



USCC COMPOST OPERATIONS TRAINING COURSE

February 22-26, 2010, UC Davis.

Session Summaries and Instructor Bios

Monday, February 22, 2010: The Composting Process

1. Compost Framework. Matt Cotton, IWM Consulting

Matt will kick off the week with an overview of the course, and get right into it with a look at composting as a manufacturing process, with inputs, outputs, process controls and feedback loops. We'll cover some basic definitions and clarify what we will be and won't be studying (such as vermicomposting, anaerobic digestion, or the collection of compostables)

2. Compost Biology and Key Process Variables. Cary Oshins, US Composting Council

In the first half of this lecture Cary will look at composting at its core: a biological process. Who are the microbes that are doing the decomposition? How and why do they work? The second half we introduces the Key Process Variables: Feedstocks, Moisture, Oxygen, Pile dimensions, Temperature and Time. We will look at how we use these variables to control the process, and start to answer the question: "When is it done?"

3. Systems, methods and equipment. Matt Cotton, IWM Consulting

With a basic understanding of the core biological processes, how do we put a facility around them to manage the flow of materials from the time they enter your site to the time they go out as products? We'll examine the pros and cons of the turned windrow, aerated static pile and invessel methods. We'll look at the equipment needed to do all the work, from size reduction (aka grinding) to windrow management to product screening.

4. Feedstocks and recipe building. Jeff Gage, Compost Design Services

At the heart of the composting process is the mixing of the different ingredients, or "feedstocks" to produce a "balanced diet" for the microbes. Jeff will present a "parade of feedstocks" and look at how we combine them into a "recipe", balancing the key factors of moisture, nutrients and air flow. Working in teams, students will get introduced to a Compost Calculator and try their hand at building their own recipes.

Field Session A.

After a full day of day, it's time to finally get our hands dirty! We will go outside and learn how to do field testing for moisture, bulk density and free air space. We'll also get our first look at the feedstocks students will be using to build their own compost piles.

Tuesday, Feb 23: Site Design and Environmental Control

Field Session B.

Come to class with your boots on! We start off outside as teams to take what was learned the day before and put it in to practice. Your goal: as a team, build a 2-cubic-yard compost pile following and adapting the recipe you developed the day before. Learn how to monitor and document the process.

5. Site selection and design. Matt Cotton, IWM Consulting

This session will start our examining where a compost site can and can't go. What are the key considerations in siting a facility? Then we'll move in to designing the site. What are the components of a good design? How do they get laid out for efficiency and safety? We'll end up looking at the composting pad itself, and you'll get some practice figuring out how big the pad actually needs to be.

6. Water management. Will Bakx, Sonoma Compost

On to every facility a little rain must fall. Or sometimes, a lot of rain falls! Protecting our water resources is a key responsibility of every compost facility. What can we do with the leachate the oozes out of our piles? How do we handle the water that runs off our sites? We will review the Best Management Practices for water management around compost sites. You'll try your hand at calculating how much water would come off the sites you previously sized.

7. Air and odor management. Jeff Gage, Compost Design Services

Odors are perhaps the main reason that compost facilities get shut down. Odors require a source, movement, and a receptor. We'll examine the nature of each of these, and look at what we can do to break that chain. We'll also include VOC control, and have a look at biofilters, probably the most effective treatment method for both odors and VOCs.

Wednesday, February 24: Regulations and Site Visits

8. Regulations.

You can operate, but you can't hide. Compost facilities must comply with a variety of state and local regulations to protect public health, safety, and the environment. Representatives from the California Integrated Waste Management Board will provide an overview of California's composting regulations. Since air and water concerns are becoming more of a factor in the regulation of compost facilities, staff from the San Joaquin Valley Air Pollution Control District and the Central Valley Regional Water Quality Control Board will be on hand to discuss air and water quality regulations and issues regarding compost facilities.

9. Field Trip.

We will go by bus to visit three local composters, and see how all the theory gets put into practice. The tour will also provide attendees with an opportunity to interact with state and local regulators and obtain a better understanding of regulators' issues and concerns at compost facilities.

- Western Placer Waste Management Authority's green waste composting facility in Lincoln
- Recology's Jepson Prairie facility in Vacaville, where most of the San Francisco's food waste is processed
- CCL Organics in Benicia, where they prove that you don't have to get big to survive

Thursday, February 25: Product Quality and Marketing

10. Compost quality and analysis. Assaf Sadeh, Soil Control Lab

What do we want to know about our compost? Is it done? Is it safe? What's in it? How does that effect it's use? We'll look at how and why we measure the key parameters in assessing compost quality. **PARTICIPANTS ARE ENCOURAGED TO SUBMIT THEIR OWN COMPOST SAMPLE FOR ANALYSIS** (done for free if submitted before January 1) or **BRING THEIR OWN** (Seal of Testing Assurance) **COMPOST** to be part of this session. [See instruction here.](#)

11. Compost uses and markets. Stan Nader, Nortech and Alex Sharpe, Z-Best Compost.

What are the uses of compost? How does it work in the soil? Why should we use one compost one place and another someplace else. Two experienced compost salesmen will go over the major markets for compost, including landscaping, home and commercial horticulture, turf management, agriculture, stormwater management and environmental restoration.

12. Compost marketing and sales. Tom Kelley, Chosen California

What are the components of a compost marketing plan? Which uses will you target? How will your product get distributed? What kind of promotions, communications, and staffing do you need? This session continues the next day where as teams you'll start to put together a marketing plan, with goals, objectives and activities.

