

Appendix G

Are you Specifying Texas Compost Yet?

Article provided for the Texas Chapter of the American Society of Landscape Architects

Are YOU Specifying Texas Compost Yet?

Ron Alexander, R. Alexander Associates, Inc.

The Texas composting industry has expanded significantly over the past 10 years. Its growth, in many ways, can be attributed to the popularity of the *composting process* as a popular method of transforming various organic by-products (e.g. yard trimmings, manure, etc.) into high quality soil amendment products. A great effort has gone into composting manure generated in the Bosque and Leon watersheds, including much hard work by the Texas Commission on Environmental Quality (TCEQ) to reduce the amount of organic residuals being discarded in the landfill. US EPA funds were even obtained to provide an incentive for the transport of manure to regional composting facilities and to provide incentives for state and local government to buy this compost. High quality composts are now being produced from these feedstocks. In fact, the product is so popular with TX DOT (having been able to re-vegetate sites which were barren for 30 years) that they purchased over 250,000 cubic yards in 2002.

For this reason, many are working hard to educate the *green industry* about the numerous benefits; environmental, agronomic and financial, that are realized when compost is specified and used in place of topsoil or peat moss. It is very clear, based on experience in other parts of the country, that landscapers and landscape architects can play a large role in developing markets for compost. The subsequent article will describe a variety of landscape uses of compost, as well as its many benefits.

Compost provides many benefits to the soil, the plants, the environment and to the pocketbook of the user. It is readily available in most parts of the state and its use should be considered in every project for which you write specifications.

What is Compost?

Compost is the product resulting from the controlled biological decomposition of organic material. Higher quality composts are stabilized to the point that they are beneficial to plant growth, and bear little physical resemblance to the organic materials from which they were produced. These materials may include yard trimmings, biosolids, manure, and other feedstocks. Compost is primarily used for its soil conditioning properties, but it can also provide significant amounts of plant nutrients.

How is Compost Produced?

All compost, regardless of the original feedstock, is produced through the activity of aerobic (oxygen requiring) microorganisms. These microbes require oxygen, moisture and food in order to grow and multiply. When these resources are maintained at optimal levels, the natural decomposition process is greatly accelerated. Their activity generates significant heat, as they transform the organic feedstocks into a stable soil conditioner. The composting process, when properly managed, includes a high temperature phase that sanitizes the product and encourages a high rate of decomposition, and a lower temperature phase that allows the compost to stabilize and become agronomically viable.

Compost Benefits and Applications

As previously mentioned, the use of compost can provide many 'soil' benefits. It improves the physical, chemical and biological characteristics of the soil and media to which it is blended. Most of these benefits are listed in the table below.

Benefits to Compost Use

- Improves the soil structure, porosity, and bulk density — creating a better plant root environment
- Increases moisture infiltration and permeability of heavy soils — improving drainage and reducing erosion and runoff
- Improves moisture holding capacity of light soils — reducing water loss and nutrient leaching
- Improves and stabilizes soil pH
- Improves cation exchange capacity (CEC) of soils — improving their ability to retain nutrients for plant use
- Supplies a variety of macro and micro nutrients
- Supplies significant quantities of organic matter
- Supplies beneficial microorganisms to the soil — improving nutrient uptake and suppressing certain soil-borne diseases
- Binds and degrades specific pollutants

Compost is primarily used as a soil amendment, but can be used on the soil surface as a topdressing material (if finely screened) or erosion control product (if left coarser or blended with mulch), as a planting mix or manufactured soil component, or even as a decorative mulch.

Soil Conditioning

The classic landscape construction project usually starts with an area of land that has been stripped of exactly what it needs to support plant growth — the topsoil. Frequently, the general contractor sells off or improperly stores the topsoil from the construction site, rendering it unavailable or of questionable quality. The classic remedy for this situation has been to specify the importation of topsoil removed from a farm, another construction project, or from who knows where! Trying to determine whether this soil is rich in organic matter, of overall poor quality (physical and/or chemical), or contaminated with herbicides and pesticides can prove to be difficult to determine (especially on larger projects).

