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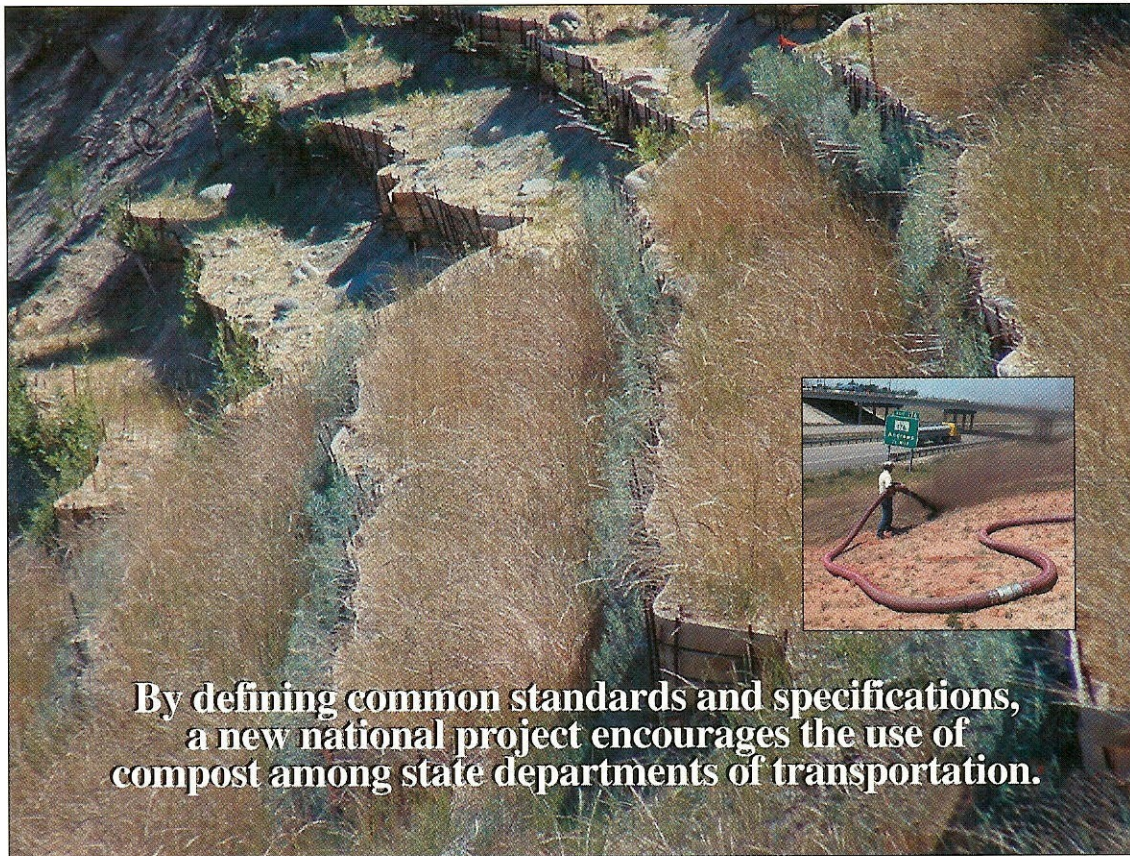
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HHW Drop-off
Compost on Roadsides
Scrap Glass Markets and Issues

Compost lends roadside assistance

by Ron Alexander



By defining common standards and specifications, a new national project encourages the use of compost among state departments of transportation.

At a site near Lake Chelan, Washington, erosion occurred in a roadside section that hadn't been treated with compost. Where compost had been applied, however, vegetation was thicker, greener and better able to withstand drought conditions. Inset photo shows a pneumatic blower applying compost to a Texas roadside.

The composting industry continues to expand and become more sophisticated. As the science that defines the industry has become increasingly understood (and taught), a greater percentage of composting facilities are succeeding. The expansion of compost markets has followed, and composters are becoming mainstream lawn-and-garden/agricultural supply companies. The U.S. Composting Council (Harrisburg, Pennsylvania) for many years has assisted these efforts by helping to build a national infrastructure for the composting industry, as well as developing new programs and tools to assist the industry.

