



ANIMAL WELFARE
SCIENCE CENTRE

**THE ANIMAL WELFARE
SCIENCE CENTRE
VICTORIAN NODE
ANNUAL REPORT
2017-2018**

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Background

The Centre has four partner organisations –

- Department of Economic Development, Jobs, Transport and Resources, Victoria. (DEDJTR), Agriculture Victoria Research Division.
- The University of Melbourne, (UOM), Faculty of Veterinary and Agricultural Sciences.
- The South Australian Research and Development Institute, (SARDI), Livestock & Farming Systems.
- The University of Adelaide, (UOA), School of Animal and Veterinary Sciences.

Across partner organisations, the AWSC has capability across a wide range of research disciplines: Animal Science, Applied Ethology, Biometrics, Immunology, Neurophysiology, Neuroendocrinology, Psychology, Sociology, Stress Physiology and Veterinary Science.

Research is conducted across a range of animal sectors including pork, dairy, eggs, meat chicken, beef, sheep meat, wool, companion animals and zoo animals.

Scientists also provide technical and advisory functions on Government, industry and scientific committees including the National Primary Industries Animal Welfare R, D&E Strategy and the OIE Collaborating Centre for Animal Welfare Science and Bioethical Analysis Management Committee.

The AWSC has built upon its key discipline in studying human/animal interactions, animal housing and husbandry and the effects of community attitudes and behaviour upon animal welfare.

Operating Environment

Animal welfare awareness continues to increase in society, strongly influencing views on animal use and the acceptability of various animal management practices. Stakeholders in the animal welfare domain include the public, generally as consumers, owners or concerned observers, special interest groups, businesses based on the commercial supply of animals and animal products and those developing, implementing or auditing compliance with relevant policy at government or community level. Thus, consumer and public attitudes to animal welfare have the potential to dramatically affect the use of animals in society, influencing the operations of livestock industries, medical research, the management of feral and wild animals and the care of recreational and companion animals.

While consumer and public attitudes to animal welfare ultimately determine society's use and care of domestic animals, science has a critical role in underpinning society's decisions on animal use and the attendant conditions and compromises. Lack of awareness of factual information means that many people are unaware of the conditions under which domestic animals live, how they are treated and their species-specific requirements.

Thus, there are basically four key areas of activity necessary to rationally address animal welfare:

- animal welfare science
- understanding public and consumer attitudes to animal welfare
- public education and
- industry education

It is expected that certain animal production and management practices will be highlighted from time to time by community groups and that their viewpoints will be promoted to the community. It is important that the community is well informed, including the scientific perspective.

While research can be utilised to underpin the establishment, amendment or validation of industry welfare standards and practices, it is critical to deliver industry education, through staff selection

and training strategies, and modify legislation, codes of practice and/or welfare QA programs to achieve these welfare standards.

The Centre is represented on the National Primary Industries Animal Welfare Research Development and Extension Strategy which brings together the core providers of farm animal welfare research with the major funding organisations to deliver targeted cross-sectoral research, development and extension within Australia's livestock industry sector.

The Centre, CSIRO and the University of Queensland (Centre for Animal Welfare and Ethics) are the Australian partners in the OIE Collaborating Centre for Animal Welfare which was formed in 2009 with the Animal Welfare Science and Bioethics Centre of Massey University, the Animal Behaviour and Welfare Research Centre of AgResearch and the Ministry for Primary Industries in New Zealand. The OIE Centre (now re-named as the Centre for Animal Welfare Science and Bioethical Analysis; the David Bayvel Consortium) supports the OIE region for Asia, the Far East and Oceania by, for example, building regional capacity through "twinning" programs and developing an animal welfare training course.

The Centre's activities are guided by our vision and mission:

Our Vision

"Animal welfare and its constant improvement are societal and cultural norms"

Our Mission

"To contribute to improved animal welfare as a world leading provider of expert information, advice and education underpinned by rigorous research"

Animal Welfare Science Centre activities

The Centre conducts research in three program areas:

- 1. Welfare methodology or the development and validation of methods to assess animal welfare.**
- 2. Housing and husbandry effects on animal welfare.**
- 3. Attitudinal effects:**
 - 3.1.** The effects of the attitudes of stockpeople, animal handlers and animal owners on the welfare of their animals.
 - 3.2.** The effects of attitudes to animal welfare on consumer and community behaviour.

