

US EPA ARCHIVE DOCUMENT

3.2 CATALOGUE OF STATE DOT COMPOST USAGE EXPERIENCE (50 STATE SUMMARIES)

To provide further background regarding the use of compost by each State's DOT, a summary of related information is included. Following these case studies are three (3) tables which possess relevant data from existing state compost specifications. The tables compile the data in three (3) formats; they are 1) soil incorporant compost specifications, 2) surface applied compost specifications (soil mulching and erosion/sediment control), and 3) all State compost specifications.

Summary of Findings

During the initial stages of the project, surveying 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. Through these data collection efforts, it was determined that 31 state DOTs currently have compost, or related product, specifications. Some states specify compost by name, while some allow it as an 'approved equal' to other soil conditioners, and some specify its use through "special provisions". These special provisions are often precursors to the development and approval of an official specification. Although certain states only specify the use of specific types (feedstock) of compost, most states allow the use of a variety of compost types. Of the 31 states specifying compost use, 26 specify it for soil amending (including topsoil blending) purposes, 11 for planting backfill mixes, and 10 for erosion control.

Data collection also determined that state DOTs used approximately 480,350 cubic yards of compost in 2000 (Figure 3), and an estimated 139,160 acres of land were 'planted' by State DOTs. Although difficult to determine on a state-by-state basis, it is likely that 95% of this acreage was seeded with grasses (some sodded), and 5% was planted with ornamental plants, shrubs and trees. We were unable to determine the percentage breakdown of acreage that was seeded for aesthetics versus those seeded for erosion control purposes (slope stabilization). However, with the amount of acreage treated by State DOTs in a 'typical year', it is obvious that there is great potential to expand the usage of compost by State DOTs.

Figure 3 – Estimated Compost Usage by State

State DOT	Compost Use Specification	Estimated Current Usage - cu. yds. ^a	Estimated Annual Potential Usage - acres ^b	State DOT	Compost Use Specification	Estimated Current Usage - cu. yds. ^a	Estimated Annual Potential Usage - acres ^b
ALASKA	yes	250	200	NEW MEXICO	no	0	2,000
ALABAMA	no	0	1,000	NEW YORK	yes	n/a	400
ARIZONA ^d	no	0	0	NORTH CAROLINA	yes	0	250
ARKANSAS	no	0	1,000	NORTH DAKOTA	no	0	300
CALIFORNIA	yes	225,000	25,000	OHIO	yes	75	n/a
COLORADO	yes	n/a	200	OKLAHOMA	no	0	2,000
CONNECTICUT ^f	yes	n/a	n/a	OREGON	yes	3,600	60
DELAWARE ^c	yes	n/a	\$50,000/yr.- 3 years	PENNSYLVANIA	yes	n/a	1,000
FLORIDA	yes	n/a	2,000	RHODE ISLAND	no	0	1,000
GEORGIA ^e	yes	10,000	2,000	SOUTH CAROLINA	yes	100	n/a
HAWAII	no	0	0	SOUTH DAKOTA	no	0	250
IDAHO	yes	10,000	150	TEXAS	yes	100,000	80,000
ILLINOIS ^g	yes	n/a	n/a	UTAH	yes	8,000	400
INDIANA	no	0	200	VERMONT	no	n/a	n/a
IOWA	yes	12,000	2,000	VIRGINIA ^f	yes	n/a	30
KANSAS ^f	yes	n/a	n/a	WASHINGTON	yes	80,000	400
KENTUCKY	no	0	300	WEST VIRGINIA	no	0	10
LOUISIANA	no	0	2,500	WISCONSIN	yes	100	750
MAINE ^b	yes	17,000	n/a	WYOMING	yes	n/a	4,000
MARYLAND	yes	75	n/a				
MASSACHUSETTS	yes	n/a	n/a	TOTAL		480,350 yd3	139,160 Acres
MICHIGAN	yes	n/a	n/a				
MINNESOTA	yes	10,000	3,000				
MISSISSIPPI	no	0	1,500				
MISSOURI	no	0	4,000				
MONTANA	yes	600	1,000				
NEBRASKA ^d	no	0	150				
NEVADA	no	0	n/a				
NEW HAMPSHIRE	yes	3,500	10				
NEW JERSEY	yes	50	10				

a - estimate based on most recent year's usage
b - annual usage will vary considerably (as much as 50%), based on actual landscaping completed
c - MOU in place requiring the expenditure of listed dollar amount on compost
d - state DOT believes that organic matter addition in planting is detrimental to long term plant viability
e - usage includes "aged" wood chips in quantity
f - specification is either in draft form or too new to make projections
g - specification is for a blended soil which includes compost as a component

State DOT Data Summaries

Following are a series of data summaries which were developed following detailed interviews with each State DOT. The individuals that were interviewed during this process were identified as the most likely person within the specific State's DOT to specify the use of compost.

1. Alaska

Contact Name/ Title: Jerry Ruehle, Regional Environmental Coordinator

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Specifications and uses

The AKDOT has no general specification for compost products. They do, however, have a "special provision" allowing the use of compost in a backfill planting mix. This has existed since 1997. It approves one specific supplier (Dean Environmental Services) or equal. They have a soil organic matter specification that reads "not less than 3% to not more than 20%".

Compost Feedstocks

"Compost products shall contain composted plant waste derived from the aerobic decomposition of recycled plant waste."

Application Rates

5 cubic feet of compost to 1 cubic yard of topsoil backfill mix

Usage and Potential

The AKDOT currently uses only minimal amounts of compost. It was estimated that their usage was only "a couple of hundred yards per year." They do landscape approximately 200 acres/year. 100% of landscape construction is contracted out. Almost all landscape maintenance is handled by local government agencies.