Friday, February 26: Facility Management and Wrap-Up.

13. Facility Management. Matt Cotton, IWM Management

It may not be "rocket science" but a modern compost facility is a complex operation with a lot of moving parts. In this session we'll discuss:

- Neighbor and Community Relations
- Fire prevention and control
- Employee health and safety

Field Session C.

After monitoring your piles for the week, it's time to break them down, look inside and see how they did.

14. Trouble-shooting. Cary Oshins, US Composting Council

For our wrap-up session, you'll be presented with a variety of challenges typically faced at compost facilities. As teams you'll try your hand at posing solutions and building on others, ending with a general discussion of all the issues that compost facility operators confront.

Instructors

Will Bakx started *Sonoma Compost Co.* in 1985 composting various agricultural and fish industry wastes. In 1990 he implemented a pilot program to compost curbside collected yard debris for the city of Santa Rosa. He also implemented a backyard composting education program for the city of Santa Rosa. Since 1993 he has been director of product development and soil scientist with his company, which has grown to be one of the most recognized compost facilities in the state diverting more than 1,200,000 tons of yard trimmings from the landfill. He is the co-founder of the California Organic Recycling Council (CORC), the California Compost Quality Council (CCQC) and the California Compost Coalition (CCC) representing the compost industry on regulations, legislation and education.

Matthew Cotton has twenty years of experience in solid waste management planning; permitting, environmental, and regulatory compliance; and composting. *Integrated Waste Management Consulting, LLC*, has provided technical consulting services to public and private clients for over twelve years. Matt's experience ranges from evaluating the solid waste management plans of major regional areas, to managing the complex issues of regulatory compliance, to the nuts and bolts of hands-on composting. He has completed hundreds of significant solid waste projects, including permitting and aiding in the development of some of the major composting facilities in California. Matt currently serves on the Board of Directors of the US Composting Council where he served as president of the board for three years.

Ken Decio is a Senior Integrated Waste Management Specialist in the Permitting and LEA Support Division of the *CIWMB*. Ken recently developed white papers on issues related to the regulations for alternative daily cover and food waste composting. He assisted in educating Caltrans staff on the benefits of using compost for erosion control and revegetation projects. Ken has also worked with industry, government agencies, and the public to encourage the use of sustainable landscaping practices to reduce green waste, conserve water, and protect water quality.

Jeff Gage, *Compost Design Services*, Olympia, WA, is considered one of the Northwest's top composting experts. Jeff combines years of practical experience in operating compost systems with extensive scientific expertise focused on the improvement, development, and

advancement of the practice of composting. Jeff teaches “Site Operations Planning for Odor Prevention and Treatment” at the annual USCC Conference.

Tom Kelley is president of *Chosen California*, an organics operations, sales and marketing consulting firm based in southern California. Tom is well known in the industry for his expertise regarding organics sales and marketing programs and has a thorough knowledge of the organics industry for California. Consulting clients range from waste management companies, composter’s, wood waste processors and organics manager’s nation-wide. His services provide establishment of new marketing programs and/or in depth review of existing programs, providing key recommendations to enhance product quality, profitability and market share. Tom is a member of the US Composting Council; an active member of the USCC Board of Directors and Marketing Committee 2004 through 2012. Prior to establishing Chosen California, Tom was the Director of Sales and Marketing for Synagro Technologies Inc., where from 1998 through 2006 he successfully established Synagro Composting Company of California as the nations #1 producer and marketer of compost setting national records for compost sales surpassing 500,000 cubic-yards per year.

Stan Nader grew up on a farm in rural Lincoln, attended Sierra College and Cal Poly, and co-managed the family farm and feed store after graduation. He has served on the local school board and the Lincoln City Council. After leaving the farm he managed the composting operation for Nortech (Placer County's recycling company) for 10 years and then formed his own composting company. Stan is now retired and very active in the Lincoln community.

Cary Oshins is Assistant Director for Programs for the *United States Composting Council*, where his work focuses on member services, including education, communication, website development and policy development. Prior to this he was head of the Stormwater Management Division of Gardenique Landscaping, Inc. in Orefield, PA, where he represented Filtrex[®] Erosion Control products. Cary has 20 years of experience in composting education, research, utilization and promotion, working for the Lehigh County Office of Solid Waste, the Rodale Institute, and Cornell University’s Waste Management Institute. As consultant to the Professional Recyclers of PA, he developed, coordinated and taught the organics component to PROP’s award-winning Recycling Professional Certification Program.

Assaf Sadeh has over ten years experience analyzing environmental media (drinking water, waste water, soils, biological tissue and compost) for a wide range of analytes from pH to pesticides and tributyltin to trace metals. In recent years, Assaf’s focus has been on compost analysis. As the *Soil Control Lab*’s compost department manager and lead analyst, Assaf is responsible for every phase of compost analysis from sample receiving to reporting. One of Assaf’s key tasks is communicating with clients about how to best interpret their compost test results.

Alex Sharpe is a marketing representative for *Z-Best Products* in Santa Clara County. He has been with Z-Best for 11 years. He also markets landscape materials from Zanker Road Landfill and Zanker Materials Processing Facility in San Jose. He graduated from Georgia Southern University where he majored in Marketing. Z-Best Products produces over 100,000 tons of organic compost each year with feedstock from the City of San Jose Yard Waste collection contract.