Roadside applications

In 2000, the Composting Council Research and Education Foundation (a research arm of USCC) obtained a grant from the U.S. Environmental Protection Agency (Washington) to promote compost use in state and local roadside applications. With assistance from others in the composting industry, CCREF has developed an approach that will improve the utilization of compost by state and local departments of transportation

(DOT) and assure the future inclusion of compost materials in various highway and highway-related specifications.

To accomplish this goal, CCREF work included:

- ◆ compiling a list of state DOT officials (landscape architects, maintenance directors and environmental officers)
- ◆ developing a list of commercial composters throughout the country who can supply DOTs and their contractors with compost products
- ◆ collecting and cataloging current state DOT specifications for compost
- ◆ developing model state DOT specifications for compost that include consistent language and minimum numerical standards
- ◆ identifying and documenting state DOT success stories pertaining to compost utilization
- ◆ providing realistic estimates of state DOT compost usage

- ◆ developing an information package that can be used to educate managers of roadside areas about the use of compost
- ◆ attending meetings with state DOT officials in order to disseminate and share the compost use data
- ◆ distributing the project report to state DOTs and making the report available to the composting industry through USCC.

Purchasing habits

A survey of state DOT representatives was completed in order to collect information regarding the compost purchasing habits of each state's DOT, as well as pertinent specifications. The survey found that 31 state DOTs currently have compost-related specifications in place. Some states specify compost by name, while others allow it as an "approved equal" to other soil conditioners. Some specify it through "special provisions" that often are precursors to the development and approval of official specifications.

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Of the 31 states specifying compost use, 26 specify it for soil amendment purposes (including topsoil blending). Eleven specify compost for planting backfill mixes. Ten states specify compost for erosion control.

Data collection also determined that state DOTs used approximately 480,350 cubic yards of compost in 2000. Over the same period, an estimated 139,160 acres of land were "planted" by state DOTs. CCREF estimates that 95 percent of this "planted" acreage was seeded with turf, and the remaining 5 percent was planted with ornamental plants, shrubs and trees. With this volume of acreage being treated in a typical year, great potential exists to expand the usage of compost by state DOTs.

Specifications and standards

Another task within the DOT project was to develop a set of model compost specifications. It is the project's goal that this model specification be used by many states as a template for their own compost specifications. In this way, compost specifications used throughout the country can become more uniform. The compost characteristics most frequently named in DOT specs are outlined in Table 1.

EPA realized that development of a model DOT specification for compost is necessary in order to better promote the use of compost in

STA stats

With a grant from the U.S. Environmental Agency (Washington), the U.S. Composting Council (Harrisburg, Pennsylvania) launched its Seal of Testing Assurance program in 2000. STA is a compost testing and disclosure program that uses uniform testing and sampling protocols that many hope is a forerunner to national compost standards.

The program currently has 43 composters (including 55 facilities) and more than 1.6 million cubic yards of compost under certification. STA uses test methods and sampling procedures outlined in USCC's *Test Methods for the Evaluation of Composting and Compost*, a technical manual developed with partial funding from the U.S. Department of Agriculture (Washington).

Under the program, samples regularly must be tested for pH, soluble salts, nutrients, moisture, organic matter, maturity, stability, particle size, pathogens and trace metals. Participants must meet applicable state and federal regulations, and testing must be completed at approved laboratories. Participants also offer directions for public use, including a list of product ingredients, and all participants must make test results available to customers through a uniform data sheet. (Further details about the STA program can be found in "Compost Marketing Efforts Take Root" in the November 2000 issue of *Resource Recycling* or on USCC's Web site at www.compostingcouncil.org.)

highway and other public applications, as well as to develop more continuity among existing state specifications. The model specification will include both boilerplate compost usage instructions, as well as suggested numerical standards (typically acceptable value ranges), which are necessary if the composting industry expects public entities (e.g., state and federal agencies) to specify compost.

