

Why Lion Code Changed the Salmonella Control History in UK & IN Europe ?

Precedentes, Scope and Learnings

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Contents

1. Why quality schemes were introduced in EU ?
2. How the scope for EU reference scheme looks like ?
3. What key learnings derived from its implementation ?

(A) Why quality schemes introduced in EU ?

1-Multiple Transmission Requires integrated interventions:

Why quality schemes were introduced in EU ?

Sources of Infection



Gast RK et al Poultry Science 2016 1363

REF-06559

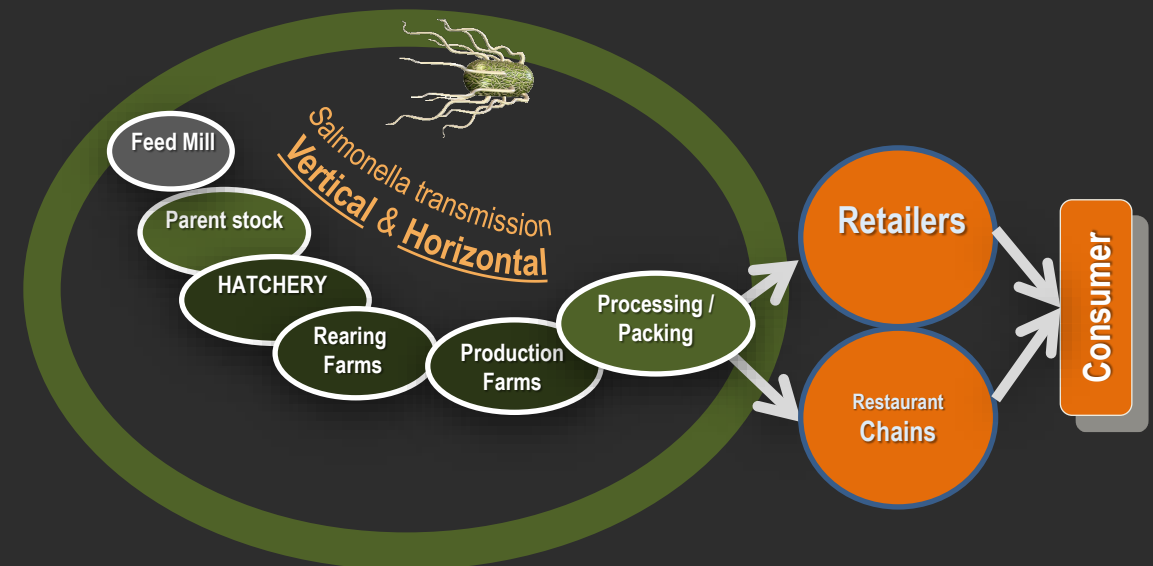
1. **RESERVOIRS:** poultry (Non-vaccinated & Replacement birds), cattle, swine, pets, wildlife
2. **RODENTS:** Rats (*Rattus norvegicus*), Mice (*Mus musculus*)
3. **PESTS:** Flies (*Musca domestica*), beetles (*Alphitobius diaperinus*), Red mites (*Dermanyssus gallinae*)
4. **SURFACES:** Transport , Equipment, Housing
5. **OTHERS:** people, Water, Feed bedding & Litter

Risk factors



Denagamage TN Dissertation 2016 REF-02217

- | | |
|---|--|
| 1. Induced molting | 9. Presence of previous Salmonella infection |
| 2. Larger flock size (>30,000 hens) | 10. Absence of cleaning and disinfection |
| 3. Multiage management, without "all-in, all-out" | 11. Presence of rodents |
| 4. Cage housing systems | 12. Pests with access to feed |
| 5. In-line egg processing | 13. Visitors allowed in the layer houses |
| 6. Rearing pullets on the floor | 14. Trucks near farms and air inlets |
| 7. Middle and late phase of production | 15. Manure contamination |
| 8. Egg production rate of >96% | 16. Egg-handling equipment contamination |

