ASSOCIATION OF COMPOST PRODUCERS

"We Build Healthy Soil"

Composting and Compost Use:

Developing Solutions and Overcoming Barriers

Developing Compost Markets is Key!

INTEGRATED WASTE MANAGEMENT BOARD

Dan Noble

Executive Director

Association of Compost Producers

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Topic Outline

- **Association of Compost Producers (ACP):** ***We Build Healthy Soils … and Markets!***
- **SOILS:** ***Foundation of the Watershed Ecosystem***
- **COMPOST:** ***From Dead Dirt, to Living Soil***
- **TESTING:** ***United States Composting Council (USCC) Seal of Testing Assurance Program***
- **MARKETS:** ***The What and the Why***
- **Take Home Messages**

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What is ACP?

- **A Public/Private Association - 501(C)3 - Composed of:**
  - Public and Private Organics Residual Generators
    - Green Waste, Food Waste
    - Manure, Biosolids
  - Public and Private Compost Producers
  - Public and Private Compost Marketer/Distributors

- **Our Vision:**

  Supporting beneficial reuse of organics in California, with compost playing a central role to build and maintain sustainable healthy soils, keeping our state's lands productive, green and biologically diverse for generations to come.

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What is ACP?

- **Our Mission:**
  - *Dedicated to increasing the quality, value and amount of compost being used in California.* We do this by *promoting activities and regulations that build healthy soil*, benefiting people and protecting air, water and soil.

  - ACP members work and ***invest*** together to increase compost ***markets*** and improve compost product & manufacturing ***standards***. The association provides ***education & communication*** on compost benefits & proper use through support of scientific ***research & legislation*** aligned with developing and expanding quality compost markets.

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Who is ACP?

- City of Los Angeles
- County of San Bernardino
- Encina Wastewater Authority
- Engel and Gray
- Inland Empire Utilities Agency
- Kellogg Garden Products
- Los Angeles County Sanitation Districts
- P.F. Ryan and Associates
- Rainbow Disposal
- Serrano Creek Soil Amendments
- South Orange County Wastewater Authority
- Synagro

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ACP Benefits

- Be part of a network that **shapes the future** of composting and compost utilization
- Enhance your **organization's visibility** through promotional and sponsorship opportunities
- Develop and maintain a **system of sharing** up to date, accurate, compostable organics information with members, stakeholders and the public
- Higher volume, **more tonnage, organics** beneficially reused
- **Enhanced perception** and value
- More **stable, sustainable channels** for rational investment planning
- **Keep up to date** regarding issues related to landfill diversion
- **Actively build** stable, sustainable **channels/markets** for rational investment planning
- **Meet with people** with common interest and establish new contacts

