The Livestock & Poultry Environmental Learning Center presents…

From Waste to Worth: “Spreading” Science & Solutions
Denver, Colorado • Grand Hyatt Hotel • April 1–5, 2013

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Welcome

Dear Participants:

The leadership team of the National Livestock and Poultry Environmental Learning Center (LPELC) and the organizing committee of the Waste to Worth Conference would like to welcome you to the first national Waste to Worth Conference hosted by the LPELC. The primary goal of the conference is to build a national network of agri-professionals addressing issues related to air, water, soil, and climate.

The LPELC is committed to the primary goal of “Connecting Experts on Manure with Animal Producers and Their Advisors.” Specific objectives of the LPELC are to: 1) establish the infrastructure for a sustained national outreach, and 2) deliver innovative products for on-demand availability to our audience. The LPELC is organized into thirteen issue-based subject matter teams covering the topics of climate change, feed management, environmental planning, beginning farmers, pharmaceuticals, pathogens, air quality, value of manure, treatment technologies, storage and handling, crop nutrient management planning, regulations, and small farms.

We encourage you to participate in the LPELC by visiting our website [http://www.extension.org/animal_manure_management](http://www.extension.org/animal_manure_management), joining our monthly webcasts, and subscribing to our monthly newsletter [http://water.unl.edu/lpe-subscribe/].

LPELC Leadership Team

Tommy Bass, Montana State University
Joe Harrison, Washington State University
Jill Heemstra, University of Nebraska
Leslie Johnson, University of Nebraska
Melony Wilson, University of Georgia
Carol Galloway, U.S. EPA
Craig Wood, eXtension
Terry Meisenbach, eXtension
Tommy Bass, Montana State University
Liz Whitefield, Washington State University
Crystal Powers, University of Nebraska

Conference Committee

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Carol Galloway, U.S. EPA

Craig Wood, eXtension

Terry Meisenbach, eXtension

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Conference Schedule

This document contains a list of sessions to be held throughout the conference. For full session abstracts, speaker bios, and downloadable session materials, we invite you to visit http://www.extension.org/67740/ with your phone, tablet, or other internet-enabled device.

Monday

REGISTRATION (3:00 PM TO 6:00 PM)  Grand Foyer
HOSPITALITY SUITE (5:00 PM TO 9:00 PM)  Grand Foyer

Tuesday

6:30 am
REGISTRATION  Grand Foyer

8:00 am
FULL DAY ANAEROBIC DIGESTER FARM TOUR ($60)
This full-day tour will focus on anaerobic digestion both in field and research environments. The first stop will be at a hog farm near Wheatland, Wyoming that has successfully implemented anaerobic digestion of manure. Then participants will go to Colorado State University to learn about Dr. Sybil Sharvelle’s research program in anaerobic digestion of dry scraped manure, which is typical in the arid West. Participants will see a pilot-scale operation demonstrating the novel technology under development.

FULL DAY POULTRY & DAIRY FARM TOUR ($60)
This full-day tour will provide participants with an overview of animal agriculture in northeastern Colorado while highlighting innovative manure management techniques. Participants will see a state-of-the-art composting facility at Morning Fresh Egg Farm, witness in-barn composting at Shelton Dairy, hear about manure gasification and view the recently re-engineered runoff collection system at Five Rivers Cattle Feeding, and observe vacuum manure collection and innovative fly control at Aurora Organic Dairy.

The pick-up location for the tours is located outside the Grand Hyatt Hotel Downtown. Please arrive 15 minutes before the scheduled departure time. Please register the number of participants for all tours.

HALF DAY POULTRY & DAIRY FARM TOUR ($40)
A brief overview of animal agriculture in NE Colorado highlighting innovative manure management techniques. Tour a state-of-the-art composting facility at Morning Fresh Egg Farm, and hear about manure gasification, and view the re-engineered runoff collection system at Five Rivers Cattle Feeding.

HALF DAY COMMUNITY POWER CORP. BIOMASS GASIFICATION TOUR ($40)
Biomass gasification at Community Power Corporation (CPC) in Littleton. See how fully automated systems can be applied to precisely control the material flow, gasification, gas cooling and filtration in a small, modular bio-energy gasification system.

