



Food
Standards
Agency
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Javier Dominguez

Head of Science, Evidence and Research/
Veterinary Director

During this presentation...

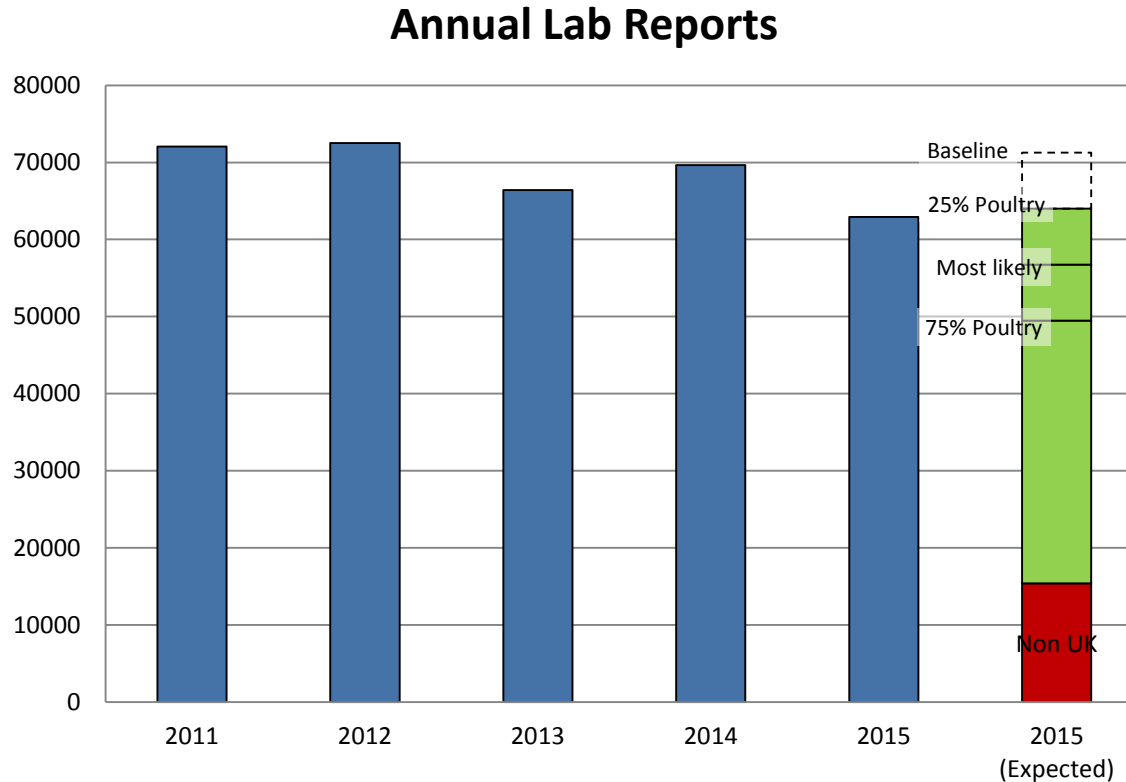
- Background – campylobacter campaign
- Trial to test alternative official controls system
- Animal Based Indicators – links to food safety?

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USING CAMPYLOBACTER AS AN EXAMPLE

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UK annual lab reports (2011-2015)



- 'Most likely' shows the scenario where 50% of UK acquired campylobacter is associated with poultry.
- 25% poultry shows the scenario where 25% of UK acquired campylobacter is associated with poultry.
- 75% poultry shows the scenario where 75% of UK acquired campylobacter is associated with poultry.
- 10,000 lab reports is equivalent to about 110,000 UK cases (excluding Non UK).
- 2014 full year lab reports are provisional

