

Landscaping and IRRIGATION

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Sink Your Teeth Into Our In-depth Trencher Coverage

- Rubber Tire Trenchers Help Maximize Productivity p. 16
- Maintaining Trencher Attachments p. 18
- Trencher Product Overview p. 20

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Using Commercially Produced Compost

Changing the way we complete projects in the landscape

By Ron Alexander

The recycling of organic residuals into commercially marketed compost products has become much more prevalent throughout the United States. Once something only generated by backyard gardeners or waste-conscious landscapers, commercially produced composts are now becoming a staple of the lawn and garden industry. The most widely available compost products are derived from yard trimmings, biosolids and manure, with both municipal and private composting facilities now producing products in every state. Because the landscape, turf and even agricultural sectors are struggling with plant loss, increased input costs and water management issues, compost has been shown to play a vital role in improving both soil and plant health and helping to solve these problems.

Many landscapers have seen that the use of compost has reduced their plant losses on landscape projects, while turf managers and nurserymen alike have seen both accelerated plant growth and a lower occurrence of soil-borne diseases when using compost. However, these are but a few of the many benefits that compost can provide (see Table 1). There are also a variety of uses for compost (see Table 2). Compost is primarily used to incorporate into the soil, applied on top of the soil, or used as an additive to other soil-like mixes.

The tables to the right illustrate the versatility of compost, as well as its many agronomic benefits. The fact that compost can improve the physical, chemical and biological characteristics of both natural topsoil (whether sandy or clay based), or manufactured media, is the reason why commercially produced compost has become a popular soil amendment with weekend gardeners and professionals alike. Further, compost products of various feedstocks are being produced in every state, and the scientific understanding of the benefits of compost use has increased, along with the knowledge of how to produce higher quality and more consistent products.

Compost use

Compost is currently used by landscapers in garden bed preparation and tree/shrub planting projects. Turf managers use it for amending poor soils and nurserymen include compost as a potting media component. There are also a series of newer uses that are changing the way landscapers, turf managers and erosion control specialists are getting the job done. Several of these newer uses are as follows:

Table 1: Benefits of 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 hold nutrients for plant use.
- * Supplies a variety of macro- and micronutrients.
- * Supplies significant quantities of organic matter.
- * Supplies beneficial microorganisms to the soil, improving nutrient uptake and suppressing certain soil-borne diseases.
- * Can bind and degrade specific pollutants.

Table 2: Compost applications

- * Soil incorporant
 - Turf establishment
 - Garden bed preparation
 - Reclamation/remediation
 - Nursery production
 - Roadside vegetation
- * Growing media component
 - Container/potting
 - Landscape (e.g., rooftop, raised planters, etc.)
 - Backfill mixes (tree and shrub planting)
 - Golf course (e.g., tee, green, divot mixes, etc.)
 - Manufactured topsoil
- * Surface applied
 - Garden bed mulch
 - Erosion control blanket and berm media
 - Turf topdressing

Topsoil manufacturing — This is a practice where mineral soil components (e.g., sand, subsoils) are blended with compost in order to create a media that mimics the characteristics of high-quality “virgin” topsoil. The compost provides the source of nutrients and organic matter that is missing from the other ingredients. This practice is very popular in many states, and has spawned a new customized soils industry in many regions of the country. This practice is also often completed “in-situ,” whereas compost is applied to an area possessing poor soil characteristics and is then incorporated into the soil.

Turf topdressing — In many sports, commercial and home turf situations, compost is now being used unblended as an effective turf topdressing. It is much less expensive and offers additional benefits, such as nutrients and disease suppression.

Erosion control and storm water management — Now that NPDES Phase II regulations are in force, site erosion on landscape and construction projects is being more thoroughly scrutinized. There are many methods used to control erosion and manage storm water, but research during the past 10 years has shown that compost may be the best remedy. Using compost as a soil cover, as a replacement for erosion blankets, or as pyramidal berms instead of synthetic silt fences, has become widespread. National specifications have even been created through the American Association of State Highway and Transportation Officials. Probably the greatest advantages to using compost-based techniques in erosion control are that they provide immediate and effective control, bind and degrade specific chemical contaminants, and help in the efficient establishment of vegetative (turf) cover.

