

Farming innovations to deliver Net Zero

Jonathan Westlake
dsm-firmenich

Bovaer[®]

Same milk. Better for the climate.

dsm-firmenich 

UK farmers are on the front line of climate change – and solutions like Bovaer® show how science can help us cut methane fast, while protecting food security and livelihoods.

The methane opportunity

Tackling methane now can help avoid dangerous climate tipping points...



Immediate results

Methane is 80x more potent than CO₂, but short-lived. Cut it and you get **immediate cooling**.

Cows and climate

Cows are responsible for about 30% of methane emission linked to human activity.

Warming avoided

Reducing methane by 30% by 2030 could avoid 0.2°C of warming.

Action that works

Bovaer® is a proven tool that directly supports farmers in achieving this goal.

What is Bovaer® and what does it do?

A simple addition to cows' diets that makes a big difference for the climate...

- Feed additive made from two naturally occurring ingredients
- Reduces the activity of the enzyme responsible for methane production

30%

Average reduction of
methane emissions in
dairy cows



15%

Average reduction of
CO₂e emissions in
dairy products



Same milk. Better for the climate.





Proven, safe, scalable...

100

peer reviewed studies
demonstrating efficacy

15

years of
research

500k

tons/CO₂e saved
since commercial
launch

70

Countries where
Bovaer® is
approved

The UK opportunity

A chance to lead

- UK dairy and beef can lead the way in low-carbon food.
- Easy and quick to implement through sustainability incentive schemes.
- Global production plant in Dalry, Scotland opening 2026
- Aligns perfectly with 30:50:50's focus on science, data, productivity and sustainability.



**Bovaer[®] shows what's possible when science,
policy and farming work together.**

Same milk. Better for the climate.



The Rapidly Developing Pig: Genetics and Sustainability

Craig Lewis

PIC Europe Genetic Services & EFFAB

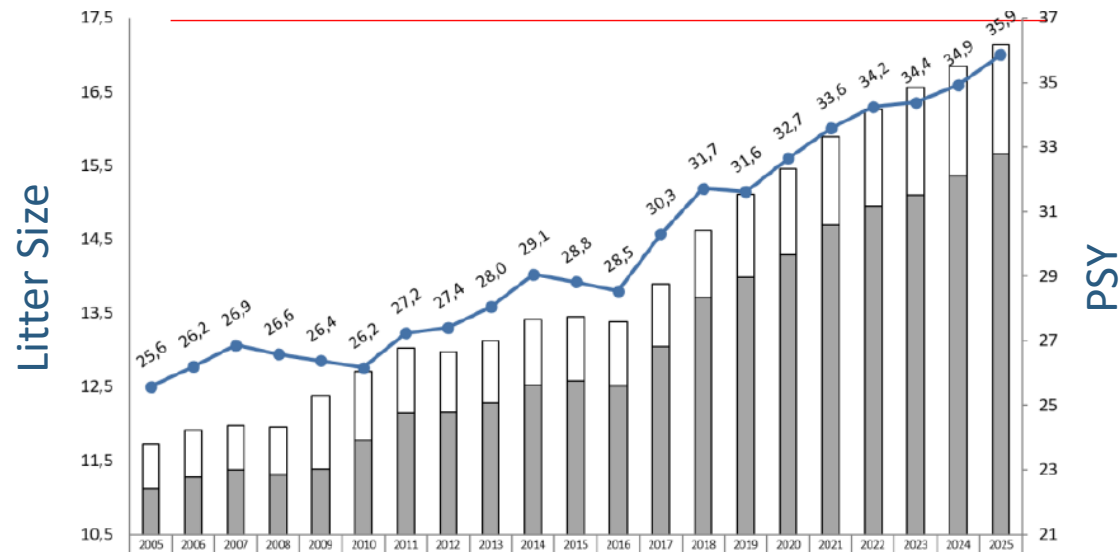
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PIC[®]

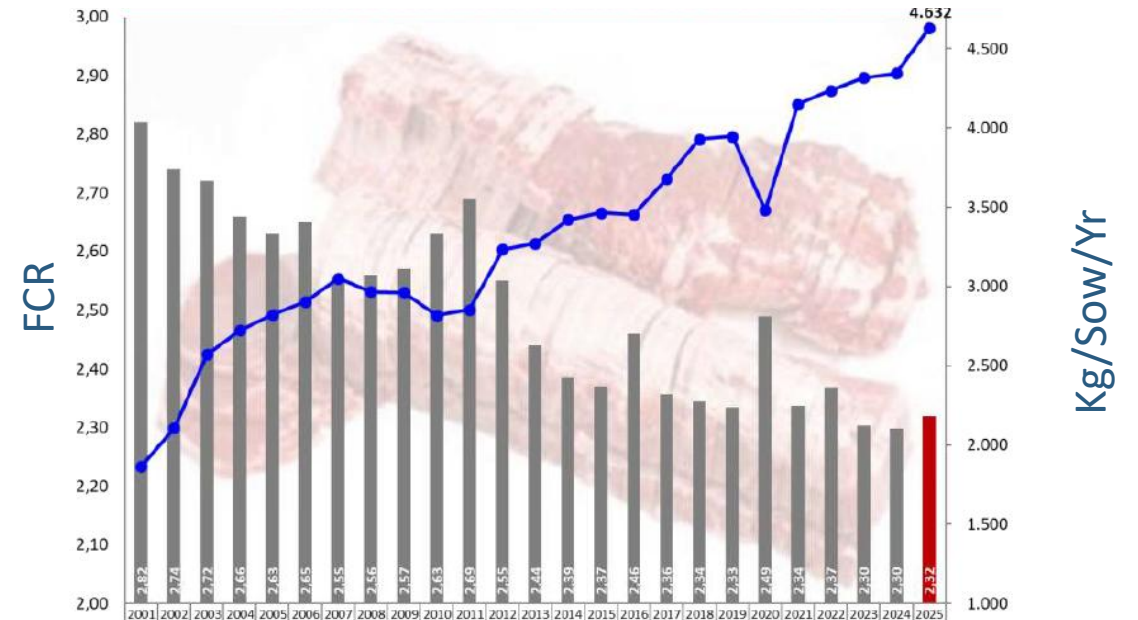
Productivity continues to improve in commercial farms