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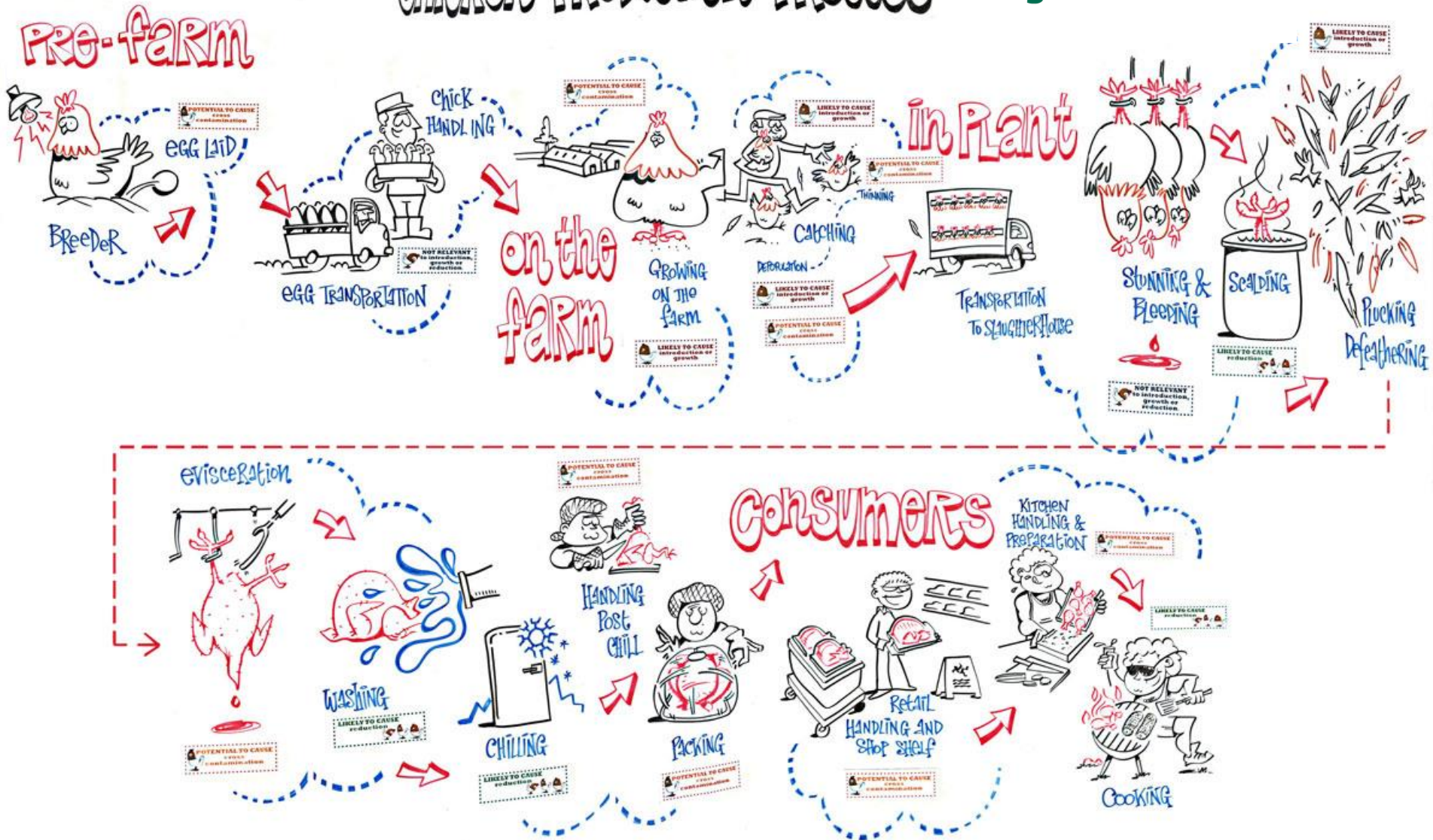
CAMPAIGN

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ACT

Acting on
Campylobacter
Together

Chicken Production Process



CAMPYLOBACTER BIOSECURITY GUIDE YOU CAN MAKE A DIFFERENCE

BIOSECURITY

Preventive measures applied at the farm, external environment, and entry points to the chicken house.

It reduces the risk of introducing pathogens that could affect the health of the flock, or food poisoning agents, such as campylobacter.