6:00 pm
SOCIAL MIXER  Grand Ballroom

7:00 pm
INFORMAL NEW LPE MEMBER SESSION  Grand Ballroom
**Wednesday am**

**REGISTRATION**

**Welcome**

**Opening Remarks**

**Air Quality**
- Grays Peak (HCC)

**Climate Change**
- Mt. Elbert B (HCC)

**Manure Treatment Tech**
- Mt. Elbert A (HCC)

**Nutrient Management**
- Mt. Elbert A (HCC)

**Mt. Elbert B (HCC)**

**Mt. Evans (HCC)**

### Grand Ballroom

**6:30 am -**

**7:45 am -**

**7:50 am -**

**8:00 am -**

**9:00 am -**

**9:20 am -**

**10:00 am -**

**10:30 am -**

**10:50 am -**

**11:30 am -**

**11:10 am -**

**11:50 am -**

**12:00 pm -**

### Grand Foyer

**12:30 pm -**

**1:00 pm -**

### Grand Ballroom

**LUNCHEON SPEAKER**

Federal Regulations and Pending Legislation Affecting Nutrient Management

**JEFF BLACKWOOD & ASHLEY MCDONALD**
**Wednesday**

1:00 pm - 
- Activation Energy of Urea Hydrolysis and Ammonia Henry Constant Effects  
  **JOSEPH STRATTON**
- Effect of Manure Handling on the Steroid Movement in Beef Cattle Systems  
  **CHARLES SHAPIRO**
- Nutrient Management  
  Grays Peak (HCC)
- Climate Change  
  Mt. Elbert A (HCC)
- Water Management  
  Mt. Evans (HCC)

1:20 pm - 
- Development of an Acid Scrubber for Reducing Ammonia Emissions  
  **PHILIP MOORE**
- Designing Structures to Remove Phosphorus from Drainage Waters  
  **JOSH PAYNE**

1:40 pm - 
- Ammonia Mitigation Using Electrolyzed Water Spray Scrubber  
  **SAOIBH MUKHTAR**
- Treatment of Silage Runoff with Vegetated Filter Strip  
  **MIKE HOLLY**

2:00 pm - 
- The Effect of Bulking Agent on Nutrient Loss from Composting  
  **JOLENE RUTTER**
- Inactivation of Dairy Manure-borne Pathogens by Anaerobic Digestion  
  **BECKY LARSON**
- Adaptation Methods and Bioclimate Scenarios  
  **NICOLA LACETERA**

2:20 pm - 
- Ammonia Mitigation and Capture as a Liquid Fertilizer from Manure  
  **SAOIBH MUKHTAR**
- Outreach Response to Livestock Mortality Events Associated with Algal Toxin  
  **SUSAN WILDE**
- GHG Mitigation Opportunities for Livestock Management in the U.S.  
  **SHAWN ARCHIBEQUE**

2:40 pm - 
  **RHONDA MILLER**
- Silage Leachate Characteristics  
  **MIKE HOLLY**

3:00 pm - 
- Break  

3:30 pm - 
- Potential Air Quality Impacts of Anaerobic Digestion of Dairy Manure  
  **PIUS NDEGWA**
- Livestock Mortality Composting in the Semi-Arid West  
  **TOMMY BASS**
- Impacts of Changing Climate in the Northeast on Manure Storage  
  **PETER WRIGHT**

3:50 pm - 
- On-Farm Comparison of Two Liquid Dairy Manure Application Methods  
  **LIDE CHEN**
- Estimation of On-Farm Greenhouse Gas Emissions from Poultry Houses  
  **CLAUDIA DUNKLEY**
- From Waste to Energy: Life Cycle Assessment of 3D systems  
  **HORATIO AGUIRRE-VILLEGAS**

4:10 pm - 
- Litter Generated Ammonia Captured by Activated Carbon Derived from Broiler Litter  
  **KARI BRISOLARA**
- Greenhouse Gas Emissions of Beef Cattle Under Grazing Conditions in Florida  
  **MARTA MOURA KOHMANN**
- Making Sense of Smells—Communicating Odors to Diverse Audiences  
  **DOUGLAS HAMILTON**

4:30 pm - 
- Evaluating the Dust Abatement Potential of Stocking Density  
  **JACK BUSH**
- Estimation of On-Farm Greenhouse Gas Emissions from Poultry Houses  
  **CLAUDIA DUNKLEY**
- Photometric Prediction of Ground-level PM10 Concentrations  
  **SHARON PREECE**

4:50 pm - 
- Photometric Prediction of Ground-level PM10 Concentrations  
  **SHARON PREECE**
- Estimation of On-Farm Greenhouse Gas Emissions from Poultry Houses  
  **CLAUDIA DUNKLEY**
- Dissipation of Fine Particulates Downwind of Poultry Houses  
  **JOHN WORLEY**