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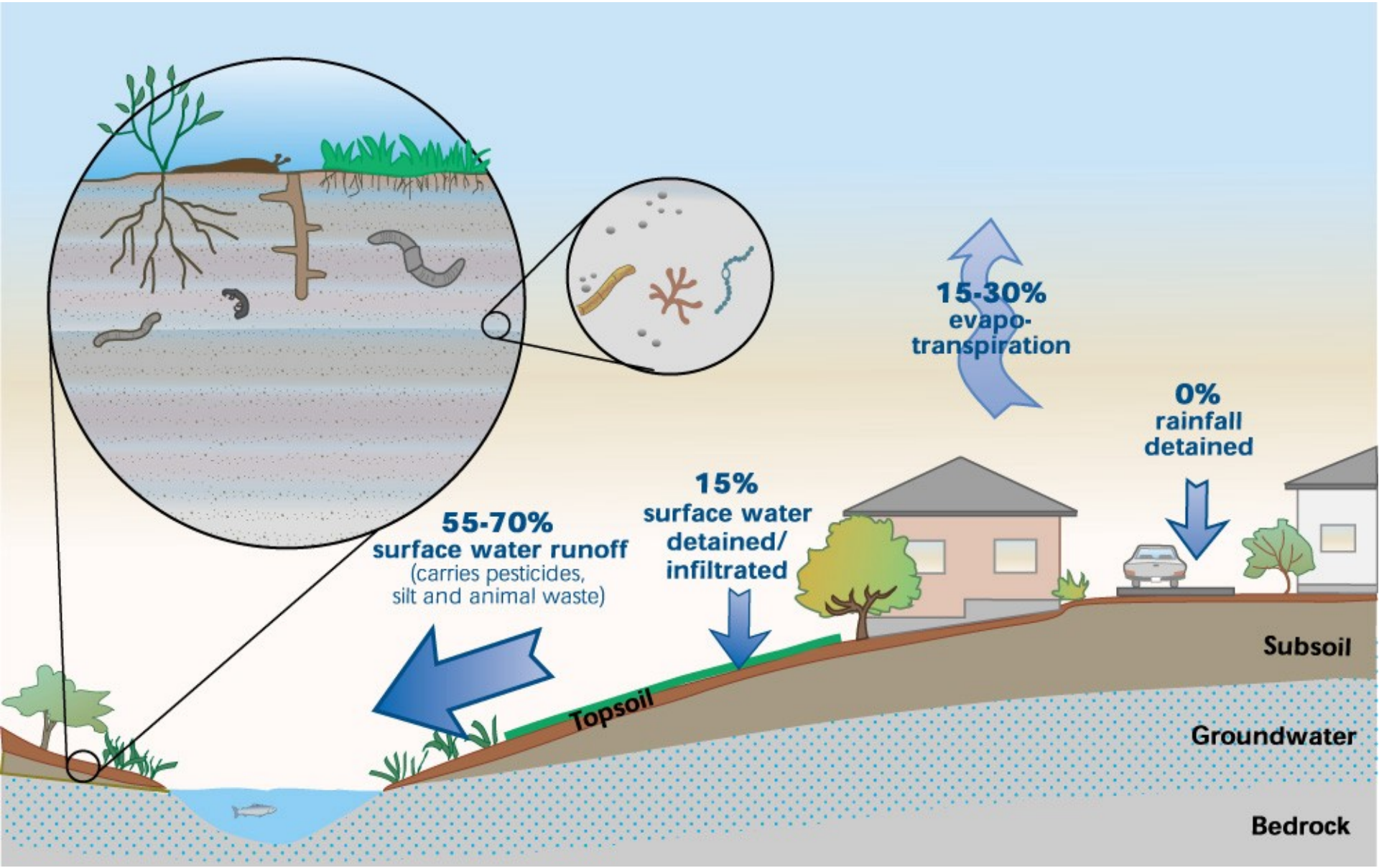
SOILS: *Foundation of the Watershed Ecosystem*

Urban Watershed: Runoff from increased Impervious Surfaces - Stormwater 101



The previous slide shows a schematic illustration of the runoff from increased impervious surfaces such as in an urban watershed.

The subsurface shows topsoil, subsoil, groundwater, and bedrock with houses, trees/plants, a car, and creek on the surface.

