**
416,859 \$

Pen House [➤](#)

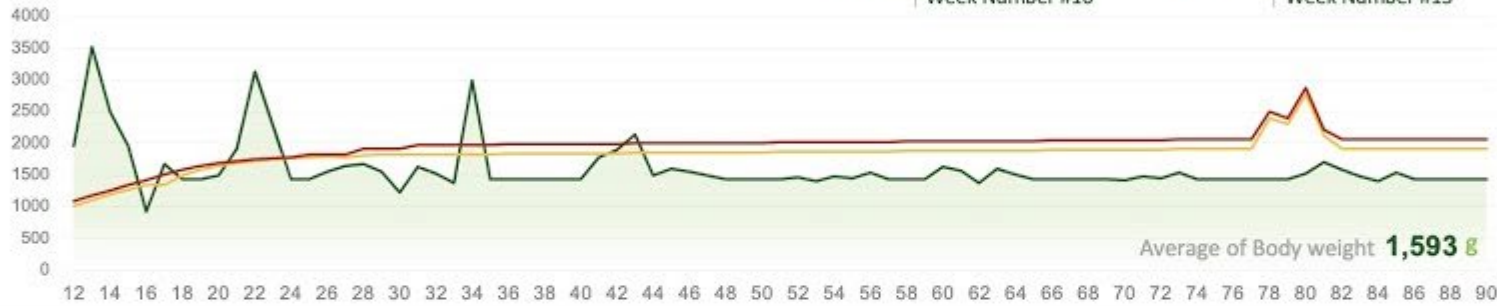
Pen House #1

Pen House #2

Pen House #3

| Actual Body Weight
| Maximum Standard
| Minimum Standard

Body Weight Farm weekly record



Feed Inventory

■ Stock Qty **4,081**
■ Unit Price **22,112** €€

Item	Stock Qty	Unit Price
Layer 1 Mash	222	€6,245
Layer 2 Mash	555	€5,600
Prelayer Mash	300	€5,600
Grower Mash	3,004	€4,667

Daily Farm Records

Pen House **1** | 2 | 3 [➤](#)

JAN 2022 Date

1 2 3 4 5 6 7

Flock Number

Flock 2

10,280

Beginning Stock of Flock

10,268

End Stock of Flock

Mortality **12**
23.00 %

Breed Name
Novogen Brown

Stocking Date
1/1/22

Pen House
1

Birds Age
91 Days
13 Weeks

Hatched Date
10/2/21



Daily Egg Register

Total Sales
700
€€



Egg Production
178%

Cumulative Eggs
18,253
Cumulative Egg Trays
608 13/30



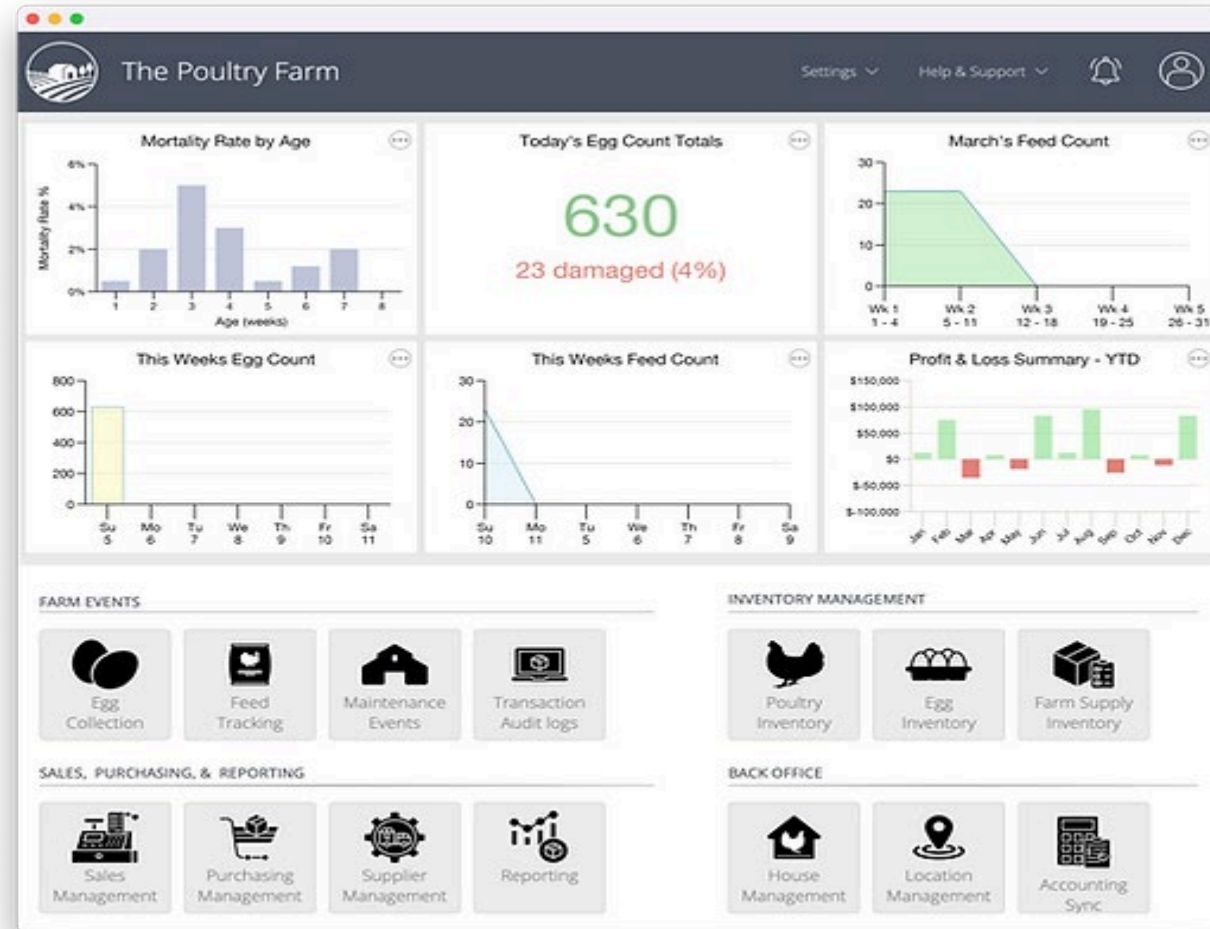
Total Feed Intake
1,264 kg

Cost per Egg
298€€
Grams per Egg
69 g

Total Stock
703
Trays

Closing Stock
3
Trays

A Glimpse



What's needed?

- One Goal
- Guideposts
- Bit of Exploration
- Improving current data

There is a lot of technology already available to start down new paths of prosperity
There's a world of possibilities lying before us if we collaborate with one another

Conclusion

- Focus on your own big three when managing AI and data.
- Incremental steps is key.
- This will also benefit the world's big three.
- This is the process that fulfills the true definition of Sustainability.



Thank You