

Waste Not

Maximizing the Economic Potential of By-Products in the California Dairy Industry

Thursday, May 9, 2013
Friday, May 10, 2013
DoubleTree Hotel
1150 9th Street
Modesto, CA 95354



Sustainable Conservation

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Sustainable Conservation

May 9th, 2013

Dear Participants,

I wish you a very warm welcome to Sustainable Conservation's Dairy Summit — Waste Not: Maximizing the Economic Potential of By-products in the California Dairy Industry. We look forward to spending the next two days with you exploring new ideas, technologies and business models that have the potential to reduce the environmental impact of dairies in California and provide new revenue streams.

The Summit features presentations by experts who are working on new models based on anaerobic digestion that enables multiple co-products. We view this as a working summit and have created opportunities for active audience participation. At the end of the two days, we hope to reach a shared understanding of the most promising opportunities and key barriers to their success and next steps and action items that Sustainable Conservation and others can take to help speed their adoption in California.

We trust that the meeting will provide everyone with ample opportunity to meet and discuss their ideas and possible partnerships. We thank you for time and look forward to interacting with you over the next two days.

Best regards,

Ashley Boren
Executive Director, Sustainable Conservation



Sustainable Conservation

Welcomes You to

Waste Not

Maximizing the Economic
Potential of By-Products in the
California Dairy Industry

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Program

Thursday, May 9, 2013

Ballroom 3

8:30 A.M. — Breakfast and Registration

9:00 A.M. — *Welcome & Goals*

Ashley Boren, Executive Director, Sustainable Conservation

9:05 A.M. — *Opening Remarks*

Significance of the California Dairy Industry

Karen Ross, Secretary of the California Department of Food and Agriculture
California's Dairies — Leaders in Innovation

Paul Martin, Director of Permitting Assistance, Office of Business & Economic Development, Office of Edmund G. Brown, Jr.

9:25 A.M. — *Partnering with the Dairies to Enhance Environmental & Economic Sustainability*

Kathy Viatella, Managing Director of Programs, Sustainable Conservation

9:35 A.M. — *Environmental Solutions for California's Dairy Industry — New Business Models*

Sarah Weldon, California Environmental Associates

9:50 A.M. — *Adding Value: Nutrient Recovery & Fiber Products*

Craig Frear, PhD., Assistant Research Professor, Center for Sustaining Agriculture and Natural Resources, Washington State University

10:20 A.M. — Break

10:35 A.M. — *Adding Value: Codigestion*

Chris Pierce, President, Organic Solutions Management

11:05 A.M. — *Adding Value: Nutrient Recovery and Fiber Products — Group Discussion*

Facilitated by California Environmental Associates

- Barriers — Group Brainstorm
- Opportunities — Small Group Discussions
- Small Groups Reports out on Opportunities
- Question & Answers

12:15 P.M. — Lunch, Please join us in the San Jose Room

1:15 P.M. — *Spatial Analysis of Opportunities for New Business Models*
Daniel Smith, NewFields

1:45 P.M. — *Scaling Up Energy Production — Biogas for Vehicle Fuel*
John Boesel, President and CEO, CALSTART

2:15 P.M. — *Tomorrow's Digester — How Technology is Changing to Optimize Revenue Streams*

Moderator: **Ashley Boren**, Sustainable Conservation

Daryl Maas, Farm Power Northwest

Ray Brewer, CH4 Power, Inc.

Ross Buckenham, California Bioenergy

3:15 P.M. — Break

3:30 P.M. — *Large-Scale Energy Production – Group Discussion*

- Barriers — Group Brainstorm
- Opportunities — Small Group Discussions
- Small Groups Reports out on Opportunities
- Questions & Answers

5:00 P.M. — *Closing Remarks*

Ashley Boren, Executive Director, Sustainable Conservation

5:15 P.M. — Reception, DoubleTree Hotel, Maxi's Restaurant — Garden Terrace

Friday, May 10, 2013

Sonoma Room

8:00 A.M. — Breakfast

8:30 A.M. — *Overview of Objectives for the Day*

Ashley Boren, Executive Director, Sustainable Conservation

8:45 A.M. — *New Financing Mechanisms — Environmental Credits and Their Applicability in California*

Dick Kempka, Vice President of Business Development, Climate Trust

- Barriers to Environmental Credit Markets — Group Brainstorm

9:30 A.M. — *Discussion New Business Opportunities — Small Group*

10:30 A.M. — Break

10:45 A.M. — *Small Group Reports — Full Group Discussion*

11:45 P.M. — Lunch

12:30 P.M. — *Discussion of Action Plan*

Facilitated by Sustainable Conservation and California Environmental Associates

1:30 P.M. — *Closing remarks*

Ashley Boren, Executive Director, Sustainable Conservation

1:45 P.M. — Adjourn

About the Speakers



JOHN BOESEL,
President and CEO, CALSTART

The public and private nature of CALSTART is reflected in John's background. Upon graduating from the University of California, Davis, in 1982, John worked in the California legislature as a legislative aide to then Assemblyman, now Congressman Sam Farr. In that position he managed energy and environmental legislation for nearly four years.