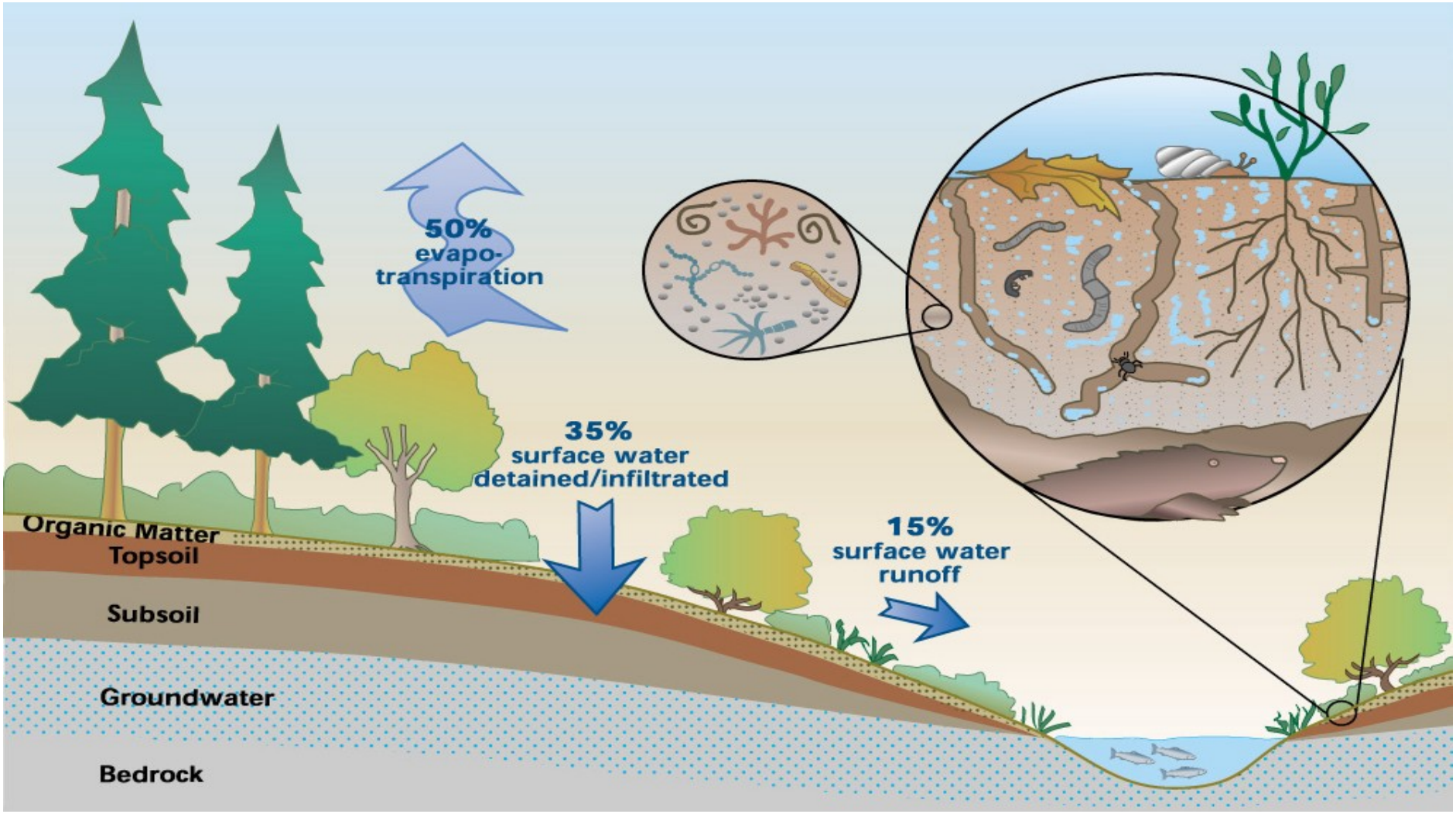
Microbial action and plant roots are illustrated at the soil surface.

The breakdown of water fate is given as:

- 0% rainfall detained at top of slope with a paved area
- 15-30% evapo-transpiration
- 15% surface water detained/infiltrated along slope
- 55-70% surface water runoff (carries pesticides, silt and animal waste)

Native Soil Environment Stormwater 201:

Healthy Soil + Plants = Best Stormwater Best Management Practices (BMPs)



Low Impact Development (LID) approach –
new hydrologic pattern mimics predevelopment patterns

The previous slide shows a schematic illustration of stormwater runoff from a native soil environment (healthy soil and plants equals best stormwater Best Management Practices).

The subsurface shows organic matter, topsoil, subsoil, groundwater, and bedrock with lots of trees and vegetation and a creek on the surface.

Microbial action and plant roots are illustrated at the soil surface.