It is difficult, however, to develop numer-

ical compost specifications that will work in every field situation and with all compost products. Characteristics of compost and soil are variable, as are specific plant requirements and tolerances. Since an organized national effort necessary to develop this type of research database is not yet in the works, the development of an industry standard based on specifications known to be effective in the field is probably the best course

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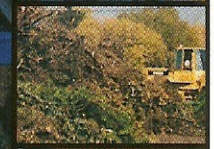
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Table 1**Common compost parameters specified by state DOTs**

| Parameter | Frequency (1) |
|--------------------------|---------------|
| pH | 23 |
| Particle size | 19 |
| Soluble salts | 16 |
| Organic matter | 14 |
| Moisture content | 13 |
| Stability/maturity | 9/6 |
| Pathogens | 9 |
| Heavy metals | 9 |
| Inerts | 7 |
| Odor | 5 |
| Carbon to nitrogen ratio | 4 |
| Nutrients | 3 |

DOTs: Departments of Transportation.
N = 31 states that specify compost use.

(1) Frequency indicates the number of states that mention this parameter.

Source: Composting Council Research and Education Foundation, 2001.

of action at this point.

The basis of this specification will be existing technical and DOT guidelines, as well as typical compost analyses data from throughout the country. Table 2 illustrates some of the ranges of, as well as the more typical, compost specification values in use by state DOTs. Any model specification must allow for modification by project engineers to allow for state-specific conditions (e.g., soil pH and soluble salts), plant requirements and the specified compost application rate. Any numerical specification also must take into consideration the typical application rate of compost being applied. The proposed model compost specification developed through this project will assume that the compost is applied just before planting (no aging in the soil) and at typical soil amendment rates (as described in USCC's *Field Guide to Compost Use*, 1996).

On the right road

There is no doubt that when many state DOTs review the model compost specifications, they will feel a need to modify them in some way. This is expected. However, their development hopefully will help to better standardize compost specifications across the country, as well as the parameters and test methods used in product evaluation. The report also will illustrate that compost can work effectively on roadside applications across the country. **RR**

Copies of the project report, distributed to state DOTs during the summer of 2001, will be available for purchase from the U.S. Composting Council's business office. For details, call (717) 238-9759 or visit its Web site at www.compostingcouncil.org.

Table 2 Compost specification data among DOTs (1)

| Parameters | Range of values | Most typical value |
|----------------------------|-----------------|--------------------|
| pH | 5.0 to 8.5 | 5.5 to 8.0 |
| Organic matter (percent) | 35 to 60 | 35 to 55 |
| Soluble salts (dS/m) | <3 to 10 | <4 |
| Moisture content (percent) | 35 to 60 | 35 to 55 |
| Carbon to nitrogen ratio | <6 to 30:1 | <10 to 20:1 |
| Inerts (percent) | <0.3 to 1 | <1 |
| Particle size (inches) | <0.5 to 1 | <0.5 to 1 |

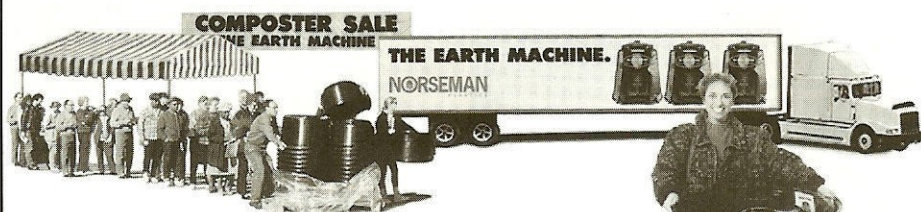
DOTs: Departments of Transportation.

N = 31 states that specify compost use.

(1) Stability/maturity are not listed because a variety of test methods are being used by state DOTs.

Source: Composting Council Research and Education Foundation, 2001.

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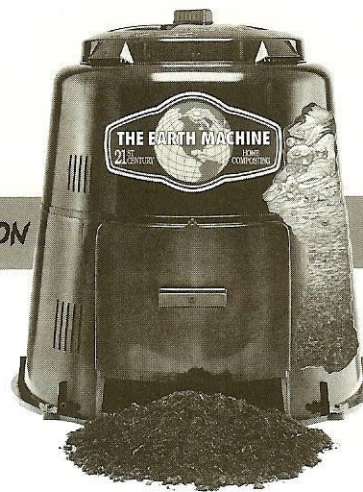
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