

**REPORT OF THE FOOD
STANDARDS AGENCY POULTRY
TARGET WORKSHOP**

**Hilton Hotel, Basingstoke 16th and
17th October 2000**

BACKGROUND TO THE WORKSHOP

The Food Standards Agency target of a 50% reduction in levels of salmonella in UK produced chicken on retail sale within 5 years was announced at the launch of the Agency on the 3rd April 2000. Two distinct areas are being taken forward by the Agency in respect of this target. The first is the survey to establish the baseline level of salmonella contamination for the 50% reduction and the second is a status report on salmonella and the UK poultry industry. The latter will examine issues such as the measures currently in place to control salmonella, the effectiveness of these measures, whether they have been adopted by all parts of the industry, and whether there are any gaps in our knowledge. The intention is for this report to be used to help identify what action needs to be taken to achieve the Agency's target.

The main purpose of the Workshop was to provide an opportunity for stakeholders to come together and discuss the issues relating to control of salmonella in the UK poultry industry. The outcome of these discussions could then be fed into the status report. By bringing people together, it was hoped that it would be possible to have a consensus on which intervention measures were effective, how effective they were, difficulties in implementing these measures and gaps in knowledge.

DETAILS OF THE WORKSHOP

Agenda - The Agenda for the Workshop is provided at Annex A. In order to ensure that all who attended could contribute, the Workshop was focused around sessions where small groups (8 to 10 people) could discuss specific issues in detail. The outputs from these group discussions were then used during open discussions at the plenary sessions. In addition, there were a number of presentations on specific aspects relating to salmonella and poultry.

Delegates – A list of those who attended the workshop is provided at Annex B. The FSA, MAFF, ACMSF, consumers, farming community, poultry industry, retailers, feed industry, research community and veterinarians were all represented. Attendance was by invitation only and, where appropriate, those who attended were nominated by relevant trade bodies or associations.

Introduction to the Workshop – Dr Jon Bell, Director of the FSA Food Safety Policy Group, introduced the Workshop. He noted that the poultry target was just part of an overall Agency target to reduce food poisoning in the UK by 20% within the next five years. Dr Bell noted that concern had been expressed that the FSA poultry target does not cover imported poultry, but explained that the issue of salmonella in imported poultry would be covered within the overall target of the 20% reduction in food poisoning. It was also made clear that this workshop was an information gathering exercise and that decisions on what action was required to achieve the Agency's target would not be made during the two days.

OUTPUT FROM THE WORKSHOP

Introduction

The workshop focused around two group sessions. In the first, each of the five groups was asked to:

- provide a list of approximately 5 strategies (in priority order) which have been (or could be) the most effective for controlling salmonella in poultry.
- provide a list of approximately 5 areas (in priority order) where there is a lack of knowledge.

The intention was to assess whether there was a consensus about the major areas where controls can be (or could be) put in place. Similarly, it was hoped that there would be a consensus on what information is missing, and is needed, in order to identify or implement control strategies.

In the second session, each group was given two of the following areas to discuss in detail (hence each area was covered by at least two groups):

- breeding and hatcheries
- feed
- the broiler farm
- transportation
- the slaughterhouse

The intention was to consider the strategies within each of these areas in detail and to discuss specific issues relating to any strategies. For example, groups were asked to consider to what degree strategies were currently being implemented, whether implementation was the same across all parts of the industry, and what evidence is available that the strategies are working.

Not unsurprisingly, over the two sessions there was considerable consensus between groups as to the most effective strategies, how they are currently implemented, what problems there are with implementation and what options could be considered for achieving the target. Consequently, in reporting the output of the workshop there is little benefit in listing in detail the output from each group. Instead a summary is provided of the main issues relating to each of areas identified for discussion during the second group sessions.

Breeding and Hatcheries

It was recognised by all that this is an essential area in relation to salmonella control. There is a need for clean birds (i.e. salmonella free) to be entering the broiler growing farms. There was also agreement that the controls that are currently in place (both mandatory and voluntary) are generally working well and that whilst there can still be problems within breeding farms and hatcheries, these are identified quickly and appropriate action taken.

It was also highlighted that the number of companies involved in the breeding/hatchery industry in the UK has diminished over recent years. Those that remain are very conscious of the role they play in the prevention of vertical transmission of salmonella and that any poor practice on their part will not be tolerated by the companies they supply. Consequently, most companies undertake additional salmonella testing beyond that required by legislation and the view was expressed that more testing at breeders/hatcheries is not needed.

