On-farm assessment of fish welfare

Norecopa, Gardermoen, Oslo
September 22-24, 2009
John Avizienius - Royal Society for the Prevention of Cruelty to Animals (RSPCA)
Who are the RSPCA?

- The oldest and largest animal welfare organisation in the world
- Founded in 1824. Royal assent in 1840
- Over 200 welfare groups affiliated to it
- It is funded by the general public - circa £100million - no govt funding
- It has animal hospitals, rehoming centres and branches all over England and Wales
This former racing greyhound - with open sores, threadbare coat and fleas - was the thinnest RSPCA staff had ever found alive.
Why salmon?

- Only involved with terrestrial species
- Freedom Food established in 1994
- Approached by salmon farmer in 1999-2000

www.rspca.org.uk/farmanimals
Need to rethink

RSPCA welfare standards for dairy cattle
January 2008

RSPCA welfare standards for farmed Atlantic salmon
July 2007

Helping animals through welfare science

www.rspca.org.uk/farmanimals
Principles behind standards

• Based on welfare (always) and science
• Don’t agonize - do fish feel pain?
• Birth to slaughter
• Must cover the critical times in the life of the animals
• Must be achievable but stretching
• Economics
Standards development

- Have to comply with the legal minimum
- Look at best practice within the industry
- Are best practices good/bad for welfare?
- Establish an expert Working Group
- Talk to veterinary surgeons and producers
- Look at all available science
- Be prepared to make decisions
It took three years to develop the standards

- Management and stockmanship
- Husbandry practices
- Equipment/env quality
- Feeding
- Health
- Transport
- Slaughter
- Wider environmental impact
Why we started to look at welfare assessment

• Whilst the salmon standards were being developed, the dairy, hen and pig standards were being scrutinised
• A set of welfare indicators were being developed for these species
• We needed to ask questions of the standards
• Input standards are not enough
This gives the assessor some guidance in terms of what to look for if they are in any doubt.
We wrote down indicators which could affect welfare and why

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**RSPCA laying hen welfare outcome assessment**

**Summary of indicator significance**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit access/level of sand</td>
<td>Caused by the aggression among the chickens in the sand container. Can be prevented in eggs from young chicks just coming into production, and/or as a result of aggressive or disturbed hens when the egg is due to be laid.</td>
</tr>
<tr>
<td>Group observation</td>
<td>Bird separation by body size is an important aspect of animal welfare. The treatment of major concern is related to the welfare of the animals.</td>
</tr>
<tr>
<td>Inhibitory behaviour</td>
<td>Indicators for the assessment of the hen's condition are based on their behaviour and the conditions they are kept in. The hen's behaviour can be assessed by observing her activity in the pen, such as food-feeding, dust-bathing, and so on.</td>
</tr>
<tr>
<td>Indicators of feather picking</td>
<td>Feather picking can be caused by a number of factors, including food, drink, and environmental conditions. This behaviour is a sign of respiratory disease, which can be caused by infectious disease or poor air quality. It may be due to separation (e.g. long journeys in the hatching pens).</td>
</tr>
<tr>
<td>Indicators of egg production</td>
<td>Egg production can be affected by a number of factors, such as food, drink, and environmental conditions. This behaviour is a sign of respiratory disease, which can be caused by infectious disease or poor air quality. It may be due to separation (e.g. long journeys in the hatching pens).</td>
</tr>
<tr>
<td>Unusual growth</td>
<td>High use of the range indicates appropriate management. Use of the outside area and normal exploratory behaviour. All use of the outside area is a sign of normal behaviour. The hen's condition can be influenced by management activities, such as feeding, watering, or cleaning.</td>
</tr>
<tr>
<td>Poor quality of egg</td>
<td>Poor egg quality is a major concern, as it can affect the laying rate and quality of the eggs. Poor egg quality can be caused by a number of factors, including food, drink, and environmental conditions.</td>
</tr>
</tbody>
</table>

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**General Impressions**

- Overall, the hen's behaviour and condition are important indicators of the welfare of the birds.
- The birds' behaviour and condition are influenced by management activities, such as feeding, watering, or cleaning.
- The hen's condition can be influenced by management activities, such as feeding, watering, or cleaning.
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**Individual hen**

- Poor egg quality is a major concern, as it can affect the laying rate and quality of the eggs. Poor egg quality can be caused by a number of factors, including food, drink, and environmental conditions.

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**Helping animals through welfare science**

