Joint DCAW and NordCAW

Animal Welfare Conference

DCAW - Danish Centre for Animal Welfare

&

NordCAW - Nordic network for Communicating Animal Welfare

3-4 October 2017

at the University of Copenhagen
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Welcome

Dear Colleagues, Friends and Animal Lovers,

It is a pleasure to be together in Copenhagen for this combined Danish-Nordic conference focused on animal welfare.

Great research has been done to create evidence based models to constantly improve animal welfare for many different species. And we are thankful for the funding for this basic research.

It is with great pride that we present animal welfare research results aimed at more than simple control, but also to understand the drivers of improvement to animal welfare through extending basic knowledge to the benefit of animals, producers and consumers.

These are not easy research issues and as is the case in all areas of research, retrieval of reliable data and data management is of utmost importance. A great deal of effort has been placed on these subjects in the preceding years.

I’m sure that all of you share with me a general interest in animal welfare and that all the presentations will add a little bit more to our common understanding of current animal welfare progress. Small but steady steps – and we are gaining momentum.

Hans Henrik Dietz
School Director
School of Veterinary Medicine and Animal Science
University of Copenhagen

Website: vetschool.ku.dk
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A short introduction to animal welfare assessment
Björn Forkman & Vibe Pedersen Lund

What is animal welfare assessment?
Animal welfare is a multidimensional concept. The aim of an animal welfare assessment is to try and measure the most important aspects and aggregate these in a meaningful way. The aspects of animal welfare that are taken into account will depend on the welfare definition used for the protocol. In some cases this may be a coherent formal definition using e.g. the experiences of the animal as the criterion, but in other cases it is more mixed, taking as its starting point either the main perceived problems or existing thoughts on what animal welfare is, e.g. the five freedoms of the UK’s Farm Animal Welfare Committee (FAWC). It is generally agreed that it is possible to divide measures of animal welfare into three categories: management based, resource based and animal based (the latter is also called outcome based).

Management based measures include management routines such as provision of analgesics at dehorning, provision of antibiotics, age at weaning or number of daily visits to the herd. There is no doubt that management has a huge influence on the welfare of the animals on the farm and that questions on management therefore has a great potential for determining the animal welfare. Unfortunately management routines can be very difficult to record or measure and they therefore often form only a small part of an animal welfare assessment protocol. Despite this difficulty they often occur in legislation.

Resource based measures include physical measures such as size of cubicles or pens, presence of nesting material and cleanliness of water. Resource based measures are often used both in animal welfare assessment and in animal welfare control. The advantage of resource based measures is that they are perceived as being more repeatable over time. In most cases resource based measures are, however, rather risk factors than measures of animal welfare. Resource based measures are also typically dependent on the production system.

Animal based measures finally include measures of animal behavior, but also measures of disease or injuries. These measures have the advantage of being more likely to reflect the experiences of the animal than any of the other measures; to a large extent they are also independent of the production system. The disadvantages most often noted are that they in some cases require extensive training, can vary widely over time and that some of them take a comparatively long time to measure.

What can animal welfare assessment be used for?
Perhaps the most common use for an animal welfare assessment scheme is for certification purposes. There are a number of these certification schemes, with perhaps the most famous being the Freedom Food scheme of the RSPCA in the UK. A second reason for doing an animal welfare assessment may be to help the farmer and/or the advisor to locate areas of concern and to increase the overall welfare of the animals on farm. The Danish Cattle Federation has developed a welfare assessment scheme with this aim.

How is animal welfare assessment different from animal welfare control?
There are important differences between animal welfare control/legislation and animal welfare assessment. One is that the animal welfare assessment typically tries to assess the overall animal welfare of a population of animals and so includes some type of aggregation. In the animal welfare control the traditional emphasis is instead on each piece of legislation and any non-compliance is registered for each aspect of the legislation.
In an animal welfare assessment both negative and positive aspects of the experiences of the animals may be included. Animal welfare control is on the other hand about the minimum required standard, and positive experiences of the animals are therefore typically not assessed.

The background of Welfare Quality®

The Welfare Quality® protocols are a result of a major EU-funded research project led by Harry Blokhuis. One of the aims of the project was to develop animal welfare assessment protocols for the most common farm animal species, both for use on farm and for most species also at slaughter. Early on in the project it was decided that the experiences of the animal should be central in designing the protocols. This, together with the ambition that the protocols should cover as many different production systems as possible led to the conclusion that Welfare Quality® should focus on the use of animal based measures.

There was a consensus in the project that animal welfare is a multi-dimensional concept and that many different aspects of animal welfare needed to be taken into account. At the same time there was a need to try and organize the measures in a meaningful way. The result of these thoughts led to the formulation of the criteria and principles of Welfare Quality®.

Four principles and twelve criteria of Welfare Quality®

One of the most prevalent animal welfare definitions is the five freedoms of FAWC. It has however been difficult to translate these into relevant measures. In Welfare Quality® the five freedoms were divided up to facilitate the finding of good measures. The measures in Welfare Quality® are thus arranged in twelve criteria, which in turn are arranged in four principles (see table 1). The twelve criteria are meant to cover all relevant aspects of animal welfare.

The twelve criteria are all formulated in terms of absence of suffering, akin to the five freedoms of FAWC. The twelfth criterion is important as it emphasises that good welfare is not only about the absence of bad welfare but that the positive aspects of life should also be included.