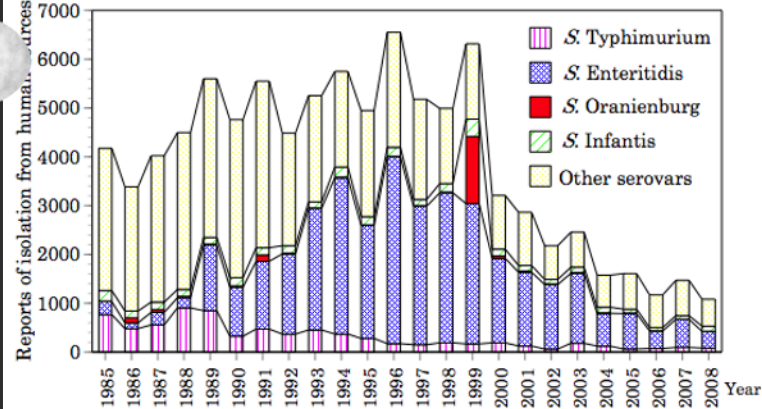


2-NCPs systematically reduce prevalence over time

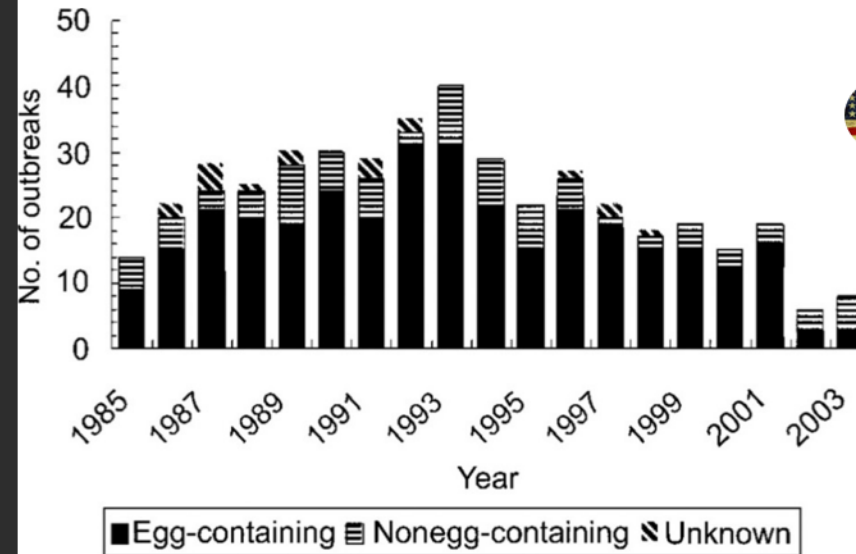
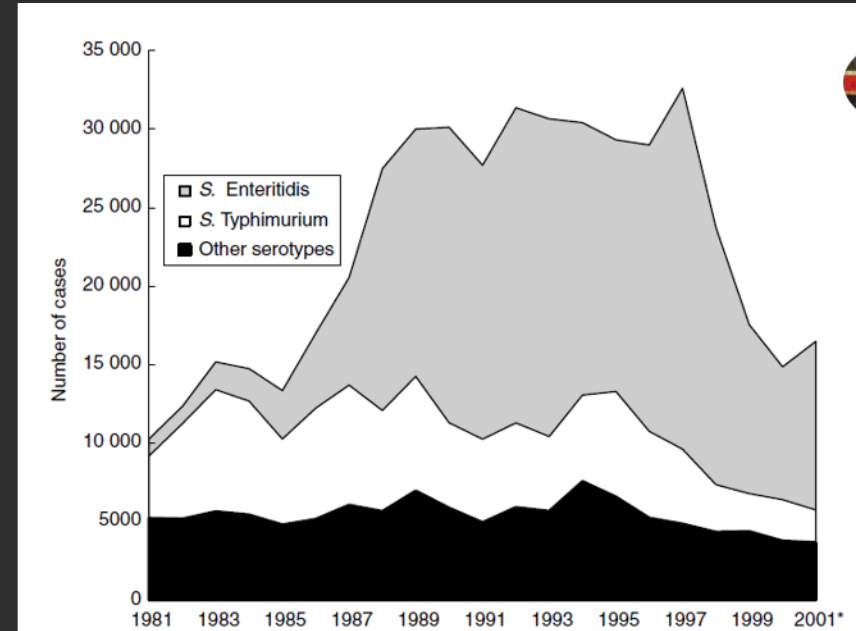
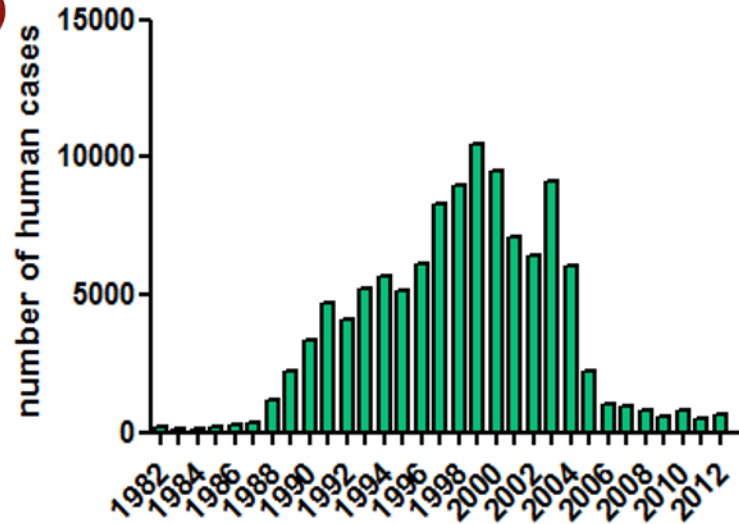
Why quality schemes were introduced in EU ?



Figure 2. Yearly reports of *Salmonella* isolation from human sources at prefectural and municipal public health institutes, 1985-2008, Japan



(Infectious Agents Surveillance Report: Data based on the reports received before July 16, 2009)



3-Evolving Consumer Behaviors

Why quality schemes were introduced in EU ?



Price

Price
Freshness
Variety
Quality

Price
Freshness
Variety
Quality
Service
Animal welfare

Price
Freshness
Variety
Quality
Service
Animal welfare
Ethics
Recycling
Organic

Price
Freshness
Variety
Quality
Service
Animal welfare
Ethics
Recycling
Organic
Zero Risk / Food Safety

4-Food Safety scandals

Why quality schemes were introduced in EU ?