These programs support the fourth program area:

4. Tertiary, post-graduate and industry education and training.

Through these programs, the Centre aims to:

- Develop scientifically defensible welfare methodology.
- Use scientifically defensible methodology to establish, amend or validate animal welfare standards and practices.
- Develop and support industry education and training strategies and provide scientific advice to support the development or revision of animal welfare standards and guidelines and codes of practice, and the development of quality assurance programs to introduce scientifically defensible welfare standards in the animal industries.
- Understand public and consumer attitudes to animal welfare to assist Governments and industry in:
 - developing animal welfare policy
 - assuring local and international consumers, public and other governments of the welfare standards for Australian domestic animals.

- Ensure tertiary students entering the animal industries are better prepared to provide sound, science-based advice on animal welfare practices to industry, interest groups and the public.
- Provide high quality postgraduate and postdoctoral training for the next generation of researchers and teachers in animal welfare science.

Centre personnel

Staff of the Centre (VIC Node)

The Centre's research and teaching capacity is considerable with scientific expertise and experience in the key disciplines of animal behaviour, psychology, stress physiology and veterinary medicine.

Principal investigators

Prof. Andrew Fisher (Faculty of Veterinary & Agricultural Sciences, The University of Melbourne) – Director of the Centre. Chair of Cattle and Sheep Production Medicine. Andrew has significant experience in animal welfare, with a particular focus on production animal management and transport. Research interests include welfare aspects of dairy cow and calf management.

Dr. Martin Auld (Agriculture Victoria Research, Department of Economic Development, Jobs, Transport and Resources) - Martin is an internationally-recognised scientist with 20 years of research experience in the field of dairy farm production systems. He has a specialty in the link between on-farm management practices and the composition of milk for manufacturing.

Dr Sarah Chaplin (Agriculture Victoria, Department of Economic Development, Jobs, Transport and Resources) – Sarah has expertise in biosecurity, animal behaviour and welfare, social license, risk management and regulation.

Prof. Grahame Coleman (Faculty of Veterinary and Agricultural Sciences, The University of Melbourne) – Grahame has followed a research career in aspects of human and animal behaviour associated with biological rhythmicity and sleep and changes in stress-related and reproductive hormones. Current research interests focus primarily on human-animal interactions in farm and companion animals and public attitudes to animal welfare.

Mr. Brett Davidson (Agriculture Victoria, Department of Economic Development, Jobs, Transport and Resources) - Brett is a regional manager dairy services and flagship leader for the market access and risk management theme Brett's role is overseeing, designing and developing of farmer facing workshops that provide practice change in rural communities. Developing programs in the biosecurity, climate risk and animal welfare areas.

Dr. Rebecca Doyle (Faculty of Veterinary & Agricultural Sciences, The University of Melbourne) – Rebecca's research projects have included animal cognition and cognitive bias; correlating stress physiology with behavioural and cognitive welfare measures; and how to make practical animal welfare improvements locally and in developing countries. Her position with Centre focuses on welfare improvements in the sheep and beef industries.

Dr. Lauren Hemsworth (Faculty of Veterinary & Agricultural Sciences, The University of Melbourne) - Research interests include the human-animal relationship and its influence on animal welfare and productivity, field welfare assessment in farm and companion animals and developing education programs for recreational horse owners

Prof. Paul Hemsworth (Faculty of Veterinary and Agricultural Sciences, The University of Melbourne) –Director of the Centre: A research career studying the behaviour and welfare of farm and companion animals, particularly examining the influence of the social and physical environment on farm animal behaviour and welfare and the influence of human-animal interactions on animal welfare and productivity.

Dr. Joe Jacobs (Agriculture Victoria Research, Department of Economic Development, Jobs, Transport and Resources) – Joe is internationally recognised as an expert in agronomy, grazing management and the interactions between pastures, supplements and ruminants. He has over 25 years' experience in applied dairy and livestock production research.

Dr. Ellen Jongman (Faculty of Veterinary & Agricultural Sciences, The University of Melbourne) - Research interests include the effect of housing, husbandry procedures and management on the welfare of sheep and dairy cows.

Dr. Leah Marett (Agriculture Victoria Research, Department of Economic Development, Jobs, Transport and Resources) - Leah has experience in dairy cow nutrition and physiology, ranging from feed conversion efficiency to rumen function and endocrine regulation of nutrient partitioning. Leah has a strong interest in production animal physiology including aspects of nutrition, metabolism, health and genetics. Her current research interests include using nutritional strategies to reduce the negative impact of heat stress on dairy cows.

Dr. Bill Wales (Agriculture Victoria Research, Department of Economic Development, Jobs, Transport and Resources) - Bill is internationally recognised as an expert in the interactions between pastures, supplements and grazing dairy cows. He is an experienced applied research scientist and has skills in farming systems research and biological processes influencing milk fat synthesis.