Sow Productivity



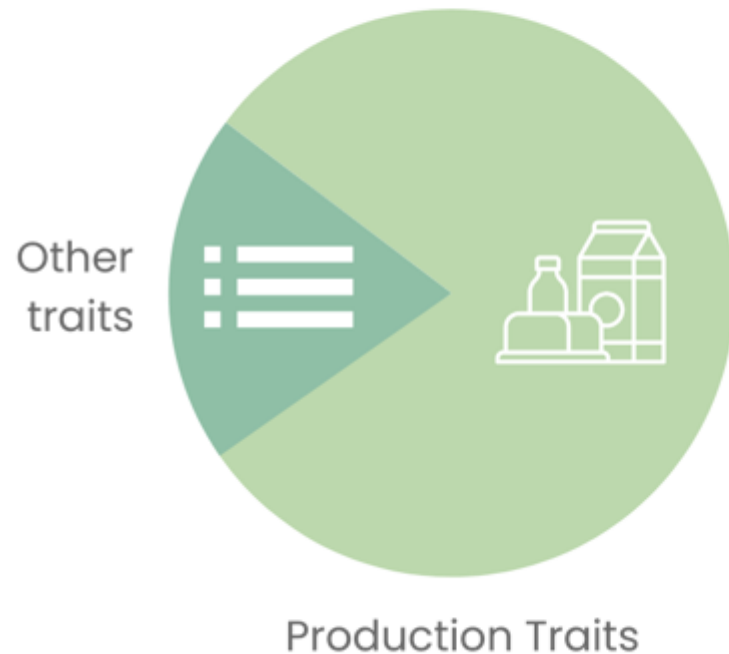
Farm Efficiency



Developing breeding goals



1970's – 1980's



2000's – Today

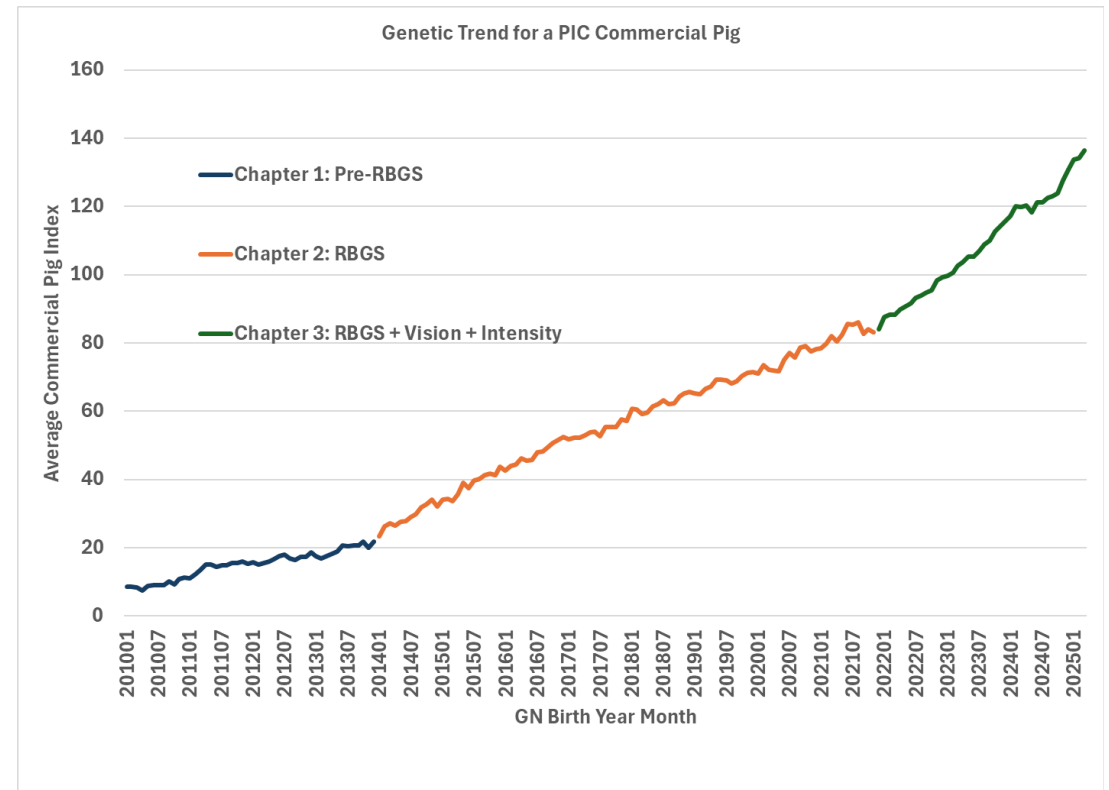


We are motivated by the creation and delivery of genetic progress impacting the commercial level

