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Department for Environment
Food and Rural Affairs

UK presentation of the meat chicken trigger system used in Great Britain

Working group on data collection of animal welfare indicators in broiler slaughterhouses

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Outline of presentation

1. Development of the trigger system: selection and evaluation of post-mortem (PM) conditions
2. System processes
3. Trigger levels
4. The trigger system in operation
5. Results of the first year
6. Benefits of the system to date
7. Overcoming challenges
8. Future evaluation

Development of the trigger system: selection of PM conditions

- Nine PM conditions likely to reflect on-farm welfare were selected on the basis of published scientific evidence and discussions with representatives from the relevant competent authorities and industry
1. Ascites/Oedema
 2. Cellulitis & Dermatitis
 3. Dead on Arrival (DOA)
 4. Emaciation
 5. Joint lesions
 6. Septicaemia/Respiratory
 7. Total rejections
 8. Cumulative Daily Mortality Rate (CDMR)
 9. Foot Pad Dermatitis (FPD)

Development of the trigger system: evaluation of PM conditions

- All PM conditions were evaluated during a pilot study (September 2009 to February 2010)
- On-farm welfare inspections were carried out one week prior to slaughter (112 broiler holdings) and matched with PM condition data collected at the slaughterhouse
- Statistically significant links were found for Emaciation, Total Rejections and Foot Pad Dermatitis
- Small sample size may have obscured a link for the other PM conditions tested, hence all nine conditions were taken forward for inclusion in the trigger system

- Process 1: A trigger report is generated if the level of a PM condition is exceptionally high (greater than 6 standard deviations above the mean)
- Process 2: A trigger report is generated if the CDMR is unusually high (greater than 3 standard deviations above the mean) and, **additionally**, the rate of three or more PM conditions is high (above the mean)

- CDMR and FPD: calculated relative to averages reported in 2009-2010 pilot study (no national data available)
- All other PM conditions: calculated relative to GB national averages (2009-2010)

Trigger levels: Process 1

A trigger report is generated if the level of a PM condition is exceptionally high (exceeds mean + 6SD)

Post-mortem condition	Process 1 trigger level (%)
Ascites/Oedema	2.02
Cellulitis & Dermatitis	3.00
Dead on Arrival (DOA)	1.51
Emaciation	0.67
Joint lesions	0.43
Septicaemia/Respiratory	9.28
Total rejections	11.76
Cumulative Daily Mortality	11.85
FPD score*	167

Scoring of Foot Pad Dermatitis



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- FPD is scored using the agreed Defra/FSA/industry Scorecard



FOOT PAD DERMATITIS IN POULTRY (FPD)

Disease Card and Key Facts



CAUSE	A number of factors have been shown to influence the occurrence of FPD such as litter type and quality, litter depth, water drinker type, bird age, ventilation and drinker management, feed source and its quality, rearing system, and breed (genotype) used among others. Enteric disease may be a predisposing factor.
AFFECTS	All poultry species are affected by FPD although the scoring system below relates specifically to meat chickens
GEOGRAPHICAL LOCATION	Worldwide, this condition appears in all poultry rearing systems with higher prevalence when outdoor access is supplied.
SURVEILLANCE	The interaction of the two following areas is to be taken into account when assessing FPD. Prevalence: Percentage of birds in the flock that show evidence of FPD Severity: Focuses on the seriousness of the FPD lesions.
LESIONS	
<u>Area affected:</u>	
<ul style="list-style-type: none"> None or very small. 	
<u>Lesion description:</u>	
<ul style="list-style-type: none"> very small superficial lesions (1-2 mm) slight discolouration in a limited area mild hyperkeratosis completely healed scar 	
 <p>Healthy Foot</p> <p>SCORE 0</p>	
<u>Area affected:</u>	
<ul style="list-style-type: none"> Does not extend over entire plantar pad. 	
<u>Lesion description:</u>	
<ul style="list-style-type: none"> substantial discolouration of the foot pad superficial lesion, no ulceration dark papillae with no ulceration 	
 <p>Mild Lesion</p> <p>SCORE 1</p>	
<u>Area affected:</u>	
<ul style="list-style-type: none"> Greater surface of plantar pad usually affected, sometimes with lesions on toes. 	
<u>Lesion description:</u>	
<ul style="list-style-type: none"> deeper lesions with ulceration, sometimes haemorrhage scabs of significant size severely swollen foot pad 	
 <p>Severe Lesion</p> <p>SCORE 2</p>	

Scoring is broadly based on the size of the lesion but any lesions with deep ulceration will be scored 2 regardless of the size. Feet from a minimum of 100 birds should be scored and the number of feet in each category 0, 1 and 2 should be recorded.