The issue of vaccination of breeding birds was raised, it being noted that currently this was carried out for about 75% of the UK breeding flock. Whilst it was not known whether the other 25% presented a specific problem with respect to salmonella, the point was made that consideration should be given to making vaccination compulsory.

A few areas were identified as being worthy of further discussion or investigation. However, this was not because they were thought to represent a specific problem but rather because there was perhaps a need for more information.

hatchery design – it was noted that control was much more difficult in older buildings (although should still be possible). The issue of aerosol infection was also highlighted.

cleaning of eggs – this is carried out at hatcheries and the general view was that fumigation was preferable to washing.

sourcing of eggs – if eggs are brought in then it is important to know the source in order to be sure that proper controls had been put in place to prevent salmonella contamination.

auditing – this would help to ensure that good practice was being adhered to. It was noted that the Assured Chicken Production (ACP) scheme covers some 80% of the breeding/hatchery industry.

laboratory testing and accreditation – whilst it was felt that most testing was being carried out to an acceptable standard, laboratory performance needed to be assessed.

In relation to the future, the one area which was mentioned was the possibility of identifying or breeding birds with inherent resistance to salmonella infection. However, this was obviously a long term strategy.

Feed

The importance of feed was emphasised a number of times, particularly because this was a generic issue that covered all sectors of the industry. The comments made seemed to indicate that the procedures required to produce salmonella free feed were known and that the main issue was ensuring that these were followed and that any breakdown was quickly identified and rectified.

The role of HACCP was brought up a number of times and the need for this system to be used as a way of controlling all aspects of feed production – selection of ingredients, sourcing of ingredients, processing and transport. HACCP would take account of the fact that all feed mills are different and would give the required flexibility for tailored programmes for specific mills. Linked to this was the need for education and training to ensure that all of those involved in feed production were aware of the action required to prevent salmonella contamination.

The importance of sourcing ‘clean’ ingredients (i.e. salmonella free) was identified. The use of commercial contracts by feed mills could play an important part in ensuring ingredients were up to standard. At the same time, feed companies should make sure that those ingredient suppliers that were not up to standard were identified and not used. The introduction of an assured grain system in 2001 may help in this respect. Trying to improve the flow of information about positive salmonella results between feed companies may be helpful and it was noted that this might be facilitated by the Food Standards Agency. It was noted that heat treatment is essential to destroy salmonella in contaminated ingredients and should be used for all types of feed.

It was noted that feed mills are not specifically designed for food safety, but rather for the production of feed. As such, environmental testing might be a useful way of identifying where problems are occurring with respect to salmonella contamination. It was also identified that more information on how best to deal with the intrinsic atmosphere in feed mills (i.e. prevention of aerial contamination) might be useful. The problem of recontamination during cooling of heat-treated feed was identified, along with the need to avoid contamination from dust particles by using filtered air.

Others issues identified with respect to feed were;

transport – this could have a significant role to play with respect to salmonella contamination.

recontamination – this is linked to the above as recontamination could occur during transportation. However, this could also occur from pests, people and raw ingredients at the mill and on-farm.

heat and acid treatments – these are potentially very useful but are not an alternative to general good practice in feed production. In addition, the issue of nutritional content after these treatments must be considered.

laboratory testing and accreditation – there might be a need to consider some investigation of this with respect to feed mills. The intention is to ensure that testing is being carried out to the required standard and also that any sampling regimes for finished feed are adequate enough to give a true indication of the salmonella status of the feed.

code of practice – there are UKASTA codes and MAFF codes for feed. However these could be worth building on but in doing so, it would be essential to get all stakeholders involved.

audits – at present there are a number of different audits that feed companies have to go through. Rationalisation of these into one system would be helpful.

The Broiler Farm

The main issue that was discussed was the need for testing of flocks prior to slaughter so that they could be scheduled to go through the slaughterhouse at the end of the day. The view was expressed that if you do not do such testing and scheduling, then as a company you cannot be serious about salmonella control.

Currently testing and scheduling is carried out for at least 85% of the birds going for slaughter in the UK (i.e. those from companies belonging to the ACP scheme). Detailed information for the other 15%, which comprise the smaller companies in the market, is not known. However, comment was made that with respect to salmonella control measures on the broiler farm, some small companies were excellent, although conversely some were dreadful. The need for information on the contribution that this 15% of birds has on salmonella levels in UK produced poultry was highlighted.

Questions were raised about the effectiveness of mid-crop testing and how well this related to flock contamination when the flock left the farm. There was some evidence that mid-crop testing was a good indicator although it was recognised that a standard protocol with respect to how to carry out such testing was desirable. The need for more rapid tests for salmonella was identified as this would allow testing to be carried out closer to slaughter. A Code of Practice on mid-crop testing, building on that in the ACP scheme, might be useful.