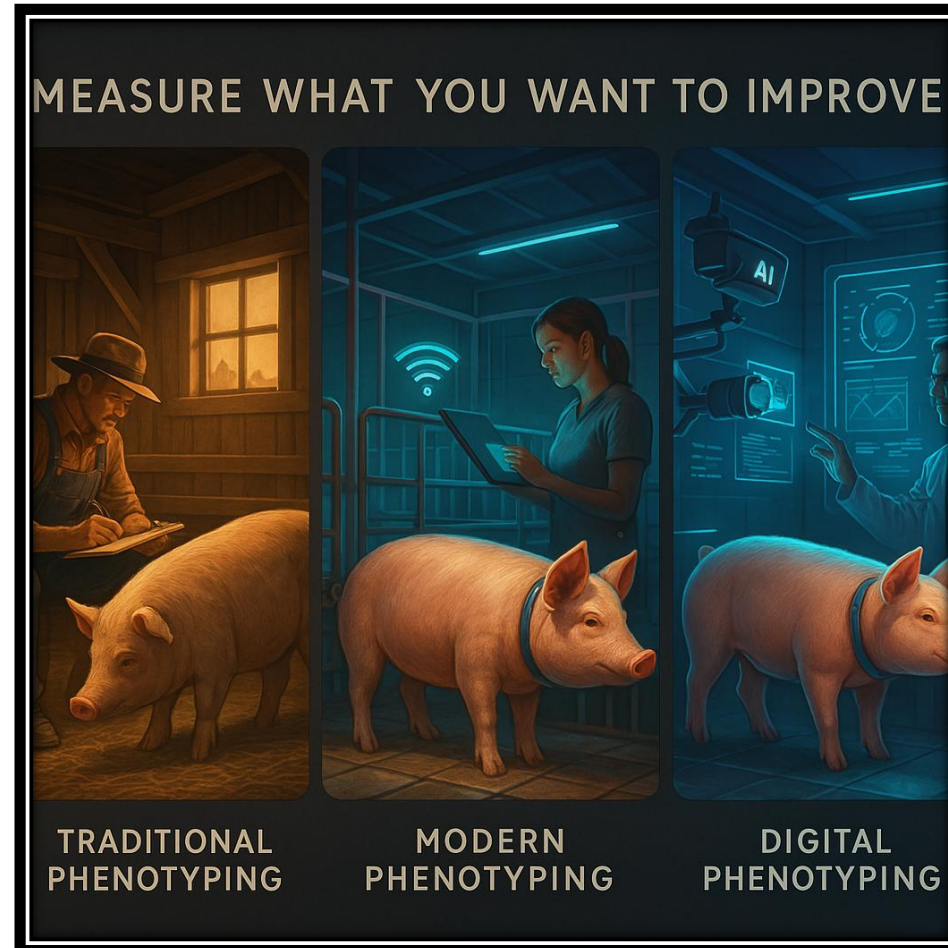


Specific investments and actions driving accelerated results

- Selection Intensity
- Genetic Dissemination
- More accurate and complete data for robustness and efficiency
- Next generation technology to unlock precision and objectivity



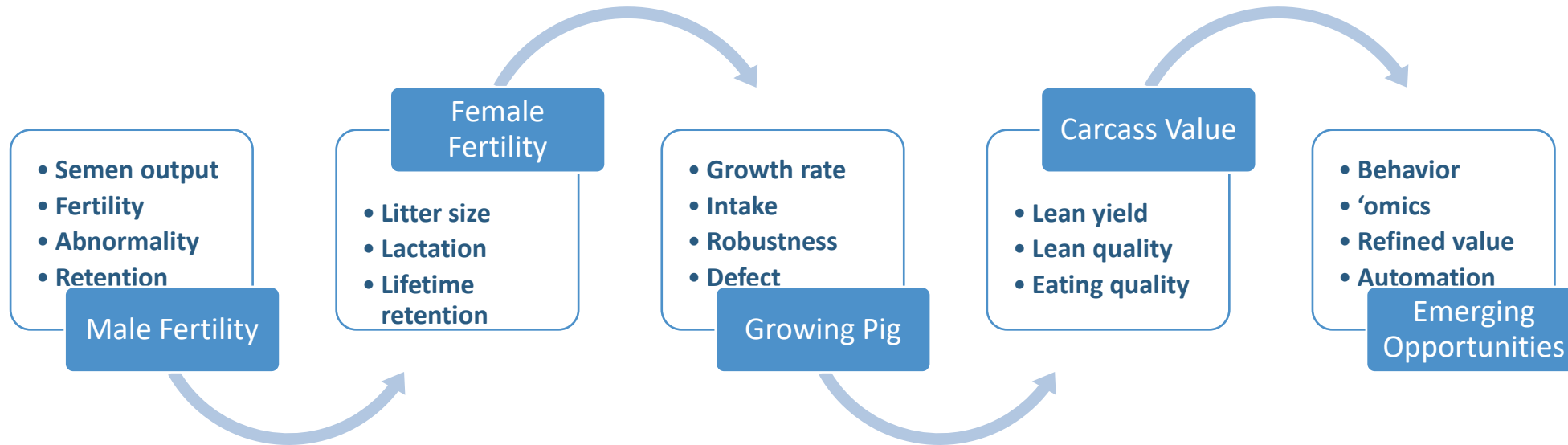
Eras of What and How...