US



Before (2004) nr. 2 layer producer

After (2010): Out of business,

- >20 confirmed human cases (S. Enteritidis)
- 550 mio eggs recalled / USD 7 mio losses
- Owners (father & son) in jail



<https://www.nytimes.com/2010/08/21/business/21eggs>



Before (2010) Nr. 1 supplier McDonalds (300M eggs)

After (2011)

- Animal cruelty issues
- McDonalds contract cancelled overnight
- Bankrup



<https://www.ecowatch.com/mcdonalds-crops-inc-farms-after-cruelty-susped-1881557022.html>



Before (2012) Top poultry meat producer

After (2013) exposed to public criticisms

- 125 confirmed human cases (S. Heidelberg)
- National recall by USDA & CDC
- USD 6,5 million losses



<https://www.cdc.gov/salmonella/heidelberg-10-13/index.html>



Before (2017) top selling company (Nr. 3 in US)

After (2018)

- 23 confirmed human cases (S. Braenderup)
- 207 mio eggs recalled
- Costing 60% of annual revenues



<https://www.foodsafetynews.com/2018/05/rodents-investigation-found-at-rose-acre-egg-facility/#.WvxGwaSFOM9ChromeHTCommand>



AU

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ABSTRACT

The vast majority of eggs in Australia are washed prior to packing to remove dirt and fecal material and to reduce the microbial contamination of the egg shell. The egg contents can be an ideal growth medium for microorganisms which can result in human illness if eggs are stored improperly and eaten raw or undercooked, and it is estimated that egg-related salmonellosis is costing Australia \$44 million per year. Egg shell characteristics such as shell thickness, amount of cuticle present, and thickness of individual egg shell layers can affect the ease with which bacteria can penetrate the egg shell and washing could partially or completely remove the cuticle layer. The current study was conducted to investigate the effects of egg washing on cuticle cover and effects of egg shell quality and cuticle cover on *Salmonella* Infantis penetration of the egg shell. A higher incidence of unfavorable ultrastructural variables of the mammillary layer such as late fusion, type B bodies, type A bodies, poor cap quality, alignment, depression, erosion and cubics were recorded in *Salmonella* penetrated areas of egg shells. The influence of egg washing on the ability of *Salmonella* Infantis on the egg shell surface to enter the egg internal contents was also investigated using culture-based agar egg penetration and real-time qPCR based experiments. The results from the current study indicate that washing affected cuticle cover. There were no significant differences in *Salmonella* Infantis penetration of washed or unwashed eggs. Egg shell translucency may have effects on *Salmonella* Infantis penetration of the egg shell. The qPCR assay was more sensitive for detection of *Salmonella* Infantis from egg shell wash and internal contents than traditional microbiological methods. The agar egg and whole egg inoculation experiments indicated that *Salmonella* Infantis penetrated the egg shells. Egg washing not only can be highly effective at removing *Salmonella* Infantis from the egg shell surface, but also allows subsequent trans-shell and trans-membrane penetration into the egg. Consequently, it is important to prevent recontamination of the egg after washing.

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- It is estimated that egg-related salmonellosis is costing Australia \$44 million per year



EU



Before (1887) top producer company (Nr. 2 in EU)

After (1988)

- National outbreak
- Unfortunate sentence
- Economic losses



<https://www.bbc.com/news/magazine-2016-06>



Before (2015) top selling company (Nr. 2 in EU)

After (2016)

- 112 confirmed human cases (S. Enteritidis) in 13 EU countries, including two fatal cases
- 100 mio eggs recalled
- Costing 40% of annual revenues



<https://www.foodnavigator.com/Article/2016/11/06/Firm-at-centre-of-Salmonella-egg-outbreak>

**(B) How the scope of EU
reference scheme look like ?**

Starting Point for UK Awareness

Lion Code

WHO: Edwina Currie, Junior Health Minister UK

WHERE: United Kingdom

WHEN: 3rd December, 1988

HOW (14 words): "Most of the egg production in this country, sadly, is now infected with *Salmonella*"

WHAT:

- ✓ 60% drop in egg sales
- ✓ The loss of revenue led to the slaughter of 4 million hens
- ✓ Ms. Currie was forced to resign

HOW MUCH: at least £ 70 million losses during first year

<https://www.bbc.com/news/magazine-25154046>

BBC Home

ON THIS DAY 3 December

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1988: Egg industry fury over salmonella claim

Health minister Edwina Currie has provoked outrage by saying most of Britain's egg production is infected with the salmonella bacteria.

Mrs Currie, MP for south Derbyshire, made her remarks during a television interview.

She has angered farmers, politicians and egg producers, some of whom have been calling for her resignation and are threatening to sue.

"Most of the egg production in this country, sadly, is now affected with salmonella," she told reporters.


Ministry of Agriculture ministers are reported to be extremely "angry" at her comments.

A spokesman said more than 30 million eggs were consumed every day last year.

'Highly irresponsible'

This is compared to 26 outbreaks of salmonella reported during that time.

Watch/Listen



The MP could face legal action

[Edwina Currie on the egg health scare](#)

In Context

Edwina Currie initially received support from Prime Minister Margaret Thatcher and Health Secretary Kenneth Clarke.

She weathered the political storm for a further two weeks before mounting writs against her from the farming industry forced her resignation.

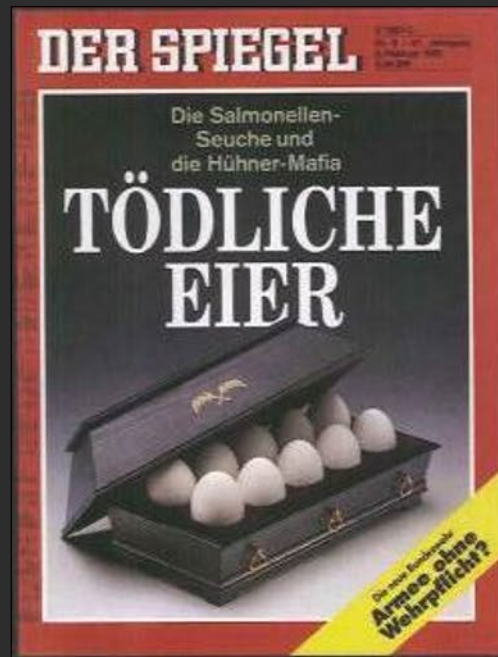
As egg sales plummeted, the government was forced to offer a compensation package of millions of pounds to cover the cost of purchasing surplus eggs and for the slaughter of unwanted hens.