Prevent the spread of campylobacter onsite
Important:

- All staff and guests should have training on farm procedures.
- Only clean vehicles with disinfected wheels and wheel arches can enter or exit.



Quick check:

- The ante-room/annex has two zones using a barrier (30cm high): Internal to the chicken house and external.
- The internal zone has everything you need to perform your work without crossing back to the external zone.



TOOLS AND EQUIPMENT

Must have:



- Dedicated tools for each house.
- **Do** – Disinfect tools and equipment regularly and always before entering the house.
- **Do** – Protect tools from contamination by vermin or wild bird droppings.



HOUSE ENTRY & EXIT PROCEDURE



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ACT | Acting on
Campylobacter
Together



NFU

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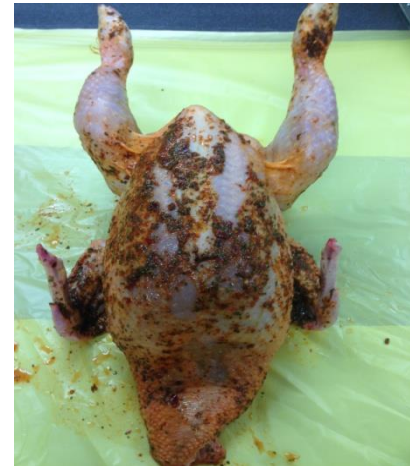
In the slaughterhouse...



