

Animal Welfare Science Centre contributing to welfare standards

For the past 4 years, the AWSC's Andrew Fisher (Uni Melb, Vet Sci) has been working with government, industry and NGOs in the development of new Australian welfare requirements for sheep and cattle farming.

The new Australian Standards and Guidelines for animal welfare are intended to replace the Model Codes of Welfare that have existed for many years.

Andrew has served on the Standards Writing Group for Sheep, and has also been on the Reference Group for Cattle. Both sets of draft Standards & Guidelines were recently submitted to a 5-month public consultation period, and the writing and reference groups are working through the feedback.

Andrew says that the adoption of new Standards and Guidelines is both a challenge and an opportunity for industry- a challenge because some issues that were only advisory in the Code will become mandatory as a Standard.

The opportunity arises because it is intended that the Standards will achieve greater national consistency in animal welfare requirements, and will enable Australia to more 'upfront' and clear about its animal welfare standards and practices.



Prof. Andrew Fisher

Pig Welfare Assessment

Dr Ellen Jongman (Uni Melb) is leading a one year project funded by Australian Pork Limited which aims to validate identified measures of pig welfare which may be used by pork farmers to measure and monitor pig welfare on farm.



Dr. Ellen Jongman

This project follows on from a previous AWSC study (also funded by APL) which examined the practicality of identified animal-based welfare indices for on-farm pig welfare assessment.

This study found that while several of the established measures were practical, others required modification so that they would be more easily included within a field-based assessment tool.

Consequently, the animal-based welfare indices (body condition score, body lesion score and lameness score) with modified methodologies recommended for on-farm assessment require validation as on-farm measures of pig welfare.

This new project will also test the inter and intra-observer reliability of the welfare parameters to ascertain their practical use as measures of pig welfare.

The project will conclude in October 2014 and the team includes Dr Rebecca Morrison (Rivalea), Dr Lauren Hemsworth and Jeremy Skuse from AWSC.



The AWSC would like to wish you a very happy and safe Christmas and all the best for a great New Year.

Human-zoo animal interactions research

Research has recently been completed by Trista Harvey, a Master of Animal Science student at the University of Melbourne. She investigated the effects of reduced animal contact on visitor behaviour.

Modern zoos aim to encourage interaction between humans and nonhuman animals as a way to enhance visitor experience and ultimately conservation concern. However very little research has been conducted on how interactions with animals influences zoo visitors.

My master's research investigated the effect of reducing visual interaction with Black-capped Capuchins on zoo visitor behaviour. We reduced visual interaction by using one-way vision screens and recorded visitor number and the frequency of intense visitor interactions (e.g., waving, banging on the human-animal barrier, and rapid movement) at the Capuchin exhibit under the different visual contact treatments.

I found that the screen treatment significantly reduced the duration of time adults and children were recorded at the exhibit, but significantly increased the frequency of waving and noise per visitor. These results indicate that the one-way vision screens affect visitor behaviour. Furthermore, the duration of time spent at the exhibit suggests that the one-way vision screens may reduce visitor experience. This field of research certainly warrants further investigation to optimise both visitor experience and animal welfare in zoos.

With the completion of her Masters, Trista hopes to continue working in the area of zoo animal welfare.



Trista Harvey



Prof Jim Kinder - AAAS Fellow

Prof. Jim Kinder (OSU) has been elected as a Fellow of the American Association for the Advancement of Science (AAAS) in recognition of his scientific efforts to advance science and its application.

Founded in 1848, AAAS is the world's largest general scientific society and the tradition of electing AAAS Fellows began in 1874.

Jim was elected for his distinguished contributions in reproductive endocrinology research, and as an administrator in the College of Food, Agricultural and Environmental Sciences and will be welcomed as a Fellow at a ceremony in Chicago in February 2014.

Jim was instrumental in formalizing collaborations between The Ohio State University and the AWSC which resulted in OSU joining the Centre in 2010 and is currently interim director of the Ohio State University Agricultural Technical Institute, and is assisting AWSC in our efforts to further the uptake of ProHand® in North America.



