

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

CO-OPERATIVE RESEARCH PROGRAMME: BIOLOGICAL RESOURCE MANAGEMENT FOR SUSTAINABLE AGRICULTURAL SYSTEMS

ORGANISATION
FOR ECONOMIC
CO-OPERATION
AND DEVELOPMENT



INTERNATIONAL WORKSHOP

Livestock Waste Treatment Systems of the Future: a challenge to environmental quality, food safety, and sustainability

Florence, South Carolina, April 2-4, 2008

This congress is sponsored by OECD's Co-operative Research Programme: Biological Resource Management for Sustainable Agricultural Systems (www.oecd.org/agr/prog). It addresses the objectives of both Theme 1, The Natural Resources Challenge, and Theme 2, Agricultural Sustainability in Practice. This workshop will focus on the current state of scientific information on advanced treatment of animal waste. This information can be applied strategically towards enhancing livestock systems for both the sustainable use and protection of natural resources, and sustainable production. These two themes represent two critical areas in world-wide agriculture and need interaction of a wide range of disciplines. For this reason, an impressive group of world experts has been put together including microbiologists, soil, water and air scientists, engineers, veterinary medicine, biologists, chemists, environmentalists, animal production, and system specialists to discuss and provide direction on waste treatment systems of the future. Challenges include atmospheric emissions, excessive nutrients, pathogens, odors, and affordability of treatment. This workshop will take a synergistic approach towards developing more effective animal waste treatment practices and holistic systems to solve these problems. Results of this OECD sponsored workshop will set a scientific base for supporting and sustaining comprehensive activities to advance the state of the science for more effective animal waste treatment.

VENUE

The proposed venue for this meeting is at Florence, South Carolina (<http://www.florencesccvb.com>). This site was chosen because it is located in South Eastern USA, an area with a large density of livestock with associated environmental problems and safety concerns that is representative of modern livestock production throughout the world. It is also where the USDA-ARS laboratory of the local organizers

**OECD CRP International Workshop
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is located (<http://www.ars.usda.gov/saa/cpswprc>). The meeting will be held in the Hilton Garden Inn Florence (www.florence.stayhgi.com). Florence has an airport (airport code=FLO, www.florencesairport.com) with 20 daily flights providing connections to Atlanta (ATL) and Charlotte (CLT), facilitating travel for the international participants. Florence is located within a driving distance from various regional and international airports: Charlotte (CLT) = 2.2 hrs, Raleigh (RDU) = 2.4 hrs, Columbia (CAE) = 1.2 hrs, Charleston (CHS) = 2 hrs, and Myrtle Beach (MYR) = 1.3 hrs (<http://www.sciway.net/maps/south-carolina-airports.html>).

PROPOSED INVITED SPEAKERS AND REGISTRATION

Official invitations will be extended to individual speakers, not to a laboratory or institution. OECD-CRP will provide a travel costs lump sum directly to the approved invited speakers from the participating member countries and the Theme Co-ordinators.

There will be a registration fee of U\$S400 (275 eur) that the speakers and Theme Co-ordinators will pay in cash in dollars to the local organizers during the on-site registration. This fee will be used to pay for meeting room rental and audio-visuals, reception, break refreshments, farewell dinner, and tour transportation.

PRELIMINARY PROGRAMME

The two-day workshop is intended to be a stand alone event, well focused on a specific topic that will be treated exclusively with a scientific approach. The number of contributions will be kept limited (24) in order to ensure sufficient time for discussion of contributions and knowledge exchange among workshop participants.

The last session will include a discussion aimed to provide a comprehensive outline about current knowledge and future perspective on environmental quality, food safety and sustainability of modern livestock production as affected by waste management, and promote collaboration and networking among researchers.

On Friday there will be a scientific tour to interested participants at no extra cost to visit manure treatment research projects in the region. The official language of the workshop will be English.

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Day 1 Tuesday, April 1, 2008

17.00-19.00 Registration

Day 2 Wednesday, April 2, 2008

7.30-8.30 Registration continues

8.30-8.45 Welcome and Introductions,

Dr. Robert Wright, National Program Staff, USDA-ARS

8.45-9.00 Challenges with manure management and the OECD.

OECD Theme Coordinator

Session 1 – Hygienic aspects of manure treatment and food safety

Chairperson: Dr. Matias Vanotti, USDA-ARS, Florence, South Carolina, USA.

- 9.00-9.30 Overview of the problem and possibilities for treatments.
Dr. Reinhard Böhm (Univ. Hohenheim, Germany)
- 9.30-10.00 Prevalence and diversity of manure-associated pathogens in air and water.
Dr. Patricia Millner (USDA-ARS, Beltsville, MD, USA)
- 10.00-10.30 Hygienic and ecological risks connected with utilization of animal manures.
Dr. Jan Venglovsky (Univ. Vet. Med. Kosice, Slovakia)
- 10.30-11.00 Coffee Break
- 11.00-11.30 Disinfection of animal manures, food safety and policy.
Dr. Dean Cliver (U. California-Davis Food Safety Laboratory, USA)
- 11.30-12.00 Environmental fate, treatment, and public health issues of pathogen inactivation in manure.
Dr. Edward Topp (Agriculture and Agri-Food Canada, ON, Canada)
- 12.00-14.00 Lunch

Session 2 – Advanced treatment technologies for liquid manure

Chairperson: Dr. Ariel Szogi, USDA-ARS, Florence, South Carolina, USA.

