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Knowing Animals: Cross-fertilisation between natural and social sciences for understanding the quality of life of animals - Book of abstracts

Mara Miele, Isabelle Veissier, Henry Buller, Hans Spoolder, Bettina Bock

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Welcome to Knowing Animals

How we represent animals and interact with them, the conditions in which we study them, and the capacities for sentience and an emotional life that we attribute to them, all influence our views on how animals should be treated and what constitutes a good life for them. The various ways of knowing animals are nonetheless embedded both in different science practices and varied cultural and practical relationships and encounters. In this conference, we look at one of these human - animal encounters, namely animal farming and at how we study and represent the lives of the animals kept for food production. Such encounters are highly mediated by the farming and meat industry, the apparatus of food safety and animal welfare science and regulation, as well as an increasingly sophisticated process of qualification enacted by the food industry. Through a two day discussion, around five specific themes, we aim at establishing what we believe is an increasingly necessary dialogue and cross-fertilisation of ideas and perspectives between animal scientists and social scientists to reflect upon the practices of knowledge production and the understanding of animals, their agency and the quality of their lives that such practices generate.

Information and Assistance

For information and assistance while at the conference, please contact **Marc Higgin** (HigginM@Cardiff.ac.uk) on **07837331678**

About the Conference Venue

The **Palazzo dei Congressi** (conference centre) is hosted in a 19th century villa, Villa Vittoria. The villa was built by the Strozzi family and it is located a few steps away from the historical centre of the city. The building is surrounded by a local park and has an auditorium seating 1,000.

Restaurants in Florence

Vegetarian Restaurants

Il Vegetariano
Via delle Ruote, 30
Phone number: +39-055-475030

Vegetus
Via del Leone 53/r, Piazza Tasso
Phone number: +39-055-214722

Kosher

Ruth's Restaurant
Via Luigi Carlo Farini, 2A
Phone number: +39 055 248 0888

Halal

Maddina Tandoori Restaurant
Via De Bardi 47/R
Phone number: +39 055 238 1842

Good Value

Il Santo Bevitore
Address: Via Santo Spirito, 64/66r;
Phone number: +39 055-211264

Trattoria Mario
Address: Via Rosina 2/r, corner of Mercato Centrale.

Cibreino
Via dei Macci 118, Santa Croce, Florence

High End

Il Cibreo - expensive
Address: Via dei Macci, 118r; tel.
Phone number: +39 055-2268410

Ice Cream that worth the trip!

Vivoli Piero Il Gelato - ICcream
Via Isola Delle Stinche, 7/R.

About Knowing Animals

Programme Committee:

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Conference website: <http://www.knowinganimals.org/index.html>

**For information and assistance while at the conference,
please contact Marc Higgin on 07837331678**

Conference Themes & Convenors

Theme n. 1 *Naturality: cowness, pigness, chickennes*

Reference to nature and the natural are central to societal understandings of animals and animal welfare but the question of what actually constitutes naturality and natural behaviour, is a complex and challenging issue for both animal and social science. Moreover, the relations between nature and animal welfare are far from being straightforward. How then to define and measure species specific natural behaviour? How does naturality relate to animals' needs and motivations? Does the use of the natural and of natural behaviour by welfare scientists, and food chain actors, resonate with wider societal understandings of animal welfare which tend to equate the good life with a natural life? To what extent is 'natural behaviour' compatible with contemporary research on welfare. Ultimately, is the concept of the 'naturality' still useful when both animals themselves and their ecological context have been altered so radically?

Convenor

Bettina Bock Bettina.Bock@wur.nl

Theme n. 2 *Designing for welfare*

As societal demands, and welfare science develop, the apparatus of animal husbandry is increasingly having to take on board welfare criteria in design and construction. In addition, farm animals' recent evolutionary histories have been anything but 'natural'. Not only has the intense selection for productive breeding strains in the 20th century led to many welfare problems in modern farming but a more recent shift of concern has seen breeds and strains specifically selected because they are believed to deliver welfare benefits. This theme seeks to explore the diversity of what constitutes the 'good life' for farm animals, through the prism of innovation in animal breeds, farming environments and stockmanship and asks to what extent design might ultimately replace care for animals.

Convenors

Hans Spoolder Hans.Spoolder@wur.nl

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Theme n. 3 *Zoomorphisms and anthropomorphisms*

From a societal point of view, understandings of farm animal welfare are situated within everyday life which, increasingly, is dissociated from direct experience of the life of such animals. It is strongly mediated by the images and messages promoted by the food sector and centred on an anthropomorphic understanding of other animals. Within animal science, animal-centred approaches to welfare are challenging these perceptions of animals' subjectivity and animals' quality of life. How are these two approaches reflected in animal welfare understandings and assessment tools currently on the market? In more general terms, is this binary distinction between anthropomorphism and zoomorphism valid? How do these different perspectives inform claims to 'speak for' farm animals?

Are the knowledges produced by these two approaches incompatible, or are they, in practice, inter-related?

Convenors

Emma Roe E.J.Roe@soton.ac.uk

Herman Vermeer Herman.vermeer@wur.nl

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

In recent years there has been a sharp increase in the number of agricultural animal welfare standards as a mode of governance at the international, regional, and national level. Much of the emphasis for explaining the rise of welfare standards is focused on consumer-demand, yet it tends to neglect the role of other actors in agro-food supply chains, such as retailers, producer organisations, and scientists in the commercial governance of animal welfare. With this theme we hope to open up a debate both on the ways in which animal welfare standards have been developed, which measures of welfare have been proposed, how they can be combined into an overall assessment and the actual and potential uses of such assessment tools.

Convenors

Unni Kjarnes unni.kjarnes@sifo.no

Linda Keeling linda.keeling@hnh.sl.se

Theme n. 5 *Animal Welfare and Food Quality*

It has been argued that in affluent countries consumers have developed a ‘taste for ethics’ which point to the growing sophistication of consumers’ demand for food, where ethical status joins the already multifarious aspects of the concept of food quality. The welfare of farm animals is often presented, in commercial settings, as an ethical credential and an indicator of other superior characteristics or even greater food safety. However, the links between the quality of life of farm animals and the quality of the animal products are often contradictory and contested by animal science which point to a more complex set of factors than the simple message suggested in commercial settings. This theme addresses the quest of the real, imagined or constructed links between the perceived quality of animal foods and the quality of life of farm animals.

Convenors

Henry Buller H.Buller@exeter.ac.uk

Andy Butterworth Andy.Butterworth@bristol.ac.uk

Conference Programme

Thursday 5th March

8-9am: Registration

9-9.15am

Mara Miele: Welcome and Introduction

9.15-10.45am: Plenary 1

Chair: Peter Sandøe

David Fraser: Understanding animal welfare: the science in its cultural context

Erica Fudge: Gesturing at an Animal History

10.45-11am Coffee Break

11am-12.30pm: Parallel Paper Sessions

Theme 2	Theme 4	Theme 5
Chair: Hans Spoolder	Chair: Linda Keeling	Chair: Henry Buller
L. Canario: Adaptation and maternal abilities of Meishan and Large White sows raised in a loose-housing system during lactation	Peter Sandøe: Scoring the welfare of animals on farms: a matter of technique or ethics?	Friederike Albersmeier: Who is the customer? Conflict or Coexistence between Animal Welfare and Organic Products?
Bram Bos: Integrating welfare with economy and environment in dairy husbandry based on design based welfare requirements	Emma Roe: “Using your eyes and ears”: the performance of on-farm welfare assessment	Adrian Evans: Foodsense: how consumers sense and make sense of farm animal welfare through food
Mirco Corazzin: Welfare of Simmental cows in tie-stalls: effect of mountain summer grazing	Lena Molin: Sick Pigs and Cannibal Cows – technoscience in the food sector	Mara Miele: What do we care for when we invoke animal welfare?
Herman Vermeer: Group size and density under ComfortClass conditions for growing pigs	Ari Z. Zivotofsky: Ancient animal welfare codes as a guide to modern codes	P. Arouna Ouedraogo: Social Imaginaries and Animal Welfare Concerns in France

12.30-1.15pm: Lunch

1.15-1.45pm:

Rob le Frenais (by video link): *Interspecies.*

1.45-3.15pm: Parallel Paper Sessions

Theme 2	Theme 4	Theme 5
Chair: Catherine Milne	Chair: Peter Sandøe	Chair: Andy Butterworth
Friederike Albersmeier: Ethical animal husbandry versus productivity: Consumer preference for multifunctional chickens	Paul Ingenbleek: Managing Conflicting Interests in Formulating AW Standards	J. Luy: Labelling of Meat from Slaughter Without Stunning
Alistair W. Stott: Combining economics with science to design for welfare	Marie von Meyer: Searching for the “holy grail” of animal welfare labelling	A. Martini: Welfare and meat quality of Limousine organic calves
O.N.M. van Eijk: 4P-approach in designing animal friendly pig production systems	Joe Collins: The use of Policy Delphi methodology to engage key respondents from stakeholder groups in a study of equine welfare	Michael C. Pearce: Immunocastration using Improvac™ Improves Pig Welfare and Pork Quality
A.C. Dockès: Consumers and Cattle Farmers Face the Issue of Animal Welfare	Alberto Menghi: Animal Welfare as public good: the Italian experience of Emilia Romagna Region	Claire Weeks: Do free-range poultry systems offer better quality?

3.15-3.45pm Coffee Break

3.45-5pm Parallel Paper Sessions

Theme 2	Theme 4	Theme 1
Chair: Onno van Eijk	Chair: Unni Kjarnes	Chair: Isabelle Veissier
Patricia Pellegrini: Docility in beef cattle breeding: how scientists and breeders match their view?	Mara Miele: Ordering animal farming practices	D. Temple: Welfare Evaluation of Social and Exploratory Behaviours in Fattening Pigs Housed in Intensive and Extensive Conditions
Kamara Scott: Do farmers and scientists differ in their understanding and assessment of farm animal welfare?	Luiza Toma: A Critical Review of Animal Welfare Standards and their Trade and Environmental Impacts	Gail Tulloch: Animal Ethics: The Capabilities Approach
Lill Vramo: I wish I did not get so many triplets and quadruplets	Nils Beaumont: Analysing Society Concerns by means of Internet Opinion Polls	Claire Weeks: Does ranging behaviour go against the grain for modern chickens?

5-6.30pm Plenary 2

Chair: Henry Buller

John Webster: Zoomorphism and Anthropomorphism: Fruitful fallacies?

Adrian Franklin: Animals and the academy: humanism, antihumanism and posthumanism

Friday 6th March

9-10.30am Plenary 3

Chair: Terry Marsden

Lindsay Matthews: Pigness, chickenness, cowness: naturality as welfare?

John Law: Care and Killing: Tensions in Veterinary Practice

10.30-10.45am Coffee Break

10.30-12.15pm Parallel Paper Sessions

Theme 2	Theme 3	Theme 1
Chair: TBC	Chair: Francois Wemelsfelder	Chair: Ari Z. Zivotofsky
Bouda Vosough Ahmadi: Animal welfare and economic optimisation of farrowing systems	Lesley Wiseman: Psychometric methods in animal welfare measurement	D. Baroli: How do Italian farmers perceive their dairy cows?
Peter W.G. Groot Koerkamp: COWEL: Semantic modeling of the relation between husbandry characteristics and animal welfare performance to evaluate existing and design new husbandry systems for dairy cows	Bettina Bock: Farmers' understanding of animal welfare	Owain Jones: Close to: on the embodied, emplaced (and thus) geographical becomings of animals
Dahlanuddin: Improving welfare and productivity of Bali cattle in the collective housing system on Lombok, Indonesia	Nadine Reefmann: Use of behavioural and physiological measures for assessing positive emotion in sheep	Jocelyne Porcher: Do cows and pigs collaborate in the work of their breeders?
Karel de Greef: Proof of principle of the Comfort Class concept in pigs	Ferry Leenstra: Killing one-day-old male chicks, do we have alternatives? Assessing opinions of 'the public' about alternatives to the killing of one-day-old chicks	

12.15-1pm Lunch

1-1.30pm

Chair: Isabelle Veissier

Rod Bennison: The *Minding Animals* conference

1.30-2.45 Parallel Paper Sessions

Theme 2	Theme 3	Theme 1
Chair: Onno van Eijk	Chair: Emma Roe	Chair: Bettina Bock
Carolien de Lauwere: The role of farmers in improving animal welfare	Françoise Wemelsfelder: The human perception of animal body language: A window into an animal's world?	Birgit Boogaard: Naturality of farm animals as a prerequisite for welfare – different perspectives between Dutch and Norwegian citizens
Paolo Ferrari: Farmer's willingness to implement animal welfare strategies in relation to job satisfaction	Joyce D'Silva: Anthropomorphism as an Antidote to Anthropocentrism	Saara Kupsala: Consumers' understandings of "naturalness" and the "natural life" of animals in organic livestock production
Catherine E. Milne: Designer shepherds?	Noëlie Vialles: Relations and Regulations: An Anthropological Approach	Augusto Vitale: How much naturalistic animal welfare should be?

2.45-3.15 Coffee Break

3.15-4.30pm Parallel Paper Sessions

Theme 4	Theme 3
Chair: Larry Busch	Chair: Nadine Reefman
Mechthild Frentrup: Animal welfare assessment: Does a top-down approach more effectively bring forward animal welfare than a bottom-up approach?	Simone Pollo: How much anthropomorphic animal welfare should be?
E. Gratzner: Animal welfare assessment protocols as part of herd health and welfare planning tools	Ferry Leenstra: Animals can't speak for themselves: controversy and congruency between expert views and public opinion on animal welfare
Roland Aumueller: Animal Welfare in GLOBALGAP's livestock standards: the future integration of scientific knowledge on animal welfare for a combined overall assessment of farm animal production	Alain Boissy: Cognitive science to assess animal emotions: Ear postures as indicators of emotional states in sheep

4.30-6pm Plenary 4

Chair: Harry Blokhuis

Joy Mench: Animal Welfare Standards: Balancing Science, Ethics, and Practicality

Lawrence Busch: The Politics of Animal Welfare Policies

6-6.30pm

Andrea Gavinelli: The European vision on animal welfare from science to policy

7pm Drinks Reception

Keynote Abstracts

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Rod Bennison, Conjoint Lecturer, Co-convenor 2009 International Academic and Community Conference on Animals and Society: *Minding Animals*, School of Environmental and Life Sciences, University of Newcastle, Callaghan, Australia

Minding Animals

The Minding Animals Conference is dedicated to the emerging transdiscipline of animal studies. A brief examination will be made of the rationale behind the name, and the aims and objectives of the conference will be outlined.