He received his MBA from the Haas School at UC Berkeley in 1989. After graduating from business school he worked as a commercial banker in Wells Fargo's Corporate Headquarters building in San Francisco. In 1993 John joined CALSTART as the Vice President of Technology Programs. In 2001, the Board of Directors promoted him to the position of President and CEO.

John serves on the Advisory Board for the Precourt Energy Efficiency Center (PEEC) at Stanford University and is also a board member of the Clean Vehicle Foundation.



ASHLEY BOREN, Moderator
Executive Director, Sustainable Conservation

Ashley has directed the strategy, growth and operations of Sustainable Conservation since 1997. Ashley received a 2007 James Irvine Foundation Leadership Award for her unwavering commitment to innovative, balanced problem-solving to address a variety of critical environmental problems facing California.

Prior to Sustainable Conservation, Ashley spent eight years at Smith & Hawken, a mail order and retail gardening company, where she worked in finance, new business development, inventory planning and retail merchandising. She began her career at The Nature Conservancy in program development and fundraising. In addition to her work at Sustainable Conservation, Ashley serves as an Independent Trustee of Marketocracy; on the California State Board of Food and Agriculture; on UC California's President's Advisory Commission on Agriculture and Natural Resources and on the Executive Committee of the Agricultural Sustainability Institute's External Advisory Board at UC Davis. Ashley served on the Board of the Robert and Patricia Switzer Foundation from 2002 to 2011, the last two years as Chair, and on Stanford Business School's Alumni Consulting Team Board from 1995 to 2002, the last three years as Chair.

Ashley is a graduate of the Marlborough School in Los Angeles, which awarded her their 2008 Woman of the Year Award, and has a BA in human biology, an MA in applied economics and an MBA from Stanford University.



ROSS BUCKENHAM,
Chairman & Chief Executive Officer, California Bioenergy

Ross is a twenty-five year general management veteran and builder of technology ventures both public and private. His experience spans the renewable energy technologies of biogas, wind and solar. He has also built and run software and wireless technology companies being a board member, CEO or general manager in companies such as WebLink Wireless, Retek, CellStar and Advanced Oxygen. He was previously a consultant with Bain & Company. Ross is passionate both in his pursuit of California Bioenergy's mission to become a large California focused renewable energy and clean tech company leveraging agricultural waste streams and also in developing "Level 5" leadership, operational excellence and exceptional customer service in himself and his management team. He has an MBA from Harvard Business School, a Bachelors Degree in Chemical Engineering from Canterbury University, New Zealand and numerous continuing education classes.



AMY DICKIE,
Senior Associate, California Environmental Associates

Amy joined CEA in 2007 to work on strategic planning for foundations and nonprofits. She has helped many of her clients develop business plans for new organizations and new strategic initiatives. Much of her work has focused on sustainable food and agriculture, conservation, and climate change mitigation. Amy spent much of her first year at CEA serving as an Associate for the Sea Change Investment Fund. She also currently serves as Deputy Director for the Global Cool Cities Alliance, a non-profit organization she helped develop and launch.

Prior to joining CEA, Amy helped build Investors' Circle, a national network of angel and institutional venture investors who use private capital to promote the transition to a sustainable economy by funding early-stage companies with a social and/or environmental mission. Amy had also worked with several mission-driven start-up companies and at the Bay Area Equity Fund, which invests in companies that can deliver market-rate venture capital returns while improving social, environmental, and economic conditions in the San Francisco Bay Area's low- and moderate-income neighborhoods. Amy has a bachelor's degree in History (Phi Beta Kappa) from Stanford University and an MBA from the Haas School of Business at UC Berkeley, where she served as co-chair for the Global Social Venture Competition and was a co-founder of the Berkeley Energy and Resources Collaborative.



CRAIG FREAR, PhD.,
Assistant Research Professor, Center
for Sustaining Agriculture and Natural Resources,
Washington State University

Dr. Frear's Ph.D. thesis work in Anaerobic Digestion has led to several patents and publications. His current work is in the area of applied research, educational outreach, and industrial commercialization of bioenergy products and technologies.

Dr. Frear is a member of the Biological Systems Engineering Bioenergy and Bioproducts Engineering research emphasis group and the Center for Sustaining Agriculture and Natural Resources.