Post-doctoral research fellow

Dr. Lauren Edwards (Faculty of Veterinary & Agricultural Sciences, The University of Melbourne) – Research interests include the behaviour and welfare of farmed species (particularly poultry), exploring novel methods of assessing animal welfare, the human-animal relationship in farmed species, cognitive bias and its impact on animal behaviour, and assessing affective experiences in animals.

Supporting scientists

Dr. Ian Bland (Faculty of Veterinary and Agricultural Sciences, The University of Melbourne) – Lecturer in Animal Science and Management. Ian is interested in the behaviour and welfare of neonatal/weaned pigs and zoo animals.

Mr. Kym Butler (Agriculture Research, DEDJTR, Hamilton and Faculty of Veterinary and Agricultural Sciences, The University of Melbourne) – Kym works within the Biometrics Unit, Agriculture Research and applies biometric analysis to the Centre's research projects.

Dr. Angus Campbell (Faculty of Veterinary and Agricultural Sciences, The University of Melbourne) – Senior Veterinary Consultant and Lecturer in Ruminant Medicine & Production. Involved in research into herd and flock health on sheep, goat and cattle farms in south-eastern Australia, and consults internationally on agricultural development.

Administration and technical staff

Rutu Y. Acharya, Research Assistant, The University of Melbourne

Maxine Rice, Research Assistant, The University of Melbourne

Jeremy Skuse, Executive Officer, Program Leader - Industry Education & Training, The University of Melbourne

Tracie Storey, Technical Officer, The University of Melbourne

Postgraduate students

Leigh Atkinson (PhD candidate) – Early life stressors in sheep.

David Beggs (PhD candidate) - Ensuring dairy cow welfare with increasing scale of production.

Samantha Chiew (PhD candidate) - The effects of zoo visitor-zoo animal interactions at display enclosures on both the animal and the visitor.

Belinda Hall (PhD student) - The use and effectiveness of cognitive enrichments in captive parrots.

Megan Hayes (PhD candidate) - Human enrichment in pigs.

Sally Haynes (PhD candidate) - The relationship between the attitudes and behaviours of human handlers and the behaviour and welfare of shelter dogs.

Maria Jorquera (PhD candidate) - Novel measures of remote monitoring applicable to welfare assessment.

Sarah Kuyken (PhD candidate) - Development and trial of a horse welfare assessment tool.

Hannah Larsen (PhD candidate) - Free-range hen welfare: Characterisation of 'outdoor' and 'indoor' hens and physical features in the range. (will graduate in July 2018).

Mark Learmonth (PhD candidate) - Human interaction as enrichment for zoo-housed animals: Opportunity for positive affective experiences?

Gabriella Marquette (PhD candidate) - Welfare of calves in relation to disbudding and castration.

Carolina Munoz (PhD candidate) - Assessing and addressing on-farm sheep welfare.

Monoar Sayeed Pallab (PhD candidate) - The assessment and management of calf health and welfare in dairy systems.

Lydia Rehnberg (PhD candidate) - Working within the ARC Linkage Project, Human-animal relationships in zoos: Optimising animal and visitor experiences.

Natalie Roadknight (PhD candidate) - Bobby calf welfare.

Bronwyn Stevens (PhD student) - Does restricting an animal's access to a highly preferred resource result in altered biological function?

Peta Taylor (PhD student) - The characteristics of free-range systems on the welfare of the broiler chicken. (will graduate in July 2018).

Board of Management

Ms. Lucinda Corrigan - Independent Chair.

Mr. Rob Cumine – Independent Director (July 2017 – September 2017).

Dr. Joe Jacobs - Research Director, Animal Production Sciences, Department of Economic Development, Jobs, Transport and Resources.

Dr Peter Appleford - Executive Director, South Australian Research and Development Institute.

Prof. John Fazakerley – Dean, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne (July 2017 - January 2018).

Prof. Brian Leury - Deputy Dean, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne (January 2018 – continuing).

Prof. Phil Hynd - Head of School, Deputy Head, School of Animal and Veterinary Sciences, The University of Adelaide (July 2017 – June 2018)

Prof. Andrew Fisher - Director AWSC, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne.

Dr. Cameron Ralph - Deputy Director AWSC, South Australian Research and Development Institute (December 2017 – May 2018).