Finally each criterion is described by a number of measures. Though the intention was to put emphasis on animal based measures, management based and resource based measures are included where animal based measures are not yet available. Examples of measures are stated in the table.

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<th>Principle</th>
<th>Criteria</th>
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<td>Absence of prolonged hunger</td>
<td>Body condition score</td>
</tr>
<tr>
<td></td>
<td>Absence of prolonged thirst</td>
<td>Water supply</td>
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<td>Good housing</td>
<td>Comfort around resting</td>
<td>Absence of manure on the body</td>
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<td></td>
<td>Thermal comfort</td>
<td>Panting</td>
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<td></td>
<td>Ease of movement</td>
<td>Space allowance</td>
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<td>Good health</td>
<td>Absence of injuries</td>
<td>Lameness</td>
</tr>
<tr>
<td></td>
<td>Absence of disease</td>
<td>Mortality</td>
</tr>
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<td></td>
<td>Absence of pain induced management procedures</td>
<td>Castration</td>
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<tr>
<td>Appropriate behaviour</td>
<td>Expression of social behaviours</td>
<td>Social behaviour</td>
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<td></td>
<td>Expression of other behaviours</td>
<td>Stereotopies</td>
</tr>
<tr>
<td></td>
<td>Good human-animal relationship</td>
<td>Fear of humans</td>
</tr>
<tr>
<td></td>
<td>Positive emotional state</td>
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Danish Centre for Animal Welfare (DCAW) Conference 2017

Date: 3rd October 2017
Theme: Animal welfare in the minds of farmers and consumers

Programme DCAW

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Nordic network for Communicating Animal Welfare (NordCAW)

Date: 4th October 2017  
**Theme: Animal-based indicators in farm animal welfare assessment and control**

**Programme NordCAW**

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| 08:45 – 09:25| Experiences with the Welfare Quality® protocol in the Finnish pig production  
Anna Valros, University of Helsinki, Finland                                                   |
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David Arney, Estonian University of Life Sciences, Estonia                                     |
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DAY 1

DCAW - Danish Centre for Animal Welfare

Theme: Animal welfare in the minds of farmers and consumers
Canadian animal welfare standards (based on Codes of Practice) aim to find a middle point between government legislation and voluntary industry standards, and seek to both assure consumers and the public that animal welfare is being protected, as well as to meet farmers’ requirements for profitable animal production, and ensure that farmers take ownership of the Codes.

The Codes are developed through a committee of stakeholders (including farmer groups and industry participants in the production chain, as well as animal protection groups, government representatives and veterinarians), which aims to achieve consensus, and which is informed about scientific findings via a transparent arms-length process.

The Codes include outcome-based standards wherever possible (since these allow the farmers greater flexibility in meeting the standard and come closest to protecting the actual welfare state of the animals), but also include many input-based standards since there are many aspects of animal welfare for which we do not have outcome-based measures.

The Codes are based on a broad concept of animal welfare that seeks to cover the concerns of all stakeholders, and covers animal emotional states, animal health and “natural” living. The method of assessment of compliance with the Codes is not yet fully determined and varies across industries.

The Codes are not legislated but have some semi-legal basis since compliance with the code can be used as a defence against a charge of animal cruelty. Supply-managed industries (such as the dairy industry) have codes that can be enforced by industry organizations such as milk marketing boards. Non-supply managed industries will probably rely on major food retailers to carry out assessments.

Short CV:
Jeff Rushen is an adjunct professor in the Animal Welfare program of the University of British Columbia in Canada and has done research into the welfare and behaviour of dairy cattle for many years.

He has also conducted research into the welfare and behaviour of pigs, poultry and zoo elephants. He was on the Canadian National Farm Animal Care Council and helped develop the codes of practice for dairy and veal calves, and has served as an external expert for the European Food Safety Authority.
Farm workers’ perception of animal welfare – A Danish Study

Inger Anneberg, Aarhus University, Denmark

The welfare of farm animals depends on development in production systems, economic drivers and regulation but also human factors – such as farmers’ perceptions of animal welfare, management strategies, communication, knowledge and training. In this study I have examined the perception of animal welfare among farm workers employed at five different Danish farms (pig, dairy cattle and mink). The methodology employed ethnographic field studies during daily work at the farms and qualitative interviews with 23 farm workers, of which some are of Danish nationality and others from other countries. The research questions asked were:

• How do farm workers understand animal welfare?
• Which elements do they find most important in relation to animal welfare?
• From where do they get knowledge about animal welfare?
• Are relationships between humans at the farm and human-animal relationships important factors for animal welfare, and if so, how?

Farm workers stressed that it is good animal welfare if farm animals have access to relevant food and water and are free from sickness and injuries, as it all relates to healthy production. The possibility/potential for animals to perform certain behaviour was negotiated among the workers and depended on a reasoning connected to daily practise. Some issues, like pain, were also negotiated, especially when pain was related to daily practise and imposed on the animals by the workers themselves. Daily dilemmas were seen, e.g. whether to use stomach tubes to deliver raw milk to new-born calves. All the workers dissociated themselves from being violent towards the animals though some admitted that they had in the past.

A negative relationship among colleagues and between workers and leaders, as well as lack of credit, were perceived to animal welfare and created a worse situation for the animals. Animal welfare legislation was mainly seen as a necessity, but something that could also conflict with daily practise and workers’ own welfare.

