

WORKSHOPS

1-7

WORKSHOP 1

MORTALITY AND WELFARE IN THE FARROWING UNIT

Purpose of the workshop:

The aim of the workshop will be to identify potentials and focus area for further improvement of piglet survival and welfare of sow and piglets in the farrowing unit.

Organizers:

- Christian Fink Hansen, Associate professor, University of Copenhagen
- Lene Juul Pedersen, Senior researcher, Aarhus University
- Tine Rousing, Senior researcher, Aarhus University
- Karina Nedergaard, Danish Veterinary and Food Administration
- Anne Sofie Grove, Danish Veterinary and Food Administration

Workshop moderator:

- Christian Fink Hansen, Associate professor, University of Copenhagen

Workshop programme

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|----------------------------------|---|
| 14.40-14.45 | Introduction to the Workshop Christian Fink Hansen, Associate professor, University of Copenhagen |
| THE FARROWING ENVIRONMENT | |
| 14.45-14.53 | Developing a Group Housing System for lactating Sows and Their Litters Sofie Van Nieuwamerongen, PhD student, Wageningen University |
| 14.53-15.01 | Strategic Use of Straw for Loose Housed Sows at Farrowing Rebecka Westin, Post Doc, University of British Columbia |
| 15.01-15.09 | Housing of Farrowing Sows - Effect of Crating on Sow Maternal Behaviour, Physiology and Production Anna Valros, Professor, University of Helsinki |
| 15.09-15.17 | Effect of Temporary Confinement of Sows for 4 Days After Farrowing on Sow Behaviour Janni Hales Pedersen, Post Doc, University of Copenhagen |
| 15.17-15.37 | Discussions in Plenum |
| 15.37-15.47 | Break |
| NURSING SOWS | |
| 15.47-15.55 | Welfare of Nursing Sows and Their Piglets - Results from a Danish Cross-Sectional Study Tine Rousing, Senior Researcher, Aarhus University |
| 15.55-16.03 | Behavioural Observations of Milk Let-Downs in Nurse Sows Compared to Ordinary Sows Charlotte Amdi Williams, Post Doc, University of Copenhagen |
| PIGLET MORTALITY | |
| 16.03-16.11 | Piglet Mortality in Danish Organic Herds Lena Rangstrup-Christensen, PhD Student, Aarhus University |
| 16.11-16.19 | Piglet Mortality in Loose Housed Systems Janni Hales Pedersen, Post Doc, University of Copenhagen |
| 16.19-16.40 | Discussion in Plenum |

DEVELOPING A GROUP HOUSING SYSTEM FOR LACTATING SOWS AND THEIR LITTERS

Sofie E. van Nieuwamerongen, J. Elizabeth Bolhuis, Nicoline M. Soede, C. M. C. van der Peet-Schwering
Wageningen University, Dept. of Animal Sciences, De Elst 1, 6708 WD Wageningen, the Netherlands

Group housing of gestating sows has become mandatory in the EU due to welfare concerns about individually confined sows. During lactation, however, most sows are housed in farrowing crates. A multi-suckling (MS) system provides a larger and more complex environment with more possibilities to express natural behaviours. By housing several sows together with their litters, MS-systems can enhance piglet social development and have the potential to stimulate socially facilitated eating behaviour. MS-systems, however, also pose risks including disrupted nursing behaviour and increased piglet mortality. Thus, MS-systems can provide both advantages and disadvantages for sow and piglet welfare. In the Netherlands, a new MS-system for five sows and their litters has been developed, in which sows can move freely and piglets can enter the communal area after 1 week of age. The system includes a communal floor-feeding area where piglets can learn to eat from the sows. MS-raised piglets showed indicators of improved pre- and post-weaning development. Pre-weaning mortality, particularly before mixing litters, was however an issue that needed attention. In a new version of the system, this issue will be addressed. In addition, in future experiments we will investigate performance of sows and piglets during a 9-week lactation period in which a more gradual weaning process is stimulated using intermittent-suckling.

STRATEGIC USE OF STRAW FOR LOOSE HOUSED SOWS AT FARROWING

Rebecka Westin, DVM PhD, University of British Columbia

A method for “strategic use of straw at farrowing” has been developed by Swedish piglet producing farmers in order to satisfy sows’ behavioural need to nest-build and to provide a suitable environment for new-born piglets. Two days prior to their expected farrowing, sows are given 15–20 kg of chopped straw. The straw is then left to gradually filter through the slatted floor. If the quantity of straw reduces too quickly before farrowing, additional straw is provided to cover visible floor areas. Otherwise no straw is provided until 4-5 days after farrowing. If the straw chop lengths are adjusted to the type and design of the slatted floor most of the straw will have disappeared by this time (1). Thereafter small amounts of straw are given each day in accordance with common Swedish management routines.

The effects of this practice on sow behaviour and piglet health and production have been studied in a large research project. Sows started to nest-build earlier and performed more nest building behaviour compared to when only 2 kg of chopped straw was provided for nest-building (2). The proportion of stillborn piglets was reduced by 27 %. Overall mortality of live-born piglets was not affected but the number of piglets dying due to starvation was substantially reduced (3). Piglet growth was positively affected with +0.3 kg at weaning (4). Economic calculations show that “strategic use of straw” is profitable (5).

References:

1. Westin et al. 2013. *Acta Agr. Scand. Section A - Animal Science* 63, 1-10
2. Westin et al. 2015a. *Appl. Anim. Behav. Sci.* In press.
3. Westin et al. 2015b. *Prev. Vet. Med.* In press.
4. Westin et al. 2014. *Prev. Vet. Med.* 115, 181-190
5. Westin & Eriksson. 2014. *Pigrapport* 58. Available at www.svenskapig.se

HOUSING OF FARROWING SOWS – EFFECT OF CRATING ON SOW MATERNAL BEHAVIOUR, PHYSIOLOGY AND PRODUCTION

Anna Valros

Department of Production Animal Medicine, Faculty of Veterinary Medicine, P.O.Box 57, 00014 University of Helsinki, Finland, anna.valros@helsinki.fi

Most sows within modern piglet production are crated around farrowing. The reason for this is that it reduces space requirement and labour, as well as is thought to reduce piglet crushing. However, studies indicate that total piglet mortality is not reduced in crate vs pen farrowing systems. Sows have a hormonally induced need to build a nest prior to parturition. During the nest building period sows show an increased general activity, as well as diverse substrate-directed behaviours, when possible. Crating the sow during the periparturient period has been shown to cause stress to the sow. Even though sows, independent of farrowing system, show nest building behaviour, crating reduces actual nest building activity, while increasing the occurrence of redirected bar biting. Furthermore, crating reduces oxytocin and increases farrowing duration, which, in turn, is linked to an increased stillbirth rate. The importance of housing during the nest building period is further indicated by the fact that prepartum crating had implications for sow maternal abilities and piglet performance even when sows were confined in crates at the beginning of farrowing: Sows that were crated prefarrowing showed less efficient nursing behaviour, as well as reduced maternal characteristics when compared to sows housed freely in pens. Also piglet growth is improved in non-crated systems, possibly due to improved milk production. Allowing for even more diverse nest building behaviour, by adding more nest building materials to penned sows, further increases maternal hormonal and metabolic status, piglet immune status and piglet growth.

EFFECTS OF TEMPORARY CONFINEMENT OF SOWS FOR 4 DAYS AFTER FARROWING ON SOW BEHAVIOUR

J. Hales¹, V.A. Moustsen² M.B.F. Nielsen² and C.F. Hansen¹

¹Department of Large Animal Sciences, University of Copenhagen, Denmark;

²SEGES, Danish Pig Research Centre, Denmark.