The aim of the conference is to incorporate and expand on the areas of ethnozoology, ethnobiology, critical animal studies, society and animals, animal geographies, animal philosophy and animal law, let alone how animals are represented in art, music, literature and on film. The conference has six major themes and objectives, including an examination of the relationship between the animal and environmental movements, an examination of how humans identify and represent nonhuman animals in art, literature, music, science, and in the media and on film, and how, throughout history, the objectification of nonhuman animals and nature in science and society, religion and philosophy, has led to the abuse of nonhuman animals and how this has since been interpreted and evaluated.

The conference also has the objective to examine how the lives of humans and companion and domesticated nonhuman animals are intertwined, and how science, human and veterinary medicine utilise these important connections. Importantly, the conference will examine how the study of animals and society can better inform both the scientific study of animals and community activism and advocacy, and how science and community activism and advocacy can inform the study of nonhuman animals and society.

The second part of the presentation will outline the design and logistics of the Minding Animals Conference. The conference has been designed to be an integrative, informative and interpretative conference between academics and community activists whose chief interests are the environment and or animal advocacy (inclusive of animal protection, animal welfare, animal rights, and animal liberation and wildlife protection).

The framework has been designed to allow the emerging field some insight into community activities that academics seek to study, and some tensions that exist within albeit similar community or activist movements.

Other than keynote and concurrent invited speaker presentations, sessions will include the Protecting the Animals Seminar Series that will allow non-government organisations and advocacies and government instrumentalities to display and elaborate on their specific work or aspects of their charter that seek to protect animals. Sessions also include a more traditional conference framework involving panel presentations, concurrent sessions and poster presentations. The conference will also be hosting an Animals and Arts Festival, an Animal Docos Festival, an Interfaith Service, and an extensive social programme.

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Website: <http://www.mindinganimals.com/>

Lawrence Busch, Professor of Sociology, Michigan State University, USA & at CESAGEN, Institute for Advanced Studies, Lancaster University, UK

The Politics of Animal Welfare Policies

Luc Boltanski and Laurent Thévenot tell us that we live in a plural world in which actions are justified in multiple ways. Moreover, Anne Marie Mol argues that things, certainly including animals, are always multiple, their very existence dependent on the particular practices in which they are implicated. Thus animal welfare policies must be understood in light of both the ways in which animals are 'practiced' and the particular justifications provided for these practices. Such policies make claims based on the practices involved in animal-human interactions and are justified based on appeals to the scientific (industrial), civic, market, and domestic polities, among others. This paper will explore the implications of these multiplicities for the formation of animal welfare policies.

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Adrian Franklin, Professor of Sociology, University of Tasmania, Australia

Animals and the academy: humanism, antihumanism and posthumanism

This paper argues that although we can recognise that our relationships with animals, particularly domesticated species are of considerable value, the theoretical and methodological tools we need to understand those relationships and how they form are largely missing. Human-dog, human-cow, human-pig and human-sheep relationships for instance seem to fall into the abyss of the Great Divide, somewhere between the humanities and the sciences, and especially as this division is organised and ordered by specific disciplinary boundaries and knowledges. Crudely, the sciences have been interested in animal behaviour, as if it is separable from the humanity it is intertwined with and has co-evolved alongside. It is as if dog behaviour in its relation with humans belongs to and resides in a dog's species being, as opposed to being an artefact of a dialectical exchange between species; something that is neither dog or human but both; something created and emergent. We can say that this approach purifies out the human dimension of the relationship, something Pickering (2000) called antihumanism. On the other hand the humanities and social sciences have been humanist inasmuch as they posit a world of humans among themselves. Their research on human dog and other animal relations tends to centre on what they mean to, represent and achieve for, humans: as if it were only human agency, interpretation, ethics/morality and action existed or was of interest. This paper fleshes out the nature of this ontological abyss and suggests, in broad terms and asks how it can be addressed theoretically and methodologically. While the theoretical problem can be solved and the methodology specified in broad terms, the task of enacting what Franklin, Haraway et al (2007) have called trans-species methodology might take us to new and scary territory.

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David Fraser, Professor of Animal Welfare, University of British Columbia, Vancouver, Canada

Understanding animal welfare: the science in its cultural context

Current debates about the welfare of animals in intensive animal production systems have much in common with the debates that arose about human welfare during the Industrial Revolution. Many critics, who saw industrialization as bad for human welfare, adopted a 'Romantic/Agrarian' world-view which valued nature ahead of technology, individual freedom ahead of collective efficiency, and emotion ahead of rationality. They saw industrial manufacturing as forcing workers into situations that were no unnatural as to damage their health and deny their individuality, autonomy and basic human nature. Others, who saw industrialization as good for human welfare, reflected a 'Rational/Industrial' world-view that valued productivity ahead of individuality, rationality ahead of emotion, saw 'progress' through science and technology as leading ultimately to a better life, and saw the efficiency of the factories as proof that they are suitable environments for workers. A remarkably similar dichotomy of values can be seen in disagreements over whether intensive animal production is bad for animal welfare (because the systems are unnatural, curtail freedom and involve negative emotions such as frustration) or good for animal welfare (as reflected in good physical health and high productivity).

The contrasting world-views have also influenced the measures chosen by scientists to assess animal welfare. Some scientists, roughly in line with a Romantic/Agrarian world-view, look to the affective states of animals (emotions, feelings) as indicators of welfare, and attempt to improve animal welfare by allowing animals to live in a freer and more natural manner. Other scientists, roughly in line with a Rational/Industrial world-view, look to the basic health and good functioning of animals as indicators of welfare. These different criteria of welfare overlap substantially but are sufficiently independent that disagreements often arise. The various research approaches have helped to identify and solve many animal welfare problems, but the research does not resolve the disagreements attributable to the different value-based views of animal welfare. Rather, the different views of welfare provide the rationale for the diverse scientific approaches.

Thus, our understanding of animal welfare is both science-based and values-based. In this respect, animal welfare is like many other 'evaluative concepts' such as food safety and environmental sustainability where the tools of science are used within a framework of values. Scientists working in these fields need to be able to articulate both their empirical work and the values on which it is based.

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Erica Fudge, School of Humanities and Cultural Studies at Middlesex University, UK

Gesturing at an Animal History

The history of animals is slowly coming to be regarded as having a role to play in our reconstructions and imaginings of our pasts. For example, historians are speculating about the role of animals - their agency, no less - in the colonial projects in the American 'New World'; studies are being undertaken of the history of pet ownership, as well as of domestication. What was once absent from our studies is now taking its rightful place. But there are some things that may never find their way into our histories; how animals lived in their human contexts might be something that is traceable through human records, but how the animals experienced their co-existence with humans may be forever lost. This paper will begin to think about what it is that might constitute an animal's experience, how that might be different from a human experience. It will attempt to trace what can be reclaimed of animals' pasts, but will also acknowledge that there is much that we may never be able to reclaim. What this loss means to the project of history is central.

Using ideas from a range of areas of current academic inquiry - in particular animal studies, sensory studies and disability studies - I will explore what animal history might, should, but perhaps cannot be.

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Andrea Gavinelli, European Commission, Directorate General for Health and Consumers, Unit D5, Animal Welfare, Brussels, Belgium

The European vision on animal welfare from science to policy

Animal Welfare is being accorded an increasingly important role in today's civil society. The results of several social investigations and market analysis carried on in the European Union confirm that the farming of animals is no longer viewed by European consumers simply as a means of food production. Instead it is seen as fundamental to other key social goals such as food safety and quality, safeguarding environmental protection, sustainability, enhancing the quality of life in rural areas while ensuring that animals are properly treated.

While in the past animal welfare policy was often driven public concerns about specific topics the Commission adopted in 2006 a more comprehensive strategy for this policy area.

The first Community Action Plan on the Protection and Welfare of Animals 2006-2010 takes into account all the concerns as well as the globalisation of animal production. It defines the direction of the Community policies and the related activities for the coming years to continue to promote high animal welfare standards in the EU and internationally considering animal welfare as business opportunities while respecting the ethical and cultural dimension of the issue. A major effort is ongoing today to simplify the legislative framework and to reshape it in order to obtain in the future a more powerful tool to support European farm business.

The scientific study of animal welfare is a relatively young discipline and has developed over the last three decades and continues to expand to meet new challenges and new possibilities.

Welfare researchers are providing the scientific basis for practical, reliable and feasible welfare assessment systems and standardised tools for the conversion of welfare measures into accessible and understandable information, which could help to improve the welfare situation for animals in Europe and to contribute to Commission's policy making.

The scientific knowledge could play an important role facilitating the ethical and political decisions about animal care.

EU legislation based on scientific evidence and systematic risk assessment by EFSA is important to support the further improvement of animal welfare in Europe.

Considerations about animal welfare should also take account of the potential risks related to food safety, animal health and the spread of animal diseases.

The overall aim of the European Commission's initiative is to initiate a broad public debate on animal welfare which will allow shaping a coherent and widely accepted policy.

The vision is to integrate the farming of animals in good health and welfare conditions with the respect of several other issues such as the safety of the products and the respect for the environment: this integrated approach will bring a real benefit for the global society.

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John Law, Professor of Sociology, Lancaster University, UK

Care and Killing: Tensions in Veterinary Practice

In the UK foot and mouth epidemic vets up and down the country cared: for the animals in life, the animals at the point of death, and the animals after death; pastorally, for the farmers; for their own sensitivity to slaughter and suffering, and the necessary self-protection that goes along with this in order to retain sanity; for an abstract collectivity, the national herd; for the neighbours; perhaps for the meat trade, for the national economy, and on some versions, the political fate of the government. This is care multiple. In this paper I meditate on how this works, how it is managed, and when and how it breaks down.

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Lindsay Matthews, AgResearch Ltd., Ruakura Research Centre, Hamilton, New Zealand

Pigness, chickeness, cowness: naturalness as welfare?

There are at least three different views about the essence of animal welfare, and these views are related to different 'value frameworks'. One view emphasises biological functioning (e.g. health, ability to cope with stress, levels of reproduction and production). A second focuses on the relevance of the animal's perceptions of its (affective) state (suffering or 'feeling good'), quality of life and mental health. The third view is that natural living is the most important feature. Historically, much of the scientific assessment of the welfare state of animals has focussed on measurements of biological functioning. Affective state has long been considered an important component of welfare status but research endeavours in this field have increased in intensity only relatively recently. This increase in effort has been driven, in part, by: the belief (particularly of citizens) that mental experiences of animals are key to understanding animal welfare; and the development of new techniques for measuring subjective states.

Similarly, the wider community places heavy emphasis on 'natural behaviours and environments' in conceptions of animal welfare, with more 'natural' systems generally viewed as superior. 'Naturalness is superior' seems to be an example of a moral intuition that is not necessarily consistent with scientific evidence derived from the biological functioning and affective state frameworks. For example, recent research has demonstrated that, on balance, the welfare of layer hens is superior in some types of confinement systems, yet many in the wider society would prefer hens to be kept in more extensive environments. It will be argued that the essence of animal welfare is determining what matters to animals, and therefore the focus of the natural sciences should be on understanding animals' mental experiences and how these relate to biological functioning. Evidence will be presented that (for at least some situations) measures of the strength of animal preferences captures and integrates much of the information that (we currently believe) we need know when making evidence-based judgements about animal welfare, including the value of 'naturalness'. However, this information will have limited appeal to wider society unless it can be shown to match with their views on animal welfare. Thus, the social and natural sciences need to combine their endeavours to gain a much greater understanding of how citizens view 'nature' and animal welfare, the robustness of these views, and the links between 'naturalness' and current scientific understandings of animal welfare. Only then will we be able to determine how readily we can close the gaps in understanding the relevance of 'naturalness' to animal welfare and its assessment.

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Animal Welfare Standards: Balancing Science, Ethics, and Practicality

As ethical concerns about the treatment of animals have increased in society, there has also been increasing emphasis on the development of standards for the breeding, raising, transport and slaughter of farm animals. These standards have taken many forms: legislated or voluntary, enforced by governmental authorities or established via auditing or certification programs, or relying on market forces. These different approaches have strengths and weaknesses in terms of their potential for improving farm animal welfare, and some may be more effective than others for particular types of welfare problems or in particular situations. However, there are a number of major challenges for the development and implementation of animal welfare standards regardless of the form they take. One of these challenges is to how to reconcile the sometimes conflicting perspectives and needs of the public with those of farmers, processors, and others involved with producing or selling animal products. Another is how to resolve conflicts that sometimes (often?) arise between people's ethical attitudes towards animals and scientific information about animal welfare. Although such conflicts are unavoidable, wide stakeholder input into the standards development process can be beneficial in terms of finding common ground and creating workable solutions. In the future, farm animal welfare standards will also need to be much more closely integrated with standards for all of the other factors affecting the social sustainability of animal agriculture – including the health and economic viability of farmers and rural communities, the environment, and food safety and security.

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Zoomorphism and Anthropomorphism: Fruitful fallacies?