Short CV:

Inger Anneberg (61) is a trained journalist and anthropologist and has a Ph.D. in communication about animal welfare among farmers and authorities. She is a post-doctoral researcher at Department of Animal Science at Aarhus University, Foulum.

Her main research areas are the perception of animal welfare among farmers, students at farmers’ colleges and among farm workers, and their understanding of legislation and how inspections are carried out. Her methodology is ethnographic fieldwork and qualitative interviews and analysis.
Investing in cow-welfare – a cost-effective initiative?

Anne Braad Kudahl¹, Marlene K. Kirchner², Matt Denwood², Hans Houe², Björn Forkman², Søren Saxmose Nielsen² Søren Østergaard¹ and Jan Tind Sørensen¹
¹ Aarhus University, Denmark
² University of Copenhagen, Denmark

The aim of the project was to identify the most cost-effective investments in improving welfare for Danish dairy herds by identifying the most serious welfare problems and their causes, suggesting solutions and calculating the economic consequences of investing in the solutions.

The welfare of dairy cows was assessed in 60 Danish dairy herds using the Welfare Quality® assessment protocol for cattle. These data were supplemented with herd data on production, housing, management and diseases and analysed to identify the most important welfare problems and conditions associated with these problems. The most important welfare problems identified were poor comfort when resting, injuries, lameness and zero grazing. Several biologically plausible associations were found, e.g. time to lie down was associated with bedding quality, and lameness was associated with bedding quality and farmers’ awareness of lameness. Seven herds identified with substantial important problems were visited.

At the farm visits, the risk factors behind the welfare problems related to the stable and equipment were identified as: Cubicles that were too small, hard mattresses, and various problems related to the floor, scrapers, slats and floor hygiene. Solutions suggested by a building advisor, the veterinary practitioner and the farmer included extension of cubicles, placing soft mattresses or sand in cubicles, and improving floor quality and hygiene.

The feasibility for providing grazing was also discussed. The costs of implementing the solutions were estimated by the building advisor. By using the herd’s own data with the SimHerd model, welfare improvements and their expected economic effects were simulated. With a 10-year payback period and a 4% interest rate, all investments were highly profitable as long as milk yield increased by a minimum of 1.0 kg/cow/day and lameness was reduced by 10-20%. Grazing was found to be non-profitable because it was associated with high costs and milk yield losses.

Short CV:
Anne is senior advisor at Aarhus University, Dept. of Animal Science, and research unit Epidemiology and management.

She has a master in biology and a PhD in Animal Health Economy and during the last 20 years she has been working with the effects of management and housing on the health, welfare and production of farm animals. The research is, in addition to scientific publications, also being used in decision support for farmers, advisors and the Danish authorities.
National State animal welfare labeling - The German experience

Tanja Thiele, Federal Ministry of Food and Agriculture, Germany

In Germany, livestock husbandry is increasingly the focus of a broad public debate. Consumer expectations regarding the quality of the processes involved in food production are increasing. This includes the way in which animals are kept and, in particular, animal welfare.

According to the German Nutrition Report 2017, consumers are very willing to pay more for products which have been manufactured under tighter and credible animal welfare standards. When asked about their expectations in terms of agriculture, respondents placed animal welfare-oriented husbandry top of the list – ahead of product quality, employee remuneration and eco-friendly production measures. 87 percent of those surveyed would like to see improved animal husbandry standards, while 82 percent would like greater transparency regarding the conditions under which livestock are kept.

The German Federal Ministry of Food and Agriculture (BMEL) has begun work on introducing a federal animal welfare label. With the involvement of the relevant stakeholders in the value chain, the process of developing the label began in summer 2016. In January and April 2017, the logo and the criteria for pigs were presented by Agriculture Minister Christian Schmidt as part of promotional events. The necessary legislation is currently being prepared. The prerequisites for launching the label should all be in place during the second half of 2018. The plan is for a two-tier label, with basic and premium levels, and which will incorporate the entire chain, from birth to slaughter.

The criteria for pigs are more stringent than the statutory minimum standard and include, among other things, more space, permanent access to coarse fodder, a ban on piglet castration without anaesthesia, an extended suckling period, measures to prevent tail-docking, a reduction in the fixation of sows, shorter transportation times and the provision of regular training for animal handlers on animal welfare issues. The criteria therefore relate not only to the animals themselves but also to how they are managed and kept.

Short CV:
Tanja Thiele was born 1962 in Berlin
1978-1980: Apprenticeship as a horse breeder and rider
1980-1984: Animal handler, general qualification for university entrance
1990-2002: Employment with a number of different NGO
Since 2004: Federal Ministry of Food and Agriculture, Press office, Department for International Affairs
2006: Division for Animal Welfare, responsible for the development of a federal animal welfare label
“Better Animal Welfare” – a government animal welfare label

Mette Kirkeskov Sie, Danish Veterinary and Food Administration, Denmark

The intention of the new government animal-welfare label – named “Better Animal Welfare” - is to improve the animal-welfare of as many pigs as possible through consumer purchasing. The animal-welfare label makes it possible for consumers to identify which products meet requirements for better animal welfare. By selecting products with better animal welfare at a slightly higher cost the consumer is helping ensure that more pigs are produced under improved conditions. It is market driven animal-welfare.