[www.rspca.org.uk/farmanimals](http://www.rspca.org.uk/farmanimals)
<table>
<thead>
<tr>
<th>ANIMAL PARAMETER</th>
<th>Description</th>
<th>Score (1 = yes, 0 = no)</th>
<th>Notes</th>
<th>Group/Comments</th>
<th>Int. # / Checks***</th>
</tr>
</thead>
<tbody>
<tr>
<td>20x individuals</td>
<td>Cow ID</td>
<td></td>
<td></td>
<td></td>
<td>0 (S.T)</td>
</tr>
<tr>
<td>7 (Sick)</td>
<td>Dying/Slack</td>
<td></td>
<td></td>
<td></td>
<td>1 For / 4 Thin</td>
</tr>
<tr>
<td>8 (Sick)</td>
<td>Discharge</td>
<td></td>
<td></td>
<td></td>
<td>(S.T)</td>
</tr>
<tr>
<td>9 (Sick)</td>
<td>Diarrhoea</td>
<td></td>
<td></td>
<td></td>
<td>(S.T)</td>
</tr>
<tr>
<td>10 (Dirty)</td>
<td>Stomach</td>
<td></td>
<td>2</td>
<td>(S.E)</td>
<td></td>
</tr>
<tr>
<td>11 (Dirty)</td>
<td>Udder/fetlock</td>
<td></td>
<td>4</td>
<td>(S.E)</td>
<td></td>
</tr>
<tr>
<td>12 (Skin)</td>
<td>Irritation</td>
<td></td>
<td>0</td>
<td>(S.E.T)</td>
<td></td>
</tr>
<tr>
<td>13 (Skin)</td>
<td>Lesions</td>
<td></td>
<td>1</td>
<td>(S.E.T)</td>
<td></td>
</tr>
<tr>
<td>14 (Sore)</td>
<td>Hoof</td>
<td></td>
<td>2</td>
<td>(S.E)</td>
<td></td>
</tr>
<tr>
<td>15 (Sore)</td>
<td>Knee</td>
<td></td>
<td>2</td>
<td>(S.E)</td>
<td></td>
</tr>
<tr>
<td>16 (Sore)</td>
<td>Wound</td>
<td></td>
<td>0</td>
<td>(S.E)</td>
<td></td>
</tr>
<tr>
<td>17 (Sore)</td>
<td>Claw</td>
<td></td>
<td>2</td>
<td>(S.T)</td>
<td></td>
</tr>
<tr>
<td>18 (Sore)</td>
<td>Tail</td>
<td></td>
<td>0</td>
<td>(S.T)</td>
<td></td>
</tr>
<tr>
<td>19 (Sore)</td>
<td>Lameness</td>
<td></td>
<td>0</td>
<td>(S.E.T)</td>
<td></td>
</tr>
<tr>
<td>20 (Sore)</td>
<td>Other</td>
<td></td>
<td>0</td>
<td>(S.E.T)</td>
<td></td>
</tr>
</tbody>
</table>

Visit summary: To include general impression of the visit, i.e. highlights of above and information on prospects below.

- Behaviour
- Physical appearance
- Stockmanship

*Record position (Head, Neck, (Tail), (Leg), (Knee)). **Describe mood (e.g., tense, relaxed, calm, contented, relaxed, curious, confident, calm, contented, relaxed, curious, confident).*** Standardised verification. Environmental factors. Treatment plans.
Is the terrestrial model for welfare assessment the same for fish?

- It has to be science, but it does not have to be rocket science.
- We could all draw up a set of welfare indicators with the available information we have at present.
- We have to make a decision about which OWIs to use.
- Be prepared to change them if they are wrong.
- Communication is vitally important between the various partners - producer/RSPCA; retailer/RSPCA; scientist/RSPCA; retailer/producer.
What can we use welfare assessment for?

• To inform the RSPCA about their standards and how they are performing

• To inform the RSPCA where there is not much in the way of science, for example, the transportation of harvest weight fish to the processing plant by wellboat
Example 1 - Freshwater stocking density

- The standards say that production tanks must have a maximum stocking density of 30 kg per cubic metre
- Stocking density on its own is not meaningful
- Stocking density is influenced by a number of variables
- Take measurements for two years to find out with the help of the industry
Indicators are based on?

- The fish
- The system and the environment
- Keep it simple where possible
- Includes behaviour, water quality, fish health
- Try to avoid invasive techniques
What are we measuring?

- Fish weight
- Fin condition
- Opercular condition
- Eye damage
- Skin lesions, parasite damage, scale loss
- Fish behaviour
- Growth rate
- Deformities
- Water quality - Dissolved oxygen, carbon dioxide, temperature, acidity, free ammonia, flow rate
- Physiology if needed? More helpful to be able to make judgements using practical measurements? Carcase examination at the processors
Example 2 - Transport of fish

• Handling and journeys are stressful for the fish
• Look to break transport procedures into chunks so that we can develop a set of checklists based on what we know about the needs of the fish
• Look at the CCPs - pre, during and after transport
A journey into the unknown - start with harvest weight fish

- Existing general standards not enough on their own - must be able to make an informed judgement about the fish
- Fish based checklist of indicators which might denote whether things are good, bad, or indifferent
- Need to develop database to record and analyse
Indicators based on?

- Fish behavior?
- Physical characteristics?
- Processor reports
- Risk assessment - site specific
- Setting intervention levels
- Action plans for when these are exceeded
- Based on ideal scenarios
Simple things can make a big difference
Crowding/uplift

- Aggressive behaviour
- Non-aggressive behaviour
- Mouth gaping/rapid gill movement
- Obvious scale loss
- Fresh injuries to snouts etc
It’s not just a tick box exercise

• We need to assess the welfare of the fish on board
• You have to travel with them
• We need to learn more about things such as water quality, e.g. carbon dioxide
Off-loading at the processing plant
Tentative conclusions to date

- Seem to be primary indicators such as water quality
- Setting thresholds per se, may not be that meaningful
- Look at additive effects - build a traffic light system for each site based on risk?
Why does it matter?

- Always room for improvement
- Fish get a better deal
- Producer gets a better deal
- Third party verification/retailer needs
- Identify problems - find solutions
- Better to work together in partnership
- Consumer confidence