Good

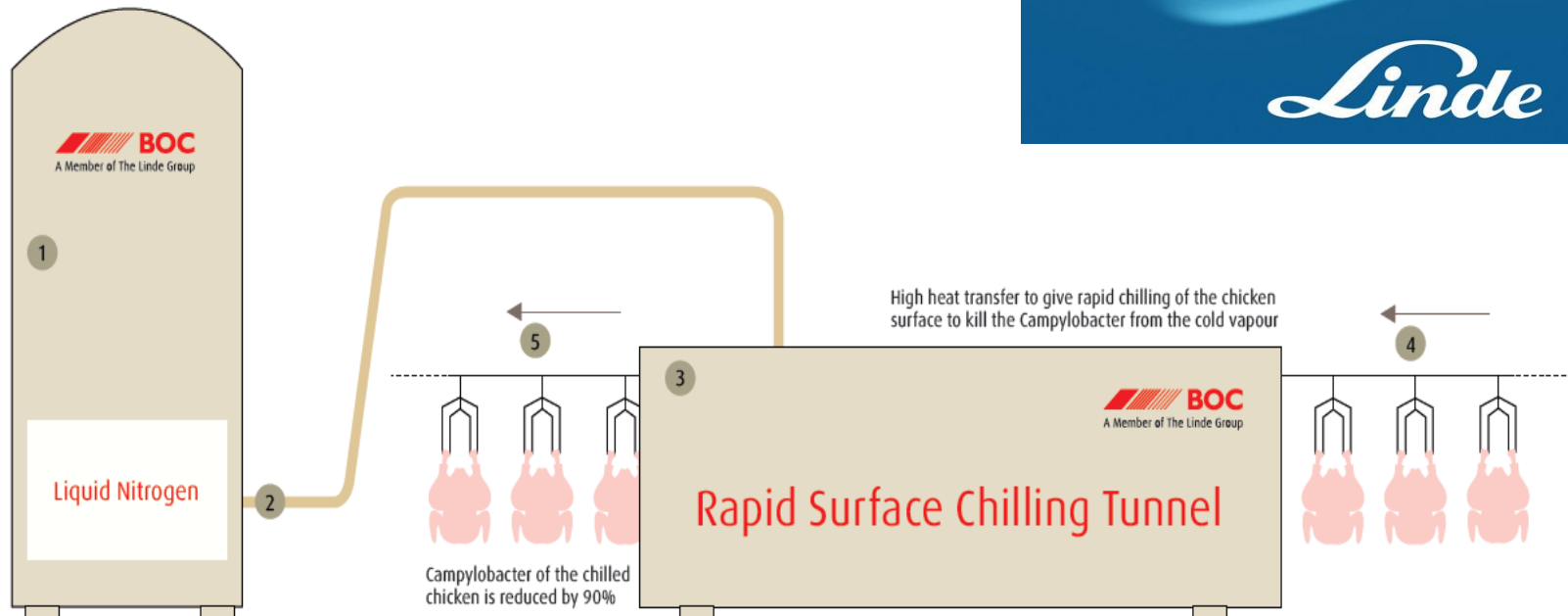


Average



Poor

Rapid Surface Chilling



1. Onsite Liquid Nitrogen tank (99.999% pure, -196°C)
2. Super insulated vacuum liquid nitrogen line
3. Rapid Surface Chilling™ tunnel
4. Chicken conveyor line entering tunnel
5. Chicken conveyor line exiting tunnel

- Rapid Surface Chilling™ does not affect taste, texture, appearance, or weight of the chicken
- Chicken meat remains fresh chilled and not frozen
- The Rapid Surface Chilling™ process can be added to existing air-chilling chilling lines

Rapid Surface Chilling™ BOC Linde Group

Steam and ultrasound



Dimensions

Footprint	6.5 m ²
Service Area	17.0 m ²
Height	3.5 m
Weight	2,500 kg
Floor dimensions	200 kg/m ²

Supplies

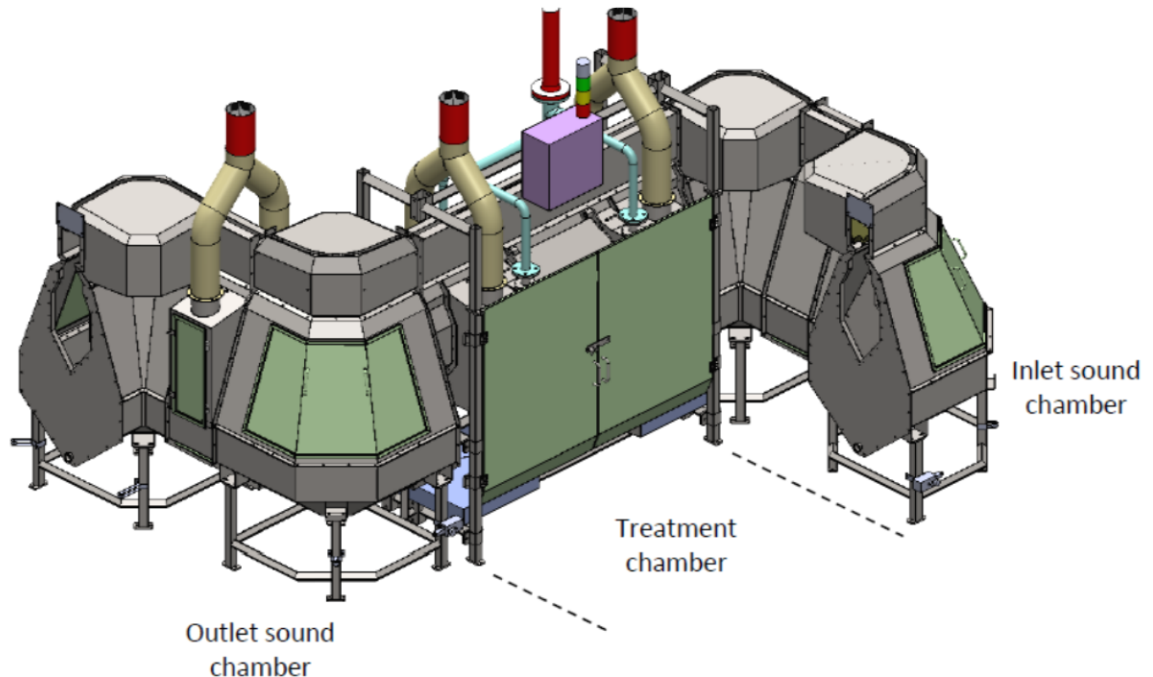
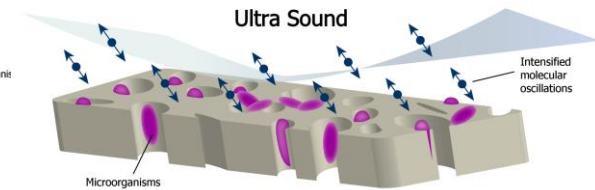
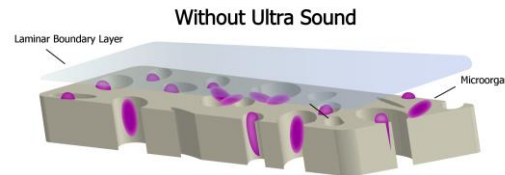
Power Requirement [16 A]	3x400/230V, 50 Hz
Power Consumption	1.5 kW
Water [2.5 Bar]	3,000 l/h
Pressurised Air [6-10 Bar]	10 l/h
Steam [8 Bar]	350 kg/h