The animal-welfare label is based on 5 basic requirements selected by animal welfare experts at the Danish Veterinary and Food Administration. These basic requirements meet conditions that go far beyond current statutory requirements:

1. Loose housed sows.
2. Pigs must have a curly tail. They must have whole tails - no tail docking and no tail biting.
3. More straw as rooting and manipulable material and for nesting.
4. More space.
5. Maximum transport time - 8 hours.

The animal-welfare label has 3 levels with ascending animal welfare requirements. Stricter requirements lead to higher costs and prices - this means that there will be something for everyone’s preference and purse.

The launch of a government animal-welfare label has been welcomed by 80% of consumers who replied that they feel mostly positive or very positive about a government animal-welfare label. (TNS Gallup for the Danish Agriculture & Food Council, April 2016).

The label was developed by the Danish Veterinary and Food Administration in collaboration with relevant parties throughout the entire commercial food train: The Organisation for cooperation of animal welfare groups (DOSO), the Danish Veterinary Association, the Danish Agriculture & Food Council, Abattoirs, Danske Slagtermestre (the Danish butchers association) and retail businesses (Dansk Supermarked [Bilka, Føtex og Netto]), De Samvirkende Købmænd (including MENY, Rema1000, KIWI and Spar) and Lidl and Aldi).

Short CV:
Mette Kirkeskov Sie, DVM working at the Danish Veterinary and Food Administration as project manager for the new government label “Better Animal Welfare”.

“My career has given me strong competences in the area of developing veterinary policies with a broad network in both Europe and world wide.”
The science behind the development and implementation of the WelFur-Mink protocol

Steen H. Møller, Britt I.F. Henriksen & Anna F. Marsbøll
Aarhus University, Denmark

Since 2009, researchers from Aarhus and universities in 5 other European countries have developed on-farm welfare assessment protocols for mink and foxes, which was first published in 2013. The protocols and aggregation models are based on Welfare Quality® with 4 principles and 12 criteria of animal welfare.

The assessment includes 22 welfare indicators to be measured on-farm in three different annual seasons of mink production. The indicators were chosen based on a critical evaluation of the validity, reliability and feasibility of more than 50 potential welfare indicators. Based on expert panel evaluation of the indicators and their relation between seasons the assessment results are aggregated across the three seasons into 12 welfare criteria and four welfare principles. Each farm is classified as either ‘Best’, ‘Good’, ‘Acceptable’ or ‘Unacceptable’ current practice.

The protocol has been repeatedly tested in 15 European countries and revised to handle all conditions found in each of the three seasons. To ensure a correct assessment, all WelFur assessors have to complete a 40 hours WelFur training course, a test and a follow-up training before each of the three annual seasons. A tool for taking unbiased and representative samples on a mink farm, and an application for on-farm registration of the assessment and exporting the results have been developed. In order to secure transparency and that farmers understand the animal welfare concepts applied, all assessment results are reported back to the farmer after each assessment. In order to make sure that farmers can react and improve the welfare of the animals, advisors from each country have been taught how to interpret the WelFur results and how to help farmers improve housing or management when needed.

WelFur seems to be the first example of a full scale implementation of a science based welfare assessment that is focusing the minds of the farmers on animal welfare in an entire animal sector.

Short CV:
Steen H. Møller is a Research Scientist at the department of Animal Science at the faculty of Science and Technology, Aarhus University.

Is Cand. Agro. in animal science from 1985 and has a Ph.D. in “Production management” from 1999 on the dissertation: ‘Management of Mink Production’ both from The Royal Veterinary and Agricultural University in Copenhagen.

Main research since 1985 has been Welfare Assessment and Management of Mink Production.
The Fur Europe board representing both farming and trade has decided to implement the animal welfare assessment system WelFur on 4,000 European fur farms before 2020. An important and far-reaching step towards full scale certification of European fur farming. Since the implementation started in January 2017 more than 80 % of the fur farmers have voluntarily signed up to start the WelFur assessments. Their willingness to participate in the certification program is significant. And underlines the fact that European fur farmers keep animal welfare central to their priorities and a vital part of the sustainable development of the entire fur sector.

The development of the WelFur system was voluntarily initiated by Fur Europe in 2009. Designed to provide reliable animal welfare assessment, consumer transparency and improvement of animal welfare in the European fur sector. The WelFur protocols for mink and foxes are developed by independent scientists and based on results from 30 years of research in fur animal welfare. The protocols work as science-based manuals for the independent third-party assessment of the fur farms. Compliance with certain legal and industry standards - equally necessary for obtaining a WelFur certificate - is also part of the third-party assessments. This is undertaken by Baltic Control, an internationally recognized certification body providing services for authorities within the UN and EU/DG Sante as well as Danish animal welfare concepts endorsed by government authorities and private stakeholders, like recently Animal Protection Denmark.

The WelFur scheme also provides a valuable management tool for the farmers. Supported by a team of specially trained WelFur advisors the animal welfare and overall farm result can improve by using WelFur data as guidelines. To address increasing demands for reliable information and traceability WelFur will also serve as a labelling scheme. Stating actual farm conditions to consumers, designers, manufactures and retailers.

The two European fur auction houses, Kopenhagen Fur and SAGA Furs, as well as the Canada-based North American Fur Auctions (NAFA) have agreed to sell the first WelFur certified mink and fox skins from December 2018. By 2020 only skins from WelFur certified farms will be sold by the European auction houses.