Green roof media — Green roofs have become quite a fad in the landscaping industry and reflective of the growing environmental awareness of architects, builders and city planners in general. Although rooftop gardens have long been used for aesthetic reasons, green roofs are now being used in many other countries for primarily environmental purposes. Regardless of the reason, compost has become a popular component of green roof media (providing the organic fraction). Green roofs are typically broken down

into two categories: intensive (traditional rooftop gardens) and extensive gardens. Generally, extensive gardens use a more shallow layer of growing media (2 to 4 inches), while intensive gardens use media over 6 inches in depth. Traditional rooftop gardens are more expensive to construct than are extensive gardens, and usually establish larger plant materials. Extensive gardens often use a lighter weight media and establish specialty plants that are more self-sustaining (e.g., Sedums). Both intensive and extensive gardens are

good for reducing storm water runoff (up to 78 percent was found in a recent North Carolina State University study), but also provide a variety of other benefits.

[Note: Detailed information pertaining to a majority of these applications can be found at www.alexassoc.net (click on “articles”).]



National certification

The U.S. Composting Council (USCC) kicked off the Seal of Testing Assurance (STA) program in 2000, with help from a U.S. Environmental Protection Agency grant. In its current form, the STA program is a compost testing and information disclosure program that uses uniform testing and sampling protocols, although the program is seen by many as the first step toward the establishment of national compost standards.

Purpose of the STA program

- ★ To assist compost end users purchase the product they require for a particular application.

- ★ To assure that compost end users know the

characteristics of the compost they purchase.

- ★ To improve overall customer confidence in compost selection and utilization.

The STA program seeks to meet these goals by requiring participating composters complete ongoing product testing, disclose testing data to customers in a usable and standard format, and provide end-use instructions to customers.

Top: Aerated static pile composting method. **Middle:** Topdressed sports field to right (no compost to left). **Bottom:** Rooftop garden. — All photos courtesy of Ron Alexander

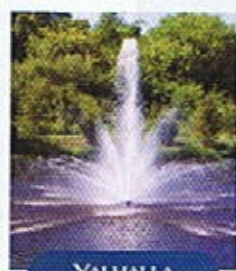
Why the STA program?

- ★ It will improve field results — decrease failures in the field — by providing end users with the product quality and application information they need to use compost properly, and for optimum results.
- ★ It helps end users identify customer-oriented composters who are rigorously testing their compost products and providing end-use information.
- ★ It improves customer satisfaction and assists compost end users in making more informed purchasing decisions.

★ It encourages composters to regularly test their compost products. As more end users demand STA-certified composts, compost will be given incentives to meet the parameters of the program.

The STA program currently has 102 composting facilities participating and more than 5 million cubic yards of compost under certification. The STA program will allow compost buyers to more easily purchase the products that they desire or require for a particular project. It will also allow them to more systematically compare compost products, allowing for an educated purchasing decision. STA program participants use a uniform product label to allow for easy comparison, and can provide information on interpreting the test data. Educated purchasing decisions will help to assure successful utilization of compost in the field.

Compost is proving to be an important tool to many people in the green industry. It can improve soil health, and, therefore, plant health, as well as reduce plant loss and ongoing maintenance costs. The USCC STA program is helping this happen by providing compost producers and the prospective customers with a nationwide network of certified compost testing laboratories. These labs are able to provide analytical data using a standardized series of compost specific tests. It is helping to transform compost into a mainstream horticultural product using standardized testing and labeling, just like most other consumer products. A compost producer in Maine, for example, can now compare his/her product quality with compost produced anywhere in the United States, and so can his/her customers. The State Department of Transportation in Texas, Washington and California all now have STA-related specifications in their landscape manuals. Private landscape architect firms are beginning to specify STA-certified compost. Others will be following suit. **□**



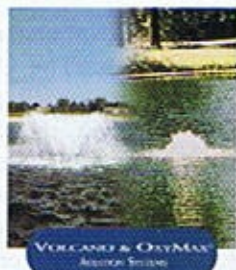
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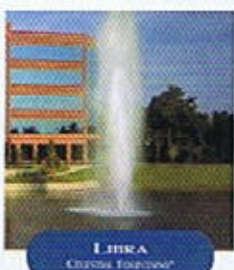
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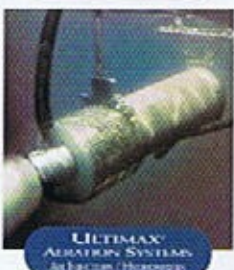
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Ron Alexander is president of R. Alexander Associates, Inc., Apex, N.C., and co-manages USCC Seal of Testing Assurance Program. Alexander is a horticulturalist who has been involved in composting and compost use for more than 20 years, and is the author of "The Field Guide to Compost Use," "Landscape Architectural Specifications for the Utilization of Compost," and the AASHTO Erosion Control Specifications.

For additional information on the STA program and its participants, log on to the USCC Web site: www.compostingcouncil.org, click on "STA," then "members," or contact the USCC's business office at 631-737-4931.