The breakdown of water fate is given as:

- 35% surface water detained/infiltrated along slope
- 50% evapo-transpiration
- 15% surface water runoff

Low Impact Development approach –

new hydrologic pattern mimics

predevelopment patterns

COMPOST: *From Dead Dirt, to Living Soil*

Main Applications

- Landscape
- Erosion Control and Restoration
- Agriculture

Specifications are Key

- User Driven Specifications
- Landscape Specifications (Manual)
- Compost Use Index

Compost Benefits

The benefits of healthy soil, made with compost, include:

- **Healthy Soil Delivers Water Abundance and Productivity**
- **Composted Organics Saves Landfill Space**
- **Compost Helps Turn Marginal Soil into Healthy Soil**
- **Healthy Soil Makes Cleaner Groundwater Basins**
- **Compost Controls Pests and Weeds**
- **Healthy Soil Increases Water Purity & Abundance**

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Controlled Compost Production

Compost: Landscape Applications

Compost: Environmental Applications

- **“Ecological Engineering” - *transcends but includes biological, chemical and civil (physical) engineering***
- **Build soil, enhance both soil protection *and* infiltration, grow plants, control run off , *if any!* → →**

Eliminate runoff, stop erosion before it starts!

- **Specific tools:**
  - Compost blankets
  - Filter socks
  - Ditch checks
  - Living walls

Compost Blankets (mulch!) Designed to:

- Dissipate energy of rain impact
- Hold, infiltrate & evaporate water
- Slow down/disperse energy of sheet flow
- Provide for optimum vegetation growth

Compost: Agricultural Applications

(Green Leaf Lettuce)

TESTING:

USCC Seal of Testing Assurance Program

Why Test Compost?

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It looks good, smells OK … *but what's in it?*

N OF

Soil"

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Seal of Testing Assurance

If it isn't STA Compost…… What is it?

(see entire program explained at:
http://www.compostingcouncil.org/programs/sta)

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STA Program Elements

STA (Seal of Testing Assurance) method is developed, implemented and updated regularly by the US Composting Council (http://www.compostingcouncil.org/programs/sta).

The STA system is composed of three interdependent elements or programs of:

- **Seal of Testing Assurance (STA)** – Assures that your compost has been testing using established and agreed upon compost testing methods, and provides a detailed test report of the parameters

- **Test Methods for the Evaluation of Compost and Composting (TMECC)** – which provide detailed protocols for the composting industry to verify the physical, chemical, and biological condition of composting feedstocks, material in process and compost products at the point of sale.

- **Compost Analysis Proficiency (CAP) program** – a laboratory quality assurance program which is conducted as tri-annual exchanges of three [3] compost materials, each submitted in blind triplicate (3 × 3 × 3 = 27) for each of two testing tiers. Tier I. Inorganic; and Tier II. Inorganic plus Biological.

California STA Labs

http://www.compostingcouncil.org/programs/sta/labs.php

A&L Western Laboratories, Inc. 1311 Woodland Ave. Suite 1 Modesto, CA 95351	**Robert Butterfield, Laboratory Director** T 209.529.4080 Rbutterf@AL-Labs-West.com
Soil and Plant Laboratory, Inc. - *Operations temporarily suspended until further notice* 325 Matthews St. Santa Clara CA 95050	**Jim West** T 408.727.0467 F 408.727.5125
Soil Control Lab 42 Hangar Way Watsonville, CA 95076	**Frank Shields** T 831.724.5422 F 831.724.3188 frank@controllabs.com

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Seal of Testing Assurance

Barnes – Regional Composting
3511 West Cleveland Ave.
Huron, OH 44839
Telephone: 800-421-8722
Fax: 419-433-3555

Sample Date: 8/14/02

COMPOST TECHNICAL DATA SHEET

Compost Parameters	*Reported as (units of measure)*	*Test Results*	*Test Results*
Plant Nutrients:	%, weight basis	*%, wet weight basis*	*%, dry weight basis*
Nitrogen	Total N (TN or TKN+NO_3-N)	.72	1.12
Phosphorus	P_2O_5	.13	.21
Potassium	K_2O	.32	.50
Calcium	Ca	2.34	3.64
Magnesium	Mg	.57	.89
Moisture Content	%, wet weight basis	42	
Organic Matter Content	%, dry weight basis	31.31	
pH	unitless	7.4	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	3.49	
Particle Size	screen size passing through	½"	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND	.14	
	mg CO_2-C/g OM/day	.5	
Maturity Indicator *(bioassay)* Percent Emergence, AND Relative Seedling Vigor	average % of control, AND	92	
	average % of control	86	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pass	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.	Pass	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Directions for Product Use:

***New Lawns*: Apply a 1-2" layer to soil and incorporate to a depth of 5-7", apply seed, then rake and water.

***Flower Beds*: Apply a 1-2" layer to soil and incorporate to a 6-8" depth. Condition soil this way every year to 2 years. Plant flowers and water.

***Trees & Shrubs*: Dig a hole 2/3 the depth of the root ball and at least twice as wide. Mix 1 part compost with 2 parts soil obtained from the planting hole. Place the tree or shrub in the planting hole and apply amended soil around the root ball. Firm soil occasionally and water.

Topsoil Manufacturing/Upgrading: Mix 1 part compost with 2 parts existing or purchased soil and blend uniformly.

Growing Mixes: Planter box or raised bed mixes can be produced by mixing 1 part compost to 1 part pine bark and 1 part soil, sand or expanded shale. Potting mixes should contain 1 part compost, 1 part peat moss or pine bark, and 1 part perlite, vermiculite, styrofoam, or other aggregate.

***Mulching*: Spread a 2-3" layer around trees, shrubs, and flowers. Always avoid placing mulches against plant trucks and stems.

***Garden Beds** (food crops)*: Apply a 1-2" layer to soil and till to a 6-8" depth. Reapply each year, or as per soil test recommendations.

NOTE: The USCC does not assess whether or not, or to what extent, these directions are sound, sufficient or otherwise appropriate. It is the participant's responsibility alone to ensure that they are.

***Compost Ingredients*:**

Yard trimming, food by-products

This compost product has been sampled and tested as required by the Seal of Testing Assurance Program of the United States Composting Council (USCC), using certain methods from the "Test Methods for the Examination of Compost and Composting" manual. Test results are available upon request by calling Barnes Nursery at 800-421-8722. The USCC makes no warranties regarding this product or its contents, quality, or suitability for any particular use.

For additional information pertaining to compost use, the specific compost parameters tested for within the Seal of Testing Assurance Program, or the program in general, log on to the US Composting Council's TMECC web-site at http://www.tmecc.org.

STA Compost Producers in CA

To find an STA composter near you, go to:
http://www.compostingcouncil.org/programs/sta/:

(See handout for a list of 22 in California).

Some in SoCal:

- **Agromin**, Ventura, CA 93003
- **American Soil Amendment Products**, Simi Valley, CA 93065
- **Baker Canyon Green Recycling**, Silverado, CA 92676
- **Community Recycling & Resource Recovery, Inc.,** Lamont, CA 93241
- **Inland Empire Regional Composting Authority** (IERCA), Rancho Cucamonga, CA 91739
- **Engel & Gray, Inc.,** Santa Maria, CA 93456-5020
- **Las Virgenes Municipal Water District**, Calabasas, CA 91302
- **Liberty Compost/San Joaquin Composting, Inc**., Bakersfield, CA 93380
- **Synagro Composting Company of California,** Inc., Bakersfield, CA

Some in NorCal:

- **BFI of Northern California,** Milpitas, CA 95035
- **CCL Organics LLC,** Benicia, CA 94510
- **Grover Environmental,** Modesto, CA 95356
- **City of Modesto,** Modesto, CA 95358
- **NAPA Recycling & Waste Services,** Napa, CA 94559
- **Recology - The Compost Store,** Dixon, CA 95620
- **Nortech Waste, LLC,** Roseville, CA 95747
- **Sun-Land Garden Products,** Watsonville, CA 95076
- **Vision Recycling,** Fremont, CA 94538
- **Z-Best Products,** Gilroy, CA 95020