AWSC Representation on committees in a technical/advisory capacity

AECL Hen Welfare Advisory Group	Paul Hemsworth
APL Specialist Group 2 (Genetics, reproduction and welfare)	Paul Hemsworth
Animal Welfare Advisory Committee	Paul Hemsworth
Australian Sheep Welfare Standards Writing Group	Andrew Fisher
Council for Sustainable Egg Farming	Paul Hemsworth
DEDJTR Beef and Sheep Industry Leadership Group	Andrew Fisher
DEDJTR Livestock Industry Consultative Committee	Andrew Fisher
DEDJTR Agriculture Research and Extension Animal Ethics Committee	Andrew Fisher
Dairy Moving Forward Animal Husbandry Steering Group	Andrew Fisher
Dairy Moving Forward Safe Stock Handling Steering Group	Paul Hemsworth Sarah Chaplin
Greyhound Racing Victoria Welfare Committee	Grahame Coleman
Hassad-Australia Animal Welfare Committee	Paul Hemsworth
RSPCA Victoria Animal Welfare Policy Committee	Ellen Jongman
National Primary Industries Animal Welfare Strategy Steering Committee	Andrew Fisher
National Stakeholder Advisory Group member for the Poultry Standards and Guidelines	Paul Hemsworth
OIE <i>ad hoc</i> Group on Animal Welfare and Pig Production Systems	Paul Hemsworth
OIE Collaborating Centre for Animal Welfare Science and Bioethical Analysis Management Committee	Andrew Fisher
Pork Industry Advisory Group for Standards and Guidelines	Paul Hemsworth
Zoos Victoria Animal Welfare Peer Review Committee	Paul Hemsworth

Summary of major Centre RD&E projects and 2016/17 project funding if applicable

2017/18 External and internal cash funding - \$ 5,998,291

1. Dairy industry

1.1. Characterisation of the welfare and performance responses of calves to disbudding and castration procedures

Investigators: A. Fisher, K. Stanger, and B. Earley & M. McGee (Teagasc)

Student: Gabriela Marquett

Funding: University of Melbourne / TEAGASC, Agriculture and Food Development Authority of Eire.

2017/18 – €22,000

Commencement date: 2018

Completion date: 2021

The PhD Fellowship is a joint research project between Teagasc and the University of Melbourne. This research will deliver practical pain management strategies as a part of standard industry practice at the time of disbudding and castration of calves.

1.2. Bobby calf welfare

Investigators: A. Fisher, E. Jongman, P Mansell

Student: N. Roadknight

Funding: Strategic Partnership for Animal Welfare RD&A / Parmalat / Meat and Livestock Australia.

2017/18 – \$ 27,511

Commencement date: 2017

Completion date: 2020

The goal of this PhD project is to measure the health and welfare status of bobby calves within the supply chain, and to identify variations in calf hydration, glucose levels, and colostral immunity in relation to breed, bodyweight, time off feed and transport distance.

The project will then include research on-farm (and onwards in the supply chain) to validate the optimal calf preparation strategies indicated by the initial research to provide objective data on industry performance, as well as forming the basis of updated advice to farmers on areas of calf preparation on which to focus for ensuring optimal calf welfare.

1.3. Scale of production, attitudes of dairy farmers and stockpeople and the welfare of dairy cows

Investigators: P. Hemsworth

Student: -

Funding: Dairy Australia

2017/18 - \$ 5,515

Commencement date: 2017

Completion date: 2018

Understanding the relationships between herd size and work-related attributes of farmers and stockpeople may provide the opportunity through education and training and herd management practices to safeguard cow productivity, health and welfare in situations where increasing herd size is a risk factor.

1.4. Developing nutritional strategies for early lactation (First 100 days)

Investigators: B. Wales

Student: -

Funding: Department of Economic Development, Jobs, Transport and Resources, Dairy Australia, Gardiner Foundation

2017/18 - \$ 2,000,000

Commencement date: 2017

Completion date: 2023

This project will identify cost-effective rations for each cow enabling farmers to make better decisions about the allocation of supplementary feeds and proactively manage health in early lactation. Feeding cows better during the first 100 days of lactation through improved supplementary feeding strategies can substantially improve production and ensure that the cows' health and welfare is optimised through improved nutritional management within grazing systems..

1.5. Smart Feeding

Investigators: M. Auldust

Student: -

Funding: Department of Economic Development, Jobs, Transport and Resources, Dairy Australia, Gardiner Foundation

2017/18 - \$ 1,200,000

Commencement date: 2017

Completion date: 2023

This project focuses on the individual intake of each cow and the inherent variation in productivity of the herd to deliver productivity gains based on improved herd dynamics.

This project will develop farm management systems that allow a more even allocation of available feed resources across a herd and an overall increase in the herd's average milk response to feeding (i.e. more milk per kg of feed). This project aims to ensure that each cow is optimally fed to not only improve average herd production, but also to ensure that each cow receives optimal nutrition with regard to its health and welfare.