- 14.00-14.30 Enhanced solid-liquid separation with polymers and treatment benefits.
Dr. Matias Vanotti (USDA-ARS, Florence, SC, USA)
- 14.30-15.00 Integrated anaerobic/aerobic biological treatment for intensive swine production.
Dr. Giuseppe Bortone (Ministry of Environment, Soil and Coastal Defence, Emilia-Romagna Region, Bologna, Italy)
- 15.00-15.30 Pollution-free manure processing using biological aerobic treatment systems.
Dr. Fabrice Beline (Cemagref, Rennes, France)
- 15.30-16.00 Innovative treatment systems for manure effluents using anammox bacteria.
Dr. Kenji Furukawa (Dept. Civil Eng., Kumamoto Univ., Japan)
- 16.00-16.30 Coffee Break
- 16.30-17.00 Enhanced solid-liquid separation of dairy manure with natural flocculants.
Dr. Mari Cruz Garcia (ITACyL, Valladolid, Spain)
- 17.00-17.30 Research advances on the biological treatment of livestock effluents.
Dr. Nicolas Bernet (INRA, Laboratoire de Biotechnologie de l'Environnement, Narbonne, France)
- 18.00-20.00 Reception

Day 3 Thursday, April 3, 2008

Session 3 – Advanced treatment technologies for utilization of manure

Chairperson: Dr. Patricia Millner, USDA-ARS, Beltsville, Maryland, USA.

- 8.00-8.30 Composting of animal manure and chemical criteria for compost quality.
Dr. Maria Pilar Bernal (CEBAS-CSIC, Murcia, Spain)
- 8.30-9.00 Utilization of manure composts by high-value crops: safety and environmental challenges.
Dr. Raul Moral (Miguel Hernandez Univ., Alicante, Spain)
- 9.00-9.30 Converting liquid manure into bio-fuels and bio-hydrogen.
Dr. Jun Zhu (Bioproducts & Biosystems Engineering, Univ. Minnesota, USA)
- 9.30-10.00 The future of anaerobic digestion and biogas utilization.
Dr. Jens Bo Holm-Nielsen (Centre for Bioenergy, Univ. Southern Denmark, Esbjerg, Denmark)
- 10.00-10.30 Coffee Break
- 10.30-11.00 Innovative treatment of poultry litter for sustainable poultry production.
Dr. Ariel Szogi (USDA-ARS, Florence, SC, USA)

Session 4 – Implementation of advanced treatment technologies: environmental and society benefits.

Chairperson: Dr. Jose Martinez, Cemagref, Rennes, France.

- 11.00-11.30 Advanced manure treatment technology and utilization in Brazil.
Dr. Airton Kunz (EMBRAPA Swine and Poultry, Concordia, Brazil)
- 11.30-12.00 Implementing clean treatment systems in Chile through trading of carbon credits.
Carlos Vives (Agrosuper, Rancagua, Chile)
- 12.00-12.30 New challenges for environmental quality in modern intensive livestock production.
Dr. Colin Burton, (Cemagref, France/England)
- 12.30-14.00 Lunch

Session 5 – Holistic treatment systems for animal manures

Chairperson: Dr. Patrick Hunt, USDA-ARS, Florence, South Carolina, USA

- 14.00-14.30 Integrated constructed wetlands for livestock wastewater management.
Dr. Rory Harrington (National Parks and Wildlife Service, Dept. of Environment, Waterford, Ireland)
- 14.30-15.00 Integrated treatment of farm effluents in New Zealand's dairy operations.
Dr. Nanthi Bolan (Centre for Environmental Risk Assessment and Remediation, Univ. South Australia, Australia)

- 15.00-15.30 Waste treatment in animal production systems: proven technologies, air purification and outlook.
Dr. Ronald Melse (Wageningen Univ., Animal Sciences Group, The Netherlands)
- 15.30-16.00 Manure treatment technologies: on-farm vs. centralized strategies.
Dr. Xavier Flotats (GIRO Centre Tecnologic, Barcelona, Spain)
- 16.00-16.30 Coffee Break
- 16.30-17.00 Livestock waste treatment systems of the future: A challenge to environmental quality, food safety, and sustainability.
Dr. Jose Martinez (Cemagref, Rennes, France)
- 17.00-18.00 Discussion
- 18.00-18.15 OECD Theme Coordinator Concluding Remarks

19.00 Gala dinner

Day 4 – Friday, April 4, 2008

- 8.00-16.00 Scientific tour of environmentally superior manure treatment technologies in North Carolina.

NAME AND ADDRESS AND EMAIL OF CONFERENCE ORGANIZER(S)

The workshop will be organised by the Agricultural Research Service (ARS), Coastal Plains Research Center in Florence, South Carolina (<http://www.ars.usda.gov/saa/cpswprc>). The ARS is the research branch of the United States Department of Agriculture (USDA) www.ars.usda.gov

The local organizers are:

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OTHER SPONSORS OF THE WORKSHOP

USDA-ARS, Coastal Plains Research Center, Florence, South Carolina: workshop organization (www.florence.ars.usda.gov)

RAMIRAN (FAO Network: Recycling of Agricultural, Municipal and Industrial Residues in Agriculture, www.ramiran.net)

USDA-FAS, Research and Scientific Exchanges Division, Washington, DC

PUBLICATION OF THE PROCEEDINGS

We have made contacts with the editorial board of Bioresource Technology (Elsevier ISSN:0960-8524) for publication of the papers in Bioresource Technology. All invited speakers are required by OECD to provide a paper of their presentation to the conference organizer for publication of the proceeding of the workshop in a special issue of a scientific journal. Deadline for providing a paper ready for the peer review process is May 1st, 2008.