



March 2000

## North Carolina

# Landscape Architecture

## MESSAGE FROM THE PRESIDENT

The executive committee held a planning meeting a few months ago where we discussed what we would like to accomplish in the coming year. High on the action list was to improve the content and appearance of NCASLA's quarterly newsletter.

Chuck Friedrich, Executive Committee Member at Large for Communications and newsletter editor has since outlined a new approach for the publication that I think will add considerably to your use and enjoyment of the newsletter.

Let us know what you think and pass on your ideas. More importantly, you are all encouraged to contribute to the newsletters with articles, commentary, or personal information. Get published!

Be sure to mark May 18-19 on your calendar for the NCASLA Spring 2000 Conference: Storm Water Quality Challenge. (See page six and seven.)

The conference will be held in New Bern, and storm water and water quality will be the topic. More than 25 diverse speakers will participate on panel and discussion groups about one of the most important environmental issues facing our state and country.

## Compost the Answer

Over the past twenty years, composting has become an increasingly more popular method of managing organic by-products. For this reason, more compost is being produced today than ever before. As the volume of compost available to the landscape industry has increased, so has the scientific understanding of how to produce and use high quality compost products.

With approximately 5,000 composting facilities and the sale of several million of tons of compost annually, the United States composting industry has surely become a viable one. Of course, not all of the existing composting facilities are producing a commercially viable product, and as such, landscape architects often ask "How do I spec an acceptable compost product?" This article will explore that question.

### The benefits of using compost are numerous. Compost:

- 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

However, in order to cash in on the benefits of using compost, it is important to understand the product that is being purchased. By knowing what to look for when selecting a compost product, the chance of receiving a product of inferior quality, or one that is inappropriate for a particular application, will be minimized. In order to assist landscape architects properly specify compost, the United States Composting Council (USCC, 440-989-2748) has published "The Field Guide to Compost Use" and "Landscape Architecture Specifications for the Utilization of Compost".

### Common Misconceptions

Composted products are often referred to as "fertilizers" or "artificial topsoils". They are neither. Fertilizers are purchased and used for their innate nutrient value. They supply plants with the nutrition they need to flourish. Although some composts are used, in part, because they contain appreciable amounts of nutrition, the long-term benefits of compost come from its content of stable organic matter.

Dictionaries define topsoil as "the surface, or upper part of the soil", whereas individuals who use topsoil define it as a natural media consisting of sand, silt and clay, organic matter, trace amounts of nutrition and other inerts, in which turf, trees, etc. can be grown. Compost is not topsoil because it cannot be used in the same manner as topsoil. Generally, it is not a good idea to grow plant material in 100% compost.

**What is compost?** Compost is a product resulting from the controlled biological decomposition of organic matter that has been sanitized through the generation of heat, and stabilized to a point where it is beneficial to plant growth. Compost bears little resemblance to the raw material from which it was produced. Compost is an excellent source of organic matter that has the unique ability to improve the chemical, physical, and biological characteristics of soil



Compost  
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or growing media.

### How is Compost Produced?

Compost is produced through the activity of aerobic (oxygen requiring) microorganisms. These microorganisms require oxygen, moisture, and food in order to grow and multiply. When these resources are maintained at optimum levels, the natural decomposition process is greatly accelerated. The microbes generate heat, water vapor and carbon dioxide as they transform raw materials into a stable soil conditioner. Active composting is typically characterized by a high-temperature phase, that sanitizes the product and allows a high rate of decomposition, followed by a lower-temperature phase that allows the product to stabilize while still decomposing at a lower rate. Compost can be produced from many feedstocks, and state and federal regulations exist to ensure that only safe environmentally beneficial composts are marketed.

### Specifications

The best compost to use on a particular landscape project will depend on many factors; including the compost's characteristics, the existing soil conditions, the intended use of the compost and the plant materials to be established.

Therefore, it is imperative to understand that all composts are not alike, and all composts are not appropriate for all landscape applications. For instance, a coarse (woody) compost may be appropriate for use as a mulch, but not appropriate for use as a soil amendment for the establishment of an annual planting bed.

Although it is difficult to describe the perfect compost product for use all in all landscape projects, an ideal "general use" compost would possess the qualities as outlined in the chart to the right.

Specific compost characteristics such as bulk density and moisture content are important to the transportation and handling of the compost, while the pH, soluble salt content, etc. are important to plant growth. It is also important to identify composters which can provide a consistently high quality product. Consistently high quality compost, consistently performs 'in the field'. Probably the greatest benefit that compost products possess, is their versatility and ease of use. These benefits can best be seen when using high quality compost products. Landscapers often refer to the fact that their need to replace dead plant materials has been significantly reduced once they started using compost.

The North Carolina Department of Environment and Natural Resources fully support the production and end use of high quality compost products. That is why it has sponsored the North Carolina Compost Promotional Initiative which will assist the composting industry provide educational information regarding compost and compost use to specific end user groups and specifiers. This Initiative looks forward to engaging the North Carolina chapter of the ASLA at its various functions in the year 2000.

By: Ron Alexander, President  
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Mr. Alexander has been involved in composting and compost use for the last 15 years and is the author of "The Field Guide to Compost Use" and "Landscape Architecture Specifications for the Utilization of Compost". He is also the Co-chair of the USCC's Market Development Committee and is the Manager of the North Carolina Compost Promotional Initiative.

### Typical Characteristics of Municipal Feedstock Based Composts

Parameter	Typical Range	Preferred Range for Various Applications Under Average Field Conditions
pH	5.0-8.5	6.0 - 7.5
Soluble Salts (dS)	1-10	5 or below
Nutrient Content % (dry weight basis)	N 0.5-2.5 P 0.2-2.0 K 0.3-1.5	N1 or above P1 or above
Water Holding % Capacity (dry Weight basis)	75-200	100 or above
Bulk Density (Kg/M3 (lbs/yd3))	415-712 700-1,200	475-593 800-1000
Moisture content (%)	30-60	40-50
Organic Matter Content	30-70	50-60
Particle size (cm)	-----	Pass through 1.3 (1/2") screen or smaller
Trace Elements (Heavy Metals)	-----	Meet US EPA Part 503 Regulations
Growth Screening	-----	Must pass seed germination, pant growth assays
Stability	-----	Stable to highly stable

<sup>2</sup>Municipal feedstock-based composts are primarily derived from yard trimmings, biosolids, municipal solid waste, or food by-products, or a combination of one or more of these feedstocks.

Adapted from The Field Guide to Compost Use (Alexander, 1996)