5:10 pm - 
- Dissipation of Fine Particulates Downwind of Poultry Houses  
  **JOHN WORLEY**
- Estimating Ammonia Emissions Using Low-cost, Time-averaged Concentration Measurements  
  **KIRA SHONKWILER**
- TAPE INHIBITION OF TOTAL GAS PRODUCTION, METHANE, AND SULFATE-REDUCING BACTERIA  
  **TERRY WHITEHEAD**

5:30 pm - 
- Estimating Ammonia Emissions Using Low-cost, Time-averaged Concentration Measurements  
  **KIRA SHONKWILER**
- Efforts of Climate Change on Pasture Production and Forage Quality  
  **REBECCA MCCULLEY**

6:00 pm - 
- Break  

**POSTER SESSION (SEE NEXT PAGE)**
Wednesday pm (Poster Session)

6:00 to 7:30 pm

Soil Amendments Reduced Herbicides Mobility into Agricultural Runoff
George Antonious

Training Manure- and Compost-Spreading Contractors for the Cattle-Feeding Industry in the Texas Panhandle
Brent Auvermann

A Review of WV Poultry litter analysis from 1994 to 2010 that demonstrates a continual fluctuation in nutrient concentrations resulting from changes in Poultry Feed Formulations and new storage methods
Tom Basden

Impacts of the Michigan Agriculture Environmental Assurance Program
Shelby Bollwahn

Greenhouse gas emissions from land-applied swine manure: development of method based on static flux chambers
Kelsey Bruning

On-farm field days as a tool to demonstrate agricultural waste management practices and educate producers
Mario de Haro Marti

Reducing Phosphorus Loading into Ohio’s Lakes through Manure Applications on Growing Crops
Amanda Douridas

Design, hydrologic performance, and effluent characteristics of a woodchip heavy-use area with subsurface drainage for wintering beef cattle
Joshua Faulkner

Youth Ag. Greenhouse Gas Educational Lab Materials via Pork Production Scenarios
Rick Fields

Online Bioenergy Training Modular Course Series
Charles Gould

Enhancing the productivity of Livestock production through improved feeding: Empirical evidence from highland of Ethiopia
Mesay Yami Gurmu

Converting Onion Waste into Energy as a Co-digestant with Dairy Manure
Gary Hawkins

Waste Disposal by the Veterinary Community
Kristi Henderson

Interactive displays on environmental stewardship for general agriculture audiences
Leslie Johnson

A review of effectiveness of vegetative buffers for mitigating air emissions from livestock facilities
Zifei Liu

The National Air Quality Site-Assessment Tool (NAQSAT)
Jerry May

Factors affecting manure transfers in the midwest
Laura McCann

White meat-Green farm: Case study of Brinson Farms
Dana Miles

Alternative Poultry Litter Storage for Improved Transportation and Use
Josh Payne

Pesticide Application Air Quality Emissions Inventory Project
Theresa Pella

Lessons learned from the installation and monitoring of a swine finisher biofilter
Crystal Powers

Co-pyrolyzing plastic mulch waste with animal manures
Kyoung Ro

Cellulose-based industrial wastewater by-product as broiler bedding material
Casey Ritz

Arkansas Discovery Farms
Andrew Sharpley

Direct measurements of methane emissions from a dairy lagoon in northeast Colorado
Kira Shonkwiler

Manure Spreader Calibration Field Days for Confined Animal Facility Operators in South Carolina
Bryan Smith

South Carolina’s Confined Animal Manure Manager Program
Bryan Smith

Highlights of the Air Quality Education in Animal Agriculture Project
Rick Stowell

Nutrient Management Regulations and the Equine Industry
Ann Swinker

Ammonia Emissions from anaerobically digested manure
Fei Sun

Drying and Rewetting Effects on Gas Emissions from Dairy Manure in Semi-arid Regions
Pakorn Sutitarnnontr

Exploring Chicken Manure to Increase Concentrations of Organic Sulfur Compounds in Onions
Eric Turley

Ammonia Recovery from Livestock Wastewater with Gas Permeable Membranes
Matias Vanotti

Combination of borax and quebracho condensed tannins treatment to reduce hydrogen sulfide, ammonia and greenhouse gas emissions from stored swine manure
Terry Whitehead

Currently Used Manure Management Practices of Equine Operations
Carey Williams

Diet and Tillage Effects on VOC Emissions Following Land Application of Beef Cattle Manure
Bryan Woodbury