Outlets

Drain	4,000 l/h
Ventilation [Ø400 mm]	1,600 m ³ /h
Noise	< 85 dB(A)

Capacity

	Min	Max
Birds pr. hour	6,000	14,000
Poultry Length	35 cm	44 cm
Poultry Weight	900 g	2,300 g



Niels Krebs
nk@force.dk

Campylobacter war aided by roast in bag format says Faccenda



09 Aug 2014 | Vince Bamford

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Faccenda Foods is to extend a roast-in-bag range that it claims can reduce food safety issues such as campylobacter.

In the week the FSA announced the first batch of quarterly results from its 12-month campylobacter survey, Faccenda said "unprecedented demand" had prompted it to ramp up development of roast-in-bag [chicken](#). By the end of the year, it plans to expand the format - launched last September in [Asda](#)

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Don't wash raw chicken

Don't wash raw chicken before cooking. Splashing can spread campylobacter on to surfaces, clothing and equipment which can lead to serious illness. Thorough cooking kills campylobacter.

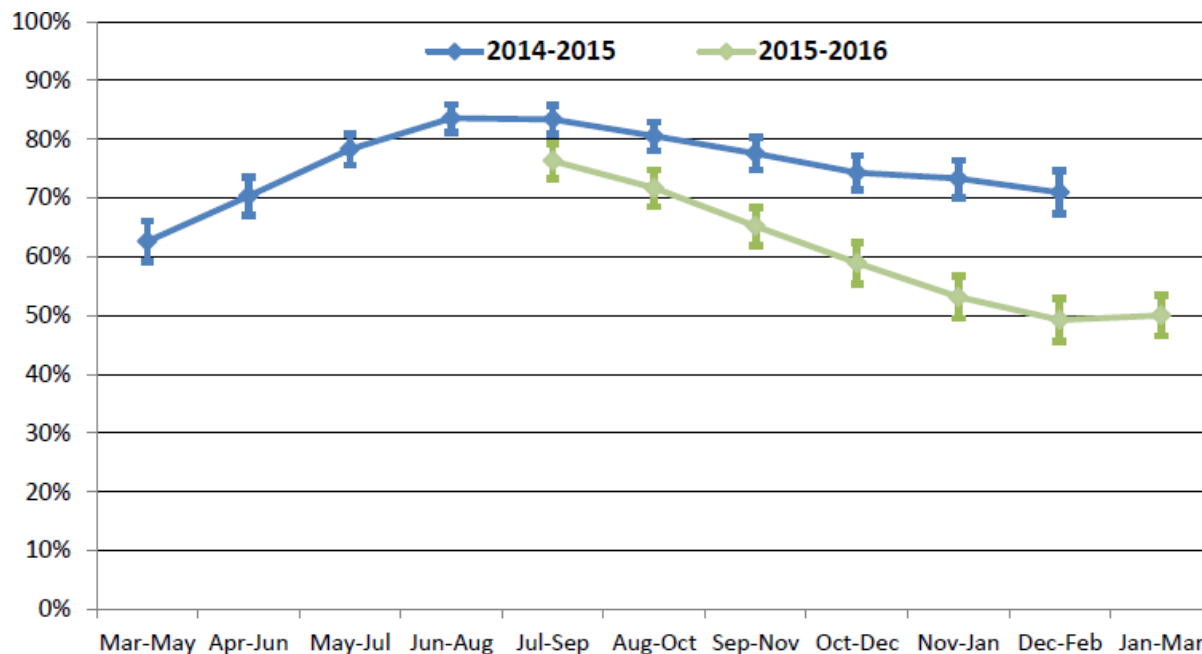
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Campylobacter is the most common cause of food poisoning in the UK.