Data drives our progress

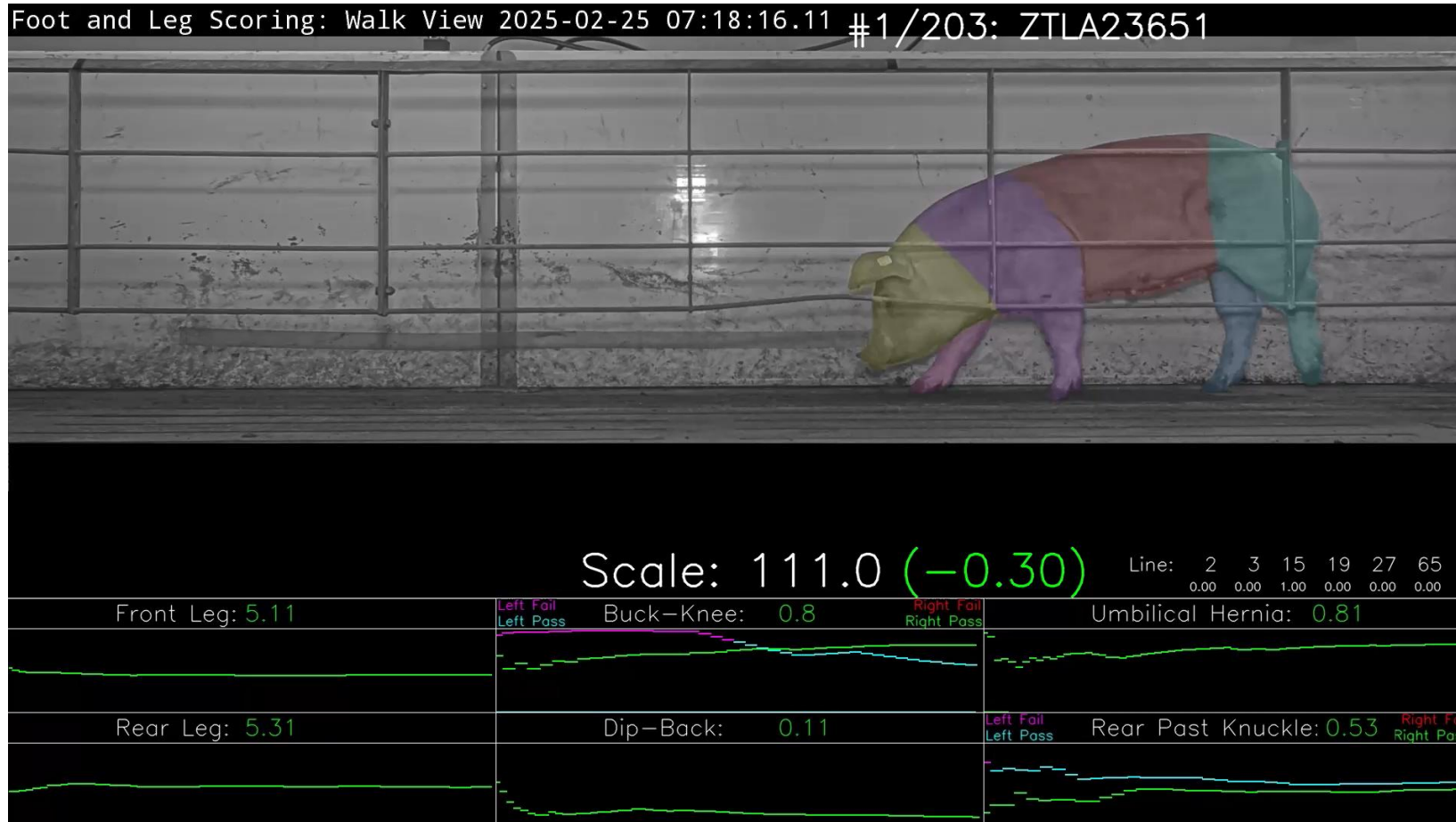


We measure a lot of traits!



On individual animals...
By many technicians...
Can we do more?

New Developments Now Allow A Direct Prediction for Structure Based Longevity



Meeting the Demand for Sustainable Pork



Global interest in sustainable food systems is intensifying.

Regulatory, corporate, and export expectations are evolving.

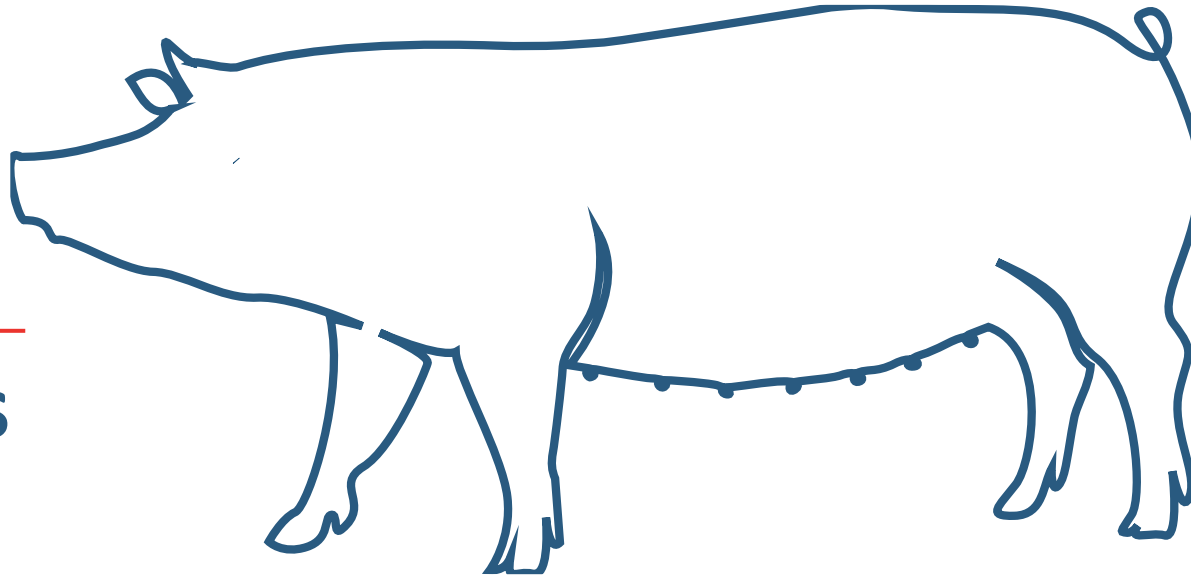
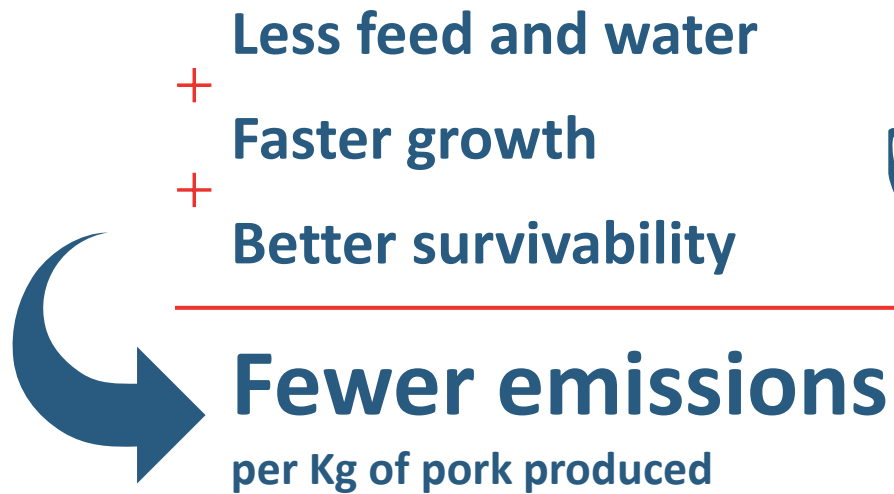
Pork producers face pressure to prove sustainability credentials.