Expanded Media impact

European Union



1988: Public outrage influenced by Yellow Press



1990: Misleading Communication extended across EU



2001: Systematic Monitoring (NCP) finally shedding light on the actual status

Lion Code Drivers

Version 7 from 2013

Elanco



Method of production

0 = Organic
1 = Free Range
2 = Barn
3 = Caged

Producer identity

A unique code denoting where the egg was produced.
e.g. UK54321, UK543SCO or UK5-432.

British Lion Quality mark

Only found on eggs that have been produced in accordance with UK and EU law and the British Lion Quality Code of Practice.

Best-before date

All British Lion Quality eggs must include a 'best-before' date printed on the shell of the egg.

ROBUST BRAND

(COMPELING, RELEVANT, STRATEGIC)

COMPLIANCE

1. **SUPPLIES:** only certified suppliers (DOC, feed)
2. **PERSONEL:** training GMP, HACCP
3. **HOUSING:** Biosecurity, Rodent & pest, C&D
4. **FLOCK:** bird health & welfare, feed & water
5. **EGG:** hatching, sanitation, handling, transport, storage
6. **MONITORING** (accredited labs, sampling, testing, QC, complaint & recall mgmt)

TRACEABILITY

1. **Crops:** Trade Assurance Scheme for Combinable Crops (TASCC)
2. **Feed:** Universal Feed Assurance Scheme (UFAS) for the Manufacture of Safe Compound Animal Feeding stuffs
3. **AH Products:** Details of Veterinary Medicines Directorate (VMD) approval, Local Authority approval or registration
4. **Flock Management:** The Lion Code of Practice
5. **Salmonella Interventions:** DEFRA Code of Practice for the Control of Salmonella during the Production, Storage and Transport of Compound Feed Materials and Feed Additives
6. **Transport:** Code of Practice for Road Haulage,
7. **Trade:** GAFTA Trade Assurance Scheme (GTAS)

MARKETING

- **Insights + STP**
- **Egg branding** (lion story, printing, labelling, packaging, NEMAL)
- **Value chain** (top-down approach)
- **Communication** (Corporate Affairs, Facts & Figures updates, Testimonials)
- **Alliances:** local boards, retailers, KOLs engagement plan

Lion Code Scope

Version 7 from 2013

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Code of Practice for Lion eggs

The British Egg Industry Council



CORE SECTIONS (11)

1. GENERAL
2. BREEDER PULLET REARING FARMS
3. BREEDER LAYING BIRD FARMS
4. HATCHERIES
5. LAYER PULLET REARING FARMS
6. LAYING HEN PRODUCTION FARMS
7. PACKING CENTRES
8. FEED MILLS
9. RETAILERS, CONSUMERS AND CATERERS
10. ENVIRONMENT
11. ENFORCEMENT

ANNEXS (25)

CODE OF
PRACTICE FOR
LION EGGS

- D8 CRITICAL** Compulsory vaccination of pullets against Salmonella Enteritidis (SE), as per the manufacturers' recommendations, must take place and records of vaccination must be recorded on the Lion Passport. Any pullets which have not been vaccinated against SE prior to housing in laying accommodation will not be acceptable for the production of Lion eggs.
- D9 CRITICAL** Compulsory vaccination of pullets against Salmonella Typhimurium (ST), as per the manufacturers' recommendations, must take place and records of vaccination must be recorded on the Lion Passport. Any pullets which have not been vaccinated against ST prior to housing in laying accommodation will not be acceptable for the production of Lion eggs.

13. ANNEX M EXAMPLES OF LION PASSPORTS
14. ANNEX N LIST OF DISTRIBUTORS
15. ANNEX O CLEANING AND DISINFECTING
16. ANNEX P PACKING CENTRES
17. ANNEX Q PROTOCOLS FOR THE PRODUCTION OF LION EGGS
18. ANNEX R HYGIENE STANDARDS
19. ANNEX S PROVISIONS FOR THE PRODUCTION OF LION EGGS
20. ANNEX T PRESENTATION OF LION EGGS
21. ANNEX U PACKING CENTRES
22. ANNEX V RELEVANT LEGISLATION
23. ANNEX W TRAINING
24. ANNEX X COMPLAINTS, CONCERNS AND DISPUTES
25. ANNEX Y GLOSSARY OF TERMS

Amendments reinforcing 7 areas:

1. Biosecurity
2. Rodent control
3. Antibiotics
4. Auditing
5. Improved hygiene
6. Sampling frequency
7. Egg testing

NEW v8

To be released
during second half
of 2020

Lion Code Scope

Summery

Elanco

Lion code of practice summary



going to extraordinary lengths
to protect your eggs



The Code of Practice for Lion eggs is managed by the British Egg Industry Council (BEIC) and independently audited to the ISO 17065 standard. The Code of Practice includes more than 700 auditable criteria and sets stringent requirements throughout the production chain to ensure that British Lion eggs are produced to the highest standards of quality, freshness and food safety. All Lion Quality eggs are guaranteed British.

The Lion scheme is the only industry control programme approved to take official samples on behalf of the Government.

British Lion eggs are approved by the Food Standards Agency to be served runny, or even raw, to vulnerable groups such as pregnant women, babies and elderly people.

breeding flock controls

Hygiene controls for Lion breeding flocks and hatcheries are more stringent than required by UK and EU legislation and include hygiene swabbing of hen houses; regular microbiological monitoring of parent flocks and hatcheries, with slaughter of any flocks positive for *Salmonella* Enteritidis or Typhimurium; and heat and/or acid treatment of feed.



pullet rearing farms/ *Salmonella* vaccination

All birds destined for British Lion egg-producing flocks are vaccinated against *Salmonella* Enteritidis and *Salmonella* Typhimurium¹ using licensed vaccines.