Feed Management Certification Workshop ($50)
Participants will receive training required to be a certified feed management planner. In addition, an opportunity will be available to complete the American Registry of Animal Scientists (ARPAS) Feed Management Certification exam.
Pikes Peak HCC

Introductory RUSLE2 Workshop ($0)
This workshop is an introductory level workshop that will provide the participants with introductory knowledge and software orientation about RUSLE2. It will educate participants on the RUSLE2 equation factors, how these factors affect soil erosion under different on-farm conditions and conservation practices, and how these factors are considered into the RUSLE2 software.
Maroon Peak Hotel

Workshop is limited to 30 participants. Each participant is expected to bring a PC compatible laptop to use during the workshop. RUSLE2 software will be provided for installation at the workshop.
### Thursday PM

<table>
<thead>
<tr>
<th>Time</th>
<th>Session / Speaker</th>
<th>Location</th>
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<tbody>
<tr>
<td>1:00 pm</td>
<td>Ammonia and Greenhouse Gas Surface Concentration Measurements from Beef</td>
<td>Grand Ballroom</td>
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<tr>
<td>1:20 pm</td>
<td>Feed Management Planners Certification Program to Reduce Nutrient Loads</td>
<td>Grand Ballroom</td>
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<tr>
<td>1:40 pm</td>
<td>Manure Management and Temperature Impacts on Gas Concentrations</td>
<td>Grand Ballroom</td>
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<tr>
<td>2:00 pm</td>
<td>Developing a Modeling Framework to Characterize Manure Flows in Texas</td>
<td>Grand Ballroom</td>
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<td>2:20 pm</td>
<td>Factors Affecting the Price of Manure Applied on Corn</td>
<td>Grand Ballroom</td>
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<tr>
<td>2:40 pm</td>
<td>Production of Fuel Crops to Make Biodiesel Using Animal Manure</td>
<td>Grand Ballroom</td>
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<tr>
<td>3:00 pm</td>
<td>Stakeholder Interest Open Forum</td>
<td>Grand Ballroom</td>
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<tr>
<td>3:10 pm</td>
<td>Comparing Using Litter for On-Farm Space Heating vs. Generation of Electricity</td>
<td>Grand Foyer</td>
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<tr>
<td>3:30 pm</td>
<td>What We Feed Dairy Cows Impacts Manure Chemistry and the Environment</td>
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<td>3:50 pm</td>
<td>Economic Analysis of Swine Diet Cost vs. Manure Value</td>
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<tr>
<td>4:10 pm</td>
<td>Next Generation Manure Technology: Waste to Energy and Environmental Revenues</td>
<td>Grand Foyer</td>
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<tr>
<td>4:30 pm</td>
<td>Software for Evaluating the Environmental Impact of Dairy and Beef Production Systems</td>
<td>Grand Foyer</td>
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<td>4:50 pm</td>
<td>Online Bioenergy Training Modular Course Series</td>
<td>Grand Foyer</td>
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<tr>
<td>5:10 pm</td>
<td>Automating Management for a Vegetative Treatment System</td>
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<td>5:30 pm</td>
<td>Process for Recovery of Phosphorus from Solid Manure</td>
<td>Grand Foyer</td>
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<tr>
<td>5:50 pm</td>
<td>Reducing Negative Impacts of Poultry Litter on Water Quality</td>
<td>Grand Foyer</td>
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### Friday am

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<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Anaerobic Digester Workforce Training Curriculum Development</td>
<td>Mt. Elbert B (HCC)</td>
<td>Jennifer Pronto</td>
</tr>
<tr>
<td>8:20 am</td>
<td>Tile Drainage Field Day to Promote Manure Management</td>
<td>Mt. Evans (HCC)</td>
<td>Natalie Rector</td>
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<tr>
<td>8:40 am</td>
<td>Watershed Management Resources DVD</td>
<td></td>
<td>Serena McIver</td>
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<tr>
<td>9:00 am</td>
<td>Anaerobic Digester Operators’ Virtual Discussion Group Management</td>
<td>Mt. Elbert A (HCC)</td>
<td>Larr Georbing</td>
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<tr>
<td>9:20 am</td>
<td>The Iowa Manure Management Action Group (iMMAG): A 15-Year Partnership</td>
<td></td>
<td>Kathryn Barrett</td>
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<tr>
<td>9:40 am</td>
<td>Water Quality Initiatives for Small Iowa Beef and Dairy Feedlot Operations</td>
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<td>Angela Rieck-Hinz</td>
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<tr>
<td>10:00 am</td>
<td>Smartphone Apps for Manure Management</td>
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<td>Jill Heemstra</td>
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