Consumers want proof—not promises.

Sustainability That's Built In



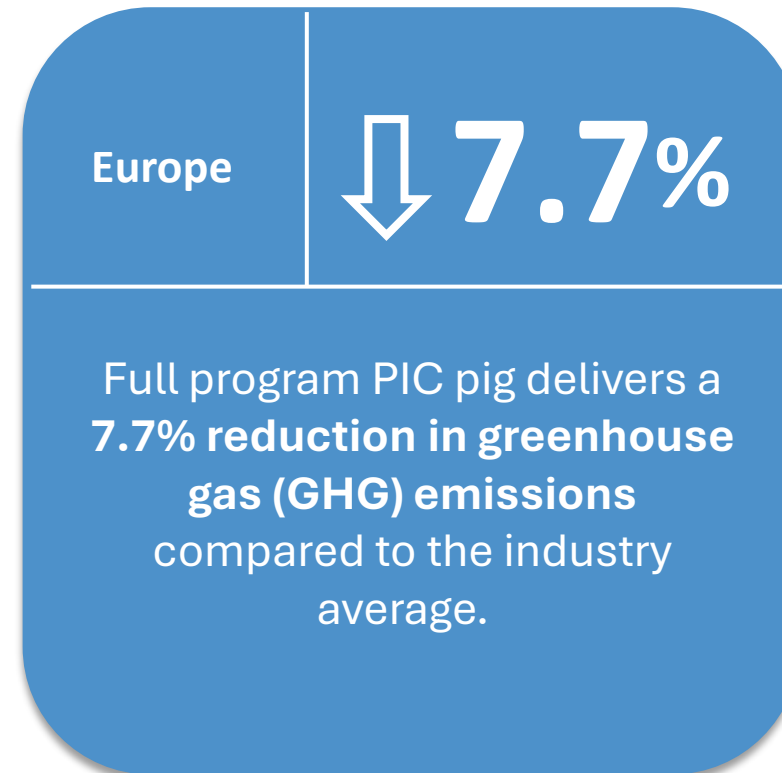
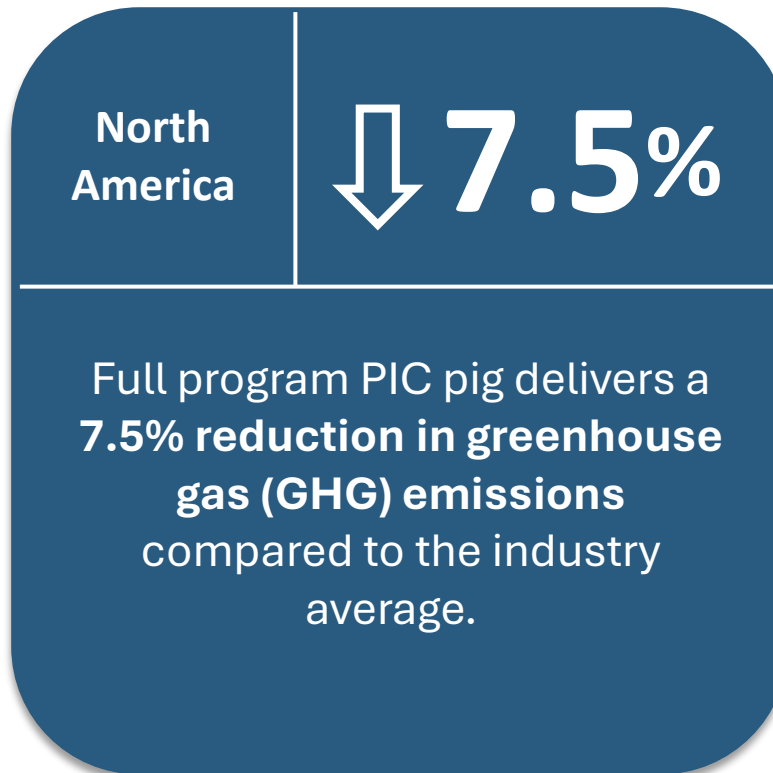
Each year, PIC's genetic program and innovations deliver more efficient pigs.