The basis for salmonella control on the farm could be summarised as 'clean chick, clean feed, clean site'. For the site, biosecurity is obviously vital and in assessing this all activities taking place at the farm should be questioned. There should be a procedure for biosecurity with regular audits. Cleaning and disinfection after removal of the birds is very important and whilst there are established procedures, their effectiveness may need to be verified. As with biosecurity, standard operating procedures for cleaning and disinfection should be laid down. Linked to all of this is the need to make sure staff are aware of the role they play, hence education and training is important.

Whilst it was recognised that the design and construction of sheds has improved considerably over recent years, it was noted that there are still many 'old' sheds still being used. These can be cleaned and disinfected adequately, although more effort and attention to detail may be needed when compared to 'new' sheds. Companies considering new sheds should ensure that they take account of microbiological issues in their design (biosecurity, ease of cleaning, etc.).

Other issues that were raised;

non ACP companies – training and education for the companies producing the 15% of birds not covered by this scheme may be helpful.

thinning – the potential for this to introduce salmonella into a flock was brought up a number of times. Whilst some argued that this should not be a significant problem, others noted that it is a breach of biosecurity and could be an issue with respect to salmonella contamination. More work to assess problems with thinning may be required.

positive flocks – more information on the benefits of using interventions for when a crop has become positive, such as using competitive exclusion or acidified feed, may be required.

free range/organic – there was no evidence that there was a salmonella problem on the growing farm with these types of flocks. However, again information was lacking.

penalties – the benefit of flock testing is in identifying that there is a problem to be addressed. It should not be used to penalise those who produce the flocks.

Transportation

The main issue discussed related to crate cleaning. There was general agreement that this was an area where control was not as good as it should be and that hence there was the potential for transfer of salmonella from one flock to another. There was evidence to back up this view, both from research and from visual inspection of crates after washing.

The most common crate system used was modules with loose trays, although fixed crates (which are harder to clean) are still used by a small part of the industry. It was highlighted that, in respect to crate systems, there was an issue of animal welfare versus public health, however some thought could be given to design of modules and crates, e.g. curved corners.

Current washing systems were discussed and it was noted that most tended to use immersion although some were now using a final spray. Problems with crate washing included limited cleaning time in high throughput slaughterhouses and the recycling of process water for washing of crates. The way forward might be to have two stage systems, with the second using heated water and/or disinfectant. The system designed by Anglian Autoflow was mentioned a number of times and perhaps is the best current system available.

The other area, which elicited a number of comments, was whether the current crate washing systems were being used properly. For example, terminal disinfection may not be properly applied. It was noted that improvements in this area could lead to immediate gains.

Others issues raised were:

limited space - it was noted that, often the crate washing was carried out in limited space near to where the birds were hung. Attempting to carry out crate washing properly in a constricted space could lead to some difficulties and in the long term the move should be to having washing systems housed in separate buildings.

novel ways of cleaning - steam was discussed (although cost, space and health and safety considerations were identified), as were high pressure and ultra-violet radiation.

crates from positive flocks – it was suggested that one option would be to pay specific attention to crates known to have been used to transport positive flocks. However, this would be difficult the proportion of positive flocks going through the slaughterhouse was small.

catching – this was felt to be part of transportation and, potentially, was a route for contamination. However the general feeling was that this would not be a major problem although again information was lacking. It was noted that inappropriate clothing, poor cleaning and disinfection of vehicles and catching equipment, and lack of proper training for catchers could all present potential problems.

Overall, it was suggested that there was a need for a taskforce to look at crate cleaning. This should include all stakeholders and identify those systems, which are currently being used, the ways in which they are being used and options for the future.

The Slaughterhouse

It was noted that there are limited control strategies that can be put in place in the slaughterhouse. Hence the best control system was not to introduce salmonella at all or to put through positive flocks at the end of the day to avoid cross contamination to negative flocks. However, the transmission of salmonellas during processing has been thoroughly researched and there is sufficient information to allow application of HACCP principles for control of salmonella in the slaughterhouse.

Any strategies to control cross contamination would need to be tailored to individual slaughterhouses, starting with an investigation of strategic points with the slaughter process. There were no points where elimination of salmonella could be achieved, although hurdles to reduce cross contamination could be identified. Obvious areas for control were scalding and plucking although this may require major redevelopment of equipment.