A full hygiene monitoring programme including hygiene swabbing must be completed by pullet rearers before birds are taken onto the farm. Rearing flocks are tested for *Salmonella* and all equipment and vehicles used for transporting pullets to the laying unit must be disinfected. Records of bird movement and *Salmonella* testing must be kept on a unique passport. There are also controls on wild birds and rodents and strict hygiene/biosecurity requirements.

¹ET vaccines are required for hens housed in colony cages if their welfare is necessary

strict controls on feed

Feed for British Lion hens must be produced to the Agricultural Industries Confederation's UFAS (Universal Feed Assurance Scheme) Code of Practice. Feed samples and records of deliveries and usage must be kept and measures taken to prevent on-farm contamination of feed. In addition to the UK legislative ban on ingredients derived from mammalian sources, avian ingredients are also prohibited from feed for Lion flocks. A number of other ingredients are also banned, including the colourant canthaxanthin, growth promoters and any raw materials likely to produce taint.

laying farms

hygiene/ *Salmonella* control

The Code sets out detailed hygiene requirements additional to those required by UK and EU law, including additional sampling of the farm environment and housing, disinfection of farms between flocks; prevention of cross-infection; control of wild birds and rodents; and detailed record keeping. There are specific protocols for farms if *Salmonella* is detected in the hygiene testing programme.

animal welfare

The Code includes a number of animal welfare requirements which exceed those required by law. These include lower stocking densities on the range area for free range hens; increased nest box space and improved lighting in free range and barn houses; the banning of induced molting; additional staff training procedures and procedures for the handling of end-of-lay hens. All Lion cage eggs come from hens kept in the new larger, enriched 'colony' cages.

veterinary health and welfare plan

All Lion laying farms have to be registered with a vet and have an up-to-date veterinary health and welfare plan.

time and temperature controls

British Lion eggs are subject to tighter controls on time and temperature than required by law. British Lion eggs must be stored below 20°C, in hygienic conditions on the farm; transported to the packing centre a minimum of twice a week; and kept at a constant temperature below 20°C.



on-farm marking

All British Lion eggs are marked on farm with the producer establishment number, which shows the system of production, country of origin and the farm where the eggs were laid. A website – www.lioneggfarms.co.uk – is also available to help consumers trace British Lion eggs back to the farm from the code on their eggs.

biosecurity

Stringent biosecurity is required to help protect against the spread of diseases such as avian influenza, including minimising contact between wild birds and poultry and avoiding any standing water on the range; and strict hygiene controls on farm, including footpads for staff and visitors, house-specific footwear, and specific higher biosecurity areas.

rodent control

Lion farms are required to operate an effective, documented rodent control system.

Lion Code Scope

Summery

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packing centres

controls on egg movement

All eggs must be accompanied by written documentation for proof of identity including date of lay, type of production and farm of origin.

If fibre keyes trays are used, free range, barn, organic and caged eggs must be packed on different colour fibre trays for segregation purposes. If plastic keyes trays are used, the accompanying documentation must be colour-coded.

packing centre hygiene

Written HACCP controls must be in place at Lion egg packing centres and traceability records must be kept at all times. Written cleaning schedules and rodent control procedures must be in place and strict hygiene and biosecurity observed. Effective crack and blood detection must be used in the grading of British Lion eggs.

egg testing

Packing centres must only handle eggs from approved Lion egg farms. At least 20 eggs per quarter must be tested from each Lion farm supplying a Lion packing centre. Egg testing is not a legal requirement. The BEIC also uses isotope testing on a random selection of eggs every month.

'best before' date and Lion Quality mark on shell

The British Lion mark is stamped on all Lion eggs to show that they have been produced in accordance with a wide-reaching code of practice. In addition all Lion eggs carry a 'best before' date on the egg shell as well as the pack as a guarantee of freshness.

cool chain

Lion eggs must be kept between 5°C and 20°C. Retail customers must be advised that British Lion eggs should be stored at a constant temperature below 20°C, away from heat sources and sunlight, and sold in strict rotation.

ban on 'farm' descriptions on cage-produced eggs packs

Printing on British Lion egg boxes containing cage-produced eggs must not describe the eggs as 'farm eggs' or depict hens roaming free or farmyard/countryside scenes.

registration and traceability

To guarantee traceability, all breeding farms, hatcheries, rearing and laying farms, feed mills and packing centres involved in the production of British Lion eggs must be approved and registered by BEIC, which maintains a 'live' database of all Lion premises. All British Lion pullet rearing and laying flocks must be accompanied by a unique passport certificate and all British Lion egg movement has to be fully traceable.

All Lion sites have to keep full records for two years of all monitoring and testing procedures, including audits.

independent auditing

The Lion Code of Practice is the only UK egg-specific scheme accredited to the ISO 17065 international auditing standard.

All British Lion registered premises are inspected and approved by an independent monitoring agency. Each Lion site must carry out a self-audit every six months; one of these audits must be accompanied by a BEIC subscriber.

Every Lion site is also independently audited every 18 months (hatcheries every 12 months). In addition, random unannounced audits are conducted on all sites, on an ad hoc basis. Packing stations receive an additional unannounced audit every 12 months.

Any critical non-conformance results in immediate suspension from the Lion scheme, pending appropriate remedial action. There are financial penalties for critical non-conformances at packing centres. Lesser non-conformances have to be corrected within 28 days.

business operation

All Lion premises must develop their own environmental policy, especially in regard to manure disposal, disposal of dead birds, wastage and environmental impact on the community.