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MARKETS: *The What and the Why*

- Tipping Fee, Quality, Sales → BRAND!
  - 60/40 Rule
  - Compost Quality
  - Value Price (Bulk, Bagged, Designer Blends)
  - Quality Application and Results (Compost Use Index)
- Disposal vs. Building Healthy Soil
  - Private property is NOT a “horizontal landfill”
  - Value pricing healthy soil
- Energy vs. Building Healthy Soil
  - Wet Energy vs. Dry (Anaerobic vs. Combustion)
  - Managing nutrients & carbon

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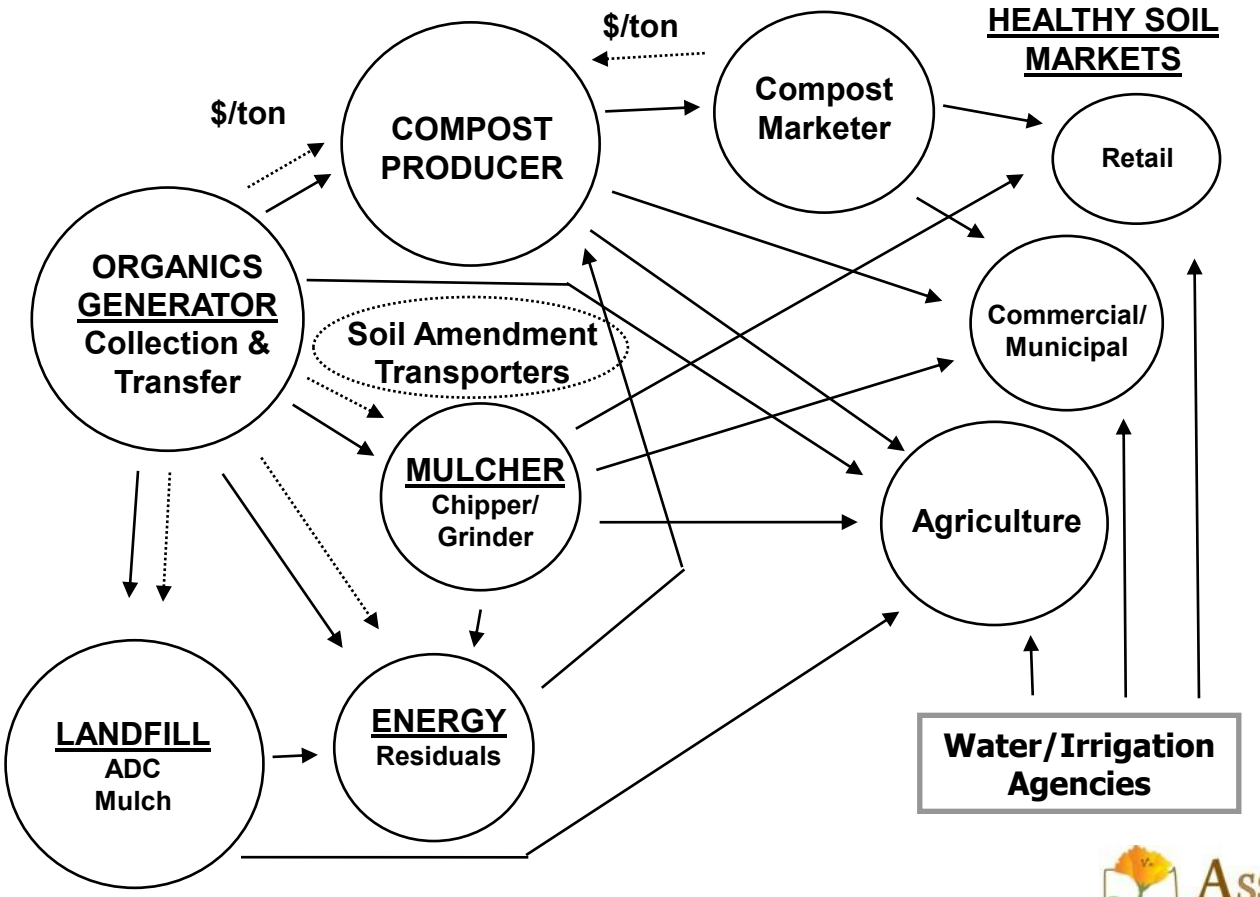
Compost Market Structure



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The previous slide is a composting market structure flow chart.