food.gov.uk/chicken

Reduction of Campylobacter prevalence on whole, fresh chickens sampled at retail: 2014 - 2016

The percentage of chickens at retail positive for Campylobacter): 3-month rolling average for Year 1 and Year 2.

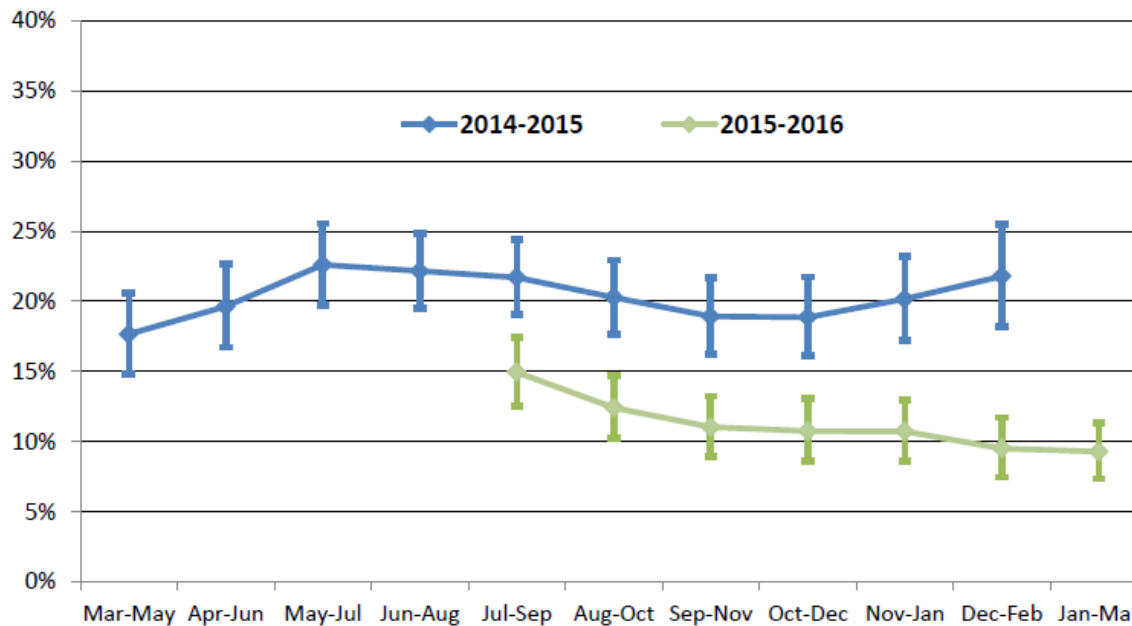


The proportion of samples positive for Campylobacter has consistently been significantly lower during the Year 2 survey.

95% confidence intervals are shown as vertical bars. These reflect the uncertainty in the estimate, providing a range of values within which the true prevalence will lie 95% of the time

Reduction of high level (>1000 cfu/g) Campylobacter contamination on whole, fresh chickens sampled at retail: 2014 - 2016

The percentage of chickens at retail with high levels of Campylobacter (over 1000 cfu/g): 3-month rolling average for Year 1 and Year 2.



The percentage of chicken skin samples with high levels of Campylobacter contamination (over 1000cfu/g) was **12.0%** over the period Jul 2015 – Feb 2016, down from **20.3%** over the period Jul 2014 – Feb 2015.

