

Day 1 - Livestock

Session Chairs: Claudio Zweifel (*Federal Food Safety and Veterinary Office, Switzerland*) and Ngai Beausoleil (*Massey University, New Zealand*)

Session 1

11.00 **Welcome**

Kaspar Joerger (*Federal Food Safety and Veterinary Office, Switzerland*)

11.05 **Introduction and background to the meeting**

Huw Golledge (*UFAW and HSA, United Kingdom*) and Aline Steiner (*University of Zürich, Switzerland*)

11:30 **Keynote: Where there's will, there is a way**

Mohan Raj (*Independent, United Kingdom*)

12:00 **Asking chickens about feelings under exposure to CO₂ and alternatives to CO₂. Novel animal model using broiler breeders**

Sabine Gebhardt-Henrich, Abdulsatar Abdel Rahman, Thom Gent and Michael Toscano (*Universities of Bern and Zurich, Switzerland; Swedish University of Agricultural Sciences, Sweden*)

12:25 **A novel stunning method of pigs with high expansion nitrogen foam: An initial study**

Cecilia Lindahl (*Agriculture and Food, RISE Research Institutes of Sweden, Sweden*)

12:50 **Lunch**

Session 2

14:00 **CO₂ stunning of pigs. An example of behaviour during induction and overview of gas concentration and other key parameters during routine slaughter of pigs in modern low stress group stunning devices**

Karen Von Holleben and Martin Von Wenzlawowicz (*Training and consultancy institute for animal welfare, bsi Schwarzenbek, Schwarzenbek, Germany*)

14:25 **On-farm euthanasia of commercial meat rabbits. Evaluation of physical methods compared to gradual and fast-fill carbon dioxide gas exposure**

Jessica Walsh, John Van de Vegte, Brianne Mercer, Aaron Percival and Patricia Turner (*University of Guelph, Ontario Ministry of Agriculture, Food and Rural Affairs and Charles River Laboratories, Canada*)

14:50 **Low atmospheric pressure stunning in pigs: Insights from analgesic and anxiolytic interventions**

Jessica Martin, Emma Baxter, Marianne Farish, Julian Sparrey, Peter Tennant, Adrian Ritchie and Dorothy McKeegan (*The Royal (Dick) School of Veterinary Studies and The Roslin Institute, University of Edinburgh and University of Glasgow, United Kingdom*)

15:25 **Panel discussion and wrap up**

16:00 **End**

Day 2 - Laboratory

Session Chairs: Huw Golledge (*UFAW, United Kingdom*) and Thom Gent (*University of Zürich, Switzerland*)

Session 1

10:15 **Introduction to the day**

10:30 **Keynote: Connecting values and data for ethical euthanasia practices in the animal laboratory**

Larry Carbone (*Independent, USA*)

11:15 **CO₂ exposure as translational cross-species experimental model for panic**

Nicole Leibold (*University of Maastricht, The Netherlands*)

11:40 **Nitrogen gas as an alternative euthanasia agent for laboratory rodents**

Ellen Deelen and Esther Langen (*Utrecht University, The Netherlands*)

12:05 **A systematic review of the welfare impact of CO₂ euthanasia on research mice and rats**

Patricia Turner (*Charles River Laboratories, Canada*)

12:30 **Lunch**

Session 2

13:30 **Evaluation of the well-being during euthanasia in less frequently used laboratory rodents**

Debra Hickman (*Indiana University, USA*)

13:55 **Variation in rat CO₂ sensitivity**

Lucia Amendola and Daniel Weary (*University of British Columbia, Canada*)

14:25 **The use of an automated captive bolt for euthanasia of laboratory rats**

Stephanie Yam, Catherine Schuppli and Daniel Weary (*University of British Columbia, Canada*)

14:50 **Assessment of environmental factors affecting the well-being of rats euthanized with carbon dioxide**

Debra Hickman (*Indiana University, USA*)

15:15 **Break**

Session 3

15:45 **Understanding rat emotional responses to CO₂**

Lucia Amendola and Daniel Weary (*University of British Columbia, Canada*)

16:05 **Attitudes of European and Canadian laboratory animal professionals and researchers towards carbon dioxide euthanasia for rodents and perceptions of barriers for implementation of refinements**

Michael Brunt, Lucia Améndola and Daniel Weary (*University of British Columbia, Canada*)

16:30 **Panel discussion and wrap up**

17:00 **End**