DICK KEMPKA,
Vice President of Business Development, Climate Trust

A long time specialist in eco-asset projects, Dick has over 20 years of executive experience in innovative sustainability, carbon, wetlands, land conservation technology development, and sales. Dick leads business development and the establishment of new programs, products and services to meet the evolving sustainability needs of corporate partners and the carbon market. He also

provides strategic planning with partners to assist with carbon asset management.

Dick formerly worked for Equator LLC, an asset management firm, who specializes in the generation and management of high quality carbon credits and environmental assets derived from reforestation projects, forest conservation, sustainable land management and other emission reduction project activities. Dick's primary responsibility at Equator was sales and origination, deal negotiation, and product development. Before joining Equator, Dick was the Carbon Program lead for Ducks Unlimited (DU), the world's largest wetlands conservation organization. While at DU, Dick was responsible for the positioning and marketing of DU's carbon offset program and coordinated all carbon sequestration and environmental asset activities throughout the organization, including a successful effort to deliver a first-of-its-kind forest carbon conservation easement to a consortium of 25 large utility companies and Edison Electric Institute. He also spearheaded a large terrestrial carbon sequestration project with the Energy and Environmental Research Center as part of a Carbon Sequestration Science Program covering the entire U.S.

He is an accomplished speaker who has participated on several carbon panels and delivered presentations at numerous Environmental, Carbon, and other industry forums. Before joining DU, Dick served as Remote Sensing Analyst with Pacific Meridian Resources, a natural resources consulting firm in California including a large technology transfer project with NASA, and as a Remote Sensing Analyst for the Idaho Department of Water Resources and the Defense Mapping Agency. The author of more than 20 professional publications, Dick received his B.S. in Geography and Remote Sensing from Carroll College and his Master's in Geography and Remote Sensing from Indiana State University.



DARYL MAAS,
CEO, Farm Power Northwest

Daryl is co-founder and CEO of Farm Power Northwest LLC, the west coast's leading developer-owner-operator of anaerobic manure digesters with five facilities in operation serving 16 dairy farms. Daryl is currently overseeing construction at two more digesters in California.



PAUL MARTIN,
Deputy Director of Permit Assistance,
Governor's Office of Business & Economic Development

Martin was Director of Environmental Services at Western United Dairymen from 2000 to 2012. He was a member of the USDA Agricultural Air Quality Task Force and currently serves on the Farm, Ranch, and Rural Communities Federal Advisory Committee of USEPA.



CHRIS PIERCE,
President, Organic Solutions Management

Chris Pierce has 20 years experience in Chemical and Environmental Management arena. Chris is President of Organic Solution Management LLC a company focused on management of organic by-products and converting to renewable energy through Anaerobic Digestion. Chris has worked with many large consumer product, food, and retail companies to assist in reaching Zero Waste status. Chris was a member of Waste Managements Organic Growth Group — A Corporate Venture Group as well as Co-founder of Organic and Renewable Energy Group at Waste Management. Chris graduated from Ball State University with a degree in Biology.



KAREN ROSS,
Secretary, California Department of Food & Agriculture

Karen was appointed Secretary of the California Department of Food and Agriculture on January 12, 2011 by Governor Edmund G. Brown Jr. Secretary Ross has deep leadership experience in agricultural issues nationally, internationally, and here in California. Prior to joining CDFA, Secretary Ross was chief of staff for U.S. Agriculture Secretary Tom Vilsack, a position she accepted in 2009. Before her time at the United States Department of Agriculture, Secretary Ross served more than thirteen years as President of the California Association of Winegrape Growers (CAWG), based in Sacramento. During that same period she served as the Executive Director of Winegrape Growers of America, a coalition of state winegrower organizations, and as Executive Director of the California Wine Grape Growers Foundation, which sponsors scholarships for the children of vineyard employees.

Among Secretary Ross' many achievements at CAWG was the creation of the nationally-recognized Sustainable Winegrowing Program, which assists wine grape growers in maintaining the long-term viability of agricultural lands and encourages them to provide leadership in protecting the environment, conserving natural resources, and enhancing their local communities.



DANIEL SMITH,
Geographic Information System (GIS) Analyst,
NewFields Sacramento

Mr. Smith holds a M.S. in GIS from the University of Redlands, California. As the lead GIS analyst for NewFields Sacramento, Mr. Smith works in depth with a wide variety of data sources on agriculture, soil and environmental projects. He has a thorough understanding of the underlying framework used within Geographic Information Systems enabling management and modeling of complex spatial data for analysis and visualization. His experience includes database modeling and management, data interoperability and integration, spatial analysis, process and workflow automation, web map development, as well as cartography and visualization.



