

Caltrans Compost FAQ

Compost is the product resulting from the controlled biological decomposition of organic material. Over 12 million tons of compostable materials were land filled in California in 2003. The burying of these potentially useful materials not only consumes diminishing landfill space, but also fails to realize their benefits and value. Compostable organics can improve soil structure and fertility, infiltration, reduce runoff, promote healthy vegetation, reduce erosion, and, as a result, improve water quality. This FAQ sheet covers a number of common questions regarding compost, its uses, and its potential risks or benefits. A series of Technical Memorandums cover the effects of compost on vegetation establishment, water quality, and low impact development in greater detail, for further reference.



1. What is the value of compost?

Compost can be used both in the short-term, for construction site management purposes such as erosion control and slope stabilization, as well as for long-term purposes such as vegetation establishment. When used correctly, compost can be effective in protecting slopes from erosion, minimizing sedimentation, protecting water quality, establishing vegetation, increasing infiltration, and reducing runoff volume.

2. Do the Regional Water Quality Control Boards allow Caltrans to use compost?

The Regional Water Quality Control Boards (RWQCBs) are recognizing the value of compost for storm water management. On November 21, 2008, the Santa Ana RWQCB passed Resolution No. R8-2008-0100 expressing support for the use of compost for erosion control applications within the Freeway Complex fires burn area in Orange, Riverside, and San Bernardino counties within the Santa Ana Region. The Resolution expires 12 months after adoption.

3. Does compost contribute nutrients to storm water runoff?

Although nutrient concentrations in storm water runoff can be higher than some traditional erosion control and soil amendment best management practices (BMPs) in the initial discharge, overall, the total pollutant mass in runoff has been shown to be lower in storm water runoff from compost-treated sites. When implemented as a filtering mechanism, compost can even reduce the concentrations and loads of many pollutants in runoff. Studies have also shown that there may be no runoff except in extreme storm events due to absorption and increased infiltration when compost is incorporated into soil.

4. Does compost contribute metals to storm water runoff?

Similar to nutrient concentrations, metal concentrations in storm water runoff can be higher than some traditional erosion control and soil amendment BMPs initially during a storm event; however, the total pollutant mass in runoff has been shown to be lower in storm water runoff from compost-treated sites as compared to noncompost sites. Studies have also shown that there may be no runoff except in extreme storm events due to absorption and increased infiltration when compost is incorporated into soil.

5. Can compost be used near sensitive receiving waters?

When used appropriately, compost can provide quantifiable benefits to reducing levels of pollutants of concern for sensitive areas. A study performed for Caltrans in 2008, titled Monitoring and Assessment of Erosion Control Treatments in and around the Lake Tahoe Basin, found that compost-amended sites outperformed non-amended sites up to 1.8 times in terms of sediment reduction, a pollutant of concern for Lake Tahoe (a sensitive receiving water).

6. What about compost salinity?

The content of soluble salt in compost is monitored as part of the U.S. Composting Council's Seal of Testing Authority (STA) Program. Manure feedstock (prior to the composting process) has been shown to contain more sodium than other feedstocks; however, after the composting process both biosolids and manure-based compost products showed no significant difference in sodium or soluble salt concentrations from other feedstocks examined. Generally, compost is applied with consideration to vegetation nutrient needs. Since high concentrations of soluble salts can be toxic to plants, maximum concentration requirements have been established for the use of compost.



7. How does Caltrans ensure the quality of compost products?

A number of federal and California state regulations, programs, and specifications have been established to control the quality of compost. In California, all commercial composters are required to meet these specific regulatory requirements on the compost process itself that protect health and safety. Caltrans requires that its specific suppliers must be participants in the U.S. Composting Council's STA Program. This program includes test methods for the examination of composting and the final compost product to assure consistent, measurable results.

8. What specifications and guidance does Caltrans have for compost use?

Caltrans standards for the type and use of compost throughout California can be found in the publication "Compost Specifications: Caltrans Landscape Architecture" available at:

http://www.dot.ca.gov/hq/LandArch/policy/compost_specs.htm

9. How does compost affect vegetation establishment?

The incorporation of compost as a soil amendment has proven beneficial for facilitating the establishment of vegetation. Compost-amended test plots exhibited improved soil stability by binding soil aggregates together; decreased soil bulk density for better vegetation growth; and improved soil water retention, which increases plant-available moisture. Combined, these factors lead to the accelerated establishment of the vegetative stand.

10. Does compost enhance infiltration and reduce runoff?

Yes. Unlike most other storm water BMPs, compost has significant water-holding capacity, so that low-to-medium intensity and duration rain events may produce no runoff. Those rain events that do produce runoff produce less, take longer before runoff starts, and take longer to reach peak flow. Numerous studies have been conducted that support the argument that compost increases infiltration and reduces runoff quantities.

11. Are there harmful pathogens in runoff from compost?

Compost suppliers of STA-certified compost must adhere to specific guidelines aimed at eliminating or reducing pathogens to a level that is below the threshold where the danger of transmitting diseases will occur. Pathogens are inactivated or destroyed by elevated temperatures and antagonistic microbial scavenging over a period of time within the composting process. This process is regulated within Title 14, California Code of Regulations.

12. Should I be concerned about biosolids in compost?

The extent of the risk of the use of biosolids in compost is known. Biosolids that are to be land applied must meet strict regulations and quality standards. The federal biosolids rule (40 Code of Federal Regulations Part 503) governs the use and disposal of biosolids. Biosolid-derived compost must also comply with these requirements.

13. Can compost be cost effective?

Compost can be less expensive than other soil amendments. Additionally, accelerated establishment of vegetation and an increase in the survival rate of landscape plants should reduce the long-term maintenance costs of compost-amended projects.

14. Does compost have a long term benefit?

For sites tested for less than 2 years, a majority of researchers found the vegetative cover of sites with compost amendments to be much greater when compared to sites without compost amendments. Compared to sites without compost, regardless of timeframe, compost-amended test plots exhibited improved soil stability by binding soil aggregates together; decreased soil bulk density for better vegetation growth; and improved soil water retention, which increases the plant-available moisture.

15. How often do I have to reapply compost to establish vegetation? Control sediment?

By following defined methods for each site, compost should only need to be applied once during the initial implementation phase. The effects of compost last greater than 2 years under normal conditions, which is long enough for vegetation to establish. The addition of compost also assists in improving soil structure, which facilitates soil stability and reduces erosion.

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