

# TERU Focus Report - CIFAR Conference XXXII

**Managing Energy, Water and By-products for Profitability in Food and Beverage Processing**  
October 10, 2013 at University of California, Davis

October 18, 2013 -- [Michael Theroux](#)

## Introduction

Right off the bat, any organization that has been around long enough to host a "32nd Conference" just has to be doing *something* right. CIFAR, the California Institute of Food and Agriculture, was established in 1991 and has been hosting some of the most on-target academia-meets-industry get-togethers around. Executive Director Sharon Shoemaker explained during a break, "Consider CIFAR as one point of contact with the professors and programs within the academic community. But unlike most, we *listen to industry*, and then go find the right University connections to suit the need."

## The Event

The day-long event brought together a good cross-cut of industrial and academic specialists addressing crucial, real-world challenges faced by the Food and Beverage sector. Speakers covered their topics in detail with an openness one finds only when everyone in a room is on the same page. For those immersed in either the marketplace or the research so critical to industrial advancement, the lack of pretense and concentration of Science was refreshing and highly informative.

The day started with a bone-chilling account of how close to bone dry California's water supply really is. Dr. Robert Boulton's point-for-point account and accompanying graphics foretold a broad-scale "water supply crash" within no more than a decade for the Great Central Valley of California, with resounding consequences to the millions that depend on the jobs and the products of this cornucopia. As he explained, your own business may not really have a need to a large amount of water, but if your up-stream supply chain dries up, you're outta business anyway. His recommendation: re-assess your business model and take into account the true value of water to your entire Business, not just the cost to by a few thousand acre-feet. Water is Gold. And if you get around UC Davis, be sure to check out Dr. Boulton's "baby", the totally self-sufficient [winery and brewery operations](#) nearing completion in the Jackson Building, as part of the Robert Mondavi Institute. All water for the brewing and fermenting is harvested, cleaned and stored from the rain falling on the solar panel encrusted roofs of the complex.

CIFAR has developed a Water-Energy Nexus (WEN) Assessment methodology to evaluate industrial water conservation opportunities and energy efficiency measures. An impressive advisory team has been assembled to provide technical expertise to food and beverage processing facilities conducting Water Energy Nexus Assessments. A panel drawn from these top-enders led by our old friend Ricardo Amón opened the book on industrial Best Management Practices and the Water Energy Nexus, working through methods for assessing and improving energy efficiencies in compressed air and steam usage, followed by case studies of wastewater to energy conversion within the food processing sector.

Sharon led the afternoon panel discussion outlining the technical advances in integrated processing that are now so dramatically reducing both generation and disposal of solid, liquid and gaseous wastes associated with the entire realm of Food. The discussions ranged from Carbon Capture to BioEnergy and BioProducts generation; Michelle Wong of CleanWorld delivered a cohesive and detailed account of their Sacramento-region mid-scale food waste and ag residual anaerobic digestion (AD) development. The company has two operations up and running, and partnering with UC Davis, has recently broken ground on a new campus AD plant.

After an engaging session of Question and Answer and a wrap-up by CIFAR's Associate Director David Reid, Sharon shooed us off to join the near-by [SEED Central](#) gathering and to hear Dr. Burt Weimer of the UCD Veterinary Medicine School lay out the new "100K Pathogen Genome" project he directs. Funny, just the thought of one hundred thousand pathogens gives me the chills, and it's his happy task to ear-mark

ALL of 'em. Dr. Weimer said that when he started in Microbial Genomics a couple decades ago, he was thrilled to get one pathogen genome worked out every two to three week; now, his team completes something like a dozen a week. Everything we do that stresses microbes simply helps select for the more resilient members of that population, and every tad of genomic material they carry gets swapped across all species they come in contact with. Burt simply glowed, explain to his audience that we swap more genomic material with our pets than we do with our own children and spouses. Lots to be happy about; glad he's so focused on his chosen field ...

## Parting Shots

As the world struggles to rise up out of a half-decade slump, industrial and academic pursuits are starting to find traction, expanding, planning and starting projects. It is only natural that we peer over our shoulders suspiciously at Anyone that might slip in and steal our thunder. CIFAR is bucking this natural human tendency by strenuously encouraging and facilitating global, cross-platform communication. Affiliates support their work through annual dues; if this is your industrial sector, consider pitching in.

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