Prof. Jim Kinder

Pheromones and aggression (cont'd p4)

Dr. Kate Plush is a post-doctoral research scientist with the South Australian Research and Development Institute. Her mentors include Paul Hemsworth (AWSC), Alan Tilbrook (SARDI) and Rod Hamann (Aust Pork Farms Group). She recently presented a paper at the Australasian Pig Science Association conference in Melbourne which investigated the effect of pig appeasing pheromones (PAP) on the level of aggression and stress experience by sows when they were mixed into groups.

As the pork industry moves towards group housing of sows in place of stalls, new issues for producers have arisen. Of particular interest is the aggression that is typically observed when sows are first introduced to one another. This aggression serves to establish a hierarchy within the group. However it often results in negative consequences for both welfare and production. Stress levels are heightened by aggression and, as result, reproduction can be compromised. Recent attention has been given to reducing the level of aggression and stress that occurs when sows are mixed into groups.



Dr. Kate Plush

Publications - 2013

Research Publications in Refereed Journals

- Arnold, N.A. and Hemsworth, P.H. (2013). Examining the usefulness of a Y-maze choice method to measure the preferences of laying hens. *Animal Production Science*. *Animal Production Science* 53(12) pp1283-1290. Available online <http://dx.doi.org/10.1071/AN12390>
- Coombe JE, Pyman MF, Mansell PD, Aldist MJ, Anderson GA, Wales WJ, Malmo J, Conley MJ, Fisher AD. (2013). The effects on claw health of supplement feeding grazing dairy cows on feed pads. *The Veterinary Journal* 198(3) pp672-677. Available online <http://dx.doi.org/10.1016/j.tvjl.2013.09.060>
- Edwards, L.E., Coleman, G.J. and Hemsworth, P.H. (2013). Close human presence reduces avoidance behaviour in commercial caged laying hens to an approaching human. *Animal Production Science* 53(12) pp1276-1282. Available online <http://dx.doi.org/10.1071/AN12342>
- Fisher A. D., Webster J. R. (2013) Dairy cow welfare: the role of research and development in addressing increasing scrutiny. *Animal Production Science* 53, pp924-930. Available online <http://dx.doi.org/10.1071/AN12276>
- Fisher, A.D., Giraudo, A., Martin, P.A.J. and Paton, M.W. (2013). The use of quantitative risk assessment to assess lifetime welfare outcomes for breech strike and mulesing management options in Merino sheep. *Animal Welfare*, 22: pp275-275.
- Fraser, D., Duncan, I.J.H., Edwards, S.A., Grandin, T., Gregory, N.G., Guyonnet, V., Hemsworth, P.H., Huertas, S.M., Huzzey, J.M., Mellor, D.J., Mench, J.A., Špinková, M. and Whay, H.R. (2013). General Principles for the welfare of animals in production systems: The underlying science and its application. *The Veterinary Journal*. 198: pp19-27.
- Gunaseelan, S., Coleman, G.J. and Toukhsati, S. (2013). Attitudes towards responsible pet ownership behaviours in Singaporean cat owners. *Anthrozoos*, 26 199-211
- Hemsworth, P.H., Rice, M., Nash, J., Giri, K., Tilbrook, A.J. and Morrison, R.S. (2013). Effects of group size and floor space allowance on group housed sows: aggression, stress, skin injuries and reproductive performance. *Journal of Animal Science* 91, 1-12.
- Hetti Arachige, A.D., Fisher, A.D., Aldist, M.J., Wales, W. J. and Jongman, E.J. (2013). Effects of different systems of feeding supplements on time budgets of cows grazing restricted pasture allowances. *Applied Animal Behaviour Science* 148,13-20. Available online <http://dx.doi.org/10.1016/j.applanim.2013.08.002>
- Jongman, E.C. and Butler, K.L. (2013). Ease of moving young calves at different ages. *Australian Veterinary Journal*. 91 (3), pp 94-98.
- Lee, C., Fisher, A.D., Colditz, I.G., Lea, J.M. and Ferguson, D.M. (2013). Preference of beef cattle for feedlot or pasture environments. *Applied Animal Behaviour Science*, 145, pp53-59. <http://dx.doi.org/10.1016/j.applanim.2013.03.005>
- Kerswell, K.J., Bennett, P., Butler, K.L. and Hemsworth, P.H. (2013). Self-reported comprehension ratings of dog behaviour by owners of adult dogs. *Anthrozoos*, 26 (1), pp 5-11.
- McGregor, B.A. and Butler, K.L. (2013). Eruption of first permanent incisors and live weight gain in grazing yearling Angora goats. *Australian Veterinary Journal*, 91, 179-184.
- Paton, M.W., Martin, P.A.J. and Fisher, A.D. (2013). Risk assessment principles in evaluation of animal welfare. *Animal Welfare*, 22: pp277-285.
- Pempek, J.A., M. L. Eastridge, N. A. Botheras, C. C. Croney, and W. S. Bowen Yoho. (2013). Effects of alternative housing and feeding systems on the behavior and performance of dairy heifer calves. *Professional Animal Scientist* 29:278-288.
- Pighin, D.G., Brown, W., Ferguson, D.M., Fisher, A.D. and Warner, R.D. (2013). Relationship between changes in core body temperature in lambs and post-slaughter muscle glycogen content and dark-cutting. *Animal Production Science*. Available online <http://dx.doi.org/10.1071/AN12379>
- Rault, J.-L., van de Wouw and Hemsworth P. (2013). Fly the coop! Vertical structures influence the distribution and behaviour of laying hens in an outdoor range. *Aust Vet Jnl*. Vol 91, No.10 pp423-426
- Rault, J.-L., Elmore, M. R. P., Biehl, D. J., Russell, M. A., Garner, J. P. (2013), The World is a Natural Laboratory, and Social Media is the New Petri Dish. *Ethology* 119(10) pp803-806
- Rault, J.L., Carter, C.S., Garner, J.L., Marchant-Forde, J.N., Richert, B.T. and Lay Jr., D.C. (2013). Repeated intranasal oxytocin administration in early life dysregulates the HPA axis and alters social behaviour. *Physiology and Behaviour* 2013 Mar 15; pp112-113. Available online <http://dx.doi.org/10.1016/j.physbeh.2013.02.007>
- Rault, J.L., Mack, L.A., Carter, C.S., Garner, J.L., Marchant-Forde, J.N., Richert, B.T. and Lay Jr., D.C. (2013). Prenatal stress puzzle, the oxytocin piece: Prenatal stress alters the behaviour and autonomic regulation in piglets, insights from oxytocin. *Applied Animal Behaviour Science* 148(1-2) Sep 2013, pp99-107. Available online <http://dx.doi.org/10.1016/j.applanim.2013.07.001>