All Lion scheme members are required to demonstrate contingency planning in the event of a crisis. Staff, including those employed by contractors, must be given additional training in hygiene, bird welfare and vaccination.

extraordinary lengths

The Lion Code of Practice standards are higher than current UK and EU legislation, including:

- Guaranteed British hens and eggs
- Unique passport system
- Eggs marked on farm with producer code
- Additional hygiene testing requirements for breeding, pullet rearing, laying flocks and packing centres
- Strict controls on feed
- Salmonella vaccination of laying flocks
- Regular egg testing
- Time and temperature controls throughout production chain
- Controls on egg packs
- Best-before date and Lion mark on egg shell
- Higher animal welfare standards including additional ranging space for free range birds
- Independent auditing to ISO 17065 standard

Method of production

- 0 = Organic
- 1 = Free Range
- 2 = Barn
- 3 = Caged



Lion Trade Mark

The Lion Quality mark is a registered Trade Mark and can only be used by subscribers to the British Egg Industry Council who comply with the Lion Code of Practice and who have signed a licence agreement. Guidelines controlling the use of the Lion Trade Mark on egg packs and other materials are available from the British Egg Industry Council. A complementary Code of Practice for the Production of Lion Egg Products for egg processors wishing to produce Lion egg products requires registration and approval of Lion egg processing sites; the exclusive use of Lion shell eggs in Lion egg products; higher standards of egg processing; improved hygiene controls; traceability of finished product; and independent auditing.

approved by the Food Standards Agency

British Lion eggs are approved by the Food Standards Agency to be served runny, or even raw, to vulnerable groups such as pregnant women, babies and elderly people.

For Lion Code enquiries:
British Egg Industry Council,
89 Charterhouse Street, London EC1M 6HR
Tel: 0207 608 3760

egginfo.co.uk



Salmonella Best Practices

Quality Schemes in Europe

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Lion code (UK)

- Egg production
- Integrated approach – full traceability
- Compulsory SE/ST vaccination



Red tractor (UK)

- Free-range broilers
- Enhanced welfare
- Organic meat



Danish standard (DK)

- Poultry Meat & eggs
- Salmonella-free claim



Crown code (HU)

- Egg production
- Recommended SE/ST vaccination



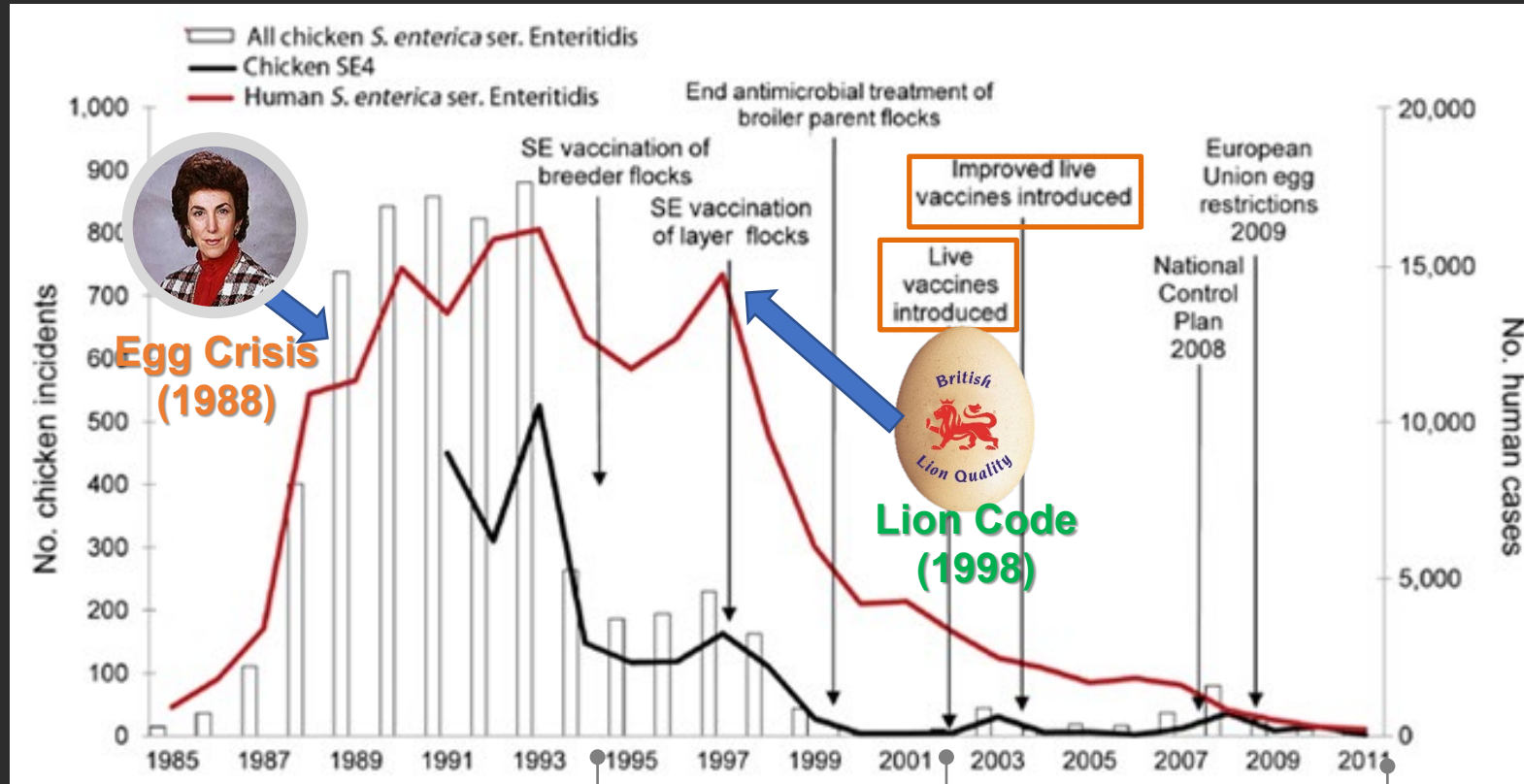
Valencia standard (ES)