Short CV:
John Papsø is a Danish mink breeder. Besides running a family owned mink farm with 5,000 mink dams at Kjellerup in Jutland John Papsø is heavily engaged in the development of the fur sector, nationally as well as internationally.

Since 2003 he is the chairman of Midtjyllands Pelsdyravlerforening and a board member of The Danish Fur Breeders' Association/Kopenhagen Fur.

In 2011, he was elected vice chairman of Kopenhagen Fur. He is heading the European WelFur Steering Committee and took over the chairmanship of Fur Europe in 2017. Fur Europe is an umbrella organisation covering the entire value chain of the European fur sector representing more than 5,000 fur farms and national associations in 28 countries.
Welfare – an added value when exporting pig meat?

Christian Fink Hansen,
SEGES Danish Pig Research Centre, Denmark

How do we fulfill the expectations for animal welfare from society and at the same time remain competitive in a global market? The Danish pig industry has for many years focused on improving pig welfare through development of housing systems and management strategies that can go hand in hand with the expectations from the society and our export of pig meat.

A recent survey from the EU shows that 94% of EU citizens find it important to protect the welfare of farmed animals. However, the same survey also shows that only 16% are willing to pay up to 6% to 10% extra (Eurobarometer, 2016). The question is how to bridge this gap?

One key driver in building a market for welfare-enhanced pig meat is creating a multistakeholder approach, where animal welfare organization, farmers, retailers, authorities and food processing companies are working together. By working together, the chance of creating a win-win situation is greater.

The new Danish national animal welfare brand is a great example. There has been a desire to improve animal welfare, there has been research to investigate and document impact of changes – and there has been mutual commitment from the Government, the farmers, the veterinarians, the retailers, the abattoirs – and from one of our large animal welfare organisations.

The aim has been to design a label to improve the welfare for as many pigs as possible at price ranges matching consumer’s willingness to pay. In the longer run, we hope to export pig meat from the Danish animal welfare label – both to maintain and develop production and employment in Denmark by increasing carcass balance - but not the least to ensure more of the pig meat consumed in the world comes from welfare friendly production systems. A multistakeholder approach across borders will be a strong and important step.

Short CV:
Christian Fink Hansen is the director of the Danish Pig Research Centre at SEGES that is in charge of research and development tasks related to the live pig and of communicating knowledge obtained through these activities.

Before joining the Danish Pig Research Centre Christian was professor in pig production and head of the MSc Animals Science education at the University of Copenhagen and held prior appointments at Murdoch University, Australia (3 years) and at the National committee for pig production. Christian has a BSc, MSc and PhD in Animal Science from the Royal Veterinary and Agricultural University.
DAY 2

**NordCAW** - Nordic network for Communicating Animal Welfare

**Theme:** Animal-based indicators in farm animal welfare assessment and control
Experiences with the Welfare Quality® protocol in the Finnish pig production

Anna Valros, Camilla Munsterhjelm, Mari Heinonen
University of Helsinki, Finland

The status of pig welfare in Finland has raised active discussion during the last decade. The Welfare quality® (WQ) assessment scheme was applied to assess pig welfare. We aimed to evaluate strengths and weaknesses of Finnish pig production and to compare it to that of the other EU countries. A total of 198 assessments were performed; 103 for sows and piglets and 95 for fattening pigs. Of the Finnish fattening farms, 46% were scored as Excellent, and the rest as Enhanced, compared to 42% Enhanced and 58% Acceptable in countries (FR, D, UK, ESP) with comparable data available.

According to numerical comparison of scores, part of this difference might be explained by differences in health status, especially respiratory health, and in QBA (Qualitative Behaviour Assessment) results. We found negative correlations between carcass condemnations and the score for the Health principle, as well as between on-farm mortality and the Health and Appropriate behaviour principles. However, there were only weak correlations between WQ scoring and overall production results. Of the producers, 80% found it interesting and/or useful to be included in the assessment, and 90% stated that they have improved, or plan to improve, farm management as a result of the assessment.

The main concern raised by stakeholders, especially by animal protection organisations, was the fact that that 46% of farms ended up as Excellent. This suggests that the scoring system, and especially the final criteria setting and wording do not optimally help enhance pig welfare in a country such as Finland. In addition, the wording of the final criteria was found to be too value loaded, and a numeric scoring system was suggested to be less subjective.

Short CV:
Professor Anna Valros has a MSc in Zoology (1998), and a PhD in Animal behaviour and welfare (2003), University of Helsinki (UH).

Since 2008 she works as Professor of Animal Welfare at the Department of Production Animal Medicine, Faculty of Veterinary Medicine, UH. Her main research area is behaviour and welfare of pigs and poultry.

She is responsible for teaching animal welfare, behaviour and management, and animal ethics, within the veterinary education at UH.
Modifying the Welfare Quality® protocol - the Danish Animal Welfare index

Björn Forkman, University of Copenhagen, Denmark

The Danish animal welfare index project was a result of an agreement in the Danish parliament ("Veterinærforlig II"). The aim of the project was to create a Danish animal welfare index (DAWIN) for production animals so that the welfare state of Danish production animals could be followed from one year to the next. The assessment protocols to be used had to be valid, transparent and feasible. Whenever possible register data should be used to minimize the time needed to be spent on farm. The project was to be a collaboration between the Danish Veterinary and Food Administration, University of Copenhagen and Aarhus university.