Zoo- and anthropomorphism are both scientific heresies but both may serve as laboratory equipment for thought experiments designed to explore our ability to assess quality of life as perceived by another sentient animal. Sentience, a major contributor to evolutionary fitness in a complex environment, implies 'feelings that matter'. Strength of motivation is a measure of how much they matter. Since humans and most domestic animals share the property of sentience, it follows that some aspects of feeling may be similar, and where we differ, the differences may be of degree rather than absolute. One of the assumed absolutes that I shall challenge is the concept that non-human animals live only in the present. I shall explore how domestic animals may experience the feelings of hunger, pain, fear and hope. Hunger is indisputably a primitive sensation. Pain and fear are primitive sensations with emotional overtones. The problem is to discover how they may affect quality of life. Acute pain and fear are positive signals for action to avoid harm. These actions and their consequences ('how well did I cope?') will be committed to memory and affect how an animal feels when they recur, or it fears they may recur. Hope (and its antithesis, despair) are considered by many philosophers (who don't own dogs) as emotions restricted to humans since only we can imagine the future. However, zoomorphically, hope may be classed with hunger (except in extreme cases) as a primitive feeling of dissatisfaction with the status quo. Either may lead to action directed towards the goal of feeling better or encourage the belief that things will get better (food will arrive). Both are feelings of expectation for the future modulated in the light of past experience. With all these four emotions quality of life may be expressed in terms of how well the animal feels it can cope, both in the present and in the future. When it feels it cannot cope, then it will suffer.

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1) Animal welfare and economic optimisation of farrowing systems

Bouda Vosough Ahmadi^a, Emma Baxter^b, Alistair W. Stott^a, Alistair B. Lawrence^b, Sandra A. Edwards^c

Theme n. 2 *Designing for welfare*

Abstract

Currently, farrowing crates dominate indoor pig farrowing in the UK (~ 60% of herds). Such systems raise welfare problems due to close confinement of the sow. Although, many alternative housing systems have been developed in different countries, no commercially viable/feasible option has emerged for large-scale units. We have reviewed current scientific and practical knowledge of farrowing systems to identify alternative systems, their welfare and production potential. Our aim is to establish acceptable trade-offs between profit and welfare within alternative farrowing systems using linear programming (LP), hence designing high welfare but commercially viable alternatives to the farrowing crate.

The objective of the LP model is to optimise the financial performances of the previously studied farrowing systems subject to both managerial and animal welfare constraints. Constraints' quantitative values have been derived from the literature. The potential effects of each welfare component on productivity (i.e. enhancing piglet survival rate) were assessed by a group of animal-welfare scientists and incorporated in the model. The modelled welfare components were: space, substrate and temperature. Increasing space allows free movement of the sow and expression of nest building behaviour. Substrate reduces pig mortality due to crushing and enhances microclimate. Maintaining proper ambient temperature is crucial for optimum sow function and piglet survival. Stockmanship has been included in the model such that the trade-offs between stockmanship and the other components assist us to explore to what extent any specific design might replace care for animals. System-specific results of interactions between welfare components and financial performances are under analysis and will be presented in the final paper.

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2) Ethical animal husbandry versus productivity: Consumer preference for multifunctional chickens

Friederike Albersmeier, Achim Spiller, Birgit Schulze

Theme n. 2 *Designing for welfare*

Abstract

The market for eggs is a leading segment for animal welfare production. Indicators for this are e.g., the early ban of battery eggs in German retail and the increasing market share of (organic) free-range eggs (ZMP 2008). However, the sector still faces several animal welfare problems, which refer to the unnatural behavior of chickens and problems caused by parasites as well as the general dilemma which results from the culling of newly hatched male chicks which is still common in both conventional and organic production (Yacoubou 2007).

Against this background we conducted a consumer survey to analyze consumer perceptions of chick culling and to measure the acceptance of a multifunctional chicken which is simultaneously suited for the production of eggs and meat. Culling could thus be avoided. The research objective was to identify and characterize specific target groups for such animal welfare products and to define their market potential as well as willingness to pay. In 2006/2007 252 German respondents were questioned via personal interviews. The study is a “convenience sample” and does not fulfill all criteria of representativeness but includes all social classes and allows multivariate analysis.

Only 24% of the respondents chose the eggs of the multifunctional chicken, especially women and older persons ($\mu=48$ years). These consumer groups are very sensitive for the abovementioned problems and rank them as more important and more appalling compared to buyers of eggs of other housing systems. Most consumers displayed only little knowledge concerning modern chicken farming. Furthermore, involvement and attitude is highly differentiated among various customer segments (Mceachern, Schröder 2002).

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3) Who is the customer? Conflict or Coexistence between Animal Welfare and Organic Products?

Friederike Albersmeier, Achim Spiller, Birgit Schulze

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

In the current debate about animal welfare, organic organizations sometimes oppose the introduction of an animal welfare label, since they fear the loss of their customers. Due to lower inputs, animal welfare products could be produced to lower costs. The objective of the present contribution is to analyze different consumer groups with respect to their attitude regarding animal welfare and organic food. As a case study the market for eggs was chosen. It is a leading market for animal welfare production as the early ban of battery eggs in German retail and the rising market share of organic eggs indicate (ZMP 2008). The study is based on a choice experiment in which the established housing systems could be ranked against an animal welfare alternative. These originated from a multifunctional chicken which is simultaneously suited for the production of eggs and meat. Thus, the culling of newly hatched male chicks – a general practice in conventional and in organic production – could be avoided. In 2006/2007, a survey with 252 personally interviewed Germans was conducted.

In the choice experiment, about 24% of the respondents choose the eggs from the multifunctional chicken. From these customers 58.6% have bought free-range and 34.5% organic eggs up to now. Most organic customers do not change their behavior since a majority demonstrates a high preference for organic food and ignores the culling problem (halo effect) (Alvensleben, Meier 1990; Poelman et al. 2008). Altogether, there is only a slight trade-off between the target groups for organic and animal welfare products. Consequently, the premium segment would profit from the introduction of an animal welfare label.

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4) Animal Welfare in GLOBALGAP's livestock standards: the future integration of scientific knowledge on animal welfare for a combined overall assessment of farm animal production

Dr. Roland Aumueller

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Proposal and Application for Theme No. 4: Standards as a mode of Animal Welfare Governance

High awareness is given to animal welfare issues by the European public when buying food for human nutrition. European consumers and retailers require high animal welfare standards for products originating from farmed animals. Demands by consumers and retailers for the integration of higher animal welfare standards create economic fear amongst the producers. Both, producers and consumers, have high interest in the wellbeing of farm animals. To find the balance between public demands and feasibility at production level is the solution. This can be achieved by an independent standard and an integrative auditing for animal welfare.

GLOBALGAP offers a standard for good agricultural praxis. The standard has a modular structure. Applicable modules for livestock producers are All-Farm-Base, Livestock Base and the species modules Cattle and Sheep, Dairy, Pigs, Poultry, Turkey and the Aquaculture section with Salmonids, Shrimps, Pangasius and Tilapia. All of these modules integrate numerous animal welfare control points and compliance criteria. The Version 3.0 of the standard is currently undergoing the revision process for Version 4.0, which will be published in 2011. Thus, the animal welfare related points in the GLOBALGAP standards are revised and updated.

The Sector Committees Livestock and Aquaculture, representing GLOBALGAP's members in a 50:50 ratio between producers and retailers, are working on the integration of improved animal welfare requirements. The demands from retailers and consumers for an additional and special animal welfare module have been addressed at the 9th GLOBALGAP Conference in October 2008 in Cologne.

The paper will address actual and future contents of GLOBALGAP's standards with regards to animal welfare and how GLOBALGAP manages the standard setting and implementation process for animal welfare demands in the agro-food supply chain. Especially the opportunities and challenges for integrating current scientific knowledge, esp. Welfare Quality knowledge, into Version 4.0 will be discussed including its relation to the potential of a separate animal welfare module for GLOBALGAP.

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5) How do Italian farmers perceive their dairy cows?

D. Baroli^{1*}, M. Minero¹, D. Zucca, S. Waiblinger², S. Mattiello¹ E. Canali¹

Theme n. 1 *Naturality: cowness, pigness, chickennes*

Abstract

The human–animal relationship (HAR) is a core issue to improve the welfare of farmed animals. The quality of HAR depends on how animals and humans perceive each other. Objectives of Work Package 3.1 of the EU funded Welfare Quality® project were to determine the variability of the farmers' practices and attitude and behaviour in order to understand the HAR in European countries characterised by different dairy production systems.

155 dairy farms (loose housing) were randomly chosen in Northern Italy. A questionnaire was filled by the stockperson responsible for the cattle on the farm. Collected data were analysed to obtain descriptive analysis regarding the variability of handling practices, specific attitudes and opinion of the farmers.

69.3% of the farmers think that dairy cows can recognize humans, 30.4% agree that cows are intelligent and 36.2% that learn quickly. Few farmers think that is difficult to handle cows (6.3%) and calves (4.0%). Only 7.2 % of farmers think that calves are not very sensitive to pain and 10.5% neither the cows. Vocal contacts when approaching animals (calves, heifers or cows) are important for 60% of interviewed farmers. Daily management practices showed that many farmers have often contacts with their calves during the first month of life, and these contacts diminish when the calves grow. 66 % of the farmers never talked to their heifers, while many of them are accustomed to use voice with their cows.

These data suggest that there are still some difficulties in transforming positive attitude in positive handling.

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6) Analysing Society Concerns by means of Internet Opinion Polls

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Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Widespread consumer demand is often referred to as society concerns and the recent concern for animal welfare has led to the development of numerous standards across the world, either by regulatory bodies or by downstream operators of the food chain.

Because of its ease of use, its relatively low cost, and its potential to reach large numbers of people, the Internet is now frequently used for opinion polls. Online consultations are notably more and more used by the European Commission, as part of its Interactive Policy Making initiative, to try better understanding the needs of citizens and assist policy development.

One has however to be specially vigilant in applying this polling technique to society concerns, which, by definition, are the subject of institutional debates organised by numerous civil society parties aiming at mobilising citizens and consumers and standardising their answers. The formulation of questions, a difficult task in any opinion poll, requires even more care when using the Internet given the delicate problems of representativeness and nature of respondents.

To illustrate the specific problems encountered when using these new polling techniques to evaluate society concerns, a case study compares the methodologies and results of a 2005 European online consultation on animal welfare with those of a classic opinion poll undertaken in 2006 in France on the same subject. The study highlights the impacts of the sample representativeness, the Internet facilitating the expression of protest opinions, as well as the usually poor level of prior knowledge of respondents, with the consequent need to be cautious in interpreting demands for further improvements.

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7) Farmers' understanding of animal welfare

Bettina Bock, Paul Swagemakers, Simon Oosting

Theme n.3: *Zoomorphism and anthropomorphisms*

Abstract

Scientists and farmers complain about citizens' anthropomorphic perspective on animals. In doing so citizens are perceived as ignorant of animals' real nature and need. They are also supposed to worry unnecessarily about certain aspects of modern farming as a result. Farmers distinguish between the professional expertise of agriculturalists and the ignorance of 'city people'. For animal scientists zoomorphism equals 'science'. A scientist looks at animals from a detached point of view and bases knowledge in behavioural observation. Looking at animals anthropomorphically is suspected as subjective, emotional and, hence, unscientific.

Farmers appoint zoomorphism as the right way to look at animals. But when explaining how they practically ensure good care they repeatedly refer to anthropomorphism and compare humans' and animals' needs and feelings. In the daily practice (zoomorphic/scientific) knowledge of technical facts becomes mixed with (anthropomorphic) understanding and empathetic projection. For a 'good' farmer both is seen as invaluable – knowledge as well as empathy.

In this paper we analyse farmers' use of zoomorphic and anthropomorphic arguments when defining animal welfare as a concept, as daily practice and as an ethical obligation of farmers. We expect that anthropomorphism frames empathy and compassion and is, hence, related to the understanding animals' feelings whereas zoomorphism is called upon when checking for animals' health and ensuring good technical results.

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8) Cognitive science to assess animal emotions: Ear postures as indicators of emotional states in sheep

Alain Boissy, Arnaud Aubert and Isabelle Veissier

Theme n. 3 *Zoomorphisms and anthropomorphisms*

Abstract

Emotions play an essential role in animal welfare. Yet when one attributes emotions to an animal he/she is often accused to be anthropomorphic. We proposed to use theories from cognitive psychology whereby the emotion results from the evaluation of a triggering situation according to elementary characteristics (its suddenness, unfamiliarity, pleasantness, predictability, controllability...). For instance, fear is experienced in front of a situation which is unfamiliar and unpleasant whereas anger is experienced when we can control such a situation. In humans emotions can be detected by facial expressions. We looked for possible equivalents in animals, here ear postures in sheep.

We exposed sheep to situations of which we manipulated the elementary characteristics (suddenness, unfamiliarity, etc.). We found that sheep use similar checks as humans, with the elementary characteristics of situations modifying their gross behaviour and stress responses. We then identified four main ear postures: ears horizontal, ears pointed up, ears pointed back, and asymmetric posture. We observed that i) the horizontal posture corresponds to a neutral state, ii) sheep point their ears backward when they face unfamiliar, unpleasant, and uncontrollable situations – hence likely to induce fear -, iii) they point their ears up when facing a similar situation but controllable – hence likely to induce anger -, and iv) they use the asymmetric posture in very sudden situations – likely to induce surprise -. By merging psychology and animal behaviour, we are thus able to propose an interpretation of ear postures in sheep in relation to their emotional states.

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9) Naturality of farm animals as a prerequisite for welfare – different perspectives between Dutch and Norwegian citizens

Birgit Boogaard, Simon Oosting, Bettina Bock

Theme n. 1 *Naturality: cowness, pigness, chickeness*

Abstract for poster presentation

Most citizens in modern societies have little personal knowledge or experience of farming. In order to understand how citizens perceive and evaluate modern farming, we conducted farm visits with citizen panels in Norway and the Netherlands. We asked citizens to register what they saw, heard, smelled and felt and what they appreciated (or not) on the farm. Animals had a prominent place in people's experience and appreciation of farm life. Animals were considered to naturally belong on a farm. At the same time citizens worried about the ability of animals to preserve their naturalness. Dutch citizens wanted animals to be kept in an environment that resembles nature as much as possible. They should be free to move and expressing their natural needs. Dairy cows belonged in the pasture and calves with their dams. Norwegian respondents also appreciated a 'natural situation' in animal husbandry. But they associated 'natural animal keeping' primarily with keeping to Norwegian farming traditions. They also clearly distinguished farm animals from wild animals. The study demonstrates that citizens of both countries consider the naturality of farm animals' life important for their welfare but differ in what they consider and appreciate as natural. The concept of naturality relates to farming traditions, the geographical setting and national understanding and construction of nature.