Real Impact, Proven by Science



Genetic progress is now being quantified through ISO-conformant Life Cycle Assessments (LCAs)



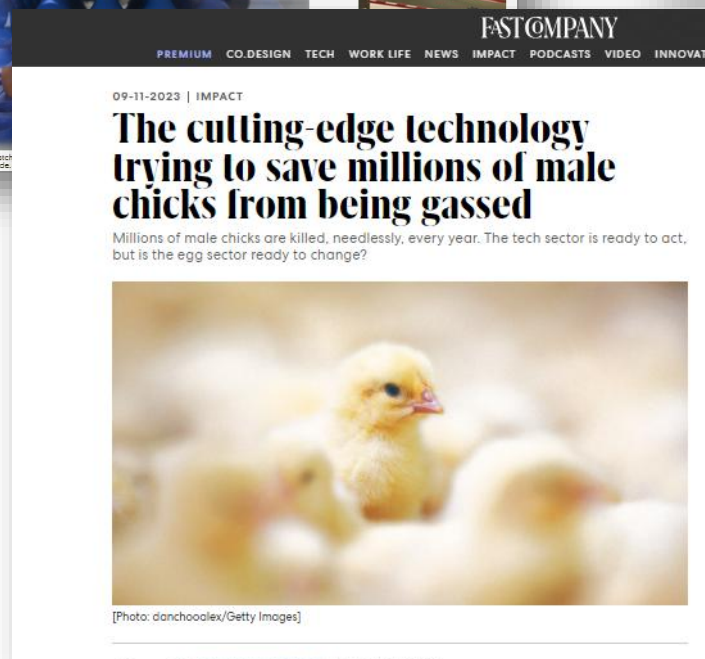
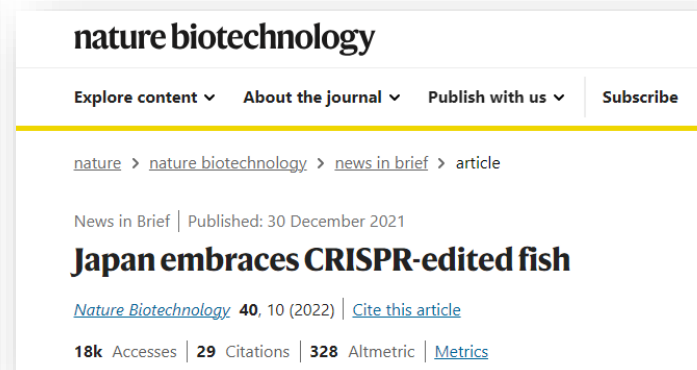
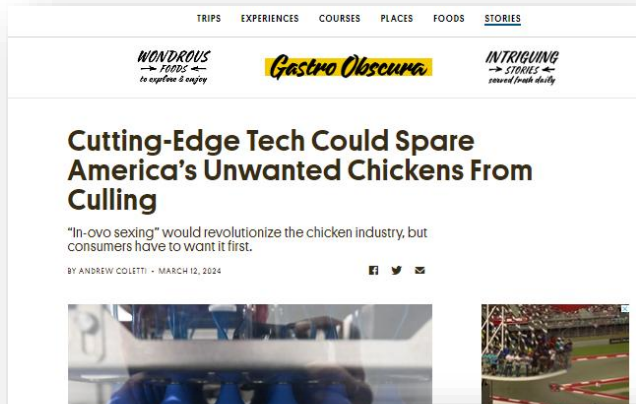
International Organization for Standardization:
ISO 14040, 14044 and 14046 Standards

The Power of Genetic Carbon™



Genetic Carbon™ = Greenhouse gas emissions mitigated by genetic improvement, developed by PIC.

Credible, defensible, feasible, globally applicable, and scalable opportunity to support the achievement of climate goals.



Gained FDA approval on April 30, 2025

What does this milestone mean?

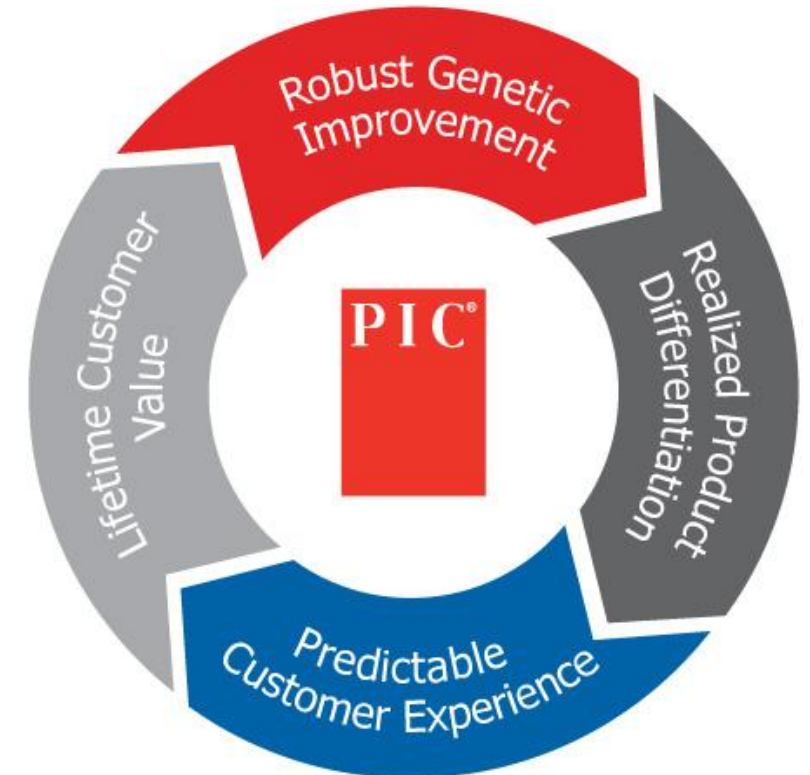
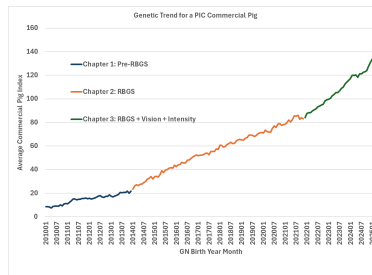
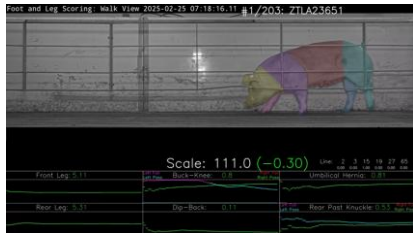
- Approval means the [U.S. Food and Drug Administration \(FDA\) announced](#) it has granted approval to PIC for the gene edit used in its PRRS-resistant pig, determining that the technology is safe and effective.