Most of the specifications written for topsoil will contain reference to organic matter content and perhaps a pH value, but often nothing more. This purchased topsoil will then be delivered and spread, usually to a depth of about 6", and planted with turf, shrubs, flowers or any combination of the above. In addition, more often than not, the contractors installing the plants or laying the sod will continually drive over the topsoil layer, compacting it and destroying its structure. We then cross our fingers after all of this occurs and hope that nature will prevail, and the plants will thrive, provided they receive enough fertilizer and water. There is a better way to go about doing this. **Specify compost instead!**

A rule of thumb to use when specifying compost is to apply a 2" layer of compost, then incorporate it into 6" to 8" of site soil (a 20-30% inclusion rate to improve the physical characteristics of the soil).

This application rate has proven to be effective in almost any type of soil, from the densest clays to beach sand, by over 20 years of compost field experience as well as through extensive university research. Composts derived from any variety of organic feedstocks will be effective in this application. Always refer to the compost producer's specific use recommendations before finalizing your specification, and evaluate the characteristics of the product in relation to the requirements of the plant species to be established.

It should be noted that manure-based composts, like those produced in the Stephenville area, are typically rich in nutrients, often supplying the nitrogen requirements of plants for two years and phosphorous needs for 3-5 years. Also, the finished “manufactured” topsoil (compost/site soil blend) will typically be superior to any topsoil that you could have purchased. This method of soil improvement can be used for growing turf, landscape plants and even garden vegetables.

Compost Quality

All composts are not created equal. There can be a wide variability in the characteristics and quality of compost products. This is the result of the variety of organic materials that go into making compost, and the variety of processes for producing it. As a result of this variability, the question becomes “How do I specify a compost that meets my projects needs?” One answer is to specify only compost that complies with the terms and conditions of the US Composting Council’s Seal of Testing Assurance Program (“STA”). In summary, the STA program is a compost testing and labeling program that will give you the information you need to make an informed specifying and purchasing decision about the compost products you are considering for a landscape project.

STA participants are:

1. Required to test their compost on a regular basis, with testing frequency being dictated by the volume of product that they produce
2. Make all test data available to all interested prospective users of the product, and
3. Include product use information and directions for their compost product(s)

All composts allowed for use on TX DOT landscaping projects now have to be certified through the STA Program. Essentially, the STA program is designed to raise the professionalism of the compost industry and treat compost just like any other commercial or consumer product. Look for the STA logo on all of the compost products that you are considering specifying.

We also believe that if end users know what they are buying, and landscape architects know what’s available, they’re more likely to use it properly and realize the full benefit of compost products. Additionally, LA specs have been developed through the efforts of the US Composting Council which are available to Texas landscape architects.

How much compost do you need to specify?

The amount of compost that you will require for a specific landscape project will vary depending on what you are planting, how you are planting it (e.g. beds, planters, individual plants, etc.), the existing soil and the compost you specify. Always request a product analysis and suggested application rates from your compost supplier. Some general compost application rates are:

- 1 cubic yard spread at a 1” depth covers 324 square feet
- You will need about 3 cubic yards to cover 1,000 sq. ft, at a depth of 1”
- You will need about 134 cubic yards to cover 1 acre, at a depth of 1”

For additional information:

- USCC Seal of Testing Assurance Program or STA certified composters in Texas– <http://www.compostingcouncil.org> or Al Rattie at 215-258-5259 (turflife@aol.com)
- Manure compost sources from the Bosque and Leon watersheds – <http://compost.tamu.edu/producers.php> or contact Cecelia Gerngross at cecilia@tamu.edu
- Landscape architect specifications for compost used in landscaping or erosion control – Ron Alexander at 919-367-08350 (alexassoc@earthlink.net)