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10) Integrating welfare with economy and environment in dairy husbandry based on design based welfare requirements

A.P. (Bram) Bos & Peter W.G. Groot Koerkamp

Theme n. 2 *Designing for animal welfare*

Abstract

Improving the welfare quality in livestock production regularly contradicts other requirements, for instance economical considerations or environmental issues. Dominant and standardized technology and practices cannot be easily adapted to improve in one respect without having undesired and negative consequences on others. Current systems have been stabilized in a specific historical context, that favoured optimizations on a specific set of values (like cost efficiency and productivity increases), while disregarding others. In that situation, animal husbandry cannot comply to a new and richer set of values and norms, without a redefinition of current standards and assumptions.

In a recent project, we had the opportunity to redesign dairy husbandry in order to integrate animal welfare, environmental, societal and economical concerns. Animal welfare requirements were defined based on an extensive literature study and subsequent semantic modelling (Cowel). The ideal situation then was defined in a Brief of Requirements for the dairy cow, that is essentially design-based. We will show how a precise and quantitative definition of needs & requirements, and the subsequent definition of functions that need to be performed in order to meet these requirements, opens up the solution space to integrate requirements of the animal with environmental and economical requirements. This approach is based on structured design, a design method from engineering. We claim that this approach is an important prerequisite in synthesizing needs of different key-actors and stakeholders, instead of seeking compromises between animal welfare, environment and economy. Preliminary results will be presented.

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11) Adaptation and maternal abilities of Meishan and Large White sows raised in a loose-housing system during lactation

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Theme n. 2 *Designing for welfare*

Abstract

In terms of welfare considerations, legislation could evolve towards a less constrained system for the sow around farrowing than conventional crate. Moreover, farmers ask for autonomous sows, capable to have a high level of production even in case of limited human interventions. Changing to loose-housing is controversial because it could negatively impact on piglet survival and well-being, especially through more crushing. In order to test this assumption, adaptation and maternal abilities of 16 Large White (LW) and 16 Meishan (MS) gilts were compared, with video recording from the day gilts entered the farrowing unit. Females were inseminated to produce crossbred LWxMS piglets. Interventions were restricted and cross-fostering forbidden. LW gilts produced larger litters (15.2 vs 12.9 piglets born; $P < 0.05$) and heavier piglets (1.33 vs 1.14 kg; $P < 0.05$) than MS gilts. Stillbirth was remarkably low (0.6 stillborn piglet/litter in both breeds). Birth to weaning survival was high (90% in MS vs 84 % LW gilts, $P = 0.15$). At farrowing, MS gilts spent more time nesting (17.4 vs 6.2 min, $P = 0.02$) and having nose contacts with piglets (5.2 vs 3 per 30 min, $P = 0.001$); 6 days later, LW gilts spent more time lying on the belly and started more nursing events (66.9% vs 53.4%, $P = 0.06$). LW gilts produced more milk over lactation (38.2 vs 48.6 kg piglets, $P = 0.001$). Both breeds performed well; few losses were registered. LW gilts may have a better control of lactation in loose-housing system than MS gilts. Relations of performance with previous behavioural adaptation to loose-housing are also investigated.

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12) The use of Policy Delphi methodology to engage key respondents from stakeholder groups in a study of equine welfare.

Collins JA, Hanlon A, More SJ, Wall P and Duggan V

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Stakeholder engagement in the development of policy is fundamental to the likely success of the process. Delphi methodology provides a framework to canvass stakeholder groups: assessing current governance, exploring the diversity of opinion, enabling each to learn of others' views and potentially leading to group consensus in controversial policy areas, such as animal welfare. A three round web-based Policy Delphi, with inter-round feedback, was employed as an assessment tool to investigate equine welfare in Ireland. In Round One, 44 respondents from industry, government and charity sectors were presented with 29 vignettes (narratives illustrating potential horse welfare issues) for grading on a nine point Likert scale for acceptability, and frequency of occurrence. Responses from Round One informed the construct of Round Two: lists of potential equine welfare issues (e.g. stud farm management practices), motivations (e.g. ignorance, financial gain) underpinning each issue and potential solutions (e.g. education, regulation). Analysis of Round Two grades yielded a ranking of the most significant issues, and further refined the construct of drivers and methods of achieving change for Round Three. The agreed most significant issues were again illustrated by vignettes, and a detailed exploration of the desirability, feasibility and methodology (based on an assessment of motivation) of improving standards was conducted. All respondents completed all rounds. This study illustrates how stakeholder groups can be engaged in a study of animal welfare, creating dialogue between government and industry players aimed at developing appropriate, informed welfare standards.

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13) Welfare of Simmental cows in tie-stalls: effect of mountain summer grazing

Corazzin M.¹, Dovier S.², Mattiello S.³, Bovolenta S.¹

Theme n.2 *Designing for welfare*

Abstract

Today the mountain farms have an important role for the promotion of local tourism, environmental preservation and conservation of historical traditions. The traditional Alps breeding system for dairy cows is based on the alternation between a free-ranging period on mountain ranges during the summer and, because of lack of space, an indoor period in tie-stall in the winter. The aim of the survey was to study the effect of breed and Alpine pasture on welfare of dairy cattle in tie stalls in mountain area of *Friuli Venezia Giulia* Region (N-E Italian Alps). Twenty-four farms were considered. The protocol used in this study was assessed on the basis of validated protocols which were adapted to breeding in mountain areas. The parameter choice starts from a set of 12 “criteria” (Botreau *et al.*, 2007). Each “criteria” is quantified by animals’ measures or remarks, buildings and equipments information, direct tests and breeders’ interview. Data collected allowed calculating indexes already validated, such as ANI 35 L and a specific index developed by our own research team. Through the application of appropriate statistical analysis techniques, it was possible to highlight the relationship between buildings characteristics and animals management, and to identify the critical points from an animal welfare viewpoint. The results showed that summer grazing on mountain pasture had a positive effect on lameness, respiratory disease and animal’s behaviour, but negative on diarrhoea. In this trial the different breed (Simmental *vs.* Italian Brown Cows) does not seem to influence the cows’ welfare.

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14) Anthropomorphism as an Antidote to Anthropocentrism

Joyce D'Silva

Theme n. 3 *Zoomorphisms and anthropomorphisms*

Abstract

Many of our institutionalised relationships with farm animals are rooted in anthropocentrism. We rear animals in conditions dictated by our commercial ambitions. We selectively breed them to meet our desire for cheap food (fast-growing broiler chickens) or treat them in harmful ways for speciality products (foie gras) which we enjoy. We now produce abundant meat, milk and eggs – but at a huge cost to animal welfare.

Anthropomorphism could provide an antidote to this inherently self-centred human view. However, anthropomorphism has historically not flourished in a science-based culture. In fact, “You are being anthropomorphic” has been a common insult flung at the welfarist who declares that hens cannot be happy in battery cages or sows in narrow sow stalls.

But is anthropomorphism unscientific? If science is the pursuit of knowledge and if knowledge is acquired through our feelings as well as through our logic and reason, then it surely has an honourable place in animal welfare science. Humans are emotional beings. To use our emotional selves to empathize with farm animals may be an honourable course of action. If we allow our natural anthropomorphism to flourish, then many industrial farming practices and systems may well be seen as untenable and incompatible with our humanity.

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15) Improving welfare and productivity of Bali cattle in the collective housing system on Lombok, Indonesia

Dahlanuddin¹, Ketut Puspadi², Monica van Wensveen³ and Cam McDonald³

Theme n. 2 *Designing for welfare*

Abstract

Bali cattle are the most important contributor to the Indonesian beef industry and their production comes predominantly from smallholder farmers in eastern Indonesia who own 2-4 cattle per family. The economy on the island of Lombok is changing rapidly, with a recent growth in tourism and economic well-being fuelling a greater demand for increased quality and quantity of beef products. This change is driving regional and national policy towards an aim for achieving self sufficiency in beef production.

Due to limited land availability for grazing and the need for enhanced animal security, Bali cattle on Lombok are commonly kept in collective housing systems. The farmers share the task of watching their cattle at night, while animal feeding and care remain an individual farmer's responsibility. This system has positively contributed to animal security and income of smallholders. However, the densely occupied complexes are poorly managed, resulting in muddy floors and the accumulation of waste that increases the likelihood and incidence of disease and calf mortality. This paper discusses a collaborative research, development and extension program that aims to improve cattle welfare and productivity in eastern Indonesia. The program is using a systems approach where animal housing and management is being coupled with improved nutrition to provide better disease management and better reproduction, survival and growth rates. The program's activities include capacity building and knowledge exchange between the farming community, researchers and extension workers, improving sanitation and nutrition through participatory community efforts, improving the supply of high quality forages and reducing exposure to disease through better care, especially for late pregnant and lactating cows and their newly born calves. The economic, social and environmental impacts of improving the production system are monitored and communicated to relevant stakeholders. Preliminary results show a keen interest from farmers and policy makers, with a growing recognition that improving animal production systems (with a key focus on welfare components within these complex systems) can provide farmers and their families with improved livelihood, whilst simultaneously supporting national and regional production goals.

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16) Proof of principle of the Comfort Class concept in pigs

Karel de Greef, Herman Vermeer and Willem Schouten

Theme n. 2 *Designing for welfare*

Abstract

In an effort to find a societal and market-relevant solution in the tension between farm economy and animal welfare, the Comfort Class concept was formulated. This approach claims that the quality of life of the animals is good when the '*behoefsten*' (Dutch word, somewhat more stringent than 'needs'¹) are met.

The 10 most important '*behoefsten*' (based on Bracke, 2001: health, satiety, safety, rest, thermocomfort, social contact, exploration, grooming, function separation, locomotion) were translated into 58 requirements. An experimental facility (12 pens of 29m² for 12 animals each) was designed and built to fully meet these requirements. Practical measurements were made here to verify the claim: skin lesions; detailed tail assessments; activity pattern and synchronicity of behaviour; space use and health indicators: mortality, observed deviations alive & post slaughter and medical treatments.

The main conclusions on basis of the initial two batches were

- synchronicity in feeding behaviour is limited, but high in resting behaviour
- A facility like this is reasonably succesful in preventing and curing tail biting, but this is highly dependant on quality of animals, environmental enrichment and adequate staff interventions
- The allowed space is abundant in allowing full separation of the function areas
- The variety between animals in climate zone choice is considerable
- Minimising unease due to health infringements by maximising interventions (medication, euthanasia) conflicts with views on respect and regular/economic farming practices.

The parameters produced limited contrast between the ideal situation compared to a considerably reduced space allowance. The scientists- and stakeholder-group involved concluded that meeting the '*behoefsten*' seems feasible with limited additional husbandry conditions (supporting the Comfort Class claim), but a convincing experimental verification of this is virtually impossible.

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¹ The contrast between the terms 'needs' en '*behoefsten*' will be made explicit in the final paper / presentation.

Also, the underlying strategic concept of Comfort Class approach (defined distinction between human-values and human&animal relevant values, De Greef et al, 2006) will be addressed.

17) The role of farmers in improving animal welfare

Carolien de Lauwere, Karen Hoogendam and Alfons Beldman

Theme n. 2 *Designing for Welfare*

Abstract

Animal Welfare is an important issue in Dutch agriculture of today. Farmers play an important role in this discussion because they must be able and willing to improve animal welfare on their farms. Our research therefore focuses on the farmers and the role they can and want to play to improve animal welfare. In the project, emphasis is on mainstream farmers who feel bad about animal welfare on their farm. They admit that this should be improved but they do not know how to achieve this in an economically sound way. A theoretical framework, based on Ajzen and Fishbein's *Theory of Planned behaviour (TPB)* is used to analyze several cases in which adoption of animal welfare by mainstream farmers plays an important role. The first results show that freedom of choice – perceived behavioural control in terms of TPB – is an important argument of farmers to join an initiative that aims to improve animal welfare. Co-operation with stakeholders in the agro-food supply chain who have corresponding interests – subjective norms according to TPB – is important too. The lessons learned out of these cases are used to formulate a well-founded approach – at least – to change the perception of farmers with regard to animal welfare or – even better – to actually improve the animal welfare on farm level. This approach is tested in one or more participatory trajectories with farmers in the 2nd phase of the project.

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18) Consumers and Cattle Farmers Face the Issue of Animal Welfare

A.C. Dockès¹, F. Kling², JM Bèche³

Theme n. 2 *Designing for welfare*

Abstract

The animal welfare issue is more and more central within the debates between the agriculture world and the global society as in the regulations. Several national and European research projects such as Welfare Quality® are carried out, to study the points of view of farmers, consumers and scientists on that topic. In this paper we propose to synthesise and compare the representations and points of views of French cattle farmers and consumers from the results of face to face and group interviews, analysed by the content analysis method and from sample surveys.

Farmers and consumers often share the same analyse. They agree on the central role of the farmer to enforce the welfare of his animals. He must pay attention to them and offer them satisfying living conditions. Both groups consider that regulations are necessary to avoid mistreatments and that there is no use for quality schemes exclusively based on animal welfare specifications as welfare is implicitly a part of all the quality products. Cattle farmers consider animal welfare as the “natural” result of “normal” farming practices. Consumer focus on the quality of the animal feeding, the absence of tethering and the necessity for the young calf to be with its mother.

Improving the communication between farmers and consumers can improve mutual knowledge, understanding and acceptance. A better communication is a frequent demand of both groups. Current experiments give effective ideas and means for this dialogue like in the recent meetings “Animal and Society” organized in France.