This study aimed at investigating if confinement for 4 days after farrowing influenced sow behaviour. The study was conducted in a Danish piggery with SWAP (Sow Welfare And Piglet protection) farrowing pens. Sows were randomly allocated to one of three treatments: loose-loose (LL: loose from placement in the farrowing unit to weaning; n=48), loose-confined (LC: loose from entry to end of farrowing and confined to day 4 post farrowing; n=50), and confined-confined (CC: confined from day 114 of gestation to day 4 post farrowing; n=45). All sows were loose housed from day 4 to weaning. Behavioural registrations were obtained from video recordings. Regardless of treatment, sow behaviour was characterised by low frequency of postural changes (<12 postural changes in two hour bouts) and a large proportion of time spent in lateral recumbency (80-120 min of two hour bouts), especially day 1 and 2 post farrowing. Postural changes increased during the day in all treatments but more so in LL than LC and CC (P=0.02). Rolling frequency increased from day 1 to day 3 post farrowing in all treatments, but LL had a greater increase than LC and CC (P<0.001). Time spent lying lateral was similar across treatments (P=0.66). Sows in LL had more nursings than sows in CC on day 1, 2 and 3 (P<0.05) and sows in LL terminated more nursings than sows in LC and CC on day 3 (P≤0.001). In conclusion the results suggested that confinement for 4 days after farrowing had little influence on sow behaviour.

WELFARE OF NURSING SOWS AND THEIR PIGLETS - RESULTS FROM A DANISH CROSS-SECTIONAL STUDY

Tine Rousing , Jan Tind Sørensen, Anne Braad Kudahl & Lene Juul Pedersen
Department of Animal Science, Aarhus University

Many sows give birth to more piglets than they can foster themselves. This has in Denmark led to an introduction of nursing sows fostering the surplus piglets. A nursing sow is a lactating sow fostering other sows piglets, after weaning its own piglets and therefore having a longer lactation fixed in a farrowing crate. A cohort of nursing and non-nursing sows and their litters were clinically examined in a cross-sectional study in 59 Danish commercial sow herds. The clinical examination on sows included: bursa on legs, bi-claw wounds, vulva lesions, skin hygiene, skin condition, shoulder ulcers, and wounds on the udder and for the piglets: huddling, skin hygiene, lameness, snout lesions and carpal abrasions. It was found that the prevalence of bursa on legs as well as wounds on the udder was higher for nursing sows than non-nursing sows. Furthermore, an indication of a higher risk of skin lesions for nursing sows compared to non-nursing sows was found. Nursing sow fostered litters had compared to non-nursing sow litters more often carpal abrasions and were more often dirty. Also nursing-sow litters as well showed a tendency of having a higher risk of lameness than non-nursing sow litters of the same age. The differences between nursing and non-nursing sows were tested with a logistic model taking into account effects of age of the litter. Our results indicate that nursing sows and their piglets may have impaired welfare.

BEHAVIOURAL OBSERVATIONS OF MILK LET-DOWNS IN NURSE SOWS COMPARED TO ORDINARY SOWS

Charlotte Amdi Williams, University of Copenhagen

Nurse sows are used in piggeries with hyper-prolific sows to manage large litters. It is not known if nurse sows have altered behavior measured as milk let-downs when they 1) receive new piglets (short-term behavior) or 2) have to stay in farrowing crates beyond the normal weaning time (long-term behavior) compared to ordinary sows (OSOW) weaning their piglets at d25. In Denmark, cascade fostering using two lactating sows are normally performed. The first nurse sow (NURSE1) has her piglets removed after a week and receives surplus newborn piglets that she fosters until weaning. The second nurse sow (NURSE2) weans her litter after 21 days and receives the litter from NURSE1 which she rears until weaning. In total 60 sows (n=20) were randomly allocated to become an OSOW, NURSE1 or NURSE2. Video cameras were placed above the sows. There was no difference in amount of successful milk letdowns on the day the NURSE1 sow received new piglets compared to the OSOW ($P>0.05$). The average successful milk letdowns on the day after NURSE1 sows received new piglets was 1.3 letdowns/h for OSOWS and 1.3 letdowns/h for NURSE1 sows ($P>0.05$). Similar observations were made for NURSE2 sows when they received new piglets after 21 days. The average milk let-down was 1.8 for OSOWs at day 24, 1.6 for NURSE1 sows at day 31 and 1.9 for NURSE2 sows at day 38. In conclusion, no difference was found in the short-term or long-term bouts of milk let-down of nurse sows compared to ordinary sows.

PIGLET MORTALITY IN DANISH ORGANIC HERDS

Lena Rangstrup-Christensen, Lene Juul Pedersen and Jan Tind Sørensen
Aarhus University – Department of Animal Science, Tjele, Denmark

The high piglet mortality in Danish organic sow herds is seen as a key constraint in achieving its potential importance, since consumers expect a high level of animal welfare in organic pig production. This problem is addressed in a PhD study conducted at Aarhus University in collaboration with nine large Danish organic pig herds running from June 2014 until June 2015. The aim of the study is to identify major risk factors, related to sow, litter, season and management, for piglet mortality in Danish organic pig production. The projects two major focus areas are; detailed farm mortality registrations conducted by the farmer and necropsies on a random sample of piglets from each farm in all seasons conducted by first author. The first preliminary descriptive results from the necropsies performed on 1001 piglets collected on the nine farms during the summer of 2014 show that the majority of the piglets, 25% to 52%, were crushed, 13% to 33% were stillborn and 2% to 10% died of hunger. The majority of the stillborn piglets died during the farrowing. The herd level pre weaning mortality rates during the critical warm season, from June 2014 until August 2014 were between 22% and 38%. The herd level proportion of still-born out of total born piglets ranged between 6% and 12%. The average litter size from the same period ranged from 14.70 to 17.62 and the average number of still-born per litter ranged from 0.94 to 2.05.

PIGLET MORTALITY IN LOOSE HOUSED SYSTEMS

J. Hales¹, V.A. Moustsen², M.B.F. Nielsen² and C.F. Hansen¹

¹Department of Large Animal Sciences, University of Copenhagen, Denmark;

²SEGES, Danish Pig Research Centre, Denmark.

For loose housed farrowing systems to be an alternative to traditional farrowing crates, they must deliver production results that are comparable to crates. Piglet mortality was studied in three commercial Danish piggeries with free farrowing pens (FF-pens) and farrowing crates in the farrowing unit. Results showed that piglet mortality in FF-pens was higher than in crates ($P < 0.001$) before litter equalisation. Similarly, mortality was higher in pens compared with crates after equalisation, but the difference was dissimilar in the three herds ($P < 0.05$). These results suggested that FF-pens were not a robust type of farrowing system. Consequently, the SWAP pen (Sow Welfare And Piglet protection), where sows could be confined for a short period of time around farrowing, was developed. Piglet mortality in this system was studied in a Danish piggery where records were obtained from 2,139 farrowings. Sows were randomly allocated to one of three treatments: loose-loose (LL: loose from placement in the farrowing unit to weaning), loose-confined (LC: loose from entry to end of farrowing and confined to day 4 post farrowing), and confined-confined (CC: confined from day 114 of gestation to day 4 post farrowing). All sows were loose housed from day 4 to weaning. Compared to LL, confinement reduced piglet mortality from litter equalization to day 4, but more so in CC than in LC. Total piglet mortality was greater in LL (26.0%) and LC (25.4%) compared to CC (22.1%) ($P < 0.001$). In conclusion, confinement for 4 days after farrowing reduced mortality in this period, but confinement before farrowing was necessary to reduce total piglet mortality.

WORKSHOP 2

CASTRATION OF PIGLETS

Purpose of the workshop

The starting point for this workshop will be the European Declaration on alternatives to surgical castration of pigs. However, also challenges in relation to surgical castration with anaesthesia will be dealt with. Short presentations of the current state of play for the different alternatives will be followed by a discussion aimed at drawing up conclusions on the way forward.