- Egg production
- Compulsory SE/ST vaccination

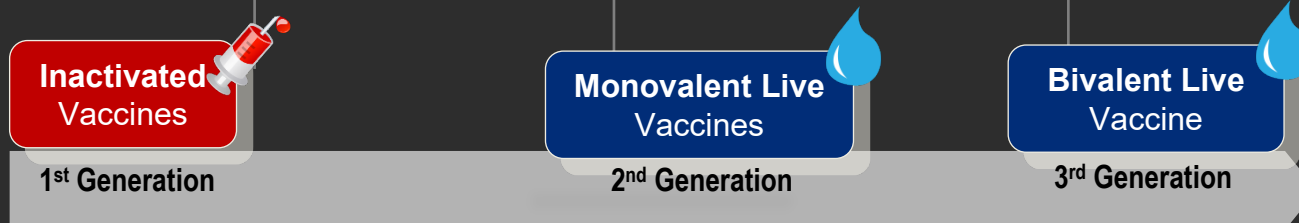
(C) What key learnings derived from its implementation ?

Best Practices can reduced Salmonella cases in Poultry and Humans

What key learnings derived from its implementation ?



In England and Wales, the emergence of *Salmonella enterica* serovar Enteritidis resulted in the largest and most persistent epidemic of foodborne infection attributable to a single subtype of any pathogen since systematic national microbiological surveillance was established. We reviewed 67 years of surveillance data to examine the features, underlying causes, and overall effects of *S. enterica* ser. Enteritidis. The epidemic was associated with the consumption of contaminated chicken meat and eggs, and a decline in the number of infections began after the adoption of vaccination and other measures in production and distribution of chicken meat and eggs. We estimate that >525,000 persons became ill during the course of the epidemic, which caused a total of 6,750,000 days of illness, 27,000 hospitalizations, and 2,000 deaths. Measures undertaken to control the epidemic have resulted in a major reduction in foodborne disease in England and Wales.



Trends in the reporting of incidents of *Salmonella enterica* in chickens in Great Britain versus laboratory reporting of human *S. enterica* serovar Enteritidis infection, England and Wales, 1985–2011

Creating positive news stories can shape consumer behavior

What key learnings derived from its implementation ?

DAILY EXPRESS

THE WORLD'S BESTSELLING NEWSPAPER

Football boss Karren Brady is arrested

£100 OFF with ASDA Savings Card

WE HAVE SO TO GIVE AWAY

NOW EGGS ARE GOOD FOR YOU

They don't cause high cholesterol

By Leslie Stewart

PLAINS that eating more than three eggs a week can raise high blood pressure and increase cholesterol are unfounded, scientists say.

Half the article reflects that eating too many eggs is unhealthy, but that is like saying that eating too much of anything is unhealthy. The article is based on a study that looked at cholesterol levels in people who ate a lot of eggs. The study found that people who ate a lot of eggs had higher cholesterol levels, but this was only in people who ate a lot of eggs and also ate a lot of saturated fat.



As sure as eggs is eggs

Given the choice, most of us prefer to have a proper breakfast, though time has a way of diverting the enjoyment of this best meal of the day. In any case, a proper breakfast means eggs, and we had been warned of eggs. It is 23 years since Eshina Currie sent consumption phreosing by her declaration, "Most of the egg production in this country, sadly, is now affected with salmonella," but even the most pristine eggs, the scientists said, eggs that had never been near a microscope, would kill us one day by making our arteries with cholesterol. So we stopped eating them, or did so guiltily.

This week's news from the nutritionists, that after all an egg a day does us hardly good, is a liberation, it brings to mind the dust at the end of a plume, where Florence and Louisa sing: "O' noxious part".

Really, eggs celebrate the highest call of humanity, live still. Eggs eaten whole, fried or scrambled, and, if soft boiled, accompanied or not by address. To favour broaching the shell at the big end, or at the little end, remains as good an analogy of politics as it was when Swift invented it. There has to be an egg in it still a decision upon which even shrewdest science levels dip to justify. Some say it is impossible without a drop of vinegar, to others vinegar is anathema. In whatever form, the egg is the food of the day: crisp, dependable, and very good value. The word is Egg!



Heart study gives eggs a break

Scientists hope to end the "ingrained misconception" linking eggs with high blood cholesterol and heart disease following new research by the University of Surrey. Forty five per cent of the UK public believe they should eat a maximum of three eggs a week, but a study has concluded that cholesterol in eggs has only a small and clinically insignificant effect on blood cholesterol.

Victoria Taylor, writer director at the British Heart Foundation, said, "We recommend that eggs can be eaten as part of a balanced diet. There is cholesterol present in eggs but this does not usually make a great contribution to your level of blood cholesterol."



An egg a day is good for you after all

Why it's OK to go to work on an egg

By Harry Wallop, Consumer Affairs Editor

EATING eggs has an "insignificant" effect on cholesterol levels, according to scientists who are now recommending that most people can eat as many as they want.

The research is good news for the egg industry, which in recent decades has struggled to persuade people that eggs are a healthy, nutritious food.