In order to keep DAWIN as transparent as possible it was decided to use only one definition of animal welfare – that animal welfare should reflect the experiences of the individual animal. Specific assessment protocols were developed for dairy cattle, dairy calves, gestating sows, farrowing sows, piglets and weaners/fatteners. The protocols followed the lead of Welfare Quality® in using as many animal based measures as possible, but also removed a number of the more time consuming ones. Very few of the register data were found to be reliable enough to be included.

An aspect of Welfare Quality® that has received heavy criticism is the aggregation procedures used. These are mathematically complicated and give an extremely heavy emphasis to single measures of e.g. access to water. To avoid this DAWIN uses the animal welfare consequence of a given state multiplied with the prevalence of that state to assess the national animal welfare level.

Short CV:
Björn Forkman is a professor of applied animal behaviour at the University of Copenhagen, where he has been employed since 2001. A biologist by training he soon became interested in applied behaviour and started working in the field. Most of his work has been in three areas: animal welfare assessment (he led a subworkpackage in the Welfare Quality® project), chicken cognition and behaviour and dog behaviour.
Reliability of animal and resource-based welfare indicators

Siobhan Mullan, University of Bristol, United Kingdom

To understand the reliability of a welfare indicator we must factor in elements such as its ability to reflect the true welfare state of the animal and sometimes, the repeatability between observers that can be achieved. When we use such indicators to help determine the welfare status of a whole farm then knowing the level of accuracy afforded by sampling different numbers of animals is useful. In addition, where relatively few observations, or even just one, are used to give an indication of the farm over the year then measures that vary with time of day or seasonally, or with different weather conditions will have lower reliability.

Animal and resource-based indicators may be used for a range of reasons on farms. Determining the level of reliability required is not easy and depends upon the ultimate use. Where the consequences of incorrect findings are more severe, for example a legal prosecution, then greater reliability is required. However, desirable as high levels of reliability may be, it may be possible to work with less reliable measures, for example to encourage farmers to make changes to improve welfare. I will advocate an approach of understanding the level of reliability afforded by each welfare indicator and describe how, within UK farm assurance schemes in particular, we have attempted to put this into practice.

Short CV:
Dr Siobhan Mullan is a Senior Research Fellow at the University of Bristol Veterinary School.

Her research has focussed on implementing welfare assessment measures to improve welfare. She is the scientific verifier for the AssureWel project, working with the RSPCA Assured and Soil Association Organic farm assurance schemes to include welfare outcome measures for a range of species.
Use of automatic measurement of animal-based welfare indicators

Tomás Norton, University of Leuven, Belgium

A key contribution of precision livestock farming (PLF) is the integration of animal-based indicators of health and welfare into practical real-time monitoring systems that create value for farmers and society.

PLF provides the livestock industry with the capacity to consider the animal’s wellbeing at an individual level, rather than just another number on a spreadsheet. In this paper the concept of Precision Livestock Farming (PLF) will be discussed from a welfare monitoring and management perspective. The paper will present the underpinning principles associated with the modelling of all living organisms and connect this with the different PLF applications for welfare monitoring of animals. A key point to be argued is how robust technology such as cameras/microphones can be enabled with multiple functions to reduce costs and create value for the farmer.

We will also question how PLF can be used for welfare management. Practical examples will be taken from the EU-PLF, a 4 year FP7 project that ended in 2016 (Berckmans, 2016) with the focus to translate the technology current in laboratories into implementable technologies and verify the value creation potential for EU farmers.

Short CV:
Tomas Norton is an assistant professor in Precision Livestock Farming (PLF) in the group of M3-BIORES (Measure, Model, Manage Bio-responses), Division of Animal and Human Health Engineering at the KU Leuven. He holds a PhD in Biosystems Engineering from University College Dublin (Ireland).

He previously held academic positions at Harper Adams University (UK), University College Dublin (Ireland), Dublin Institute of Technology (Ireland) and was a research assistant at Teagasc Irish Agriculture and Food Development Authority (Ireland). His current research focus is on PLF applications, focussing on real-time modelling and control of animal bio-responses. Since January 2016 Tomas was a daily coordinator of the EU-PLF project (2012-2016) and currently coordinates Ph.D. students and Masters students in PLF at M3-BIORES. He is also a member of the lecturing team at KU Leuven for courses on Measuring, Modelling and Managing Bio-responses and Sustainable PLF. He collaborates with colleagues across the world, and has given a number of invited keynotes and currently represents M3-BIORES as vice-president for the EAAP commission for Precision Livestock Farming.
Use of recorded existing data in animal welfare assessment on group level

Linda Keeling, Swedish University of Agriculture Sciences, Sweden & Hans Houe, University of Copenhagen, Denmark.

Technological developments have made it easier to gather data directly and indirectly related to animal welfare. These data offer tremendous potential for welfare assessment, but there are also many limitations. In addition to general data quality criteria (accuracy, reliability, robustness etc.), data that were not originally collected for the purpose of welfare assessment need extra scrutiny to avoid pitfalls when interpreting the recordings. However, if these challenges can be properly addressed, existing data are very attractive, being readily available, often covering large populations as well as having continuous recordings over time. Then why has progress in this area not (yet) lived up to expectations?