PIC®

We believe the future is brighter than ever for PIC, our customers, and our industry

Never
Stop
Improving
Your Success.



PIC®

Farming innovations to deliver Net Zero

Johnny Mackey, Stakeholder Engagement Lead, MSD Animal Health, GB



We know that healthier animals are more sustainable



Healthier animals are more **productive** and generate **lower emissions** per weight of product



Improving animal health reduces emission intensity and enhances resource use efficiency by **reducing mortality** and **improving productivity and fertility**



Fewer animals are then **needed** to meet food demands

We have the data...

The climate context: Why livestock is under scrutiny



- Cow's direct emissions are responsible for 5% of global GHG emissions, while fossil fuels account for 78%. (Source: IPCC)

CH₄

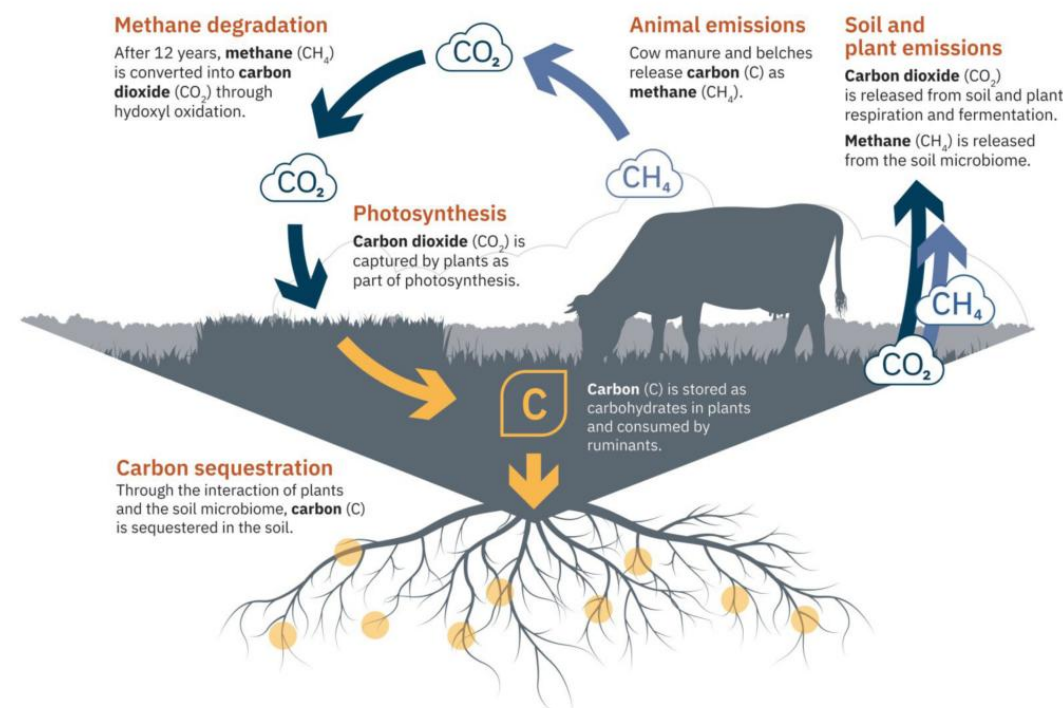


- Focus on methane derived from enteric fermentation and manure management.



- Not all livestock is equal. Sustainable livestock systems offer a pathway to lower emissions and better resilience.
- Practices such as permanent pasture and rotational grazing support carbon offsets and carbon sink in soils.

The cattle-grazing carbon cycle



The EU has reviewed the Industrial Emissions Directive (EID) to include intensive livestock farming under its scope. The new EID has still to be transposed and imposes strict emissions levels for pig and poultry farms. The inclusion of cattle farms will be considered by the end of 2026.

Preventing animal disease reduces food losses

A quadrupled vaccination rate (from 20% to 80%) for pigs reduces the estimated loss of life by nearly **one-third**.

This prevented food loss translates to approximately **197 million** servings of pork.

This would save over **65 million kg** of feed.