- Organics generators - collect and transfer to:
  - Landfills (ADC/Mulch) – Landfill may capture energy residuals
  - Energy (residuals)
  - Mulcher (chipper/grinder) – use in retail, commercial/municipal, agriculture,
  - Compost producer (see below)
  - Agriculture
- Healthy soil markets are:
  - Retail, commercial/municipal, and agriculture
  - Dependant on water/irrigation
- Compost producer may pay a marketer to sell their product or sell it themselves to:
  - commercial/municipal
  - agriculture

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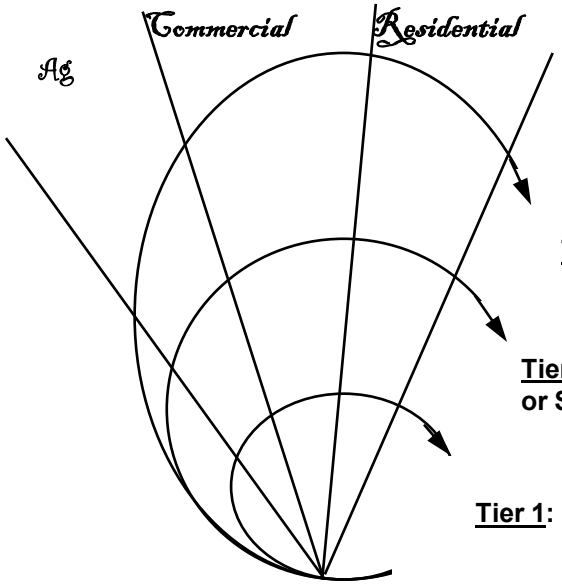
Nine Generic Compost Niches



Tier 3: Between Communities – "True Market"

Tier 2: Community, Municipality, Agency – Barter, "Give Away or Subsidized Market"

Tier 1: Residential, On-Farm - "Do-it-yourself Market"

- **No one niche is "right," correct or "the best."**
- **Generating agencies are typically involved in all *at the same time*.**
- **Compost Market Development Strategies and Tactics must work synergistically to build compost value and volume.**
- **This is still a goal to which all our members are actively working.**
- **See ACP's joint and individual pilot programs**

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The previous slide includes a diagram to illustrate nine generic compost niches:

- Three main niches are Agriculture, Commercial, and Residential
- Three subsets for each are referred to as “tiers:”

1. Residential, On–farm

   “Do-it- yourself Market”

2. Community, Municipality, Agency – Barter

   “Give Away or Subsidized Market”

3. Between Communities

   “True Markets”

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Market Development Projects

(CIWMB Sponsored, with UCCE, UCR Extension & ACP)

- **California Department of Transportation**
  - STA Testing
  - 9 Unique specifications
  - Workshops
- **Agricultural Compost**
  - STA Testing
  - 5 unique specifications linked to soil testing
  - Compost Use Index
- **Local Government**
  - This workshop series
  - ADC Market Development Toolbox
  - Local Market Development Toolbox

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Take Home Messages

- We're all on a Journey toward a Sustainable/Green Economy!
- ACP a California collaborative to build compost markets (collaboration!)
- Healthy Soils are the Foundation of creating a healthy planet (brand!)
  - Compost helps build healthy, living soils, for healthy plants
  - Less fertilizer, less disease & pesticides, less water & cleaner water
- Test Compost, and soils, to use properly (knowledge, standards!)
- Building Markets, requires branding and detailed strategy!
- Continue to update yourself ongoing on our journey together!
  - **Consider Joining Us in ACP!**

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Quick Questions or Comments? (now)

Longer questions and Discussion… (with the panel)

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www.healthysoil.org

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