Many authorities are still recommending that consumers should not eat more than three eggs a week - outdated advice that failed to reflect the evidence, the scientists said.

Last year, the Advertising Standards Authority banned an attempt to revise the classic television advertisement from 1957 with the slogan "Go to Work on an Egg" and featured the consumer.

Hancock, it was deemed no longer appropriate on the grounds that eating an egg for breakfast every day was not a "varied diet". In the mid-1970s, Britain ate an average of five eggs a week, but health advice helped drive that figure down to less than two by the mid-1990s.

In the study, a review of existing evidence, published in the British Nutrition Foundation's Nutrition Challenges series, Juliet Gray and Bruce Griffin, of Surrey University, said it was a "myth" that eating lots of eggs increased people's cholesterol level in most instances. Saturated fats were far more dangerous, they added.

Prof Griffin said people did not need to limit consumption because eggs "are one of nature's most nutritionally dense foods".



Eggs 'not heart risk'

EATING eggs does not "significantly" increase the risk of high cholesterol and heart disease, scientists said yesterday.

Experts found people do not need to limit eggs to just three a week, as half the public believe, but should cut down on full-fat dairy food and cakes.

A study by nutritionists Dr Juliet Gray and Prof Bruce Griffin, from Surrey University, said eggs do contain cholesterol - but saturated fat in other food is more damaging.

Go to work on an egg again as experts crack the health scare over cholesterol

FROM PAGE ONE

greater television advertising campaign and aired on TV by comedian Tony Hancock and actress Patricia Hayes, a proposal that an egg for breakfast was the best way to start the working day.

Please to revise the advice in 2007 were revised after the Broadcast Advertising Circulation Council ruled that an egg a day did not suggest a varied diet.

The new study now says that after years of conflicting advice on rice consumption it is clear that the amount of cholesterol in eggs has a clinically insignificant effect on blood cholesterol. One medium-sized egg has around 10 calories and is rich in high-quality proteins, the report adds.

According to the study, 40 per cent of Britons still believe that eggs raised blood cholesterol levels, which in turn is bad for the heart.

But research co-author Dr Bruce Griffin, Professor of Nutritional Metabolism at the University of Surrey's health and medical sciences faculty, said saturated fat was much more harmful.

"In the face of the scientific evidence there are no grounds on which to hear that advice," Dr Griffin, who is an independent adviser to the British Egg Industry Council, said the UK public should not put limits on consumption. The Food Standards Agency agreed that eggs were a good source of protein plus vitamins B1, A and B2. And British Heart Foundation senior scientist Victoria Taylor said: "There is cholesterol present, but this does not usually make a great contribution to your level of blood cholesterol."

Dr Griffin said the scientific evidence there are no grounds on which to hear that advice."

Eggs aren't bad for you

They're not heart attackers, in fact they can help you diet, say experts

By David Martin, Health Reporter

IT is perfectly safe to go to work on an egg, despite the scare over cholesterol. A study published in the British Nutrition Foundation's Nutrition Challenges series, published last week, said that eating lots of eggs did not increase blood cholesterol levels. In fact, it said, eggs were a good source of protein plus vitamins B1, A and B2. And British Heart Foundation senior scientist Victoria Taylor said: "There is cholesterol present, but this does not usually make a great contribution to your level of blood cholesterol."

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Badly scrambled advice

FOR years many of us have rattled our egg intake on the advice of nutritionists. Now it turns out we need not have done: eggs were never a major factor behind high cholesterol levels. Scientists better be more careful next time they warn us off a favourite food. Never was health so good as when you hear that bacon is good for you, too.

It's safe to soldier on with your egg, say scientists

FOR years many of us have rattled our egg intake on the advice of nutritionists. Now it turns out we need not have done: eggs were never a major factor behind high cholesterol levels. Scientists better be more careful next time they warn us off a favourite food. Never was health so good as when you hear that bacon is good for you, too.

The amount of saturated fat in an egg does not have a clinically significant effect on blood cholesterol, say researchers from the University of Surrey.

The 14 study authors said that the number of eggs that are eaten is not a significant factor in blood cholesterol levels. It is the amount of saturated fat in the diet that is the most important factor.

The researchers found that eating an egg a day does not increase blood cholesterol levels. In fact, it said, eggs were a good source of protein plus vitamins B1, A and B2. And British Heart Foundation senior scientist Victoria Taylor said: "There is cholesterol present, but this does not usually make a great contribution to your level of blood cholesterol."

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Influencers campaign shapes public perception

What key learnings derived from its implementation ?



Jamie's 14 'hero' foods that help you live to 100

BRITISH Nutrition FOUNDATION

NEWS AND VIEWS

Eggs and dietary cholesterol - dispelling the myth

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Take Aways

Salmonella Best Practices in Europe

- **Multiple factors have triggered the implementation of Quality Schemes in Europe**
 - Multiple Transmission Requires integrated interventions
 - NCPs systematically reduce prevalence over time
 - Evolving Consumer Behaviors
 - Food Safety scandals
- **Significant industry engagement and investment enabled the “Lion Code” to become the most robust Quality Scheme currently being applied in EU**
 - Compliance
 - Traceability
 - Egg Marketing
- **After more than 2 decades of “Lion Code” proven success the Poultry Industry elsewhere has the opportunity to leverage and customize:**
 - ✓ From quality seal to brand value
 - ✓ From “commodity” to specialized
 - ✓ From product/services to experience

“they will soon forget what your brand said... but they will remember how you made them feel”

With my best wishes & regards,

Dr.Ahmed El-Demerdash
Territory Senior Technical Consultant
Saudi Arabia , Pakistan , Gulf region & Yemen
BSC, MVSc & PHD