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19) Foodsense: how consumers sense and make sense of farm animal welfare through food

Adrian Evans and Mara Miele

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

In this paper we attempt to understand and to critically evaluate the ways in which *certain* popular notions of farm animal welfare are embedded in and shaped by food consumption practices. In particular, we are attentive to the ways in which the more embodied and sensual aspects of animal food consumption practices inform consumers' feelings, intuitions and emotional insights about farm animal welfare. Indeed, we contend that food consumption practices can be usefully described as 'sensual', in that they *simultaneously* involve both an aesthetic process of sensing (smelling, tasting, seeing, ingesting etc.) food and a process of 'making sense' of these experiences. Drawing on extensive focus group research conducted in seven European countries, we illustrate how one might use this notion of food consumption as a hybrid 'sensual' practice as a conceptual tool to shed new light on a range of important social, economic, political and aesthetic issues relating both to the consumption of animal welfare friendly foods and to consumers' wider understandings of farm animal welfare. Firstly, adopting this sensual approach to animal food consumption allows us to re-examine the very notion of what might count as an animal welfare friendly product for consumers. Secondly, it enables us to provide an alternative account of the relationship between animal welfare and food quality. Finally, it enables us to critically examine how consumers' broader understandings of farm animal welfare are *partly* embedded in their corporeal relationships with animal foods.

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20) Farmer's willingness to implement animal welfare strategies in relation to job satisfaction

Paolo Ferrari

Theme n.2 *Designing for welfare*

Abstract

Farmer's willingness to implement animal welfare strategies was assessed in relation to job satisfaction or dissatisfaction in order to understand how to upgrade agricultural animal welfare standards as a mode of Governance at international level.

Five relevant welfare problems were considered for dairy cows, pigs and laying hens: lameness for dairy cows; social stress for pregnant sows; tail biting for fattening pigs; feather pecking for laying hens; stress and fear of animals towards humans for the three types of animals.

Seven strategies to reduce such problems were selected among those surveyed within the Welfare Quality® research: regular claw care, long period of grazing and floor cleanliness to reduce lameness of dairy cows; increased fibre content of the diet to reduce the social stress of pregnant sows; straw provision to reduce tail biting among fattening pigs; improving welfare of pullets to reduce feather pecking among laying hens; farmer's training on animal handling to reduce stress and fear of animals.

In Netherlands, Italy and Sweden 1.091 farmers were interviewed by telephone; for each of them a questionnaire was filled to collect information about their perception of the problems and opinions on effectiveness, suitability and impact of the strategies.

Agreed opinions of most farmers in the three countries were found only about their willingness to be trained on animal handling to reduce stress and fear of animals while disagreements were found about the implementation of the other strategies.

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21) Animal welfare assessment: Does a top-down approach more effectively bring forward animal welfare than a bottom-up approach?

Mechthild Frentrup, Achim Spiller, Ludwig Theuvsen

Theme n. 4 *Standards as a Mode of Animal Welfare Governance*

Abstract

Several systems have been proposed for the overall assessment of animal welfare during recent years. Most of them are bottom-up approaches based on a broad spectrum of different measures which need to be aggregated in order to come up with an overall assessment of animal welfare. Nevertheless, since welfare measures differ with regard to data collection methods, precision, relevance and their relative contribution to animal welfare, several problems (such as problems in respect of weighting indices, limited compensation and interaction between different welfare dimensions) occur. Other critical points are the reliability and validity of the assessment system itself. These problems hamper the suitability of bottom-up approaches in political discussions and communication with the broader public. In contrast to a bottom-up approach which reflects the multidimensionality of animal welfare, a top-down approach tries to identify one key parameter, for instance stress, which is indicative of multiple welfare dimensions. The paper aims at summarizing the benefits and detriments of both approaches and discussing the aspect of feasibility of existing methods for animal welfare assessment on farms. From a political-economic perspective, it is argued that a top-down approach defining an “Animal Welfare Equivalent” would have major advantages for the improvement of animal welfare. Evidence is taken from the climate change discussion in which a major change of the public opinion and much political support is due to the easy to understand “CO₂ Equivalent”.

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22) Animal welfare assessment protocols as part of herd health and welfare planning tools

E. Gratzler, F. Bernardi, J. Brinkmann, M. Kirchner, C. Leeb, S. March, C. Winckler, M. Vaarst

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Herd health plans are an existing tool to monitor and improve animal health. Nevertheless currently this tool focuses mainly on identification of various diseases and assurance of food safety, welfare is often not mentioned in the planning process. Also quantifiable data are in many cases not included in the plan. However, those data would be of major importance as a baseline, a benchmarking tool and a tool to review the process after a certain time.

Animal welfare is one important part of process quality, which - besides product quality - becomes of main concern. In order to assess animal welfare a lot of research centred on the development of reliable and valid animal based parameters rather than the evaluation of housing and management. Such an animal welfare assessment protocol was developed by WelfareQuality® for different animal species.

Currently these protocols are used in modified versions in other European projects as an integral part in the process of 'planning' animal health and welfare. During an initial farm visit animal welfare is assessed, fed back to the farmer during another visit as a part of a "Health and Welfare Planning" in various different styles and layouts (paper format/stable schools, benchmarking, including targets). This paper will present and describe the use and experiences of this approach within projects dealing with both organic dairy farms across Europe (CoreOrganic 1903 ANIPLAN) and organic pig farms in Austria (BEP BioSchwein).

Potential applications for the inclusion of welfare assessment protocols within health and welfare plans could be as a part of national herd health services, within organic associations as a combination of certification and advice but also as an advisory tool on a farm individual level.

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23) Managing Conflicting Interests in Formulating AW Standards

Paul Ingenbleek¹, Victor Immink²

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Animal welfare (AW) standards often require a trade-off between two potentially conflicting interests: the welfare interest of the animal and the commercial interest of the company. Standard-formulating bodies organize the process in different ways to deal with these potentially conflicting interests. Building on institutional and stakeholder theories, this paper examines how processes of AW standards are organized, and how these processes deal with conflicting interests between the animal interests and commercial interests. A comparison of four inductive case studies (organic pork, a new veal brand, a new poultry brand, and a retailer's code) shows that companies can choose between two basic strategies to solve conflicting interests. (1) Outsourcing the conflict to primary stakeholders. These are either less powerful, e.g. in one case supermarkets let the conflict solve by suppliers, or more powerful, in another case the veal brand let the conflict solve by a powerful customer company. (2) Integrate commercial and animal interests (e.g. higher market share leads to more chicken raised at a higher standard). The results also show that which of these two strategies leads to success depends on the power of animal interest group in the standard-formulation body, the urgency of their claims, and the number of claims other than AW, like environmental claims. The results have key implications for the organization of AW standard formulating processes in that they show that there are alternatives to the "classic" roundtable discussion stakeholder model and indicate which strategy fits with the conditions of a particular AW standard-formulating body.

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24) Close to: on the embodied, emplaced (and thus) geographical becomings of animals

Owain Jones

Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

The proposal in this paper is that animal becoming and animal personhood is articulated in particular spatialised, embodied practices. These embodied practices are differently materialised and socialised in the particular and specific spatial narratives of individual animals' lives, as well as being sketched out in their instinctive species' repertoires. Animal enact - animal are - geographical embodied becomings. Thus geography, as the spatial science, has an intellectual, moral and political duty to engage with them. Their life is our trade – dealing with/in space. My aim is to develop animal geography by stressing various aspects of the spatialised, embodied becomings of animals. In particular, to answer the still very challenging questions – how do we 'hear animal voices' or 'bring them into our accounts as others' – the proposals are; pay close heed to their embodied, spatial practices, and to continuities between human and animal becoming. This involves getting close to animals and *regarding* them. It does not involve Deleuze and Guattari's 'becoming animal', an approach which has been directly challenged by Haraway (2008). We can effectively get close to animals in a number of ways; scientific study; working with animals; artist (literary) practice; or simply by paying close attention to the animals we live with. Various themes are explored within this overall aim. These include seeing animals as strange persons (who look back), re-thinking anthropomorphism; questions of the open, ethics and welfare, and witnessing as a form of 'knowing' animal embodied becoming.

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25) COWEL: Semantic modeling of the relation between husbandry characteristics and animal welfare performance to evaluate existing and design new husbandry systems for dairy cows

Peter W.G. Groot Koerkamp, W.W. Ursinus, F. Schepers, R.M. de Mol, M.B.M. Bracke, J.H.M. Metz and H.W.J. Houwers

Theme n. 2 *Designing for welfare*

Abstract

Improving welfare quality in livestock production systems regularly contradicts with other requirements, e.g. economical considerations of the farmer or environmental issues from society. The method of Structured Design (Siers 2004) was applied in a Dutch project to design a sustainable husbandry system for dairy cows in which needs and requirements of the cow are synthesized with those of other actors, rather than traded off against each other. A Brief of Requirements is prepared for each actor in the course of this method.

This paper focuses on the BoR of the cow and especially the accompanying COWEL model. The COWEL model assigns numerical welfare scores to husbandry systems based on scientific results, thereby supporting the design of new welfare-friendly systems. Fulfilment of needs in husbandry systems results from the quality of the housing (hardware), the management (stockman) and animal characteristics (genotype & phenotype). Typical needs of cows are e.g. food and water intake, thermoregulation, rest and locomotion. A literature survey, including approximately 500 international sources, resulted in over 2500 statements on dairy cattle welfare. These statements form the basis of the COWEL model, a computer-based decision support system to assess cow welfare. Application of the COWEL model on typical existing husbandry systems shows that a tie stall receives a very low and a pasture-based system a very high welfare score. The cubicle and straw yard system scores are in between. Moreover, the model gives good insight in the most important elements of the husbandry system.

Reference

Siers, F.J., 2004. Structured Design according to Kroonenberg. Wolters-Noordhoff, Amsterdam, 223 pp. (in Dutch)

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26) Consumers' understandings of "naturalness" and the "natural life" of animals in organic livestock production

Saara Kupsala

Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

"Nature" and "natural" are core reference points in organic farming. For instance, organic farming is often represented to aiming at "mimicking natural processes" or "working in collaboration with nature". Similarly, many studies indicate that both in organic farming principles and among organic farmers animal welfare is mainly framed from the natural living perspective. These representations of organic production as a more natural way of farming appear to address well consumers' preferences as various studies indicate that consumers put much value to the natural life of animals in their conceptualisation of animal welfare. However, studies have tended to investigate consumers' ideas of naturality only in general terms, and a more detailed analysis of this issue has been lacking.

In this paper, I am exploring the meanings of "nature" and "natural" in relation to animal welfare in organic farming, based on an interview study with organic consumers in Finland. For these consumers, organic farming represents a way of "re-naturing" or "re-animalising" animals in a production context in which animals are viewed to have become increasingly treated as human manufactured commodities. Importantly, the natural life of animals is associated with the notion of a "traditional" food production system – a good care of animals is connected to locally embedded food chains, to small farm sizes and to a certain kind of lifestyle orientation among farmers. This can implicate a conflict between consumers' ideas and the particular transformations going on in the organic sector, which has grown out from a movement-driven, lifestyle farming to a commercial food production segment.

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27) Killing one-day-old male chicks, do we have alternatives? Assessing opinions of ‘the public’ about alternatives to the killing of one-day-old chicks

F. Leenstra¹, G. Munnichs², V. Beekman³, E. van den Heuvel-Vromans², L. Aramyan³ en H. Woelders¹.

Theme n. 3 *Zoomorphisms and anthropomorphisms*

Abstract

Throughout the world male chicks of layer breeds are killed just after hatch, as they are not profitable in producing meat. The Dutch and European parliaments have insisted on research into alternatives, which should be more acceptable (animal welfare and ethically) than the current killing. To gain insight into the public opinion on acceptability of alternatives, the topic was discussed with small groups of people (focus groups, n=6 x 8) and a public inquiry through internet (n=1200) was instituted. To inform the participants a film was made which showed the current practice, eight possible alternatives that prevent male chicks to be born and the option of “dual purpose chickens”. There were also questions about willingness to pay extra for eggs and chicken meat, if killing of male chicks could be prevented.

Many participants did not know about the practice of killing male chicks and they were initially shocked. However, they were able to discuss a broad variety of considerations, and rank different alternatives.

Alternatives “looking into the fresh egg and not incubating ‘male’ eggs”, “dual purpose chickens” and “influencing the parents due to which fewer eggs with a male embryo are laid” scored higher than accepting the current killing. Alternatives where embryo’s have to be killed, or male embryo’s carry lethal factors, scored far below the current killing.

In our presentation we will discuss the lay out, results, argumentation of the respondents and broader context of assessing a public opinion on such a complicated topic.

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28) Animals can't speak for themselves: controversy and congruency between expert views and public opinion on animal welfare

F.R. Leenstra, A.P. Bos and K.H. de Greef

Theme n. 3 *Zoomorphisms and anthropomorphisms*

Abstract

As in general people speak for animals, there are at least two perspectives to animal welfare:

A. Knowledge about and observations of animals by animal experts and

B. Human perspectives on what animals deserve and what may harm them

Policy making is often aimed at animal welfare according to the 'A-criteria'. Animal welfare can become a social and thus policy issue if it brings about a feeling of unease among the public ('B-criteria'). Then B-criteria enter policy making often in an unpredictable way.

We have seen in an inventory in The Netherlands that the opinions of experts on animal welfare often, but not always, are congruent to matters of public concern. Controversy may arise for two reasons:

- Topics which explicitly give rise to public commotion, such as the housing of pigs in 'mega' (multi-storey) farms, or killing day-old cockerels, although they are not or do not have to be an issue as regards animal discomfort;

- Discomfort that might be characterised as severe, but has not played a role in the public debate so far, as f.i. infectious diseases, poor climate in virtually all animal houses - including horse housing- or the hard and slippery floors in dairy cattle and calf houses.

We interviewed policymakers in a number of European countries and will discuss if and how this possible controversy between A and B criteria on animal welfare is incorporated in policy making.