Most salmonella testing at the slaughterhouse was at the request of customers and took place at the end of the slaughter process. It was suggested that there was scope for testing at the various stages of the process as this may help to identify problems. An agreed standard for the way salmonella testing in the slaughterhouse should be undertaken would be helpful, although it was identified that testing had cost implications.

The issue of terminal decontamination to control salmonella was raised a number of times. It was accepted that there were legal implications (e.g. only potable water should be used) but it was felt the issue should at least be considered. Ideas that were put forward were steam pasteurisation, the use of organic acids and irradiation.

Points Raised in Final Open Discussion

- there was a need for consistent application of good practice. Auditing and spread of best practice is critical
- there are controls that can be applied in the slaughterhouse and the HAS system helps these to be applied. Again the issue is making use of what is already known.
- the slaughterhouse is not designed for preventing cross contamination during the slaughter process. Changes in the slaughterhouse are not short-term, again the issue is getting the whole industry to follow current good practice.

- it may be possible to change some parts of the slaughter process to prevent cross contamination. However, currently there is little interest in this from the industry because of the cost implications. Any changes in this area would need an incentive for them to be put in place.
- there have been some improvements to machinery in slaughterhouses which make it cleaner than before. The slaughter process could be improved but there is a need to identify the most important areas and prioritise where to concentrate effort.
- much of the industry has taken, and is continuing to take, conscious steps to minimise salmonella contamination. These steps have been brought together in the Assured Chicken Production scheme. The question is whether the whole of the UK poultry industry is taking similar steps and a lack of information was identified.
- whether a producer is small or large is irrelevant. The point is that there may be a small part of the industry that does not have sufficient controls.
- auditing can be beneficial, although the issue of too many audits by too many different organisations (all of which had slightly different views on the information and systems required) was mentioned. The important thing is that account is taken of the results of the audit.
- questions were raised as to whether there was a sufficient level of salmonella testing. Some thought that it was not and that the more samples that were taken the better. Others identified that testing was sufficient, but that the issues related to the best methods to use and the way samples were taken. It was noted that, especially in relation to feed, that control was not based entirely on testing but on general good practice. It was also felt that it is not a question of how much testing, but how well it is used. For example, testing should be increased or targeted to identify/follow up problems.
- the revision of EU Directives was brought up, specifically the fact that this would introduce proposed targets for the level of salmonella in individual Member States.
- the benefit of microbiological testing versus HACCP was discussed and that testing cannot ensure food safety. Controls should be developed based on HACCP as this introduced flexibility. Data collected from the Government/Industry Working Group on meat hygiene indicated that 68% of slaughterhouses had HACCP.

- in relation to HACCP in slaughterhouses, it was noted that whilst this may not eliminate cross contamination it should be able to reduce numbers of salmonella on individual birds and hence the overall burden of salmonella levels at the end of the process. The fact the Sweden had a successful programme was mentioned.
- recycling of contamination via crates was again brought up. The evidence of a problem was there and this was a powerful reason for looking at current practices to find out which ones are good. Inspection of crates after washing could perhaps be improved, or undertaking crate washing during the night could be considered. It was noted that the latest Anglian Autoflow system was very good but that it was also very expensive.
- whilst there was a general view that the hatchery and breeding sectors of the industry were controlling vertical transmission of salmonella, it was noted that there was still room for improvement. In 1999, four breeder flocks had been identified as being infected and more monitoring might identify more. It was also noted that persistent contamination of hatcheries by the same serotype of salmonella was a problem.
- the fact that mid-crop testing was not effective was raised, specifically with regard to its sensitivity. It was noted that the issue may not be the amount of sampling, but the way that samples were taken and tested. One company had also spent some £700,000 after buying a business to assess salmonella issues by extensive salmonella testing. This had identified that whilst mid-crop testing was not perfect, it was a very good and reliable tracker of trends in the finished products.

Annex A

FSA POULTRY TARGET WORKSHOP

Hilton Hotel, Basingstoke – 16th and 17th October 2000

Agenda

Monday October 16th

- 11.00 – 11.30 Arrive/Registration
- 11.30 – 12.00 Plenary:
Introduction to workshop
- 12.00 – 13.00 Plenary:
Presentation 1 – The Story of Salmonella and Poultry
(Professor Geoff Mead)
Presentation 2 – The UK Poultry Industry
(Mr Keith Gooderham, BPMF)
- 13.00 – 14.00 Lunch
- 14.00 – 16.00 Group session 1:
Discussion on the most effective strategies for controlling salmonella in UK produced poultry. Identification of any gaps in knowledge.
- 16.00 – 16.30 Break
- 16.30 – 18.00 Plenary:
Discussion of output from Group session 1
- 18.00 – 19.00 Plenary:
Presentation 3 – An industry example
(Mr Tony Miles, BPMF)
Presentation 4 – Details of some recent FSA research
(Professor Tom Humphrey, PHLS)
- 19.00 Close of Day 1
- 19:30 Dinner