Organizers

- Rikke Thomsen, MSc, Aarhus University
- Birte Broberg, Senior Veterinary Officer, Danish Veterinary and Food Administration

Workshop moderator

- Rikke Thomsen, MSc, Aarhus University
- Birte Broberg, Senior Veterinary Officer, Danish Veterinary and Food Administration

Workshop programme

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|-------------|---|
| 14:40-14:45 | Introduction to the Workshop Rikke Thomsen and Birte Broberg |
| 14:45-14:55 | Surgical Castration with Local Anaesthesia Monika Löfstedt, DVM, PhD, Farm & Animal Health |
| 14:55-15:05 | Production of Entire Male Pigs, A Means to Avoid Surgical Castration Rikke Thomson, MSc, Aarhus University |
| 15:05-15:15 | Boar Tain Vaccination, A Possible Solution to Avoid Surgical Castration in Pigs Niels Wuyts, Director, Veterinary Operations, Zoetis |
| 15:15-15:25 | An NGO's Perspective on the Alternatives to Surgical Castration of Piglets Reineke Hamelers, Director, Eurogroup for Animals |
| 15:25-15:35 | Detection of Boar Taint, A Means to Avoid Surgical Castration Susanne Støier, Director, Meat technology, Danish Meat Research Institute |
| 15:35-15:45 | Stakeholder Perceptions of Alternatives to Surgical Castration of Male Piglets Klaus Grunert, Professor, Aarhus University |
| 15:45-16:40 | Discussions in plenum |

SURGICAL CASTRATION WITH LOCAL ANAESTHESIA

Monika Löfstedt, Farm & Animal Health, Skara, Sweden

Surgical castration in piglets has been discussed from an animal welfare point of view for many years. In 2010 a Swedish study showed that local anaesthesia and analgesia reduced pain during and after castration, respectively. Furthermore, it was concluded that the farmers, after training, were able to inject local anaesthesia effectively⁽¹⁾.

As a result, farmers in Sweden are allowed to administer a local anaesthetic before castration, but only in piglets younger than seven days of age. In order to perform local anaesthesia farmers have to be trained and approved in conditional medicine usage according to Swedish regulations. Furthermore, they have to attend a course in "Safe and pain-free castration". The participants are instructed individually by a veterinarian on how to perform the local anaesthesia. After practice in order to learn the technique, they can be approved. In total, 1000 people working in 90 percent of our piglet-producing herds have passed the test.

An evaluation four years after the introduction of this system shows that it works well. The farmers experience the calmness of the farrowing unit and how much easier it is to castrate, even though the piglets have to be handled twice.

In Sweden today, all piglets are given analgesia (NSAID) at castration. About 10 percent of our herds are also using local anaesthesia. From January 2016 castration without anaesthesia is prohibited in Sweden and farmers who have been approved will have the option of administering local anaesthesia.

References

1. Hansson et al. *Acta Veterinaria Scandinavica* 2011, 53:34

PRODUCTION OF ENTIRE MALE PIGS – A MEANS TO AVOID SURGICAL CASTRATION

Rikke Thomsen, Department of Animal Science, Aarhus University, Denmark

Production of entire male pigs could be an alternative to surgical castration, to avoid the negative welfare aspects associated with the castration procedure. However, production of entire males can lead to other welfare issues, due to altered behavior of entires resulting in increased aggression and mounting behaviour. To accommodate the altered behaviour, modifications in housing and management routines might be a solution. This could include more space available, occupational material and stable group composition. A large Danish study was conducted on five organic pig farms with the intention to investigate management approaches in relation to housing of entire male pigs under organic standards. All pigs had the opportunity to socialize prior to weaning and were mixed together at weaning with half the pigs undergoing a second mixing at 30 kg. Two different group sizes were applied. The results showed no increase in mean number of skin lesions for groups undergoing a second mixing. However, the different grouping strategies showed a significant effect on mounting frequency, but with no consistent pattern across herds. A significant increase in mean number of lesions was found in large groups compared to small, although the numeric difference was small. Mounting frequency significantly differed between group sizes, but with no consistent effect between the participating herds. No clear management recommendations in relation to grouping strategy when rearing entires could be revealed. However, the organic production system seemed favourable for rearing entires as regards welfare issues and elements of this system could be considered in a future production of entire male pigs.

BOAR TAINT VACCINATION, A POSSIBLE SOLUTION TO AVOID SURGICAL CASTRATION IN PIGS?

Niels Wuyts, Zoetis International Services

Consumers request that animals are treated correctly and humanely. They want to buy their pork with a guilt-free conscience. This is a logical and reasonable demand. Yet between 80-90% of pig producing markets continue unabated with surgical castration and other mutilations, with producers hoping that consumers will remain blissfully ignorant.

Surgical castration is ethically wrong and arguably also scientifically irresponsible. Irresponsible because the only benefit it provides is in the suppression of boartaint in male pigs. All other consequences of surgical castration – even with pain relief - are economically and ecologically detrimental for the producer, the processor and the consumer.

Conversely, if we can achieve production of boartaint-free animals without having to resort to surgical castration, we can turn all the negative effects into benefits.

Melbourne university in Australia invented a immunological way to prevent boartaint and boar aggressive behavior. This immunological solution is marketed worldwide by ZOETIS under the brand name IMPROVAC®. IMPROVAC® activates the pig's immune system to temporarily delay puberty in boars during the last weeks of fattening, hence effectively eliminating boar taint and boar behavior. It is important to stress that this vaccine is not a hormone. This technology also has a new application for use in female Iberico pigs, which are currently rather brutally spayed to prevent them from getting impregnated by wild boars when outdoors.

This presentation will go into more detail about the aspects described above

NGOS' PERSPECTIVE ON THE ALTERNATIVES TO SURGICAL CASTRATION OF PIGLETS

Reineke Hameleers, Director, Eurogroup for Animals

Male pigs are routinely castrated to prevent the risk of boar taint, an unpleasant flavour and smell which can be detected when the meat is cooked, and to minimise sexual aggressive behaviour. In the EU, this procedure can lawfully be performed on piglets without pain management within the first week of life. However, both the European Food Safety Authority (EFSA, 2004)¹ and the Federation of Veterinarians of Europe (FVE, 2009)² concluded that the procedure is painful and that it should only be carried out under anaesthesia and analgesia. Additionally, there is increasing societal pressure to phase out mutilations in livestock. To address these concerns, in 2010 the European Commission established the "European Declaration on alternatives to surgical castration of pigs". The Declaration is a voluntary commitment signed by 33 stakeholders of the pork chain, including farmers, veterinarians, meat industry, NGOs, governmental bodies, and researchers. The objective is to abandon surgical castration in the EU by 1 January 2018. On 26 February 2015, the results of the first four years of work and of the many research projects financed by the European Commission were presented at a workshop attended by 200 participants. Speakers shared their successful experiences at farm and at retail level with raising and marketing boars and vaccinated pigs, showing that solutions are at hand. However, still a lot needs to be done to overcome the many obstacles, real or perceived, that lie ahead of us if we want to reach our goal to phase out this unnecessary mutilation.

¹ Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to welfare aspects of the castration of piglets, The EFSA Journal (2004) 91, 1-18.

² FVE Position paper on pig castration (2009) http://www.fve.org/news/position_papers/animal_welfare/fve_09_040_castration_pigs_2009.pdf.

DETECTION OF BOAR TAIN, A MEANS TO AVOID SURGICAL CASTRATION?