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29) Labelling of Meat from Slaughter Without Stunning

J. Luy* & K. von Holleben*

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

The DIALREL project aims to scientifically collect information relating to religious slaughter both from a social and an animal science point of view. The gathered data are to be used to encourage the dialogue between the stakeholders. The conflict of standards derives from the introduction of preslaughter stunning to conventional slaughter during the 20th century. Although stunning was introduced largely for work place safety reasons, from an ethical point of view this development corresponded to an animal welfare request that has been made in Europe since the 19th century. Because morality tends to claim a general ban on behaviour which has been identified as wrong, the traditional religious slaughter without stunning (Judaism, Islam) could now, since the pain relieving effect of stunning has been attested by veterinary scientists, be realized as ethically problematic with two consequences. First a considerable part of the European population wishes religious slaughter to be done after stunning, and secondly these people ask the EU lawmaker for consumer protection regarding meat from religious slaughter without stunning which is currently sold on the normal market without labelling its origin, because they feel ethically obliged *not* to consume it. Today the ethical status of the process the food originates from is broadly accepted as an element of food quality. Two DIALREL workshops with ethicists and lawyers confirmed unanimously the request for labelling this meat; facts and results shall be presented.

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*EU project DIALREL

30) Welfare and meat quality of Limousine organic calves

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Theme n.5 *Animal Welfare and Food Quality*

Abstract

In order to verify the effect of farming system on behaviour and meat quality of organic beef cattle, eight Limousine calves were group-housed in a barn (group B), while other eight were allowed to graze on natural pasture according to the organic Regulation (EC) 834/2007 (group P). The trial was carried out in an organic farm of the Mugello area (Tuscany, Italy). Animals from group P were observed more often in 'natural' activities such as grazing, self-grooming and locomotion as compared to the group B. Some of these differences, such as self-grooming, could be also observed when the animals were returned to the barn. Blood parameters (cholesterol, Cl, Mg, P, Ca, Albumin, Total Protein, Globulin and Glucose) did not show any significant differences between groups. In addition, 'in vita' and 'post mortem' performances, physical analysis on tissues composition (muscle, fat and bone), cooking loss, drip loss, tenderness, pH, water holding capacity and colour did not show any significant difference between groups. As to fatty acid profile of LD muscle, higher levels of 15:0 anteiso and 15:0 ($P \leq 0,05$), 18:2 n6cis ($P \leq 0,01$), 18:3n3 ($P \leq 0,001$), and polyunsaturated n6 ($P \leq 0,01$) were observed in group B. Panel test showed that keeping the animals on pasture did not adversely affect beef sensory properties. In particular, tenderness was not significantly reduced by grazing activity.

In conclusion the animals reared at the pasture did not show significant differences neither on performances nor on meat quality, whereas behavioural observations showed that rearing animals at pasture might affect their welfare. Results indicated that in organic farms animals may be conveniently raised on the pasture for the whole rearing period and kept in the barn only for the fattening phase.

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31) Animal Welfare as public good: the Italian experience of Emilia Romagna Region.

Alberto Menghi*, Paolo Rossi*, Alessandro Gastaldo*, Vincenzo di Salvo**

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

One of the major questions regarding Animal Welfare (AW) is whether or not it should be considered as private or public good. The answer to this question represents an important precondition when policy makers decide to improve farm animal welfare in a specific State or Region. In principle when AW is considered as a private good, farmers are, generally asked to comply with minimum AW standards, set by specific laws. In this case, Farmers, will bear and share the costs and eventual benefits of the required changes with the other actors of the supply chain (retailers, consumers, etc.). When AW is considered a public good, farmers are, on a voluntary base, asked to improve animal welfare and will be partly compensated by public subsidies. The latter case will be explored in this paper. Starting from the clear example of Emilia Romagna Region, where AW is considered as public good, this paper will report the five year experience of the regional authorities investigating and translating AW concepts into a workable applicable legislation schemes to be included in the Rural Development Plan, aimed to improve farm animal welfare at regional level. It'll be stressed in particular how important is the dialogue between, researchers, local institutions, producer associations in order to obtain a scheme accepted by all different actors. From a technical point of view it will be interesting to explore the final system and methodology to assess animal welfare in order to reward only farmers who are effectively working to improve AW in their farms.

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32) What do we care for when we invoke animal welfare?

Mara Miele

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

In this paper I look at food as one specific encounter between human and non human animals and I am interested in exploring issues of visibility and care about animals suffering and animal happiness in consumption of animal products.

I intend to address two issues: the first one is what do we care for when we buy animal friendly products? We know from Law (2007) that care is multiple, and, empirically, I argue, in the case of consumption of animal friendly products among European consumers, is about caring for the animals, caring for our own bodies, caring for the family, caring for the environment, caring for sustainability, caring for the farming communities in Europe, caring for the European society and civilization.

Drawing on STS insights, I look at how this is done in material practices of buying and eating animal products.

The second issue I want to address is animals' suffering and animals' happiness 'visibility' in different consumption practices. As, from the same perspective, we know that *seeing* is mediated and enacted by technologies for establishing emotional ties and interferences to prevent them. We may 'see' then collectivities produced in apparatuses of visibility and/or processes of qualification, like the free range laying hens, the caged laying hens, the organic broiler chickens, the farming community or the meat trade. From this perspective, '*seeing*' becomes multiple too: buying and eating animal friendly products is care for – which more or less contested collectivities?

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33) Ordering animal farming practices

Mara Miele*, Isabelle Veissier*, Adrian Evans*

Theme n. 4 *Standards as a Mode of Animal Welfare Governance*

Abstract

In this paper we address the process of developing a European Standard on Animal Welfare. We look at this process as an intervention in the messiness of the labels and brands that make claims about the quality of life of farm animals, currently proliferating in Europe, and as an interference in the *ordering* of the specific practices of animal farming, by defining new goals, values, competences and by affecting the forms of organisation of these practices.

In the first part of the paper we will describe how the problem of increasing the welfare of farm animals in Europe has been translated in the EU Commission into the political issue of increasing the '*transparency*' of the market for animal foods within the European Union, to increase '*consumers information*' about the ethical status of the animal products available on the market and to facilitate '*consumers' choice*' according to the preferred level of animal welfare. Then we will describe the development of the tool that has been chosen in order to address this issue: the EU animal welfare standard based on animal welfare science and developed through a dedicated VI Framework research project called Welfare Quality.

Finally we will try to address the question of how much flexibility and attention to specific conditions can be built into such a standard for making it a *fluid technology*, a tool that can work in different locations and that maintains an attentiveness to diversities and to a rich and multiple definitions of quality of life of animals as we find in the varied human- animals societies and animal farming practices in Europe.

Keywords: animal welfare standard, animal science, technology, consumers.

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34) Designer shepherds?

Catherine E Milne

Theme n. 2 *Designing for welfare*

Abstract

Across a wide array of environments and production systems the decisions and actions of stockworkers directly affect the quality of life experienced by farmed animals. Good stockmanship can minimise the risks of detrimental welfare events, maximise the opportunities for animals to have a high quality of life and do much to help animals cope in difficult circumstances. Despite the importance of good stockmanship it is not well defined. This paper describes the development of a multi-attribute framework within which a stockworker can be defined by the set of attributes required to provide good livestock care in particular environments and production systems. The attributes considered include knowledge of animals and the environment in which they are kept, skills in animal handling, empathy and patience. To illustrate its application we design a shepherd for a sheep flock in Great Britain. Real stockworkers, described within the same framework, could be compared with a designed stockworker in order to identify their strengths and weaknesses. This offers the opportunity to identify specific training needs that could result in improved animal care. Similarly the framework could be used to support staff recruitment decisions or to examine the strengths and weaknesses of teams of stockworkers. As the stockworker design can be tailored to specific production systems and environments it is applicable across the diverse range of systems and environments in which livestock are produced across the world. It brings together factors relating to both natural and social science that are important to good stockmanship.

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35) Sick Pigs and Cannibal Cows – technoscience in the food sector

Lena Molin, Ph.D

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

What happens when bodies encounter high technology? In the paper, which deals with risk construction and animal welfare in the agro-food sector, we will read about how the body sets a limit to technological systems when Danish pigs suffer muscular degeneration and Swedish cows become ill and abort their calves. I use the concept technoscience as a starting point to explain how competing scientist networks, different contexts, risk and protesting bodies are linked together. The varying definitions of what is considered dangerous and what is not are linked to time and place, which is something that can be observed in the case of the Danish pigs. On March 17th 1978, the former head of the Danish Meat Research Institute, Niels-Henrik Hansen, lost in court as his scientific claims about the alleged quality of Danish pork were deemed not valid. At his own request, Hansen had already quit his job and in collaboration with his wife, the microbiologist Dorthe Hansen, had written an article where he pointed to alarming changes in muscular tissue in the Danish pork meat, as well as an increase in the appearance of bacterial diseases like *Salmonella* and *Yersinia* and the distribution of feed toxins and resistance to antibiotics. The Hansens connected these problems with the fact that large scale industrial farming, where basic components were increasingly chemical and refined, had replaced the old self-sufficient farming, which produced its own inputs. Following the debate in the press that followed the publication of the book in which the article appeared, Hansen was sued by ESS-food, a Danish slaughterhouse company belonging to “Andelsslagterierne” (the Danish cooperative slaughterhouses). Today the risks that the Hansens warned against are generally acknowledged and there are open discussions about these problems on the various websites of the Butcher’s co-operation. In Sweden, ten years after these events, a single agricultural consultant, Anders Larsson, together with the help of media, managed to put a stop to the feeding of carcass meal to herbivores. As a result, Swedish farming gained a favourable position on the market as the BSE-epidemic spread over Europe some years later. Following a radio broadcast where Larsson supplied the journalists with background information, the issue became widely discussed and the debate resulted in a ban on the feeding with carcass meal, which went into effect in January 1986. A Swedish ban on feeding herbivores with meat- and bone meal from other herbivores was issued 1991. Nowadays, the Swedish agricultural establishment is proud to have been in the frontline, but at that time Anders Larsson risked losing his job when he criticised a production system where the costs for carcass handling were to be measured against the income from fodder. During that time, Larsson was almost alone in claiming that carcass feeding was a risk, while the agriculture experts claimed that the system was both efficient and harmless. The conclusion that may be drawn is that what is considered a scientific “truth” and what is considered a risk depends on time, place and the strength of the network. Both cases also show how an industrial production system may crumble when nature sets the limits.

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36) Social Imaginaries and Animal Welfare Concerns in France

P. Arouna Ouedraogo

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

Human-animals interactions are not value-free; they are embedded in morals and worldviews which lean closely against the French social divide. These values are primarily defined with regard to the transformations of the dominant norms of consumption and conduct, which involve ethical dispositions unequally shared in society. A “new” urban middle-class taste for products from ‘humane’ farm animal production is on the way; this taste goes hand in hand with an idealisation of nature and the natural; it is strongly consonant with growing concerns for animal welfare, so that it is suited to integrate human-animals interactions into eager social conflicts between part of “ethical” consumers and producers, and the others. Are in question the social and legitimate definition of the edible, but also the legitimate way of using the animals in farms, to which are designed new purposes, consisting mainly in the least exploitation of animals. This analysis is based on a previous questionnaire survey undertaken in France in 1998 (N=1009) followed from then to 2007 with in-depth interviews with various consumers and farmers (N=120).

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37) Immunocastration using Improvac™ Improves Pig Welfare and Pork Quality

Pearce MC, Andrews SJ, Jensen JCE, Allison, J.

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

Pig meat is an important source of animal protein. In sexually mature male pigs, a major problem is the occurrence of boar taint caused by high concentrations of the steroid androstenone and the tryptophane metabolite skatole which both result in an offensive smell and taste. Historically, boar taint has been controlled by physical castration of piglets, usually without anaesthetic or analgesia. There is increasing resistance to this practice, especially in Europe where almost 100 million male piglets are castrated each year. One proven alternative is immunocastration using Improvac. Vaccination with Improvac controls boar taint by suppressing testicular production of androstenone and other steroids including testosterone. The reduction of circulating steroids also enhances skatole breakdown in the liver. Vaccination requires two doses of Improvac to be given, and is effective only after the second dose is given 4 to 6 weeks before slaughter. Thus, unlike physically castrated pigs, vaccinated pigs grow for most of their life with a more natural physiological profile. This results in more efficient feed conversion, saving feed and reducing the burden of manure disposal, and results in a leaner carcass. Furthermore, extensive sensory and taste panel studies around the world have demonstrated that the eating quality of meat from vaccinated pigs is comparable to meat from surgically castrated pigs and is preferred to entire male pigs. In non-castrating production systems, reduction in circulating testosterone following vaccination reduces sexual and aggressive behaviour in entire males during fattening, and stress during transport and lairage at the time of slaughter.

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38) Docility in beef cattle breeding: how scientists and breeders match their view?

Patricia Pellegrini¹, Haifa Benhajali², Xavier Boivin², Jean Sapa¹, Florence Phocas¹

Theme n. 2 *Designing for welfare*

Abstract

To contribute to sustainable cattle breeding, French anthropologists, ethologists and geneticists have collaborated* since 2007 to explore animal docility, meaning acceptance of handling by humans, as a way to improve both breeder and animal welfare. The current changes in husbandry systems reduce the opportunities for animals to become familiar with humans and increase their risk of perceiving handling as stressful. Genetic selection based on reduced fearfulness towards humans could therefore be an important way to improve welfare.

The French Limousin Breeding Association recruited 25 breeders for helping scientists to construct a selection criterion for calf docility. On one hand, a behavioural test was performed on 2000 Limousin calves in order to find an easy method to quantify on farm the calf docility and its genetic variability. Calves were tested during restraint in a weighing crate. Their reaction was scored according to the quantity and the rush of their movements. On a second hand, comprehensive, individual and semistructured interviews were conducted to identify how the 25 breeders take care of their animals and to gather their opinion about docility, their breeding practices and know-how. The purpose of these interviews is to understand whether or not animal welfare and sustainable breeding concepts are relevant to breeders and the way they may define them.