Refereed Conference Publications

- Hartcher, K.M., Tran, K.T.N., Wilkinson, S.J., Hemsworth, P.H. and Cronin, G. (2013). Effect of rearing conditions on the development of feather-pecking behaviours in free-range laying hens. *Proceedings, Australian Poultry Science Symposium* 24, pp. 192-195.
- Hemsworth, P.H. (2013). The role of science in improving animal welfare. A.C. Dunkin Memorial Lecture, *Manipulating Pig Production XIV*. Proceedings of the 14th Biennial Conference of the Australasian Pig Science Association, November, pp. 3-16.
- Lay, D.C jr., Rault, J.-L., McMunn, K.A. and Marchant-Forde, J.N. (2013). A search for humane gas alternatives to carbon dioxide for euthanizing piglets: a piglet perspective. *Proceedings of 47th Congress of the International Society of Applied Ethology*, 2 June - 6 June 2013, Florianopolis, Brazil. P108.
- Morrison, R.S., Sawyer, K.S.B., Kells, N.J., Johnson, C.B. and Hemsworth, P.H. (2013). Stress responses of two-day old piglets to tail docking. *Manipulating Pig Production XIV*. Proceedings of the 14th Biennial Conference of the Australasian Pig Science Association, November, p. 128.
- Rault, J.-L., Van de Wouw, A. and Hemsworth, P.H. (2013). Fly the coop! Vertical structures influence the distribution and behaviour of laying hens in an outdoor range. *Proceedings, Australian Poultry Science Symposium* 24, p. 247.
- Rault, J.-L., McMunn, K.A., Marchant-Forde, J.N. and Lay, D.C. (2013). Gas alternatives to carbon dioxide for euthanasia: A piglet perspective. *Manipulating Pig Production XIV*. Proceedings of the 14th Biennial Conference of the Australasian Pig Science Association, November, p. 130.
- Sherwen, S., Magrath, M., Butler, K., Kerswell, K. and Hemsworth, P.H. (2013). A multi-zoo study on the effect of manipulated visitor behaviour on zoo meerkats. *Proceedings of 47th Congress of the International Society of Applied Ethology*, 2 June - 6 June 2013, Florianopolis, Brazil. P52.
- Singh, C. and Hemsworth, P.H. (2013). Comparison of the behaviour of piglets housed in loose pens and farrowing crates. *Manipulating Pig Production XIV*. Proceedings of the 14th Biennial Conference of the Australasian Pig Science Association, November, p. 241.
- Verdon, M., Morrison, R., Rice, M. and Hemsworth, P.H. (2013). Group-housed sows who engage in aggression after mixing have reduced injuries and gain more weight. *Proceedings of 47th Congress of the International Society of Applied Ethology*, 2 June - 6 June 2013, Florianopolis, Brazil. P68.
- Verdon, M., Morrison, R., Rice, M. and Hemsworth, P.H. (2013). Aggressive strategies in grouped sows: The relationship between individual aggressive behaviour and welfare. *Manipulating Pig Production XIV*. Proceedings of the 14th Biennial Conference of the Australasian Pig Science Association, November, p. 245.
- Webb, C., Hemsworth, P.H. and Holmes, R. (2013). An investigation into the training methods used by professional dog trainers. *Proceedings of 1st Australian Working Dog Alliance Conference*, Sydney, November, p20.