95% confidence intervals are shown as vertical bars. These reflect the uncertainty in the estimate, providing a range of values within which the true prevalence will lie 95% of the time.



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OFFICIAL CONTROLS

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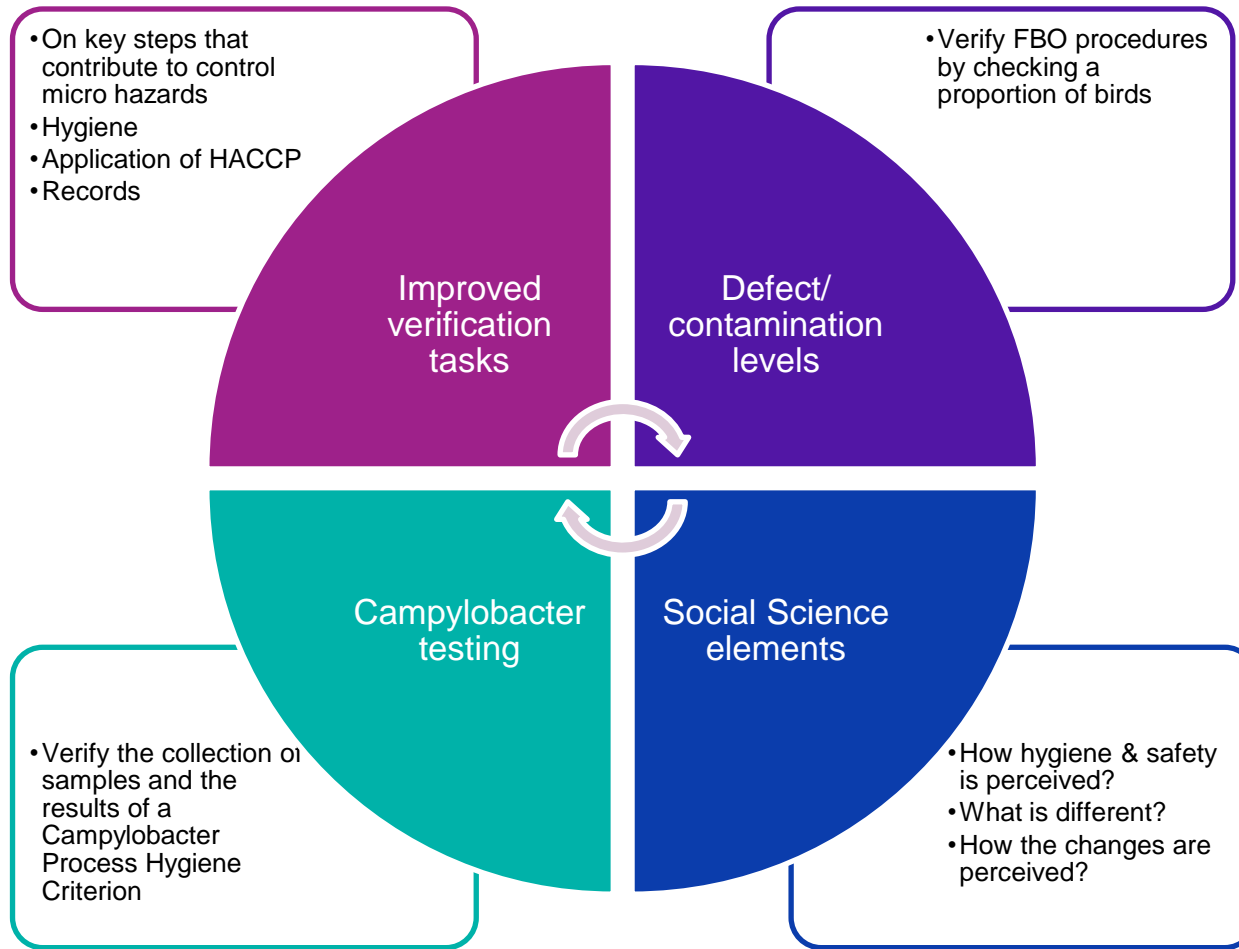
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Pilot in poultry slaughterhouses

Main principles...