The results of this anthropologic study as well as the background and the device of the test are presented.

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39) How much anthropomorphic animal welfare should be?

Simone Pollo, Augusto Vitale

Theme n. 3 *Zoomorphisms and anthropomorphisms*

Abstract

Animal welfare science is aimed to elaborate feasible models to protect and promote animal welfare in the various contexts of human-animal relations (productions, laboratory experimentations etc.). To achieve this goal the elaborations of «objective» lists of species-specific needs and biological indicators seems to be essential to provide operators with tools for effectively monitoring and promoting animal welfare. Nonetheless, such a bound to objectivity pulls the idea of *animal* welfare far away from our common understanding of welfare in the case of *humans*. Actually, the theory and practice of human welfare is strongly connected to the idea that the core of welfare is the satisfaction of individual needs and the promotion of personal and unique lifestyles. In our opinion the loss of the individual dimension in animal welfare is unjustified from an evolutionistic and Darwinian point of view. To give animal individuality a voice in the debate about animal welfare, qualitative methods of observation of animals should support the quantitative ones. The qualitative approach to animal welfare must necessarily be anthropomorphic since it makes use of mentalistic language and attributes character traits to animals. The scope of our paper is to give a contribute to the elaboration of a «critical anthropomorphism» in the field of animal welfare. A sensible use of anthropomorphic language and concepts will not undermine the scientific nature of animal welfare, but it shall enrich our understanding of animals.

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40) Do cows and pigs collaborate in the work of their breeders?

Jocelyne Porcher*, Tiphaine Schmitt,* Aurore Chartier*

Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

Farming animals have a historic characteristic : it is to get involved, from their birth, in the world of human work. Our hypothesis is that farming animals collaborate in the work of their breeders and that their behavior thus exceeds the natural frame which is usually assigned to them. We report here results of two studies led in 2007 and 2008. They rely on social science (sociology of work), animal science (ethology), and animal production science. The objective of the first study was to analyse the behavior at work of dairy cows in an intensive dairy unit with milking robot; the objective of the second study was to analyse the behavior at work of sows and boars in an outdoor pig farm. Our objective in both cases was to underline the animal behaviors appropriate to show their subjective involvement in work. Results show in both cases that animals are not only objects of the work, pushed by instinct or conditioning, but that they are as well actors of the work. They have not only « natural behavior ». They obey rules, but they can also break them, they anticipate the will of their breeders, they have abilities, they take initiatives, they cooperate, or resist, they rely, they negotiate if they have the occasion to. We show that the level of collaboration of animals to work depends on the production system and on the opportunity which is let to animals to express their emotional and cognitive potential.

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41) Use of behavioural and physiological measures for assessing positive emotion in sheep

Nadine Reefmann^{1,2}, Beat Wechsler¹, Lorenz Gygax¹

Theme n. 3 *Zoomorphisms and Anthropomorphisms*

Abstract

The objective assessment of positive emotion helps to promote a good quality of life based on the subjective animal's perspective. By deriving methods from human psychophysiological research, we aimed at investigating the use of multiple behavioural and physiological measures in sheep to assess positive emotional valence and distinguish such situations from negative states.

Reactions of nineteen sheep were assessed while sheep let themselves being groomed by a familiar human (positive valence), during standing in the feeding area (intermediate valence), and while separated from group members (negative valence). Several ear postures were continuously recorded for one minute, and relative eye aperture, cardio-respiration and electrodermal activity were assessed over ten seconds. Data were analysed using linear mixed-effects models.

Groomed sheep exhibited few ear-posture changes ($p < 0.001$), a high proportion of axial ear postures ($p < 0.001$), a low proportion of forward ear postures ($p = 0.06$), low relative eye aperture ($p = 0.02$), long mean inter-heart-beat interval ($p < 0.001$), high heart rate variability ($p < 0.001$), and a low variance of body-surface humidity ($p < 0.001$). These patterns were inverted for the separation from group members, and intermediate values were observed during the situation of standing in the feeding area.

In conclusion, behavioural and physiological measures appear useful to assess positive emotion in sheep and differentiate them from negative emotional valence. Having identified objective measures for characterising positive emotional states, this study contributes to an animal-based assessment of positive emotions in order to improve the quality of animals' lives.

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42) “Using your eyes and ears”: the performance of on-farm welfare assessment

Emma Roe¹, Henry Buller

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Animal welfare is emerging as an important criteria in farm assurance scheme auditing. Growing public concern, as well as developments in animal welfare science, have meant that welfare conditions are increasingly being used to support and validate food marketing claims. How those welfare conditions are assessed is the subject of growing debate and experimentation, with a notable trend towards the consideration of animal based or outcome-based measures (OBMs) of welfare within auditing procedures, as opposed to input and management based standards and measures which dominate current welfare criteria.

Drawing upon recently completed qualitative and ethnographic research that carefully analysed practices of welfare assessment in UK farm assurance scheme negotiation and auditing, we critically consider the introduction of OBMs and, in particular, how current experimentation with the process of auditing OBMs are opening alternative channels to formal farm audit procedures.

The paper argues, first, that with the drive to develop the use of OBMs, the role and place of OBMs will undoubtedly grow bringing with it certain operational challenges. We argue these operational challenges pivot around and extend out into the supply chain from a changing orientation of the ethos of care and responsibility between farmer and animal. Whereas input-based measures are orientated to the provision of an environment for a herd or flock live in, OBMs reveal a shift to the maintenance of emotional and physical well-being for individual animals. Secondly, we argue that this growth of OBMs invites social science perspectives on the nature and form of information generation and communication. The performance of on-farm assessment has always had an emphasis not only on paperwork, but also on an observational, qualitative assessment of the farm. We consider what the implications of increasing the observational, qualitative assessment of farms on the generation and communication of knowledge within the food and farming industry.

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43) Scoring the welfare of animals on farms: a matter of technique or ethics?

P. Sandøe and I. Veissier

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

The welfare of an animal is a matter of how that animal experiences its life. It is composed of many aspects: good health, expression of behaviour, lack of stress, physical comfort etc. When a single aspect of welfare is considered, the animal's point of view can be obtained. It seems merely impossible to determine how an animal would rank very different aspects of welfare (e.g. being afraid of something against being sick) and totally unrealistic to ask a group of animals to judge their overall welfare. Still assessing the overall welfare of a group of animal is essential to develop standards to certify productions on farms or slaughter practices. Such an exercise is inherently based on human point of views and is therefore bound to ethical positions. Typical ethical questions are: should we consider the average state of animals in a group or should we look at the worse off animals? Should we trade off one aspect of welfare against another (e.g. behaviour against health)? Shall a scoring system reflect societal aspirations for high welfare levels or realistic achievements of such levels in practice? The presentation will analyse these ethical positions and will explain which stands were adopted in the European project WelfareQuality®. It will be organised as a dialogue between one philosopher and one biologist.

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44) Do farmers and scientists differ in their understanding and assessment of farm animal welfare?

Kamara Scott and Carmen Hubbard

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Although at present there is no unique definition of animal welfare, there is a consensus amongst scientists regarding its complexity and multi-dimensional nature. It is also generally agreed that to be effective assessment of animal welfare should consider not only physical and mental aspects but also animal behavioural needs. At the farm level, however, despite the existence of a variety of approaches to assessing animals' well-being, the evaluation and monitoring of animal welfare is rather complicated, given the heterogeneity of farmed species and the large number of welfare criteria that should be considered. Moreover, the assessment of animal welfare is often 'entrusted' to the latitude of human perceptions and reactions to husbandry conditions. Farmers' assessment of animal welfare is based, in general, on their personal judgement, experience and good stockmanship, which some may argue relates rather to resource and management-based measures than to animal-based measures. However, the relationship between animals and their carers is very important, as in the presence of humans farm animals can display behavioural patterns known as 'fear responses'. These are the most immediate reactions that animals show to potentially dangerous stimuli in the environment; therefore they can be an important evaluation tool in the assessment of animal welfare. This paper will focus on farmers' perception and understanding of animal welfare and their assessment criteria in contrast to those used by scientists. Particular attention will be given to development of a monitoring system for (pregnant and lactating) sows using animal-based, management-based and resource-based measures, and how such a system might contribute to the overall improvement of animal welfare.

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45) Combining economics with science to design for welfare

Alistair W. Stott^a and Alistair B. Lawrence^b

Theme n. 2 *Designing for welfare*

Abstract

Economists have concentrated on demand side issues in farm animal welfare. This focuses attention on the balance between human perceptions of welfare/willingness to pay for improvements and increased productivity/cheaper food. In contrast, scientific research has focused on supply side issues, including designing high welfare production systems with less regard for their viability or feasibility in commercial markets. This situation reduces the capacity of science to influence farm animal welfare via either the supply or demand side routes.

Our response is to combine economics and science to design for welfare in ways that address animal needs at least cost so maximising potential for uptake of developments in commercial agriculture. We draw on our experiences of applying this approach to both intensive and extensive production systems which has highlighted gaps in the scientific knowledge base needed for development of appropriate economic models. For example, few scientific studies provide the production functions (diminishing response curves) of microeconomic theory. These functions establish profit maximising levels of inputs to animal production systems. Where these inputs affect animal welfare (e.g. labour/stockmanship in extensive sheep systems or provision of 'environmental enrichment' in intensive pig production) operational research techniques may be used to systematically explore the interactions between such inputs and their associated outputs (financial and welfare). This process can provide specifications for production systems that meet scientific welfare requirements at maximum profit and establish the opportunity costs of specific components. This information forms the basis for designing sustainable high welfare systems and developing associated research and policy.

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46) Welfare Evaluation of Social and Exploratory Behaviours in Fattening Pigs Housed in Intensive and Extensive Conditions

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Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

Pigs are social animals and, as such, are strongly motivated to have contact with conspecifics. In addition, pigs are stimulated to perform a behaviour pattern that includes exploration of the environment. The inability to perform both social and exploratory behaviours may cause stress and suffering. This study is part of the Welfare Quality[®] project, and its aim was to measure and compare the occurrence of social and exploratory behaviours of growing pigs housed on 30 intensive and 11 extensive farms. Active behaviours, that include social positive (licking) and negative behaviours (aggression etc), exploratory behaviours and other behaviours (eating, drinking, walking etc) were observed by means of scanning. The occurrence of social behaviours was significantly different between farm systems ($p < 0.001$) and represented 17.6% of all active behaviours in intensive pigs and 3.1% in extensive ones. The main difference was due to a higher occurrence of positive behaviours over all active behaviours in intensive pigs (12.2% *vs.* 2.1%). This result may suggest that pigs' motivation in performing positive contact with other animals is different in intensive than in extensive conditions and may lead to misinterpretations of the expression of social behaviour. Exploration accounted for 31.3% and 41.3% of all active behaviours in intensive and extensive pigs respectively ($p < 0.05$). Variations in the frequencies of exploratory behaviours may result from variations in the occurrence of social behaviours or in the category "other" behaviours which includes a wide and unspecific range of behaviours. In conclusion, the incidence of "positive" behavioural indicators can decrease in more natural environments.

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47) A Critical Review of Animal Welfare Standards and their Trade and Environmental Impacts

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Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

Animal welfare legislation focuses on setting production standards for the improvement of animal welfare. However, there is only a tentative linkage between these standards and science-based animal welfare indicators; no international consensus on the precise role of animal welfare exists; and the standards cannot be readily compared between countries. Implementing stricter standards is usually the result of public concern for farm animal welfare. This may conflict with producers' attitudes as one of the main arguments against implementation of stricter animal welfare legislation is the loss of international competitiveness. To overcome this within WTO rules, the EU has proposed multilateral agreements, labelling of imported products according to the animal welfare standard to which they are produced and compensation payments to domestic agricultural producers. Besides trade-related effects, higher animal welfare standards may come in conflict with the environment and, therefore, there is a clear need to coordinate environmental and animal welfare policies.

Our paper analyses the role of animal welfare standards (focusing on pig and poultry sectors) at UK, EU and international level, and reviews and compares different economic assessment methods to measure the impacts of these standards on food demand and supply, trade and environment. Amongst these methods, simulation modelling approaches, such as equilibrium models (e.g., Toma, *et al.*, 2008) can be used to address the externalities of animal welfare, that is, to assess the overall effects of stricter animal welfare standards at farm level (producers) and beyond the farm gate, on domestic markets (retailers and consumers), international trade and environment.

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48) Animal Ethics and Affective Education

Gail Tulloch

Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

What constitutes animal nature is a contested question, with crucial ramifications for animal ethics, as beliefs about animal nature ground human treatment of animals.

Animals have long been considered inferior to humans in western thought, and different in kind, not merely in degree – though this was problematised by Darwin’s ‘The Origin of Species’ (1759). In Judaeo-Christian ethics, God gave humans dominion over animals. This exacerbated the long-established prejudice in western culture in favour of rationality as the defining characteristic of human beings.

Rene Descartes argued that animals were but machines that moved and made sounds but had no feelings. In such a context it was easy to portray animals as quasi-clockwork animated robots – “furry clocks”.

Jeremy Bentham first advocated the direct inclusion of animals in our ethical thinking, introducing the concept of sentience, or the capacity to feel pleasure and pain, as the central criterion. This led to prevention of cruelty to animals (POCTA) legislation, and a new concern for animal welfare.

Peter Singer’s work is in this tradition. He also popularised the notion of speciesism – a bias in favour of one’s own species.

Now Martha Nussbaum has introduced a new approach, the capabilities approach, a Quality of Life approach which lists 10 capabilities, 9 of which apply to animals as part of their nature. It covers more than is implied by sentience, and applies to the whole range of animals – companion animals, farm production animals, animals in zoos, rodeos, museums and laboratories.

This paper traces these developments in understanding the relation of notions of animal nature to animal welfare, and what a good life for animals entails.