There are several possible reasons. Among them is that the very concept of animal welfare is so broad that many different parameters have to be recorded if all dimensions are to be addressed. Other areas focus on a specific disease e.g. mastitis, or a specific food safety hazard e.g. salmonella, rather than on assessing the whole areas of ‘health’ or ‘food safety’. Register data often reflects managers’ decisions (when to treat, euthanize etc.) rather than being direct observations of welfare outcome indicators. Variation in the skills and attitudes of the stockperson underlying these decisions are therefore a difficult confounder to correct for in such data. A third reason can be that data relevant for animal welfare assessment are owned by different stakeholder groups, with varying interest in sharing.

But things are changing. The recent progress of animal welfare initiatives includes utilization of data from different sources (e.g. combined register and farm observations). Increased societal pressure and consumers are creating a demand for trustworthy documentation of animal welfare in a reasonable, cost effective way. Important for this process, and probably even essential, is that everybody should be acknowledged and rewarded for providing transparent information on animal welfare.

Short CV:
Linda Keeling is Professor of Animal Welfare at the Swedish University of Agricultural Sciences where she manages an active group of researchers and students in the area of animal behaviour and welfare.
She was a member of the EFSA Animal Health and Animal Welfare panel and was particularly involved in their work on animal-based measures of welfare and animal welfare risk assessment methodology. She is coordinator of the Centre of Excellence for Animal Welfare Science in Sweden.

Hans Houe is a Professor in Veterinary Epidemiology and Head of Section for Animal Welfare and Disease Control at Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen.
He obtained his veterinary degree (DVM) from 1986 and later PhD and Doctor of Veterinary Science degree (DVSc) from The Royal Veterinary and Agricultural University (now University of Copenhagen).

Former employments include veterinary practice, associate professor in internal medicine and Head of Research Centre for the Management of Animal Production and Health. His current research interest includes: Risk factors, effects and infection dynamics of infectious diseases; Disease control and eradication; Animal health economics; Integrated research within animal welfare; Validation of databases.
The challenges of implementing animal-based measures into legislation

Sacha Lucassen, University of Copenhagen, Denmark

In recent years, the possibility of implementing animal-based measures into legislation to improve animal welfare has increasingly gained attention. However, currently, animal welfare legislation is mainly based on resource-based measures, while animal-based measures have only scarcely been incorporated. This project sets out to investigate the potential of using animal-based measures in legislation and to address the legal challenges that present themselves.

The project investigates the present use of animal-based measures in legislation by means of a practical case study; the surveillance system of footpad lesions on broilers, implemented in Danish legislation. The legislative background for the system, together with obtained case law on the area and the general impact serve as a basis for the study. Interviews with participants who have expert knowledge on legislation and animal welfare demonstrate the challenges and general acceptance of the measures. This leads to an evaluation of the compatibility of animal-based measures with the principles of the legal system.

The research recognizes three main considerations concerning the implementation of animal-based measures: animal-based measures are perceived as subjective, inconsistent over time and multi-factorial. These considerations correspond to certain legal concerns, which are emphasized as well in the conducted interviews. Measures need to be consistent and objectively described for actors in order to know when compliance is reached. The case study demonstrates a different way of implementing animal welfare legislation by the use of animal-based measures as “top up” on existing measures. The study also showed a level of discretion in choice of consequence for the authority, which makes the system more flexible. These manners all make the animal-based measure more compatible with the existing legal system.

In substance, the results of the project demonstrate that the legal system can make use of specific chosen animal-based measures while simultaneously not compromising the legal certainty as a fundamental principle in the rule of law.

Short CV:
Sacha Lucassen holds a Master’s Degree in Animal Law at the Autonomous University of Barcelona, which she pursued in continuation of her Master’s degree in Law from the University of Copenhagen. Her final thesis on the implementation of Council Directive 2008/120/EC in regards to tail docking of pigs led her to an internship at Eurogroup for Animals.

Sacha Lucassen have recently finished a project on animal-based measures in legislation at the University of Copenhagen affiliated to the Section of Animal Welfare and Disease Control. She is currently working at the Danish Veterinary and Food Administration in the area of transport of animals.
Use of animal-based welfare indicators in official inspections at farms

Harald Øverby, Norwegian Food Safety Authority, Norway

The Nordic Council of Ministers (https://www.norden.org/en/nordic-council-of-ministers/ -Nordiske Ministerrådet) is the official inter-governmental body for co-operation in the Nordic Region. Within the path of the Nordic Council, the Nordic Working Group for Microbiology & Animal Health and Welfare (NMDD) is found. The objective of the working group is to ensure that the Nordic authorities work together effectively within this field. To reach the goal, the group exchange information about the situation in each of the Nordic countries and support initiatives of collaboration on projects and activities in accordance with the Nordic Council priorities. There are now 10 years since the NMDD working group was established and many projects have been supported. Among these, the ongoing project “Use of animal-based welfare indicators in official inspections at farms” will be presented below.