SCORE 0



SCORE 1



SCORE 2

Trigger levels: Process 2

A trigger report is generated if the CDMR is unusually high (exceeds mean + 3SD = 7.37%) and, additionally, the rate of three or more PM conditions is high (exceeds the mean)

Post-mortem condition	Process 2 trigger level (%)
Ascites/Oedema	0.21
Cellulitis & Dermatitis	0.20
Dead on Arrival (DOA)	0.12
Emaciation	0.04
Joint lesions	0.02
Septicaemia/Respiratory	0.49
Total rejections	1.11
FPD score*	60

The trigger system in operation



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- The official veterinarian (FSA Ops) assesses and records PM conditions at the slaughterhouse

A screenshot of the INNOVA software interface, titled "INNOVA - Meat Food Systems". The interface is a web-based form with a blue sidebar on the left containing navigation options: "System Administration", "Software administration", "Batch Administration", "Process administration", "Administration", "Priority", "Batches", "Daily Summary Report", and "RMS Page". The main content area is divided into several sections: "Establishment" (Approval Number, Establishment Name), "Producer Information" (Post Code, Producer Name, House Number/Name, Street Name, Town/City, Producer Email Address, Country, CRN Number), "Veterinary Practice" (Name, Date of Arrival, Date(s) of Slaughter), "Species" (Chicken, Pheasant, Turkey, Goose, Guineafowl, Quail, Other), "Breed" (Cobb, Hybrid, Hydro, Ross, Other, Wild, Not provided), "Line" (Barn 308), "Stocking Density" (3-30 kg/m², > 30-40 kg/m², Not provided), "Production System" (Intensive indoor, Extensive indoor, Free range, Organic, REX provided), and "House Data" (House Number, Age of Birds Sent for Slaughter (days), Number of Birds in House, House Mortality to Age when FCI Completed (%), Cumulative Mortality Rate (%), Number of Birds Slaughtered, Load/Lot Number). A red warning message at the bottom right states "Fields that must be completed are marked with *". The Windows taskbar at the bottom shows the Start button, taskbar icons for "Gemma Forrest", "Inbox - Microsoft Outlook", and "INNOVA - Meat Food S...", and a system tray with the time "13:55".

- Data are uploaded to a central FSA Ops database and pass through the trigger system within 48 hours