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49) 4P-approach in designing animal friendly pig production systems

O.N.M. van Eijk, J.J. Zonderland, L.M.T.E. Kaal-Lansbergen

Theme n. 2 *Designing for welfare*

Abstract

Most improvements in designing pig production systems focus on one of the traditional P's (People, Profit, Planet) or our forth P: the Pig. When improvements are needed on relatively short notice, a design approach with a strong focus on one of the P's can be useful. This approach was used designing a Comfort Class facility for fattening pigs, where all the pigs' needs are fulfilled. In a similar project new designs are developed for group housing of gestating sows (all sows in the EU must be group housed from 2013 onwards) based on the sows' needs.

However, the effect of most monolateral improvements have negative effect on other P's and often legislation is needed for implementation in the pig sector. The project "Porkunities" (pork-opportunities) aims to design an integral sustainable pork production systems based on the 4P-approach. For this we hypothesize that with radical re-design new solutions can be found which improve all P's. This 4P-approach will lead to competitive pig production systems which are good for Profit, Planet, People and Pig. Early 2009 the first designs will be available for monolateral design for welfare as well as the 4P-approach and the contrast for integral sustainability discussed.

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50) Group size and density under ComfortClass conditions for growing pigs

Herman Vermeer, Karel de Greef and Wim Houwers

Theme n. 2 *Designing for welfare*

Abstract

Facilities for growing-finishing pigs based on animal needs (*ComfortClass*) require 2.4 m² per pig of 110 kg liveweight and additional environmental enrichment. Currently Dutch conventional pigs have 0.8 m² and from 2013 1.0 m² per finishing pig. To close the gap between these ComfortClass conditions and conventional pig farming lower densities (2.4 “Low” vs 1.6 “Middle” and 1.2 m² “High”) in two pen sizes (29 m² “Small” and 58 m² “Large”) were compared from 25 to 115 kg. Equipment in the pens was the same for the different densities, the large pens were doubled small pens. Skin and tail lesions, behaviour and performance were recorded and economic results calculated in 3 batches with 8 pens each.

Skin lesions on front, middle and hind body parts and all types of tail lesions were higher in the larger pens and the higher densities ($p < 0.001$). Proportion pigs lying under the creep was 61, 53 and 48% for Low, Middle and High ($p < 0.001$) and the opposite for pigs lying outside the creep.

Higher proportion animals was observed eating, drinking and rooting in Low vs Middle vs High and in Small vs Large ($p < 0.001$). Dunging behaviour under the creep was less in Large than in Small ($p = 0.029$), but not different for the three densities ($p = 0.282$). Daily gain was higher in Small than in Large (841 vs 812 g/d; $p < 0.001$) and higher in Low than in Middle and High density (843 vs 832 vs 805; $p < 0.001$).

It can be concluded that in Small pens and Low density the pigs perform better, have less injuries and make more use of the facilities in the pens, but this was economically not viable without a financial benefit.

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51) Relations and Regulations: An Anthropological Approach

Noëlie Vialles

Theme n.3 *Zoomorphisms and anthropomorphisms*

Abstract

In order to usefully examine what animal welfare is and with which methods it can be achieved, it is of course necessary to question the disciplines directly dealing with this topic. But it is not possible to understand, and therefore try to go past the differences in perspectives not to say the tensions, if a general view on the relative positions and interactions of the many actors concerned is not given.

Thus it is from an anthropological standpoint that I intend to draw such a broad view and stress the crucial importance of the *relations* and interactions between humans and animals so as to dissolve the mirages of 'naturalness' and its resulting in two opposite but isomorphic 'morphisms'.

What seems to be a detour by anthropology leads in fact to the very heart of the main difficulties raised by the question of the quality of life of animals. It may as well contribute to open up new tracks in the quest for coherent and acceptable regulations, by suggesting sound basis for relations between humans and animals, in order to secure welfare and legitimacy in the breeding of animals for food.

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52) How much naturalistic animal welfare should be?

Augusto Vitale, Arianna Manciocco, Giovanni Laviola

Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

One important line of thought identifies a good level of welfare for animals in captivity with a naturalistic design of the environment, and with the manifestation of behavioural repertoire as close as possible with that of the wild conspecific. This approach remains a powerful and convincing case for animal welfare. The aim of this paper, however, is to show how also contextual and historical features have to be taken into consideration when dealing with welfare in captivity. Furthermore, life in the wild is characterised by aversive events to which animals have to react appropriately. How these considerations can influence the choice of environmental enrichments for to improve the welfare of captive animals? We will present data to show that different factors, such as the history of a colony and the environmental context, can influence the behavioural needs of captive individuals, and consequently the effectiveness of a particular environmental enrichment. In particular, we will present the results of a study on the responses to the same enrichments by different colonies of common marmoset (*Callithrix jacchus*). Our experience comes from laboratory animals, but in this paper we will discuss the possibility to bridge the reality of a research laboratory with the reality of farm life.

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53) Searching for the “holy grail” of animal welfare labelling

Marie von Meyer, Ingke Deimel, Achim Spiller, Ludwig Theuvsen

Theme n. 4 Standards as a Mode of Animal Welfare Governance

Abstract

In the current discussion on animal welfare standards, the implementation of an Animal Welfare Label is considered one possibility to label meat that is produced under animal welfare standards considerably above minimum legal requirements. One intention of labelling more animal-welfare friendly products is to increase consumers’ awareness and their potential to make informed choices. An important question which needs to be taken into account is: How to achieve the “holy grail” of high market acceptance simultaneously with enhanced animal welfare standards (CCIF, 2002)? Basically, there are two alternatives to reach this superior market position: either by starting at a position of high standards but low market penetration, the “gold standard”, or by establishing lower (although still above minimum legal requirements) standards that allow a higher market share. This paper aims at identifying the more promising way to the “holy grail” of animal welfare labelling by critically analyzing existing certification schemes in other product areas.

Today there is a broad spectrum of different labelling schemes (Rubik and Frankl, 2005). They can be mandatory or voluntary, private or public, static or dynamic. A case study analysis of already existing social and ecological labelling schemes offers a systematic overview over the characteristics of effective labelling initiatives, concerning their organisation, marketing and market shares. Special emphasis is put on the German Bio-Siegel, the Transfair label and the Forest Stewardship Council initiative due to their differences in organisation, product range and objectives. Based on previous experiences and comprehensive benchmarking, this paper provides guidelines how to define a successful concept for the implementation of an Animal Welfare Label that represents the “holy grail” of high market acceptance in combination with high animal welfare standards.

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54) *“I wish I didn’t get so many triplets and quadruplets”*: An anthropological exploration of the abundance of lambs on Norwegian sheep farms today.

Lill Margrethe Vramo

Theme n. 2 *Designing for welfare*

Abstract

This paper is about modern sheep breeding in Norway from the 70’s and onwards. It focuses on how the specific sheep breed: The Norwegian White Sheep (Norsk Kvit Sau) has been and is part of the meat-producing chain in Norway. In this paper I explore structural and cultural aspects which over a period of time have been part of the construction of The Norwegian White Sheep as it live on Norwegian farms today. The meat-producing chain is influenced by different factors prior to ‘the sheep’ as we can observe and meet the sheep on a Norwegian farm today. By approaching the sheep farm as a household with a domestic as well as a wider economy I explore different aspects of the relationship between the producer and the sheep. I argue that current breeding practices have created new ways and challenges for the farmer related to ‘order’ and ‘care’. By drawing on field observations on sheep farms, qualitative interviews with sheep farmers and actors in the sheep industry, as well as historical material, I explore what we understand as the side-effects of national sheep breeding programmes. I explore how the different side-effects are interpreted as individual problems for the farmer. In this paper I investigate the practical and ethical dilemmas that such problems create for sheep farmers. By individualizing the dilemmas, I argue that the problems end up as unspoken and silent sheep welfare problems.

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55) Do free-range poultry systems offer better quality?

Dr. Claire Weeks

Theme n. 5 *Animal Welfare and Food Quality*

Abstract

Many consumers view eggs or meat from chickens reared free-range as ethically superior. They may also claim superior taste, although scientific taste tests often either fail to distinguish differences, or find improved palatability from other systems.

Although in theory free-range systems offer chickens the greatest possibility to express 'normal' or 'natural' behaviours, the reality is that the majority of birds choose not to go outdoors. Abnormal behaviours such as feather-pecking and cannibalism are common. The majority of broilers in organic free-range systems have unacceptably high levels of pododermatitis. Infestation with red mites, coccidia and worms are frequently reported at higher levels in free-range than other systems and birds and their eggs may often be dirtier. These health and hygiene problems all pose challenges for the quality of chicken meat and eggs incompatible with their perceived premium quality. Behavioural and health problems, together with some losses to predators, lead to higher levels of bird mortality in free-range than other systems with concomitant fear and reduced welfare.

Whereas most problems can be overcome with good management, particularly in smaller flocks, is the way forward re-education of consumers and semi-range systems?

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56) Does ranging behaviour go against the grain for modern chickens?

Dr Claire Weeks

Theme n. 1 *Naturality: cowness, pigness, chickenness*

Abstract

Public perception is that it is 'natural' and hence desirable for hens and chickens to range outdoors. In the UK, sales of free-range eggs have steadily risen and are the greatest 'success' for the RSPCA's Freedom Food label based on welfare assurance. Recent television campaigns by celebrity chefs have driven consumer demand for free-range chicken meat and eggs still higher.

Yet the reality in modern commercial flocks is that few chickens actually range. A median of 30% of laying hens used the range in 25 UK flocks (Whay et al, 2007). All surveys have found the larger the flock, the fewer birds range outdoors. Research effort is concentrating on making the range more attractive to the birds with vegetative cover more akin to the jungle environment of their ancestors. But is this what the birds want? Rather, are they expressing the natural instincts of self-preservation and choosing thermal and physical comfort over exposure to the often hostile outdoor conditions?

Mortality rates, feather pecking and cannibalism are often very high in free-range flocks compared with other husbandry systems. This meets neither the needs of the birds nor the expectations of consumers. Do we need to change our viewpoint?

Reference

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57) The human perception of animal body language: A window into an animal's world?

Françoise Wemelsfelder

Theme n. 3 *Zoomorphisms and Anthropomorphisms*

Animal scientists often regard it as given that human perceptions of animals and their welfare are inevitably marred by anthropomorphic bias. Accordingly, methods that rely on human judgement of animal characteristics rather than on measurements of physical movement tend to be characterised as 'subjective assessment'. It is thought we can infer 'what-it-is-like-to-be' an animal only indirectly from measurements of physiology and behaviour, and that our best aim is to interpret such data through an approach of 'critical anthropomorphism'. However there are areas of social science (eg infant development), which do not isolate mind from embodied reality this way, but take an integrative approach in which direct psychological communication through behavioural expression is considered feasible. It is acknowledged that we might never be entirely certain of another's experience, and that misjudgements can occur, however this is not seen so much as a problem of insurmountable subjective bias, as an incentive for improving one's communicatory skills.

We have in recent years applied this approach to the study of farm animal welfare, by developing a Free-Choice-Profiling (FCP) methodology for the assessment of animal 'body language' (ABL). FCP elicits spontaneous perceptions of ABL (eg anxious, content) from groups of 10-15 observers who are asked to watch (videos of) farm animals in various circumstances, and then instructs them to quantify these perceptions. This presentation will summarise the outcomes of this research, and evaluate its validity and relevance for understanding animal welfare against the often-made objection that judgments of ABL are 'mere human perceptions', not true behavioural data.

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58) Psychometric methods in animal welfare measurement

Wiseman-Orr ML, Nolan AM, Scott EM

Theme n. 3 *Zoomorphisms and anthropomorphisms*

Abstract

We define the quality of life (QoL) of farm animals as the individual's circumstances, including health status, and its affective response to those circumstances, with group level measurement represented by the distribution of QoL scores for individuals in the group. Consequently, a measure of affective response, or how the individual animal feels, makes an essential contribution to the measurement of farm animal QoL or welfare. A rating approach to the recording of animal behaviour, in which an active role is played by an observer in gathering, integrating and making meaning from observations of behaviour, makes use of the human observer's innate and learned abilities to interpret the expression of emotions, whether in other people or in other species. A development of this ethological approach is to use psychometric methods to develop instruments with important and valuable measurement properties. Such methodologies are very well established in other fields, such as psychology and medicine, but are relatively novel in animal welfare measurement. Psychometric instruments can be tested to obtain evidence for the validity, reliability and sensitivity of the range of observations and interpretations upon which they are based, including the interpretation of behaviour that communicates the subjective experience of the individual. We have previously applied this cross-disciplinary approach to companion animal QoL measurement^{1,2,3} and are now applying it to the measurement of QoL of farmed pigs.^{4,5,6}

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59) Ancient animal welfare codes as a guide to modern codes

Ari Z. Zivotofsky, Joe Regenstein, and Doni Zivotofsky

Theme n. 4 *Standards as a mode of Animal Welfare Governance*

Abstract

In recent years many governments have introduced animal welfare standards that govern all aspects of meat production from the farm to the slaughterhouse and beyond. While governmental authorities struggle to balance competing demands, religious laws, notably those of Judaism and Islam, have included animal welfare standards for millennia. For people of the Jewish faith the method of slaughtering animals is an important religious component that has been precisely defined in the legal codes for 2000 years, and rules, although more loosely defined, regulate how the animal is handled on the farm and pre-slaughter. These standards precede the earliest civil code by centuries and because Jewish law (halacha) has a long written record it is possible to examine how the animal welfare standards within Judaism developed, and use that as a mirror to reflect on how modern standards are being developed. We propose to examine how the rabbis dealt with conflicting principles, competing interests, and advances in science and technology. One example to be discussed is that of stunning. In the Jewish community, all forms of pre-slaughter stunning have been disqualified by the recognized authorities in Jewish religious law, leading some people to conclude that with kosher slaughter (shechita), animals may suffer more than with stunning. Because animal welfare has always been a fundamental concept in Judaism, this seeming contradiction troubles some people. It is therefore important to analyze how this decision was reached and what measures of welfare are used.

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