1.6. Feeding cool cows

Investigators: L. Marett

Student: -

Funding: Department of Economic Development, Jobs, Transport and Resources, Dairy Australia, Gardiner Foundation
2017/18 - \$ 1,400,000

Commencement date: 2017

Completion date: 2023

This project will investigate nutritional opportunities to alleviate the impacts of hot weather on animal performance, health and welfare and explore the potential interactions between nutritional and genetic interventions.

An initial experiment has been undertaken in the 2017-18 year investigating production and physiological responses to a feed additive and a fat supplement during a heat challenge.

1.7. Dairy farm risk management and industry resilience

Investigators: B. Davidson

Student: -

Funding: Department of Economic Development, Jobs, Transport and Resources

2017/18 - \$ 520,078

Commencement date: 2017

Completion date: 2020

This project aims to improve how dairy farmers manage risks to ensure that the dairy industry maintains market access.

1.8. Ensuring cow welfare with increasing scale of production

Investigators: A. Fisher

Student: D. Beggs

Funding: Dairy Australia

2017/18 – n/a

Commencement date: 2014

Completion date: 2018

This project supports a PhD student who has undertaken on-farm studies to determine relationships between farm characteristics and practices associated with scale of production and animal welfare measures.

2. Pork industry

2.1. Human enrichment program for breeding sows: proof of concept

Investigators: P. Hemsworth, L. Hemsworth, R. Morrison

Student: M. Hayes

Funding: CRC for High Integrity Australian Pork
2017/18 - \$ 89,979

Commencement date: 2017

Completion date: 2018

This experiment is a proof of concept to examine whether regular positive human contact is enriching for sows (i.e., leads to a positive affective state) and facilitates stress resilience).

2.2. Review of the scientific literature and the international pig welfare codes and standards to underpin the future Standards and Guidelines for Pigs

Investigators: P. Hemsworth, L. Hemsworth, R. Acharya, J. Skuse

Funding: Australian Pork Limited
2017/18 - \$ 25,000

Commencement date: 2017

Completion date: 2018

This project will review the scientific literature and examine international codes and standards for the welfare of the pig to inform the review of the current Australian Model Code of Practice for the Welfare of Animals – Pigs.

2.3. Development of commercially-viable enrichment programs for group-housed sows

Investigators: E. Jongman, R. Morrison, P. Hemsworth, R. Parkes

Funding: CRC for High Integrity Australian Pork
2017/18 - \$ n/a

Commencement date: 2016

Completion date: 2018

The aim of this project was to determine the effects of environmental enrichment in the form of i) straw, (ii) a 'Ridley block', (iii) Lucerne hay, (iv) a wooden block and (v) 1 kg of corn silage in comparison to (vi) a control treatment of no environmental enrichment on sow aggression, injuries, foraging behaviour and reproductive performance. The commercial-viability of each enrichment sources will be assessed including cost, practicality and effluent management.

2.4. Developing ways to measure and increase sow contentment

Investigators: R. Doyle, K. Plush, R. Morrison, C. Ralph, G. Cronin, C. Lee, S. Hazel

Funding: CRC for High Integrity Australian Pork
2017/18 - \$ n/a

Commencement date: 2015

Completion date: 2018

This project assessed the contentment of sows during lactation by using scientific indicators of positive welfare and then developing practical measures for use on farm. This study also assessed the effect enrichment has on the welfare of lactating sows, with the hypothesis being that enrichment will increase the level of contentment a sow experiences during lactation.

2.5. ProHand® Pigs technical support

Investigators: J. Skuse and G. Coleman

Funding: Australian Pork Limited
2017/18 - \$ 19,314

Commencement date: 2012

Completion date: 2018

This project provided technical support to ProHand® Pigs and Abattoir training.

3. Sheep/cattle industries

3.1. Identifying public and producer attitudes to sheep and cattle animal welfare to inform education strategies

Investigators: G. Coleman, P. Hemsworth, L. Hemsworth

Funding: Animal Welfare Strategic Partnership Program
2017/18 - \$ 237,816

Commencement date: 2017

Completion date: 2021

This project will provide the tools for the red meat industry to firstly assess public and producer attitudes to animal welfare issues, their knowledge of the issues and their key opinion leaders and secondly to utilise validated education strategies to address misinformation on practices and disseminate research results on best-animal welfare practice addressing the specific contentious welfare issue in question.

