

# Turfgrass and Landscape Institute

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Greenwaste Use for Landscape and  
Environmental Enhancement

William Baker

# Mulch versus Compost

- Compost is an organic feedstock material that has been decomposed and stabilized through biological decomposition
- Organic mulches are used as a soil cover and generally have not been decomposed - but composts can easily fill this role

# Over-mulching Concerns

- Can promote excessive soil moisture
- Can cause inner bark tissue to die
- Can cause fungal and bacterial diseases
- Can promote nutrient deficiencies
- Can produce toxic organic acids
- Can lower soil temperatures
- Can prevent moisture penetration
- Can transport pathogenic organisms

Piling mulch against the root crown causes stress symptoms that may take years to be evident



Forming organic materials into cones on the tree trunk is problematic, but popular in some regions of the country



# Volcano Mulching Method



Whether it is added mulch or an increase in soil elevation, it is detrimental to have organic material in contact with the tree trunk



# Benefits of Mulching

- Reduces moisture loss from evaporation
- Minimizes weed competition > 2 inches
- Reduces soil compaction and erosion
- Moderates extremes in surface soil temperature
- Reduces the incidence of some diseases
- May increase soil fertility
- It is aesthetically attractive
- Can increase root density

# Roots Benefit from Mulching

- Research shows that an 8 foot circle of mulch properly applied under young trees can quadruple tree root densities when compared to young trees with turfgrass competition and no mulch. Fine root densities increase on mature trees as well.



Turf has been cleared away from these oaks to create a mulch bed out to the dripline



# Benefits of Amending Soils with Compost

- Improves soil structure
- Improves soil fertility
- Adds beneficial soil micro-organisms
- Reduces irrigation requirements
- Improves commercial fertilizer utilization
- Suppresses plant diseases
- Reduces off-site transport of pollutants

# Benefits

- Improves soil structure and porosity, creating a better environment for healthy plant roots
- It breaks up clay soils, eases cultivation, helps form soil aggregates, and helps prevent crusting. It creates a more uniform soil texture

# Benefits

- Compost increases infiltration and permeability of heavy soil, improves drainage and reduces water runoff
- Improves the water holding capacity and slows the percolation rate of sandy soils

# Benefits

- Compost supplies a variety of macro- and micro-nutrients to the soil that are often difficult to incorporate through commercial blends
- Compost stabilizes soil pH and improves cation exchange capacity(CEC)

# Benefits

- Compost supplies beneficial micro-organisms, such as bacteria, fungi, and actinomycetes, to the soil
- Compost creates an ideal environment for larger beneficial organisms as well, including earthworms, beetles, and beneficial nematodes

# Composition of Composts

- Vegetative Based Composts
- Animal Based Composts
- Bio-Solids Based Composted

# Terms Associated with Composts

## by Successive Stages of Improvement

- “Green” - unprocessed or early stages
- “Active” - decomposition is incomplete
- “Stabilized” - completed decomposition
- “Mature” - recombined into humus
- “Cured” - colonized by beneficial org.

# Different Uses of Composts in Landscapes

- Incorporate into existing soil
- Mix into new growing mediums
- Apply as component in topdressing
- Seed cover
- Mulch
- Cosmetic appeal

# Advantages Over Non-Composted Organics

- Will not draw nitrogen from the soil
- Will not generate unpleasant odors
- Will not be a carrier for weed seeds
- Will not support pathogenic organisms

# Selecting Quality Composts

- Watch for visible contaminants
- Should have a pleasant aroma
- What is the texture and appearance
- Is the particle size appropriate and uniform

# Compost Analysis Considerations

- pH of compost
- Salt concentration
- Moisture content
- Organic matter content
- Water holding capacity
- Trace heavy metals
- Nutrient content

# A Joint Project with California Agencies and the Compost Industry

## INCREASE COMPOST USE

California Department  
of Transportation

### FUNDING & OVERSIGHT

California Integrated  
Waste Management  
Board

### PROJECT MANAGEMENT

University of  
California Extension  
Riverside

### TECHNICAL SUPPORT

The California  
Association of  
Compost Producers

# Project Goals 1<sup>st</sup> Project

- Develop a Compost Classification System
- Revise Existing Compost Specifications
- Develop a Compost Applications “Best Management Practices” Manual
- In conjunction with our partner, Caltrans, conduct a total of nine workshops across the state

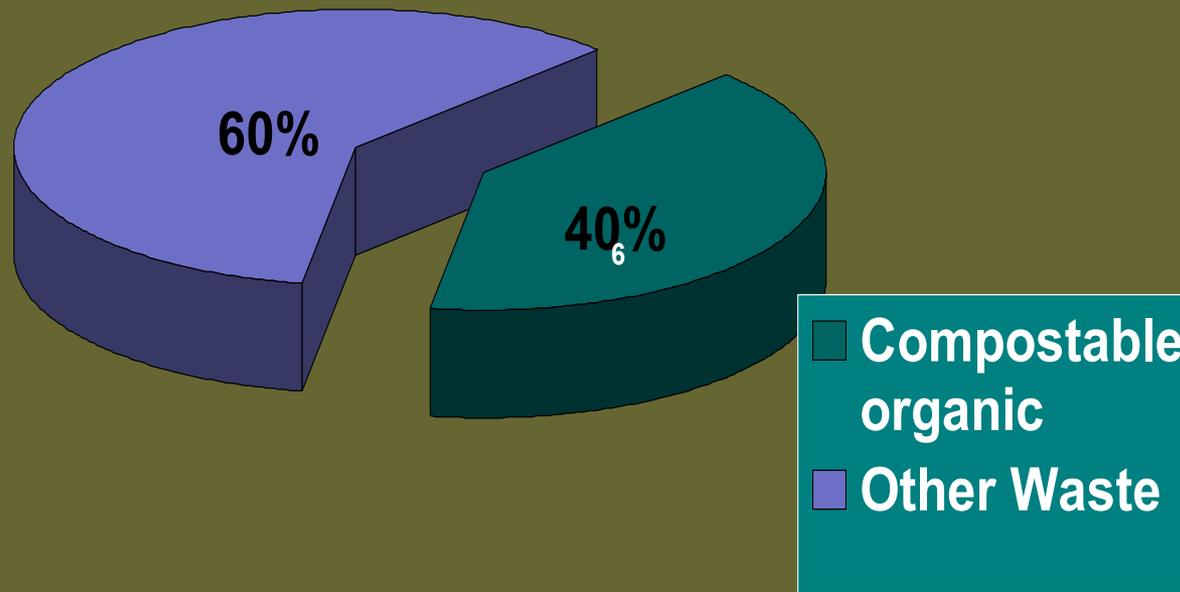
# Project Goals – 2<sup>nd</sup> Project