KATHY VIATELLA,
Managing Director, Sustainable Conservation

Kathy manages the organization's programs to develop and implement lasting, balanced solutions to California's most pressing environmental problems.

Prior to Sustainable Conservation, Kathy served as a Senior Project Director with The Nature Conservancy of California— where for five years she managed the San Diego project, a site that has influenced how The Conservancy works at the state, national and international levels. There she worked with public and private partners to develop and implement innovative strategies for conserving the most ecologically important Mediterranean-type habitats in the heavily populated landscape of Southern California and northern Baja California.

Kathy began her conservation career as an economist with Environmental Defense Fund where she helped create landowner incentives for the conservation of natural resources, including rare plants and animals. She also worked on federal farm bill policy and assisted several states in developing Conservation Reserve Enhancement Programs that today have conserved more than a million acres of the nation's most sensitive farmland.

Kathy holds a BA in International Development and Economics from Mount Holyoke College and an MS in Food and Resource Economics from the University of Florida.



SARA WELDON,
Affiliated Consultant, California Environmental Consultants

Sarah joined CEA in 2006 to work on regulatory compliance. She uses her communications skills and understanding of environmental policy to ensure clients achieve their compliance goals and stay informed of new regulatory developments.

Prior to joining CEA, Sarah worked as an environmental scientist at Norfolk Ram Group, LLC, a small environmental consulting and engineering firm in Milford, Mass., where she conducted environmental site assessments of commercial properties and assisted in soil remediation of contaminated sites. Sarah also has spent a significant amount of time in Cape Town, South Africa where she studied abroad and attended an archeology field school with the University of Cape Town. She returned to Cape Town following her graduation and interned with Engender, a small NGO that specializes in research on gender-based inequities and conducts capacity building workshops for women in the South African Townships. In addition, Sarah worked as an Assistant Director of the Boston Canvassing Office for Massachusetts Public Interest Research Group, where she recruited and trained new canvassers and helped her office achieve its highest averaging summer. She was awarded with the Regional MVP award in recognition for her dedication and hard work.

Sarah has a bachelor's degree in Environmental Studies and Anthropology from Middlebury College and recently attended Stanford Summer Institute for General Management, where she received a certificate recognizing her as one of the top ten students in her class.



Sustainable Conservation

www.suscon.org

Sustainable Conservation believes promoting a healthy environment can be good for business. Our award-winning climate, air, water and wildlife initiatives promote practical solutions and tangible results for California. Founded in 1993, Sustainable Conservation's effectiveness lies in

building strong alliances with business, agriculture and government — and establishing models for environmental and economic sustainability that can be replicated across California and beyond.

Sustainable Conservation's work has been recognized by a variety of national and regional media, including the Today show, National Public Radio, USA Today, Los Angeles Times, and San Francisco Chronicle to name a few. Sustainable Conservation has received numerous awards for our enduring commitment to a healthy environment and economy, including the Governor's Environmental and Economic Leadership Award, U.S. Environmental Protection Agency's Outstanding Achievement Award and James Irvine Foundation Leadership Award.

CEA CALIFORNIA ENVIRONMENTAL ASSOCIATES

www.ceaconsulting.com

Since 1984, **CEA** has worked at the nexus of markets, policy, and science to address environmental challenges in California, the United States, and around the world. CEA provides consulting services for a wide range of organizations and industries including industry

associations, businesses, government agencies, foundations, and non profits.

We have intricate knowledge of key environmental issues, including climate change, energy policy, marine conservation, sustainable agriculture, forest management, goods movement, air quality, toxic chemicals, and land-use planning, and also have extensive experience with the California regulatory process and political landscape

With our philanthropic clients, we design, manage, and evaluate environmental grants, programmatic strategies, and investments for foundations, and work with NGOs to design programmatic and financial plans and organizational structures that increase their impact and efficiency. CEA helps foundations and NGOs with both short-term projects and long-term engagements.



NewFields

www.newfields.com

NewFields Agricultural & Environmental Resources (NewFields) was founded in 2007 by agricultural and soil

scientists with extensive consulting experience in the agricultural and environmental service industry. A multi-disciplinary team of soil scientists, agronomists, remote sensing and GIS specialists, environmental planners, ecologists, and biologists staff NewFields offices in Sacramento, Los Angeles and Chico, CA, and Albany and Salem, OR. What makes the NewFields/Formation team unique is our combination of technical skill with first-hand knowledge of local agricultural systems in California and those across North America. Many of our owners and employees grew up on farms or otherwise have direct experience with production agriculture. This blend of technical proficiency and practical knowledge enables us to create innovative solutions for our clients, whether they are in urban or rural settings, and affords us a profound appreciation of their practical implications.