- Improve controls on campylobacter and other microbiological hazards
- Increase FBO responsibility/ accountability. Concentrate official tasks purely on the verification of FBO's compliance with the legislation and its enforcement
- Remove 'redundant' tasks
- Maintain consumer confidence (food safety, animal health and welfare)
- Do not disturb international trade

Main pillars of the pilot



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INDICATORS

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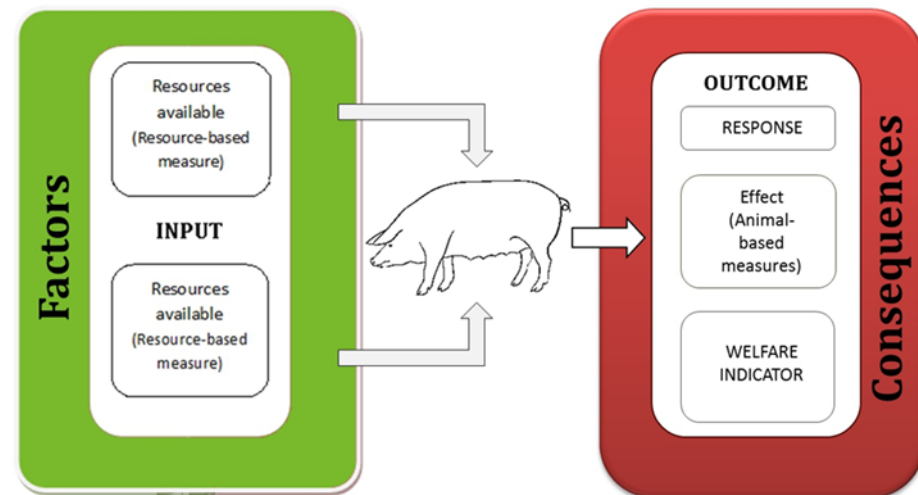
Role of Animal-Based Measures and Food safety indicators

- AHAW Panel: Use of ABMs to assess the welfare of animals
(Statement on the use of animal-based measures to assess the welfare of animals. EFSA Journal, 2012)
 - Standardised data in support of quantitative RA in AW
 - Integration of ABMs in a broad surveillance system

EFSA: meat inspection of poultry

(Scientific Report on Harmonised epidemiological indicators (HEI) EFSA Journal, 2012)

- HEI level of contamination prior or after slaughter



University
of Parma

Results: Multivariate analysis - Random effects logistic

ABMs at caeca colonisation >150,000 cfu/g	OR	p- value	95% C.I.	
Stocking density > 33kg/m ²	2.13	0.073	0.93	4.87
Ascites/ oedema > 0.35%	2.93	0.019	1.19	7.23
Emaciation > 0.018	2.05	0.045	1.02	4.15
Age of birds > 36 days	4.50	0.000	2.50	8.10
Average effect of the season	1.09	0.051	1.00	1.20
_constant	0.17	0.005	0.05	0.59
Standard deviation of random effects	0.0002992		6.2e-307	1.4e+299
Interclass correlation coefficient (rho)	2.72e-08			

Final model - refined in stepwise approach, considering the explanatory power

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Why the link between AW and Food Safety indicators is important?

- Using ABMs (AW indicators) and health status of broilers to predict microbial hazards (e.g. *Campylobacter* positive flock).
- Improving impact of abattoir inspection results for farmers/ official controls...
- Inform better husbandry practices resulting in a reduction in the use of antimicrobials on farm (AMR)
- Improving welfare in broilers (and production standards)
- inform risk management decisions at slaughter (e.g. interventions)

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ACKNOWLEDGEMENTS

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Irene Alpigiani

irene.alpigiani@nemo.unipr.it

Milen Georgiev

milen.georgiev@foodstandards.gsi.gov.uk

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QUESTIONS?

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javier.dominguez@foodstandards.gsi.gov.uk

 [javiorive](#)