3.2. Developing the basis for an attitude-behaviour training program for stockpeople in the sheep transport and abattoir sectors

Investigators: P. Hemsworth, G. Coleman, J. Skuse

Funding: Meat and Livestock Australia
2017/18 - \$ 26,005

Commencement date: 2017

Completion date: 2018

The objective of the project was to collaborate with key sheep-meat stakeholders to review the general content of a cognitive-behavioural training program for sheep abattoir stockpeople, decide on the platform for the program and its delivery method(s) and identify potential funders and sheep-meat industry collaborators.

3.3. Methods of field euthanasia for livestock that preserve brain material

Investigators: **K. Stanger, A. Fisher**, T. Jubb, J-L Rault, C. Johnson,

Funding: Meat and Livestock Australia
2017/18 - \$26,000

Commencement date: 2017

Completion date: 2018

This project, involving Professor Craig Johnson and colleagues from Massey University in New Zealand, aims to identify a more suitable agent for the euthanasia of livestock for TSE surveillance in Australia.

4. Companion, zoo, sport and work animals

4.1. Human-animal relationships in zoos: Optimising animal and visitor experiences

Investigators: P. Hemsworth, G. Coleman, R. Rassool, K. Fanson, K. Butler, M. Magrath, V. Melfi, D. Peake, W. Shaw

Students: S. Chiew (PhD), L. Rehnsberg (PhD), M. Learmonth (PhD), B. Hall (PhD)

Funding: ARC Linkage
2017/18 - \$ n/a

Commencement date: 2014

Completion date: 2018

Extensive research on human-animal relationships in agricultural and domestic settings shows that human-animal interaction affects animal behaviour and welfare, which in turn affect human attitudes to animals. As conservation and welfare organisations, zoos aim to provide visitors with opportunities to closely interact with animals to improve visitor experience and conservation outcomes, whilst maintaining good animal welfare. Some visitor interactions may be stressful for some animals creating conflict between animal welfare and visitor experience. By determining visitor effects, this project aims to provide zoos with practical animal management and educational strategies to optimise both animal welfare and visitor experience.

4.2. Socialisation of greyhounds to optimise their racing success and maximise successful rehoming

Investigators: P. Hemsworth, L. Hemsworth, E. Jongman and G. Coleman

Funding: Greyhound Racing Victoria
2017/18 - \$ 54,956

Commencement date: 2017

Completion date: 2018

The project aims to determine socialisation practices from birth to the end of the greyhounds' racing career to optimise their racing (and rehoming) success. The first part of this project reviews the current scientific literature on effects of socialisation and using focus groups understand industry knowledge of and attitudes towards the role of socialisation and current practices in influencing racing success.

4.3. Development of a Horse Welfare Assessment Tool and its effect on the welfare of Victorian pleasure horses

Investigators: L. Hemsworth, and E. Jongman
Student: S. Kuyken
Funding: ANZ Trustees, Kathleen Agnes Back Trust
2017/18 - \$ n/a
Commencement date: 2014
Completion date: 2018

This project will support a PhD student who will develop a Horse Welfare Assessment Tool (HWAT) for use by horse owners to assess and monitor their horses' welfare over time. After designing, modifying and testing the various scoring systems that comprise the HWAT, and intervention study will determine its effectiveness in modifying horse care from the owner to increase horse welfare. is developing an independent website, to be managed and maintained by the Victorian Horse Council (VHC), which will provide recreational horse owners with the resources required to appropriately manage their horses, in order to improve the welfare of recreational horses, and reduce the incidence of horse welfare investigations in Victoria. The website will include an interactive tool, based on a horse welfare assessment protocol which will consist of a range of welfare indices, including body condition score, lameness score, hoof score, injury score and dental score, which recreational horse owners will use to measure the health and welfare outcomes of their horses. The results of the assessment, inputted back into the program, will then direct horse owners to the areas of the website with information relevant to their outcomes.

5. General/Other

5.1. Evaluation of the welfare risks and impacts of roping

Investigators: E. Jongman, L. Hemsworth
Funding: Parks Victoria
2017/18 - \$ 84,344
Commencement date: 2017
Completion date: 2018

This project will develop, implement and report on the outcomes of a framework and protocol for assessing the animal welfare issues, risks and impacts of roping as a management technique for feral horses in the Eastern Alps.

5.2. Animal Welfare Science Centre (VIC Node)

Investigators: P. Hemsworth, J. Skuse

Funding: Department of Economic Development, Jobs,
Transport and Resources **and** The University of Melbourne
2017/18 - \$189,186

Commencement date: 2015

Completion date: 2020

This project supports the operation of the Victorian node of the AWSC to deliver services to the AWSC board in its governance activities, effectively communicate the work of the AWSC in providing independent, authoritative scientific knowledge and advice to government, industry and the community and maintain a reliable, independent and accessible knowledge resource. The project also supports the AWSC's program of Industry Education & Training.