Susanne Støier, Director, Meat Technology/DMRI, Danish Technological Institute

A major concern related to a stop of surgical castration is the risk of boar taint, which causes an unpleasant flavour when the meat is heated and therefore poses a potential risk of negative consumer reactions. It is generally accepted that boar taint is caused by the presence of skatole and androstenone. Due to the high risk of negative consumer reactions, it is crucial that the tainted meat is sorted and used for other purposes than fresh meat consumption. In Denmark, the skatole method is in use at one slaughterhouse, although, from a technical point of view, this method is not up to date. Furthermore, the capacity is limited, and androstenone is not analysed. Given the pork industry is going to produce entire males in large scale, an instrumental on-line method detecting skatole as well as androstenone is needed. Researchers are currently conducting a search for a new advanced on-line method. In the meantime, human nose assessment is emerging as a sorting method of today. The two most commonly used methods are the “hot iron method” and, to a lesser extent, the “hot water method”. The hot water method is used in Denmark, although, due to practical limitations, the method is only used in small-scale production facilities. The hot iron method has been implemented in several slaughterhouses in, for example, the Netherlands and Germany as an on-line method. But even so, there are significant sensory-based concerns related to this approach that need to be addressed, even though there is currently no solution to these concerns.

STAKEHOLDER PERCEPTIONS OF ALTERNATIVES TO SURGICAL CASTRATION OF MALE PIGLETS

Klaus G. Grunert, MAPP Centre for Research on Customer Relations in the Food Sector, Aarhus University, Denmark

Stakeholder views on alternatives to surgical castration were investigated based on expert interviews in Australia, Belgium, Holland, Italy, Japan, China, Poland, Russia, Spain, Germany, UK and USA. Three major themes were addressed: animal welfare, boar taint, and technophobia. As for which of the alternatives to surgical castration is best from an animal welfare point of view, there was good agreement that the production of entire males would be best from an animal welfare point of view. There were diverging opinions on the feasibility of castration with anesthesia, with some methods getting better evaluations than others. Immunocastration was generally regarded as acceptable from an animal welfare point of view, except in Holland. There were widely different views on the seriousness of the boar taint issue. Also views on the right way to prevent boar taint are related to how serious one believes the problem is. In China and Japan all alternative methods are viewed with considerable skepticism. Immunocastration was otherwise regarded as a reliable alternative that can effectively prevent boar taint. There were considerable differences in the perceived reliability of sorting procedures. The main reason for not using immunocastration was fear of consumer reactions – that consumers would view this as an unacceptable type of hormone treatment.

WORKSHOP 3

TAIL DOCKING OF PIGLETS

Purpose of the workshop

This workshop will deal with tailbiting and tail docking. The workshop will focus on tail docking strategies and on how to prevent outbreaks of tail biting (and thereby avoid the use of tail docking) – and whether this is possible.

Organizers:

- Karen Thodberg, University of Aarhus
- Mette Herskin, University of Aarhus
- Heidi Mai-Lis Andersen, University of Aarhus
- Dorte Schrøder-Petersen, Danish Veterinary and Food Administration

Workshop moderator

- Karen Thodberg, University of Aarhus

Workshop programme

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| 14:40-14:45 | Introduction to the workshop Karen Thodberg, University of Aarhus |
| 14:45-15:00 | Outcome of Audits of EU Member States on Animal Welfare on Pig Farms Desmond Maguire, Food and Veterinary Office (FVO), European Commission |
| 15:00-15:15 | Routine Tail Docking is Illegal Birgitte Damm, Senior policy advisor, The Danish Animal Welfare Society |
| 15:15-15:30 | Intact Tails - A Challenge! Torben Jensen, Chief Manager, SEGES, Danish Pig Research Centre |
| 15:30-15:45 | Short break |
| 15:45-16:40 | “Café-workshop” |

OUTCOME OF AUDITS OF EU MEMBER STATES ON ANIMAL WELFARE CONTROLS ON PIG FARMS

D. Maguire, European Commission Food and Veterinary Office, Animal Health and Welfare, Grange, Dunsany, Co. Meath, IRELAND, Desmond.Maguire@ec.europa.eu

The Food and Veterinary Office (FVO) of the European Commission's Directorate General for Health and Food Safety carried out a series of audits in 2005 on Member States' (MS) implementation of Directive 2008/120/EC dealing specifically with the welfare of pigs on farm. This covered seven countries.

The findings in relation to tail docking on pig farms were poor. Training for stockpersons was not available in half the MS. There was little advice available to farmers on avoidance of tail-docking, and the provision of manipulable materials by them was limited.

Competent Authorities (CA) were not effectively enforcing the prohibition of routine tail docking. FVO issued recommendations to MS to ensure that suitable materials for manipulation were made available on farm and training courses made available for stockpersons.

Further audits took place between 2006 and 2008. Most of the remaining MS were visited. The findings again indicated widespread non-compliance and ineffective enforcement of the prohibition of routine tail docking and the provision of manipulable material, with the exception of Sweden and Finland, which have national bans on tail docking. FVO made further recommendations to CAs on materials for manipulation and measures to avoid tail-docking.

General audits to MS between 2008 and 2012 focussed on CAs' official controls rather than specific sectors. Nonetheless, where noted, there was still ineffective enforcement of requirements relating to tail docking.

The Commission has been following up outstanding recommendations and will assist MS through the development of various tools to address this longstanding issue.

ROUTINE TAIL DOCKING IS ILLEGAL

Birgitte Damm, DVM, Ph.D., Senior policy advisor
The Danish Animal Welfare Society

Routine tail docking has been banned in the EU for more than 20 years. However, to enable highly stressful production methods stress-induced tail biting continues to be managed by routine tail docking in many EU member states. Tail biting is a multifactorial problem but manipulable materials that the pigs can root are particularly important in reducing the risk of tail biting. Pigs are usually not given these materials.

In 2007, EFSA estimated that 99 percent of Danish pigs were tail docked and today the situation remains the same. In 2012 the Danish Animal Welfare Society (DAWS) filed an official complaint to the European Commission. The Commission agreed that Denmark is noncompliant as demonstrated also by FVO inspections. However, the Commission refused to initiate infringement procedures with reference to planned guidelines for the legal obligations contained in the Pigs Directive, including the ban on tail docking and the demands for enrichment. To date, more than ten years after the directive entered into force, the guidelines have not been issued.

In cooperation with MEPs DAWS has also brought the complaint to the Committee for Petitions (PETI) in the European Parliament. At each of three meetings PETI emphasized that the obvious violation of the ban should be taken more seriously by the Commission and infringement procedures should be initiated.

Over the years DAWS and PETI have expanded the complaint to include the fact that noncompliant member states can produce pigs using fewer resources than compliant member states leading to market distortion. As a consequence the Parliament's DG for internal policies recently

performed an in-depth analysis of the problem. It was concluded that of the 36 member states 17 are noncompliant and strong support was given to the shared position of DAWS and PETI that the evident systematic violation of EU legislation cannot be allowed to continue.

INTACT TAILS – A CHALLENGE!

Torben Jensen, Chief Manager, M. Sc., SEGES, Danish Pig Research Centre, Axeltorv 3, DK-1609 Copenhagen V

Handling pigs with intact tails is a challenge. The effect of cessation of tail docking was investigated in two conventional herds. The results showed an increase in the number of tail lesions but there was a large difference in tail lesion incidences between herds. In one of the herds, 51 % of the pigs with intact tails had a tail lesion at least once between 7-110 kg (Lahrmann et al, 2015). Organic pig production is not without tail biting problems. Tail lesions are more frequent among organic/free-range pigs than among conventional pigs (OR=3.2) (Alban et al, 2015).

In a review based on research where tail injuries were quantified, there was good evidence that manipulable substrates and feeder space affect damaging tail biting. Only epidemiological evidence was available for effects of temperature and season, and the effect of stocking density was unclear. Studies suggest that group size has little effect, and the effects of nutrition, disease and breed require further investigation (D'Eath et al, 2014).

A decision-tree model based on data from Danish and Finnish pig production suggests that a standard production system with tail docked pigs provides the highest economic gross margin with the least tail biting. An enhanced system with undocked pigs is the least economic and results in a lower prevalence of tail biting than a standard production system with undocked pigs but higher than the standard production system with tail docked pigs. For a pig, being bitten is worse for animal welfare (repeated pain, risk of infections) than being docked, but comparing animal welfare consequences at farm level is difficult because the number of affected pigs must be considered. By tail docking, producers are acting in their own best interests (D'Eath et al, 2015).