Success for students

Masters student Clara Singh (Uni Melb) was runner-up in the APL/Pork CRC Masters student presentation competition in Melbourne.

Clara has been looking at sow and piglet behaviour in farrowing pens.



Sally Sherwen, (PhD candidate, Uni Melb) won the University of Melbourne 3 Minute Thesis competition.

Sally's presentation focused on her work looking at visitor effects on zoo animals and can be viewed at this address:

<http://gradresearch.unimelb.edu.au/3MT/> (at 34min, 34sec).



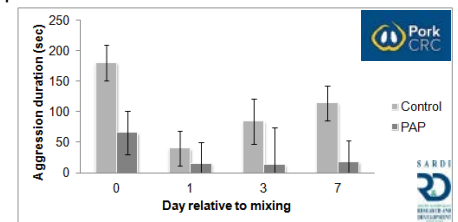
Pheromones and aggression (cont'd from p2)

Appeasing pheromones have been used successfully in other domesticated species, with the most common application being in dogs. In pigs, weaners have been shown to engage in less aggression, visit the feeder more, and display a higher average daily gain when pig appeasing pheromones are present. Adult pigs also appear to benefit, with inhibited cortisol secretion reported in miniature sows when mixed into groups of two in the presence of appeasing pheromones. Her study investigated the effects of pig appeasing pheromones (PAP) on the level of aggression and stress experienced when sows were mixed into groups after mating.

The study found PAP had no effect on the circulating cortisol concentration of sows. However this result should be taken with caution as the mixing event did not elicit the expected rise in cortisol typically observed and reported in other studies. Similarly, PAP had no effect on the level of injuries the sows displayed after mixing. There was however a significant effect of PAP on sow behaviour after mixing. Sows exposed to PAP engaged in aggressive events for a shorter period of time than sows in the control group.

This significant change in behaviour warrants further investigation under commercial conditions and suggests that appeasing pheromones have the potential to reduce the level of aggression observed when sows are first grouped.

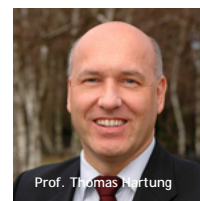
This work was conducted by the University of Adelaide and the South Australian Research and Development Group, and funded by the South Australian Pig Industry Fund and the CRC for High Integrity Australian Pork.



Public Lecture - *Safe drugs and products without animal testing?*

Monday 17th February - 6.00pm
Lower Theatre, Melbourne School of Land and Environment (MSLE)
The University of Melbourne, Royal Parade, Parkville

[Registration details will be made available nearer to the event.](#)



Prof. Thomas Hartung

RSPCA
for all creatures great & small

RSPCA Australia and the University of Melbourne will be presenting a public lecture to be delivered by Professor Thomas Hartung, current Director of the Center for Alternatives to Animal Testing (CAAT) and former Director of the European Centre for the Validation of Alternative Methods (ECVAM). Professor Hartung has devoted his career to promoting a paradigm shift in toxicity testing to drive the uptake of non-animal methods.

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