Evaluation of practical animal based welfare indicators in routine governmental inspections at farms. The goal of the project is to suggest and test a Nordic coordinated scoring system of the most informative and practical animal based welfare indicators. To limit the scope of the project, scoring system will initially only be developed and tested for cattle. The indicators chosen are based on the five criteria of animal welfare; freedom from hunger and thirst, freedom from discomfort freedom from pain, injury or disease, freedom from fear and distress, and freedom to express normal behaviour. The indicators chosen to reflect the freedoms are: 1) Body condition score 2) cleanliness 3) lameness 4) injuries 5) aggression or anxiety. The group has developed a simple scoring system that enable the inspectors consistently to evaluate, qualitatively and quantitively, the overall situation at the farm, and to decide whether the animal welfare in the flock is within the legal framework or not, or if special follow up is needed. By using a coordinated scoring system, the development of the situation can more easily be supervised within the Nordic countries.

Short CV:
Harald Øverby works at the Norwegian Food Safety Authority at regional level. The project “Use of animal-based welfare indicators (ABWI) in official inspections at farms” is a Nordic project.
Animal welfare controls in Estonia

David Arney, Estonian University of Life Sciences, Estonia

Described is a recent project evaluating dairy cow welfare risks in Estonia, on loose-housed dairy farms, during the year 2016. Evaluations were carried out on 11 dairy units selected to represent: larger and smaller units, geographical locations representing the whole country, robotic and parlour milked systems, and farms with and without livestock access to outdoors. Evaluation visits were made in each of the four seasons. Evaluations were based on the Welfare Quality® system, with some additional inputs and some simplification.

The aim of the work was to identify risks, it was not designed as a scientific exercise, it was not designed to evaluate herd or individual cow welfare, and it was not to compare farms or compare seasons nor to investigate possible causes of any of the welfare problems identified. This was partly to comply with the funder’s expectations, partly the limitations on both time and finances available, but also to reassure farmers that there would be no identification of them, or reporting of their activities and processes to authorities. Included in the evaluation was an open discussion with farmers and/or those with the direct care of the animals, to incorporate their opinions and insights. Outcomes included the following risks: lameness (no surprise there), frequent low body condition scores and bald patches (on the legs and neck), insufficiency of comfortable cubicles (damaged cubicle furniture but also lack of easily available free cubicles) outdoor access and, less excusably, insufficient access to clean water (once one drinker was available to 30 cows). A risk that emerged from the farmers’ interviews was the poor quality of stockmanship. The availability of conscientious and skilled stockpeople is a problem found elsewhere in Europe, but it may be particularly a problem in Estonia given recent economic problems in the sector and rural depopulation.

Short CV:
Educated in Britain. After too many years trying a series of jobs including farm worker, London market stall holder, running a music club, administrator in a criminal court and as a miner, is currently Professor of animal welfare at the Estonian University of Life Sciences. Was a postgraduate student under Clive Phillips and Don Broom, is primarily interested in the welfare of livestock, but also the ethics of our exploitation of animals in a wider context.
Concerns for the welfare of animals in modern farming have repeatedly emerged on the public agenda. With the help of more knowledge of improvements that can better meet animal needs, there is a long-standing process of reformulating and extending standards in Europe. Yet, there is a constant push from a highly competitive market, having redirected the interest towards making consumers capable and more willing to buy – often more costly – animal friendly products. Can and will consumers solve this dilemma? The talk will discuss how people as consumers and citizens relate to what happens on the farm.

An important point is that not only does this depend on their knowledge, information and general moral standing, but also on regulatory traditions and the structure of the food supply chain. In addition to conditions of trust. Here we find large variations. While product standards and labelling dominate in some places, others concentrate on high quality, local supply, yet others on general state legislation or industry benchmarking. The talk will finally address how the variety of responses may inform the process of formulating and promoting animal based standards.

Short CV:
Dr Unni Kjærnes holds a degree in nutrition and a phd in sociology. She is a research professor at Consumer Research Norway (SIFO) at the University College of Oslo and Akershus. Her research has concentrated mainly on food in relation to consumer and food policy issues, coordinating large collaborative projects in Norway, the Nordic countries, and Europe, with activities extending even to Russia and India.

She was the coordinator of a social scientific sub project in the EU-FP7 project Welfare Quality ®. The research has been widely published, addressing patterns of food consumption, consumer opinions, and trust, and how these patterns are influenced by food supply structures and regulatory interventions - on an individual, a social, and a national scale. A range of food policy issues have been included; food safety, nutrition, organic food and sustainability, animal welfare, and food security.
About the Danish Centre for Animal Welfare (DCAW)

DCAW was initiated in January 2010. DCAW is located at the Danish Veterinary and Food Administration but is a collaborative initiative bringing together animal welfare experts from the authorities as well as from Copenhagen and Aarhus universities.

DCAW contributes to improving animal welfare by:

- Communicating animal welfare knowledge to relevant stakeholders such as farmers, politicians, veterinarians, researchers, pet owners, etc.
- Initiating and supporting animal welfare research.
- Presenting an overview of animal welfare-related data from authorities, from the farming industry and from research.
- Comparing Danish animal welfare data and legislation to that of other European countries

About the Nordic network for Communicating Animal Welfare (NordCAW)

The purpose of NordCAW is to facilitate communication regarding animal welfare between science, authorities, primary producers and a wider public in the Nordic countries.

NordCAW was started by the Animal Welfare Centers in Denmark, Finland, Norway and Sweden. Since then it has expanded to include also other Nordic countries such as Iceland, Faroe Islands and the Baltic states Estonia, Latvia and Lithuania. Its mission is to communicate Nordic Animal Welfare within the Nordic and European hemisphere.