WORKSHOP 4

PROMOTING SUSTAINABILITY AND PIG WELFARE: IS IT POSSIBLE?

Purpose of the workshop

Sustainability and animal welfare are two parameters, which is expected in future farm animal production. Depending on definitions, however, there might be conflict of interests between actions promoting these qualities. The workshop will investigate whether actions for improving animal welfare in pig production will reduce possibilities for promoting sustainability

Organizers:

- Jan Tind Sørensen, Professor, Aarhus University
- Mette Kirkeskov Sie, Danish Veterinary and Food Administration

Workshop moderator

- Jan Tind Sørensen, Professor, Aarhus University

Workshop programme

| | |
|-------------|---|
| 14:40-14:50 | Introduction to the workshop Jan Tind Sørensen, Professor, Aarhus University |
| 14:50-15:15 | Sustainability and Animal Welfare - Can They Go Hand in Hand? Karsten Klint Jensen, Associate professor, Copenhagen University |
| 15:15-15:40 | Improved Sustainability in Organic Pig Production Anne Grete Kongsted, Senior scientist, Department of Agroecology, Aarhus University |
| 15:40-16:40 | Discussions in plenum |

SUSTAINABILITY AND ANIMAL WELFARE – CAN THEY GO HAND I HAND?

Karsten Klint Jensen, Dept. of Food and Resource Economics, University of Copenhagen, Rolighedsvej 25, DK-1958 Frederiksberg C.; kkj@ifro.ku.dk

The aim of this paper is to provide some of the conceptual clarification, which is necessary for a meaningful answer to the question whether sustainability and animal welfare can go hand in hand. The widely used concept of 'sustainability' is seldom precisely defined, but without clear definition it becomes an empty concept. I see two lines of interpretation in the literature. One I shall call bottom-up. It takes a certain activity as its starting point and asks what it requires to sustain this activity over time. Originally, this was a question of ensuring that the necessary resources could be renewed. Later, also social factors such as acceptance from key stakeholders have been included. The other I shall call top-down. It takes some interpretation of the Brundtland Commission's suggestion that the present generation's need-satisfaction should not compromise the need-satisfaction of future generations as its starting point. The underlying goal is here to keep human welfare on a global level non-diminishing over time. It then infers prescriptions from this requirement. The latter approach is less determinate and involves considerable uncertainty. However, it raises a question which does not become visible in the first approach: Is the activity in question at all worth pursuing?

Similarly, animal welfare is a concept with conflicting definitions. The major contenders are mental state accounts, according to which the welfare of an animal is a matter of the experienced quality of its mental states, and what philosophers call perfectionist accounts, according to which the welfare of an animal consists in its inherent nature being unfolded and fulfilled. On the first interpretation, the welfare of an animal, at least in theory, can be promoted in very artificial environments, whereas the second interpretation involves more rigid requirements to the naturalness of the environments and the life of the animal.

The paper will conclude in lining up compatibility and potential conflicts between sustainability and animal welfare on this background, looking at the dimensions of food security, effects on the environment, animal welfare and uncertainty about future technologies.

IMPROVED SUSTAINABILITY IN ORGANIC PIG PRODUCTION

AG Kongsted, JE Hermansen & M. Jakobsen, Dept. Agroecology, Aarhus University, Blichers allé 20, 8830 Tjele, Denmark; anneg.kongsted@agro.au.dk

The local and global sale of organic pork produced in Denmark has increased markedly in recent years. Organic pig production is associated with several positive aspects from a societal point of view e.g. very low use of antibiotics and animals being able to express more of their natural behavior compared to conventional production. However, there are some challenges regarding sustainability that needs to be addressed. In Denmark, organic pig production is based on outdoor sow production all year round while the majority of growing pigs are kept in stables with access to a concrete covered outdoor run. The outdoor production of sows imposes a significant risk of nutrient leaching, especially in paddocks with lactating sows. The outdoor run for growing pigs is associated with high ammonium emissions and causes problems with poor hygiene. Finally, the current practice puts a higher pressure on land resources compared to conventional production due to lower crop yields combined with a poorer feed conversion. There is a need to develop production strategies to improve the sustainability of organic pig production. We investigate whether i) integrated production of energy crops (or other woody vegetation) and free-range pigs, ii) increased nutritional contribution of roughage and direct foraging, and iii) environmental enrichment of the outdoor run for growing pigs are promising developments for organic pig production. Preliminary results from the national project, pEcosystem, and the EU project, Agforward, will be presented.

WORKSHOP 5

MARKET DRIVEN ANIMAL WELFARE. THE ROLE FOR RETAILERS AND CONSUMERS

Purpose of the workshop

The purpose of the workshop is to discuss how far and in what way the market will be able to drive animal welfare. What can we expect from retailers and consumers?

Organizers:

- Peter Sandøe, Professor, University of Copenhagen
- Tove Christensen, Associate Professor, University of Copenhagen
- Tina Birk Jensen, Danish Centre for Animal Welfare, Danish Veterinary and Food Administration

Workshop moderator

- Peter Sandøe, Professor, University of Copenhagen

Workshop programme

| | |
|-------------|---|
| 14:40-14:45 | Introduction to the workshop Peter Sandøe, Professor, University of Copenhagen |
| 14:45-15:00 | Animal Welfare Labelled Pork in Denmark - Room for Improvement? Tove Christensen, Associate Professor, University of Copenhagen |
| 15:00-15:15 | Who Will End the Waiting Game? Lars Esbjerg, Associate Professor, Department of Business Administration, Aarhus University |
| 15:15-15:30 | What Can Consumers and Retailers Expect from the Market? Esben Meier, Category Group Manager, COOP, Denmark |
| 15:30-15:45 | EconWelfare: Upgrading Animal Welfare Standards Across Europe Hans Spoolder, Professor, Wageningen University |
| 15:45-16:00 | Market Driven Animal Welfare - Does the EU Have a Role to Play? Denis Simonin, European Commission |
| 16:00-16:40 | Discussions in plenum |

ANIMAL WELFARE LABELLED PORK IN DENMARK – ROOM FOR IMPROVEMENT?

Tove Christensen, Sigrid Denver and Peter Sandøe
Institute of Food and Resource Economics, University of Copenhagen

Denmark has among the highest levels of organic consumption in the world when looking at the overall market shares. Nevertheless, the market shares for organic meat and other types of welfare friendly meat are low and animal welfare friendly production systems remain a niche.

The main Danish animal welfare organisation, Dyrenes Beskyttelse, owns a label that approves premium levels of animal welfare that comply either with organic or similar standards for pork, beef and poultry meat productions. Also, meats from production systems that guarantee medium levels of animal welfare with improved indoor conditions are available in the Danish supermarkets. These products are not approved by Dyrenes Beskyttelse fresh pork sold in Denmark.

Other countries seem to be successful in using a different strategy where national animal welfare associations approve medium as well as premium levels of animal welfare (Christensen et al. 2014; Heerwagen et al. 2015). These include Five Freedom certifications in the UK and Beter Leven in the Netherlands that account for fresh pork market shares over 30 %.

We want to argue that there is a potential for increasing the market shares in Denmark for pork associated with medium levels of animal welfare without compromising the markets shares for premium animal welfare pork. In the talk we will present evidence based on various consumer studies which seem to support our conclusion.

References

Christensen, T. (2015). Spørgeskemaundersøgelse om forbrugeres holdning til svinekød og svineproduktion med fokus på løse søer. Frederiksberg: Institut for Fødevarer- og Ressourceøkonomi, Københavns Universitet. (IFRO Dokumentation; Nr. 2015/1)

Christensen, T., Denver, S., Hansen, H.O., Lassen, J. & Sandøe, P. (2014). Dyrevelfærdsmærker: sammenligning af erfaringer fra seks EU-lande. IFRO Udredning 2014/10.