5.3. Executive Support, National Primary Industries Animal Welfare RD&E Strategy (NAWRDE)

Investigators: J. Skuse

Funding: NAWRDE
2017/18 - \$ 58,212

Commencement date: 2012

Completion date: 2019

This project supports the Executive function for the NAWRDE and includes the provision of the Annual NAWRDE Forum, the seventh of which was held in Melbourne in November 2017.

Significant collaboration

Smallholder goat value chains in Pakistan; challenges and research opportunities

Investigators: **R. Doyle A. Campbell**, D. McGill

Funding: Australian Centre for International Agricultural Research

Commencement date: 2015

Completion date: 2021

This project aims to: 1. Map and analyse predominant goat value chains linking smallholder farmers to markets including the value smallholders derive from them; 2. Investigate smallholder farmer perceptions on their engagement with goat value chains and the role that women play both on-farm and post-farm gate and 3. Identify research opportunities for improved smallholder goat producer engagement with, and contribution to, specific goat meat value chains. The AWSC is involved in the animal welfare component of the project.

Final reports

MLA Project B.AWW.0237. *Assessing and addressing on-farm sheep welfare.* R. Doyle.

MLA Project B.AWW.0259. *Developing the basis for an attitude-behaviour training program for stockpeople in the sheep transport and abattoir sectors.* P. Hemsworth.

DA project C100002561 - *Scale of production, attitudes of dairy farmers and stockpeople and the welfare of dairy cows.* P. Hemsworth.

DA study tour report 2017 – *USA Dairy beef pathways.* S. Chaplin. <https://bit.ly/2yKtkoS>

GRV project 1718-14 - *Socialisation of greyhounds to optimise their racing success and maximise successful rehoming.* P. Hemsworth.

CRC for High Integrity Australian Pork project 1C-120 - *Human enrichment program for breeding sows: proof of concept.* P. Hemsworth.

CRC for High Integrity Australian Pork project 1Z-1501 - *Developing ways to measure and increase sow contentment.* R. Doyle.

Parks Victoria project - *Evaluation of the welfare risks and impacts during roping of feral horses.* E. Jongman.

Centre RD&E Communications

1.a Book chapters

1. **Doyle, R. E.** (2017). Sheep cognition and implications for welfare. In Ferguson, D., Lee, C. and Fisher, A. eds. *Advances in sheep welfare.* Woodhead Publishing. 55-68. ISBN 978-0-08-100718-1
2. Ferguson, D.M., **Fisher, A.D.**, Colditz, I.G. and Lee, C. (2017). Future challenges and opportunities in sheep welfare. In Ferguson, D., Lee, C. and Fisher, A. eds. *Advances in sheep welfare.* Woodhead Publishing. 285-292. ISBN 978-0-08-100718-1
3. Ferguson, D., Lee, C. and **Fisher, A.D.** eds. *Advances in sheep welfare.* Woodhead Publishing. ISBN 978-0-08-100718-1
4. **Hemsworth, P.H.** (2018). Defining and ensuring animal welfare in pig production: an overview. In "Achieving Sustainable Production of Pig Meat. Volume 3: Animal Health and Welfare", Ed Wiseman, J. Burleigh Dodds Scientific Publishing, Cambridge UK, Chapter 6, pp. 125-150.
5. **Hemsworth, P.H.** and **Jongman, E.C.** (2017) Humane transport, lairage and slaughter of sheep. In: *Achieving sustainable production of sheep.* Ed Greyling, J. Burleigh Dodds Scientific Publishing, Cambridge CB22 3HJ UK, pp379-396. ISBN-13: 9781786760845
6. **Hemsworth, P.H.**, Sherwen, S.I. and **Coleman, G.J.** (2018). Human Contact. In Appleby, M.C., Olsson, I.A.S. and Galindo, F. *Animal Welfare 3rd Edition.* CABI. Oxfordshire. 294-314. ISBN: 9781786390202
7. **Verdon, M** and **Rault, J-L.** (2018). Aggression in group housed sows and fattening pigs. In: *Advances in pig welfare,* Ed Špinka, M. pp 235-260. ISBN 97800-08-101012-9. <https://doi.org/10.1016/B978-0-08-101012-9.00018-6> .