- In collaboration with a wide group of partners, conduct 10 workshops across California.
- Expand the target audience to include local governments, State and regional agencies, regulatory entities, landscape architects, and end users in the private sector.

## 2<sup>nd</sup> Project - continued

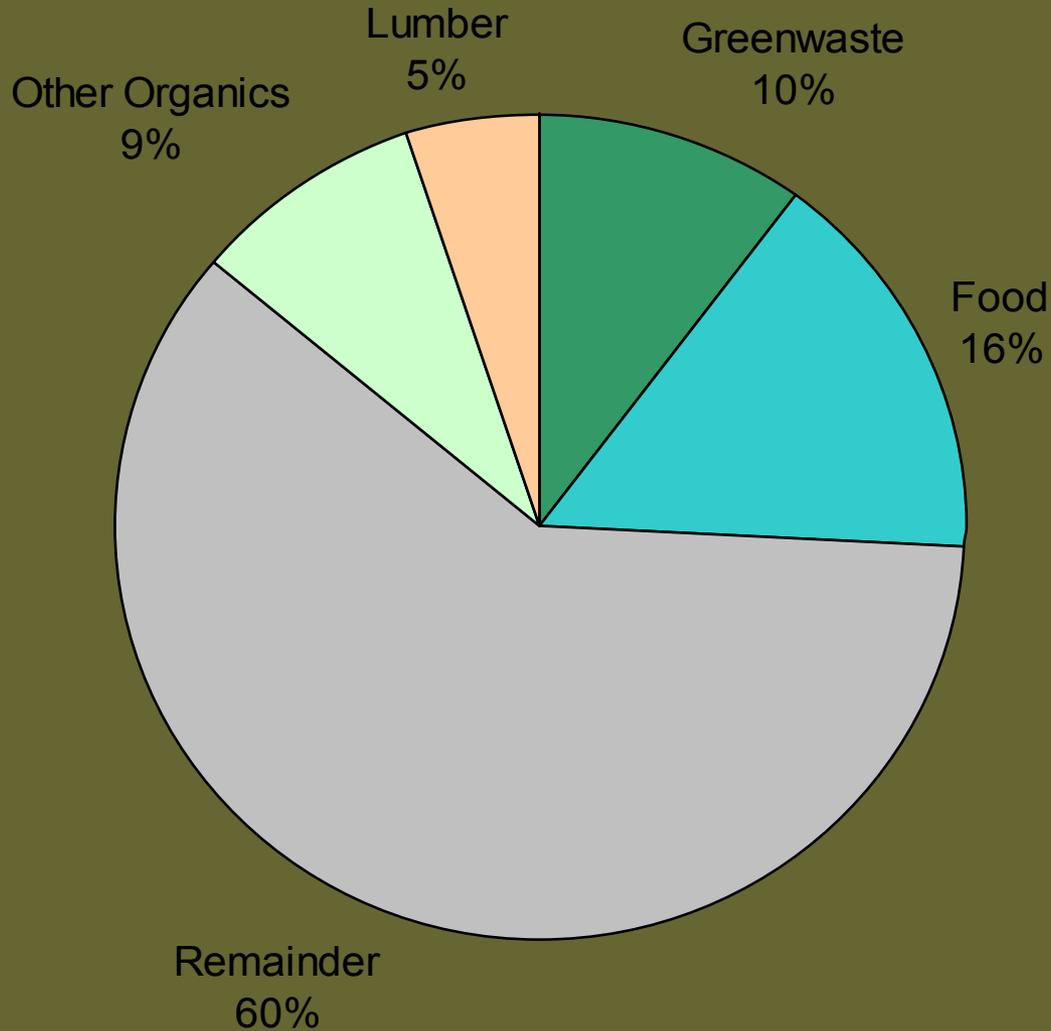
- Develop two Compost Demonstration Projects that can be used to illustrate the effectiveness of compost-based applications for erosion control, vegetation establishment, and filtration.
- One will be in San Jose (in partnership with the City) and the other will be in Southern California, likely on fire-ravaged lands.

# ORGANICS = 40% OF DISPOSAL



The previous slide is a pie chart showing that compostable organics is 40 percent of the total material being sent to the landfill and the other 60 percent is other waste

# WHAT'S IN THE 40%?



The previous slide is a pie chart showing the make-up of the 40 percent organic material currently being sent to the landfill.

- 16 percent food
- 10 percent greenwaste
- 5 percent lumber
- 9 percent other organics