Heerwagen, L.R., Mørkbak, M.R., Denver, S., Sandøe, P. & Christensen, T. (2015). The Role of Quality Labels in Market-Driven Animal Welfare. *Journal of Agriculture and Environmental Ethics* (2015) 28:67–84.

WHO WILL END THE WAITING GAME?

Lars Esbjerg, MAPP Centre for Research on Customer Relations in the Food Sector, Aarhus University

The purpose of this presentation is to discuss if we can expect actors in the pork chain from farm to retailer to drive improvements in animal welfare. Based on 40 interviews conducted with actors within the Danish pork sector and on five important export markets (Australia, China/Hong Kong, Great Britain, Sweden and the United States), it will be argued that many actors – not least in Denmark – are playing a waiting game, i.e., they are waiting on other actors to take the initiative and drive improvements of animal welfare standards forward.

Improvements in animal welfare conditions are contingent on many actors along the entire value chain making the necessary investments and changing their market practices. Our informants were all positive about improving animal welfare, yet often shied away from taking the initiative and to make these investments as they were uncertain about consumer demand for animal welfare being sufficiently large. Our study suggests that external pressure is often required for firms to change their practices in relation to animal welfare (e.g., to meet regulatory requirements, satisfy consumer demand or to protect corporate reputation out of fear of being named and shamed). However, there is also an opportunity for firms to be proactive and use animal welfare as a means to differentiate themselves from their competitors. Indeed, many of the actors covered by our study worked actively to improve animal welfare conditions and foster supply and demand of welfare products.

WHAT CAN CONSUMERS AND RETAILERS EXPECT FROM THE MARKET?

Esben Meier, Category Group Manager, COOP, Denmark

Coops ambition is to increase the number of animals breed with better Animal Welfare by 1 million in 2020, including pigs living a better life with more natural behavior.

We regularly collect valuable information from consumers, and these surveys underpin Animal Welfare as an important issue. Consumers want good, healthy, innovative, and fairly prized products that inspire to eat better meals, aligned with the initiatives launched in our Food Manifesto.

When Coop introduced every-day-low-prize in organic fresh meat the demand grew dramatically from day one, also revealing the prize sensitivity of the products. Immediately the market followed and now organic and/or pork with better animal welfare are close to 100% distribution in the market. Each retailer will drive the demand for products with better animal welfare by listening to the consumer and working closer with farmers and industry.

The Danish industry is export focused and of all pigs born in Denmark it is estimated that less than 2% is with better animal welfare than standard for the domestic market. Even by doubling this figure it is clear that the big step is taken by focusing on the general animal welfare on farms in Denmark and across Europe. Higher standards in general will create a market where supply, demand, and prizes are balanced.

Thus a positive trend and demand in the Danish FMCG market for products such as organic, free range, speciality pork which in combination with better general standard will give happier pigs and consumers.

ECONWELFARE: PROJECT TO PROMOTE INSIGHT ON THE IMPACT FOR THE ANIMAL, THE PRODUCTION CHAIN AND SOCIETY OF UPGRADING ANIMAL WELFARE STANDARDS.

Hans Spoolder, Wageningen UR Livestock Research, PO box 338, 6700 AH Wageningen, The Netherlands. Hans.Spoolder@wur.nl.

The main objective of the EconWelfare project was to reveal what policy instruments might be effective in the route towards higher animal welfare in Europe, representing the concerns of civil society whilst guaranteeing the competitiveness of the livestock industry. The project contained four main parts, aiming a) to identify and analyse current animal welfare standards and initiatives; b) to ask stakeholders for strengths and weaknesses of these standards and initiatives; c) to develop policy instruments and indicators towards an Action Plan on Animal Welfare; and d) to look at the benefits & costs of upgraded animal welfare standards and initiatives.

The main project conclusion is that although the overall goal of animal welfare policy should be the same everywhere in the EU, it is unlikely to be achieved in similar ways, with equal speed and at the same time. This is due to differences in level of legislation, price competition, national income, awareness of citizens and consumers, position of retailers, development of NGOs, farmer skills, awareness et cetera.

Other conclusions are 1) that EU wide legislation is important to set the lower boundaries for farm animal welfare, and that these need to be enforced; 2) for efficient farms operating with best possible practices, there is an inevitable increase in cost when increasing animal welfare standards; 3) the most successful existing welfare enhancing initiatives combine multiple goals with the use of multiple policy instruments; 4) that more transparency towards consumers and business-to-business is needed on animal welfare issues, and that an EU harmonised welfare labelling system for animal products could strongly support this transparency.

MARKET DRIVEN ANIMAL WELFARE - DOES THE EU HAVE A ROLE TO PLAY?

Denis Simonin, European Commission, Directorate-General for Health and Consumers Animal Welfare

Surveys show that most consumers are interested in animal welfare. However, on unprompted questions, few of them mention it. This is not necessarily a paradox. Consumer's behaviour is complex. People have various unexpressed expectations regarding product quality.

The EU successfully introduced a compulsory system for labelling table eggs which informs consumers on production methods. The EU legislation has also defined production methods on a voluntary basis for organic farming and poultry meat.

There are voluntary schemes where animal welfare is explicitly communicated to consumers. This "active" approach is popular in some countries (e.g. UK, Netherlands, and Germany). Other schemes may have animal welfare as part of their quality attributes but not always communicated ("defensive" approach).

Consumers' today are overwhelmed with information. They spend little time buying food and have difficulties grasping the complexity of production systems. This is why many consumers tend to trust brands rather than looking for specific information (like animal welfare).

Against this background, retailers have an interest in meeting consumers' expectations, even when not clearly expressed, which change with local conditions and over time. They have the potential for directing changes towards better welfare for the animals through their supply chain.

However, out of many claims, some may be misleading and may put producers who apply better standards in difficult position. There should be a continuing debate on how public authorities (including the EU) should improve transparency so that the market driven approach works in the interest of consumers and producers as well as in favour of the animals.

WORKSHOP 6

ANIMAL WELFARE EDUCATION AND TRAINING – HOW, FOR WHOM AND TO WHAT EFFECT?

Purpose of the workshop

The purpose of the workshop is to explore and discuss how education and training may drive animal welfare improvements. How should animal welfare training and education be conducted, who are the target groups and what effect may we expect?

Organizers:

- Helle Stege, Associate Professor, University of Copenhagen
- Inger Anneberg, Postdoc, Aarhus University
- Lene Munksgaard, Professor, Aarhus University
- Lise Tønner, Special Advisor, Danish Centre for Animal Welfare, Danish Veterinary and Food Administration

Workshop moderator

- Lene Munksgaard, Professor, Aarhus University

Workshop programme

| | |
|-------------|---|
| 14:40-14:45 | Introduction to the Workshop Lene Munksgaard, Professor, Aarhus University |
| 14:45-15:05 | Pig Welfare Education - an RVS Perspective Mandy Nevel, Senior Lecturer, Royal Veterinary College, University of London |
| 15:05-15:15 | Communication about Animal Welfare in Danish Agricultural Education Inger Anneberg, Postdoc, Aarhus University |
| 15:15-15:20 | Teaching Materials for Animal Welfare in Danish Pig Education Rikke Svarrer, The Danish Pig Research Institute |
| 15:20-15:40 | Animal Welfare Education and Training - In the American Setting Monique Pairis-Garcia, Assistant Professor, Ohio State University |
| 15:40-15:55 | Teaching Animal Welfare in Schools - How and Why to Engage the Next Generation Monika Hametter, Tierschutz macht Schule |
| 16:00-16:40 | Discussions in plenum |

PIG WELFARE EDUCATION – AN RVC PERSPECTIVE

Amanda Nevel, BSc BVetMed, PhD, PGCertVetEd, MRCVS
Royal Veterinary College, London

At RVC, we believe that learning animal behaviour and ethics as well as welfare are key to producing scientists equipped to work in the animal welfare arena. The curriculum of our courses, along with teaching and assessment methods used at RVC will be outlined and discussed. The largest course at the RVC is the BVetMed course (for veterinarians), however we have a wide portfolio of other science degrees, including undergraduate and post-graduate welfare courses. A new undergraduate degree BSc Biological Sciences (Animal Behaviour, Welfare and Ethics) is due to start in 2016.