The trigger system in operation



- Where applicable a trigger report is generated

Broiler Condition Report

<p><input type="text"/></p> <p>FSA Office Phone No: Establishment Phone No: Producer:</p> <p>Batch Details: Stocking Density: Between 33 and 39 kg/m² Age of Birds: 45 Slaughter Date: 15/04/2011 Completion Date: 15/04/2011 Production System: Intensive Indoor</p> <p>Trigger Status: Priority</p>	<table border="1"> <thead> <tr> <th>PM Indicator</th> <th>Process 1 Trigger Level</th> <th>Process 2 Trigger Level</th> </tr> </thead> <tbody> <tr> <td>DOA</td> <td>1.51</td> <td>0.12</td> </tr> <tr> <td>Emaciation</td> <td>0.67</td> <td>0.04</td> </tr> <tr> <td>Asoofes Or Oedema</td> <td>2.02</td> <td>0.21</td> </tr> <tr> <td>Joint Lesions Or Arthritis</td> <td>0.43</td> <td>0.02</td> </tr> <tr> <td>Dermatitis Or Cellulitis</td> <td>3.00</td> <td>0.02</td> </tr> <tr> <td>Septicoemia/Respiratory</td> <td>9.26</td> <td>0.49</td> </tr> <tr> <td>Total Rejections excluding processing</td> <td>11.76</td> <td>1.11</td> </tr> <tr> <td>FPD Swedish Score</td> <td>167.00</td> <td>60.00</td> </tr> <tr> <td>House Mortality to Date</td> <td>11.86</td> <td>7.37</td> </tr> </tbody> </table>	PM Indicator	Process 1 Trigger Level	Process 2 Trigger Level	DOA	1.51	0.12	Emaciation	0.67	0.04	Asoofes Or Oedema	2.02	0.21	Joint Lesions Or Arthritis	0.43	0.02	Dermatitis Or Cellulitis	3.00	0.02	Septicoemia/Respiratory	9.26	0.49	Total Rejections excluding processing	11.76	1.11	FPD Swedish Score	167.00	60.00	House Mortality to Date	11.86	7.37
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House	Slaughtered (In Batch)	DOA		Emaciation		Asoofes Or Oedema		Joint Lesions Or Arthritis		Dermatitis Or Cellulitis		Septicoemia /Respiratory		Total Rejections excl. processing		FPD Score	HMD
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
2	3432	3	0.09	38	1.09	28	0.82	0	0.00	0	0.00	4	0.12	81	2.40	200	3.10
1	3432	3	0.09	22	0.64	21	0.61	0	0.00	0	0.00	2	0.06	58	1.69	200	3.65
1	3432	4	0.12	30	0.87	13	0.38	0	0.00	0	0.00	4	0.12	68	1.99	200	3.65
1	3696	6	0.16	12	0.32	13	0.35	0	0.00	0	0.00	6	0.16	49	1.33	200	3.65
1	3024	17	0.56	19	0.61	22	0.73	0	0.00	0	0.00	4	0.13	70	2.31	200	3.65

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A Process 1 Trigger Report will be generated if any of the process 1 trigger levels are exceeded.
A Process 2 Trigger Report will be generated if the House Mortality to date (HMD) is above 7.37 and three or more conditions are above the process 2 trigger level.

Septicoemia/Respiratory includes the following conditions: Respiratory Disease, Salpingitis, Hepatitis, Pericarditis and Perihepatitis.

The trigger system in operation

- The trigger report is verified centrally within FSA Ops and is then emailed to a central team in AHVLA. It is also sent directly to the owner/keeper
- The central AHVLA team record all trigger reports and distribute them to the appropriate regional office
- At the regional level, each report receives a full veterinary assessment to decide what action is to be taken
- The action taken is fed back to the central AHVLA team, and ultimately to the slaughterhouse that processed the birds

July 2010 - July 2011

- 2117 trigger reports were generated (2% of all batches processed)
- The main PM conditions involved were Emaciation, Dead on Arrival (DOA) and CDMR
- Clear seasonal changes were observed (e.g. Emaciation and DOA were highest in the Summer)

Benefits of the system to date

- Action Plans indicate that changes are being made to improve welfare at the farm level
- Likely that on-farm welfare issues are being averted due to early intervention
- Increased awareness/understanding of more general welfare issues, e.g. a rapid increase in DOA trigger reports alerted officials to transport problems
- Beneficial knock-on effects, e.g. increased consistency of scoring FPD, improved communications between competent authorities

Overcoming challenges

- The system initially generated far more trigger reports than had been predicted on the basis of past data. Trigger levels were increased in August 2010 in response to this.
- Industry have had difficulty providing CDMR data
- Birds have sometimes been incorrectly categorised by producers
- Multiple trigger reports have been generated as a result of the system running at the batch level rather than the house/flock level

- A research and development project has been commissioned that will assess the effectiveness of the trigger system and look in more detail at the relationship between the PM conditions monitored and on-farm welfare
- The ability of CDMR and standard mortality to identify poor on-farm welfare will also be compared
- The project is due to start in October 2011 and will run for two years

- The meat chicken trigger system is currently operating well
- We have seen some clear benefits of the trigger system to date, but we will continue to monitor and evaluate the system and refine it as necessary