Digitalisation in Agriculture driving sustainable transformation

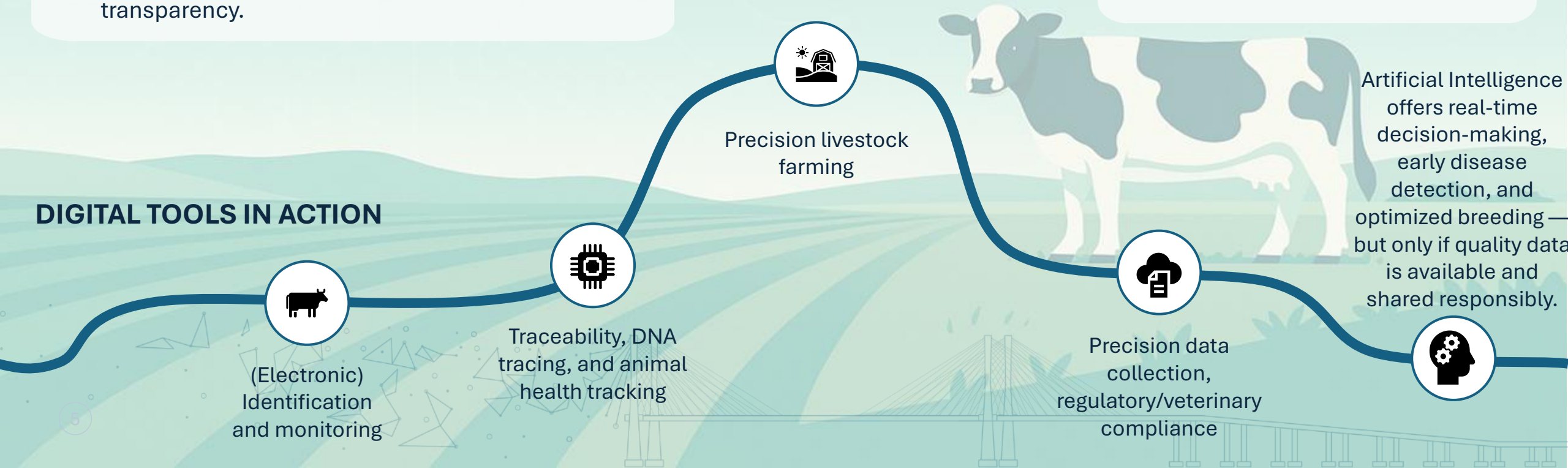
CHALLENGES

- ❖ Costly disease prevention and early detection.
- ❖ Fragmented traceability systems across EU.
- ❖ High demand for welfare guarantees and transparency.

OUTCOME & VALUE

- ✓ **Better welfare**
- ✓ **Safer food**
- ✓ **Traceability from farm to fork**
- ✓ **Efficient and ethical farming**

DIGITAL TOOLS IN ACTION





**Data gathering through SenseHub[®]
has enabled us to make real
changes in the efficiency and
methods we use to treat livestock**

‘Sensehub® sensor data are sensitive in measuring distress in cattle before clinical signs of bluetongue virus appear and can thus support the early detection of the disease.’

Dutch Case Study:

- September 2023: first-ever Bluetongue serotype 3 cases on 4 Dutch sheep farms
- Rapid spread among ruminants in subsequent weeks
- Cattle monitored immediately with SenseHub® due to their reservoir role in spreading the virus
- Sensors flagged reduced rumination 6–9 days before clinical signs
- [Source – bvajournals online](#)



Subscriptions are essential to battle the significant upfront costs of preventative health



Time For Tech: the time is now



- Third in a series produced by MSD
- Includes some key stats from Prof. Jude Capper of Harper Adams University
 - *Improving dairy cow fertility can reduce emissions by up to 16% in herds with lowest results*
- Case studies from five farms covering five species with livestock technology having a positive impact on production and sustainability
- Key asks of government and supply chain to incentivise uptake



Thank you!

Any questions?



Scaling *Verified* SCOPE-3 Carbon Reduction:

A way forward towards 30:50:50



The Challenge

- A global retailer wanted a bullet proof way to dramatically reduce the emissions of their #1 commodity
- Must be efficient and effective
- Had to be delivered quickly
- Had to be scalable. Applicable to all rice they sell.

ACHIEVED BULLET PROOF RESULTS

2024



110,000 kg



COMPLIANCE
95%

THIRTY ENGAGED
FARMERS
INCREASED
COMPLIANCE FROM
10% TO 95%.



REDUCTION
≥ 36%

CARBON IMPACT
REDUCED BY 30-50%
ACROSS 30 FARM
WITHOUT
COMPROMISING
CROP YIELD.



YIELD LOSS
0%

SCI METHODOLOGY
SHOWS THAT
ADDITIONAL
FERTILIZER DOES NOT
INCREASE YIELD.

2025



200,000 kg



How We Achieved It



WHAT ADDING VALUE WAS ACHIEVED?

- As well as providing 36,000 images providing bullet proof assurance we enabled:
 - Benchmarking of farmers. Because of the data we collected we were able to connect the best performing farmers to the worst. Enabling them to improve.
 - Collation of data on yield, water use, fertiliser use etc. enabled comparisons to take place and improvements to be implemented that added value.
 - The retailer has now asked us to assess other aspects of risk in the process. Some food safety risks on farm have now been introduced.
 - Images identified several aspects where consolidation made sense. For example, every farmer was purchasing fertiliser individually and multiple brands were being used. The tool enabled consolidation.

All for less than it cost the farmer
to hire a harvester for their crop.

Everyone is Happy and Motivated

FARMER

GOVT./
DISTRO

RETAILER

CONSUMER



YIELD LOSS
0%



FAIR TRADE
~ GOVERNMENT
GRANTS



REDUCTION
≥36%



SOCIAL IMPACT
100%

- Beef
- Lamb
- Rice
- Coffee
- Cocoa
- Dairy
- Cheese
- Prawns
- Fish
- Pork
- Eggs
- Poultry
- Peanuts
- Sugar
- Tofu





Learnings For Others

Ensure your solution is better than the status quo.

Benefits for all involved.

Appropriate technology – don't overbuild.

But do Embrace and embed AI and ML.

Be able to fix multiple problems with minimal development.