These courses are designed to best educate those involved in welfare and empower them to achieve positive changes. Whilst these courses are mainly generic, we will consider how they relate to pigs.

We will consider;

- Who is and who should be driving the pig welfare agenda and
- How can we best inform and educate these individuals?
- How do we best measure the impact of our education?
- How do we know we have successfully educated our learners?

You will be encouraged to reflect on how you learnt about animal welfare and how that has impacted your role today. What worked well and what had little impact. We will identify potential gaps and opportunities where training is required and how this could be best implemented. How can we use digital technology to enhance our training/education programmes?

COMMUNICATION ABOUT ANIMAL WELFARE IN DANISH AGRICULTURAL EDUCATION

Inger Anneberg*, Anthropologist, Post Doc & Jesper Lassen**, Sociologist, Professor

*Aarhus University, Department of Animal Science

**University of Copenhagen, Department of Food and Resource Economics.

As a consequence of the widespread public concern about animal welfare in Danish agriculture, agricultural colleges have an important task when it comes to prepare and train coming farmers to handle societal expectations. Equipping the to-be farmers with technical and practical knowledge is thus not enough – today the moral and ethical issues related to the field of animal welfare is an increasingly important subject.

So far no research has addressed the relation between agricultural education and students' perception of animal welfare in a Danish context. The aim of this project therefore is to study how students at Danish agricultural colleges understand animal welfare – and to what extent animal welfare is prioritized at the colleges. The project started in December 2014 and runs for one year.

Methodologically, the study uses a combination of ethnographic field-observations and qualitative interviews on four agricultural colleges. Interviews were carried out in order to explore students' view of animals and their priorities regarding animal welfare. Individual interviews were carried out with new students while focus group interviews were carried out with older students, about to finish their education as farmers specialising in livestock. Furthermore, teachers in livestock (pigs/cattle) were interviewed about their inclusion of animal welfare in the teaching.

The coming analysis will focus on issues like how teaching in animal welfare is influenced by the complexity of the agricultural education and its regular alternation between shorter periods at school

and longer periods of apprenticeship. Other themes in the analysis will address differences in the view of animal welfare between younger and older students, as well as the how perceptions animal welfare and animal welfare training at the agricultural colleges match the views and expectations of the surrounding society.

TEACHING MATERIALS FOR ANIMAL WELFARE IN DANISH PIG EDUCATION

Rikke Ingeman Svarrer*, Master of Science in Husbandry, Project Manager

*SEGES, Danish Pig Research Centre

Teaching animal welfare at agricultural colleges has been done in various ways through many years. It has rarely been a detached subject, but instead a part of subjects such as feeding, disease control and housing systems. Consequently the focus on animal welfare in teaching pig production has been less visible. Agricultural colleges play an important role in training future pig farmers to handle challenges in animal welfare.

Therefore the Danish Pig Research Centre has entered into a partnership with the teachers in pig production at all agricultural colleges in order to develop teaching materials to be used at all schools – teaching materials that addresses pig welfare in Danish production systems.

The teaching materials are to be used at all levels of the farmer education and are based on a Power-Point presentation with many photographs and video sequences. Furthermore different assignments for the students are being developed for the teachers to use if they desire to. All teaching materials for teaching animal welfare in pig production at agricultural colleges are expected ready in September 2015.

ANIMAL WELFARE EDUCATION AND TRAINING – IN THE AMERICAN SETTING?

Monique D. Pairis-Garcia¹, Anna K. Johnson², Jessica D. Colpoys²

¹The Ohio State University, Columbus, OH, USA

²Iowa State University, Ames, IA, USA

An understanding of animal welfare is essential to animal agriculture professionals, including students, producers, and youth. Educational opportunities exist in formal and informal courses. These can be delivered through traditional methods via in-person or online. In the US, an increasing number of students with non-agricultural backgrounds are enrolling in formal animal and veterinary science programs and these “non-traditional” students are presenting new challenges for instructors. Therefore, it is important to adjust pedagogical styles to better fit student needs. Such pedagogical styles include; interaction i.e. on-farm visits, wet laboratories, and case studies. In addition, development of animal welfare educational resources is imperative for producers and youth working directly with livestock and within the agricultural industries. In the US, several assessment programs have been developed including the Pork Quality Assurance Plus[®] program (PQA plus), Beef Quality Assurance Program[®] (BQA) and the National Dairy Farmers Assuring Responsible Management[®] (FARM). These tools provide educational material and hands-on consulting for farmers to improve in areas such as animal health, animal handling and on-farm record keeping. Youth programs developed by Land Grant Universities such as The Ohio State University and Iowa State University provide a beneficial platform to teach animal welfare to younger generations, inspiring students to learn that in turn helps ensure future sustainability of animal welfare programs within Universities.

TEACHING ANIMAL WELFARE IN SCHOOLS – HOW AND WHY TO ENGAGE THE NEXT GENERATION

DI Monika Hametter, Deputy Director, Tierschutz macht Schule

Knowledge about the ethology, needs and living conditions of animals provides the basis for animal welfare. It is therefore crucial to integrate these issues into the education system. As future owners and consumers our children should engage with and care for animals from an early age. Caring for animals also fosters important social competences such as taking responsibility or expressing empathy.

The Austrian Association “Tierschutz macht Schule” (Association for Animal Welfare Education) has reached 450,000 children and young people with engaging and easy-to-use teaching magazines and practical animal welfare workshops. In this way animal welfare becomes an integral part of classroom teaching. At the same time teachers who are important multipliers in the education system can attend a special training to deepen their knowledge about the well-being of animals.

To enable a fruitful integration of animal welfare into the education system, it is crucial to establish a transdisciplinary network with stakeholders such as official bodies, policy-makers, scientific experts and the media, who support the cause and create trust. Over the years other criteria for success such as in-depth knowledge based on scientific facts, solution-oriented approaches or child-friendly language have evolved. Based on these criteria, valuable projects such as the recent work of three school classes on the welfare and societal role of pigs can be realized. Responsible teaching of animal welfare provides pupils with the opportunity to develop their own opinion and find ways to further engage with the subject.

WORKSHOP 7

TRANSPORT OF PIGS AND ANIMAL WELFARE

Purpose of the workshop

The purpose of the workshop is to discuss which issues in relation to animal transport that would have highest priority in relation to improvements of the animal transport legislation?

Organizers:

- Mette S. Herskin, Senior Researcher, Aarhus University (mettes.herskin@anis.au.dk)
- Jens Frederik Agger, Associate Professor, Copenhagen University (jfa@sund.ku.dk)
- Henrik Elvang Jensen; Professor, Copenhagen University (elvang@sund.ku.dk)
- Stig Møllergaard, Chief Advisor, Danish Veterinary and Food Administration (stim@fvst.dk)

Workshop moderator

- Jens Frederik Agger, Associate Professor, Copenhagen University (jfa@sund.ku.dk)

Workshop programme

| | |
|-------------|--|
| 14:40-14:45 | Introduction to the workshop Jens Frederik Agger, Copenhagen University |
| 14:45-14:55 | Putting Transport of Pigs into Perspective Per Olsen, Danish Agriculture and Food Council |
| 14:55-15:05 | Are Sows Sent for Slaughter Fit for Transport? Mette S. Herskin, Senior researcher, Aarhus University |
| 15:05-15:15 | Transport Injuries Found during Transport Controls Stig Jessen, Special Veterinary Advisor, Danish Veterinary and Food Administration |
| 15:15-15:35 | Assessing Pig Welfare during Long Road Journeys Antonio Velarde, IRTA Animal Welfare Subprogram Spain |
| 15:35-15:45 | Simple and Operational Measures for Assessment of Welfare of Finishing Pigs on the Day of Slaughter Pia Brandt, Danish Technological Institute |
| 15:45-16:40 | Discussions in plenum |

ARE SOWS SENT FOR SLAUGHTER FIT FOR TRANSPORT?