1.b Research publication in refereed journals

8. Alam, M.R, and **Doyle, R.E.** (2017) The veterinarian's role in animal welfare. Bangladesh Journal of Veterinary and Animals Sciences. 5 11-16
9. **Beggs, D.S., Jongman, E.C., Hemsworth, P.H.** and **Fisher, A.D.** (2017). Short communication: Milking order consistency of dairy cows in large Australian herds. J. Dairy Sci. 101:1–6. <https://doi.org/10.3168/jds.2017-12748>
10. **Coleman, G.J.** (2018). Public animal welfare discussions and outlooks in Australia. Animal Frontiers, 8:1 1, 14–19, <https://doi.org/10.1093/af/vfx004>
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1.c Research papers in press

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2. Conference publications

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37. **Fisher, A.D.**, Atkinson, L., Houghton, E., Lee, C. and **Doyle, R.E.** (2017). The use of selective serotonin reuptake inhibitors to try to develop a pharmacological model of positive affect in sheep. Proceedings of the 51st Congress of the International Society for Applied Ethology. 7-10 August 2017, Aarhus, Denmark. 208.
38. **Hayes, M.** and **Hemsworth, L.M.** (2017). Assessing the behavioural response of companion dogs to humans in a household environment. Proceedings of the 7th International Conference on the Assessment of Animal Welfare at Farm and Group Level. 5-8 September, Wageningen, Netherlands, 179.
39. **Hemsworth, L.M**, **Acharya, R.Y** and **Hemsworth, P.H.** (2017). A preliminary examination of sham chewing behaviour in group-housed nulliparous sows. Proceedings of the 16th Biennial Conference of the Australasian Pig Science Association, 19-22 November 2017, Melbourne, Australia, p. 2440
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41. Kite, R. and **Jongman, E.C.** (2017). The development of a welfare assessment tool for the Australian Fur Seals at Melbourne Zoo. Proceedings of the 7th International Conference on the Assessment of Animal Welfare at Farm and Group Level. 5-8 September, Wageningen, Netherlands, 191.
42. **Kuyken, S.C.** and **Hemsworth, L.M.** (2017). Examining the reliability of a horse hoof condition score. Proceedings of the 7th International Conference on the Assessment of Animal Welfare at Farm and Group Level. 5-8 September, Wageningen, Netherlands, 166.
43. Monk, J., **Doyle, R.E.**, Belson, S, Cronin, G.M. and Lee, C. (2017). Assessing anxious states in sheep: a more practical attention bias test. Proceedings of the 51st Congress of the International Society for Applied Ethology. 7-10 August 2017, Aarhus, Denmark. 199.
44. Morrison, R.S., Kells, N.J., Johnson, C.B. and **Hemsworth, P.H.** (2017). Strategies to reduce the pain of tail docking in piglets. Proceedings of the 16th Biennial Conference of the Australasian Pig Science Association, 19-22 November 2017, Melbourne, Australia, p. 2448
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47. Ralph, C.R., Plush, K.J., Hazel, S., Zemitis, J. and **Doyle, R.E.** (2017). The provision of lucerne to sows evoked greater arousal in response to an anticipatory behaviour test. Proceedings of the 16th Biennial Conference of the Australasian Pig Science Association, 19-22 November 2017, Melbourne, Australia, p. 2460

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3. Theses

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Animal Welfare Science Centre Seminars

<http://www.animalwelfare.net.au/article/scientific-seminars>

April '18

AWSC Seminar

Dr. Lauren Hemsworth, (AWSC, The University of Melbourne)

"The human contribution to animal welfare"

[pdf](#) [Vimeo presentation](#)

Dr. Susan Hazel (AWSC, The University of Adelaide)

"In sickness and in health: Why do people keep or give up their pets?"

[pdf](#) [Vimeo presentation](#)

Dr Cameron Ralph (AWSC, South Australian Research and Development Institute)

"Novel Biomarkers of Animal Welfare"

[pdf](#) [Vimeo presentation](#)

August '17

Zoo animal welfare

Prof David Mellor, (Massey University)

"Using the 5 domains model to understand and improve zoo animal welfare"

[pdf](#)

Samantha Chiew (PhD candidate, The University of Melbourne)

"Zoo visitor-penguin interactions: effects on both penguins and visitors"

[pdf](#)

Lydia Rehnberg (PhD candidate, The University of Melbourne)

"Effects of interactive visitor encounters on the behaviour and welfare of animals commonly housed in Australian zoos"

[pdf](#)

Mark Learmonth (PhD candidate, The University of Melbourne)

"Human interaction as enrichment for zoo-housed animals: opportunity for positive affective experiences?"

[pdf](#)

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Annual Report 2017 – 2018 are available on request from:**

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