Tuesday October 17th

- 8.15 – 8.30 Plenary:
Introduction to Day 2
- 8.30 – 10.30 Group Session 2:
*Examination of the main strategies identified on day 1.
Discussion on how these are being implemented, any difficulties
with implementation and how their effectiveness can be
assessed.*
- 10.30 – 11.00 Break
- 11.00 – 11.40 Plenary:
Presentation 5 – New Strategies for Control
(Dr Paul Barrow, Institute of Animal Health)
Presentation 6 – Setting the Baseline
(Dr Paul Cook, FSA)
- 11.40 – 13.00 Plenary:
Discussion of output from Group Session 2
Closing remarks
- 13.00 Close of Day 2
- 13.00 Lunch
- 14.00 Close of Workshop

Annex B

DELEGATES	
Dr Jonathan Back	FSA Microbiological Safety Division, Chairman and Facilitator
Mr Harry Bailie	MAFF, Endemic Animal Diseases and Zoonoses Team
Dr Keith Baker	British Veterinary Association
Dr Paul Barrow	Institute of Animal Health, Head of the Zoonoses Group
Dr Jon Bell	FSA Director Food Safety Policy Group
Mr Peter Bradnock	British Poultry Meat Federation, Chief Executive
Mr Graham Brand	Proprietor of Jack Brand Ltd and nominated by The Anglian Poultry Processors Action Group
Dr Paul Cook	FSA Microbiological Safety Division
Mr Martin Cooke	Tesco, British Retail Consortium
Dr Janet Corry	University of Bristol
Dr Rob Davies	Veterinary Laboratory Agency
Mr Geoff Deville	FSA Meat Hygiene Division, Rapporteur
Mrs Jane Downes	FSA Meat Hygiene Service, Rapporteur
Dr Kirsten Dunbar	FSA Northern Ireland, Rapporteur
Mr Patrick Garland	BOCM Pauls Ltd, nominated by UKASTA
Professor Douglas Georgala	ACMSF, Chairman
Mr Keith Gooderham	British Poultry Meat Federation
Mrs Elizabeth Harrison	National Farmers Union, Chairman of the NFU Infectious Diseases Committee
Mr Howard Hellig	British Poultry Meat Federation, Consultant and Adviser
Mr Peter Hewson	FSA Veterinary Public Health Unit
Dr Judith Hilton	FSA Microbiological Safety Division, Rapporteur
Ms Geraldine Hoad	FSA Microbiological Safety Division, Facilitator
Professor Tom Humphrey	PHLS Exeter

Miss Mandy Jumnoodoo	FSA Microbiological Safety Division, Facilitator
Mr Alec Kyriakides	Company microbiologist at Sainsbury's Supermarkets Ltd and nominated by the British Retail Consortium
Mr Andrew Lewins	Managing Director of Grampian Country Chickens (Rearing) Ltd, nominated by the British Poultry Meat Federation
Ms Diana McCrea	Consumer representative
Dr George McIlroy	NI poultry industry
Professor Geoff Mead	Consultant
Mr Adrian Middleton	FSA Veterinary Public Health Unit
Mr Tony Miles	Webbs Country Foods Ltd, nominated by the British Poultry Meat Federation
Dr David O' Connor	Member of the Agricultural Food Committee and nominated by the BBSRC
Mrs Florence Opesan	FSA Microbiological Safety Division, Workshop Co-ordinator
Mr Heddwyn Owen	ADAS
Dr Terry Roberts	FSA Programme Adviser, Rapporteur
Dr Roger Skinner	FSA Microbiological Safety Division
Mr Alan Speight	Food Technologist, Marks and Spencer Ltd., nominated by the British Retail Consortium
Mr David Statham	FSA Director Enforcement and Food Standards Group
Mrs Liz Stretton	FSA Microbiological Safety Division, Facilitator
Mr David Thacker	Managing Director of Crown Chicken Ltd, nominated by The Anglian Poultry Processors Action Group
Mrs Beti Wyn Thomas	ACMSF, Consumer representative
Ms Joy Whinney	FSA Wales
Mrs Anna Whyte	FSA Scotland, Professional Unit, Facilitator
Dr David Williams	UKASTA