Karen Thodberg, Katrine K. Fogsgaard, Mette S. Herskin
University of Aarhus, Department of Animal Science, AU-Foulum, Denmark

Each year more than 400.000 Danish sows are sent for slaughter and transported by road to abattoirs. To date, only very limited knowledge about the fitness for transport of these animals are available, as most research on pig welfare on the day of slaughter have focused on finishing pigs. However, for each individual sow, the fitness for transport must be assessed pre-transport in order to avoid transportation of unfit sows, leading to unnecessary suffering and potential violation of the animal protection legislation.

This talk presents an on-going project aimed to gain knowledge about fitness for transport of sows sent for slaughter in Denmark. Via recordings of behaviour and clinical condition of the animals on-farm and upon arrival at an abattoir, conditions during transport (duration 0-8h), as well as post mortem pathological findings, this project seeks to provide knowledge about relations between the baseline condition of the sows, risk factors and the condition of the sows upon arrival at the abattoir. This information will form basis of the development of a scoring system, which will facilitate the pre-transport assessment of fitness for transport in sows.

The project involves an on-going observational study of approximately 600 Danish sows destined for slaughter. We record data during several of the phases characterising the day of slaughter: on-farm (baseline), during a stay in a pick-up facility before transport, during loading onto the vehicle, during transport, during unloading and at the entrance to the abattoir, during lairage and after sticking. This project is part of a larger Danish initiative focussing on farm animal fitness for transport. The two other sub-projects involve dairy cows and broilers.

INSPECTION OF TRANSPORTS WITH LIVE PIGS

Stig Jessen, Special Veterinary Adviser, Danish Veterinary Task Force, Rosenholmsvej 15, 7400 Herning, correspondence: stij@fvst.dk

Every year about 20 million pigs are transported for slaughter in Denmark and several millions of smaller pigs (BW 25-35 kg) are transported between farms within the European Union for fattening. The Danish Veterinary Task Force has since 2006 collaborated with the Danish Police in conducting roadside inspections of live-animal transports. About 1000 vehicles are inspected every year, and any type of vehicle can be sampled. The inspections are usually conducted on highways and freeways, near slaughterhouses and assembly centers. The objective of the inspections is to verify that all animals are suited for transportation and that vehicles used for live-animal transportation comply with current legislation.

In 2014 the Police and the Veterinary Task Force found problems on 48 out of 467 transports with svine (10%).

When conducting the inspection the Veterinary Task Force typically focuses on the number of animals per square meter, signs of illness or injury and the state of the transportation vehicle. If a pig is found on a transport with injuries or symptoms of illness, the pig is evaluated on site. When evaluating injured or ill pigs, on a transport, the main focus is to estimate the suffering or the potential suffering of the animal, the level of pain that is caused by the injury, and what can be done to minimize further suffering.

General problems found by the Veterinary Task Force on transports of live pigs were overloading and pigs not suited for transportation. On journeys above 8 hours one of the main problems was that the pigs did not have access to water for the duration of the journey. The primary problems found in transportation of slaughter pigs were injuries, tail bites, infected auricular haematomas, hernias,

and lameness caused by infections in the joints of the limb and foot. The smaller pigs (BW 25-35 kg) were usually fit for transport, though, sometimes piglets with ear infections, severe ear bites and lameness were found.

If the Veterinary Task Force identifies problems with or on a vehicle, a solution is pursued. The optimal solution varies, from letting the transport proceed to the destination point to sending the transport back to the point of departure. In cases where an animal is suffering the Veterinary Task Force will usually attempt to unload the animal as close to the point of inspection as possible to minimize unnecessary suffering.

ASSESSING PIG WELFARE DURING LONG ROAD JOURNEYS

Antonio Velarde¹, Cecilia Pedernera¹, Patrick Chevillon², Michael Marahrens³, Karin vonDeylen³, Hans Spoolder⁴

¹IRTA Animal Welfare Subprogram, E-17121, Monells, Spain

²IFIP 'Institut du Porc', 3-5 rue Lespagnol - 75020 Paris, France

³FLI Institute for Animal Welfare and Animal Husbandry, Doernbergstr. 25-27, D-29223 Celle, Germany

⁴Wageningen UR Livestock Research, P.O. Box 65 8200 AB Lelystad, The Netherlands

Each year in Europe around 28 millions pigs are transported over journeys that last more than 8 hours. Pigs are mainly transported from North West Europe to Bulgaria, Germany, Italy, Romania and Spain. Current regulation for protection of animals during transport (Regulation EC 1/2005) is based on requirements related to resource and management recommendations. The project 'Development of EU wide animal transport certification system and renovation of control posts in the European Union', funded by DG SANCO, developed a protocol for the welfare assessment of pig transport to provide a foundation for a quality certification system (www.controlpost.eu). The protocol is based on the 12 criteria of the Welfare Quality® grouped into four principles (good feeding, good housing, good health and appropriate behaviour). One of the innovations of the assessment system is that it focuses on animal based measures (e.g. directly related to animal body condition, health aspects, injuries, behaviour, etc.) together with handling, resource, truck and transport measures. The protocol is carried out upon arrival, during unloading and at the resting pens. Animal based measures at arrival and during unloading include slipping, falling, reluctance to move, turning back, lameness and dead pigs. At the resting pens after unloading, body condition, sickness, cleanliness and wounds on the body are assessed. Resource and transport based measures include, among others, space allowance, travelling times, rest periods, provision water and feed, loading density and ramp slope. The protocols may be used, after previous training, by transporters, animal welfare officers and control post owners as a self-assessment management tool to identify welfare problems or risks, and to monitor improvements.

SIMPLE AND OPERATIONAL MEASURES FOR ASSESSMENT OF WELFARE OF FINISHING PIGS ON THE DAY OF SLAUGHTER

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Increasing interest and concerns from the market and the authorities regarding animal welfare creates a need not only to improve welfare of animals but also to document the level of animal welfare. For documentation purposes simple measures that are automatable are needed in order to perform systematic monitoring. The Welfare Quality® (WQ®) developed a comprehensive welfare assessment protocol for pigs on farm or at the abattoir, however, the protocol is not operational as such for systematic monitoring under commercial conditions.

Blood lactate and creatine kinase activity have been studied previously and are related to the measures of welfare in question, e.g. handling and backing up. Furthermore, blood is available in abundance at exsanguination and can be collected non-invasively, which makes blood measures good candidates for on-line monitoring of welfare. Therefore, we aimed to investigate the relationship between an overall assessment of welfare based on the WQ® protocol and selected post mortem physiological measures (glucose, lactate, creatine kinase activity, albumin and total protein). Thus, a welfare assessment based on behavioral and clinical measures was carried out and aggregated into an animal welfare index (AWI) using expert opinion.

The results indicated relationships between single ante-mortem welfare measures and post mortem physiological measures, as e.g. falling in the race to stunning and glucose. Relationships between the AWIs and the physiological post mortem measures were found, as e.g. AWI obtained in the race and lactate.

In conclusion, the results suggest that the combination of the suggested physiological post mortem measures may provide information on fatigue (measured by lactate), damages (measured by creatine kinase), and dehydration (measured albumin/total protein). Thus, these measures are suggested as candidates for a future on-line monitoring of animal welfare on commercial abattoirs to document the level of welfare.