Compost Product Testing

The only compost standards are that the compost "shall have a moisture content that has no visible free water or dust produced when handling the material." There are no testing or certification requirements listed.

State Directives

Mr. Ruehle was not aware of any state directives regarding compost use.

Comments

There appear to be very few compost facilities in Alaska outside of the Dean Environmental facility listed in the special provision. The cold weather and limited amount of landscape work actually completed by the AKDOT may explain the general lack of interest and use of compost products.

2. Alabama

Contact Name/ Title: Ron Newsome, Assistant Maintenance Engineer, Roadway

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Specifications and uses

The ALDOT has no specification for compost products and no experience using them. They also have no minimum organic matter specification in their topsoil specs.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The ALDOT plants at least 1,000 acres of primarily wildflowers annually. They manage over 100,000 acres of roadside. Significant quantities of compost could be used. 100% of landscape construction and maintenance is completed by state work forces.

Compost Product Testing N/A

State Directives

Mr. Newsome was not aware of any state directives regarding the use of compost products.

Comments N/A

3. Arkansas

Contact Name/ Title: Phillip Moore, Botanist
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Specifications and uses

The ARDOT does not have a specification for compost use. It has occasionally been used by special provisions on an experimental basis in roadside enhancement projects. It was tried in place of chemical fertilizer and as an organic soil amendment. Trials date back to 1993.

Compost Feedstocks

Compost derived from chicken litter and yard waste/"sewage sludge" has been used in their experiments.

Application Rates

Application rates of the chicken litter vary from 500 lbs./acre to 2000 lbs./acre as a replacement for chemical fertilizer on wildflower/native grass seeding test plots. The yard waste/"sewage sludge" compost was applied at rates of 1/2" and 1" prior to planting wildflowers and grass seed.

Usage and Potential

No significant quantities of compost have been used by the ARDOT yet. The ARDOT awarded contracts for 1,395 acres of seeding in 1999. This figure will vary from year to year. 100% of landscape construction is contracted out. All maintenance is done using the state work force, but very little landscape maintenance is actually done outside of mowing grass.

Compost Product Testing

The only testing completed for the experimental plots were health and safety testing by state and federal agencies.

State Directives

Mr. Moore was aware of state directives regarding the use of compost products, but claims they have been ineffective.

Comment

Mr. Moore would like to receive more information on compost use, other state DOT experiences in erosion control and cost benefit comparisons. He was pleased with both the compost experiments he was involved in (fertilizer replacement and soil amending). He also questions the current capacity of Arkansas compost producers to produce adequate supplies of compost.

4. Arizona

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Specifications and uses

The AZDOT does not have a specification for compost use in their landscape manual.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential N/A

Compost Product Testing N/A

State Directives

Mr. Taylor was not aware of any formal state directives regarding the use of compost products.

Comment

It is the belief of the AZDOT, based on the research conducted by the University of Arizona (Terry Mikel, Ph.D. - Cooperative Extension contact for the AZDOT), that native plants do best when planted directly into the natural desert landscape soil along with a time released fertilizer. They claim that when compost had been tried, back in the late 1980's, plant roots remained in the compost amended soil and did not extend into surrounding soil, resulting in an unstable plant as the plant grew.

5. California

Contact Name/ Title: Jack Broadbent and John Haynes, Senior Landscape Architects

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Specifications and uses

The CADOT has a specification for compost used for erosion control “materials to embankment and excavation slopes 1:4 (vertical:horizontal) or steeper, and other areas designated by the Engineer”. They also have a “special provision” allowing the use of compost as a mulch that has been in place since about 1995. It has also been used occasionally as a soil amendment, but nothing formal exists in print defining this application.

Compost Feedstocks

Compost used for erosion control (hydroseeding or seed mulch) shall be derived from green material consisting of chipped, shredded or ground vegetation or clean processed wood products, or a Class A, E.Q. biosolids compost, or a combination of green material and biosolids compost.

The compost mulch feedstocks are “woody materials (which) shall consist of chipped, shredded or ground green materials such as shrubs, tree trimmings or clean processed wood products.” “Wood chips produced from tree trimmings may also contain leaves and small twigs.” “Green material shall be processed and have an internal temperature of 56 degrees C° for a minimum of 15 consecutive days”. The material must be turned a minimum of 5 times during this processing period, and cured for 90 days thereafter.

Application Rates

Erosion control compost application rates are project specific. 3” to 6” of compost is specified for use as mulch. No soil amendment application rates are listed.

Usage and Potential

The CADOT used 140,150 cubic yards of compost mulch in new construction in 1998-99. There were approximately 85,500 cubic yards used in landscape maintenance. The state maintains approximately 25,000 acres of landscape annually. There are over 230,000 acres of roadside. There are no figures for compost used as a soil amendment. 100% of landscape construction is contracted out. All landscape maintenance is handled by the CADOT work force. It was estimated by Mr. Haynes that even greater quantities of compost were used for erosion control applications.

Compost Product Testing

There is a specific time and temperature requirement (56 degrees C° for a period of 15 consecutive days) for all compost products. There are also particle size requirements for both applications and a 0.1% maximum inert content limit. Compost maturity/stability and soluble salts, and moisture testing are required for the erosion control compost.

State Directives

The CADOT is encouraged to use recycled products wherever possible and reports/records of such usage are filed. There is, however, no category for organics in this recycled product procurement report.

Comments

The average statewide price for compost mulch is \$6.00/cu. yd. (delivered), although much of what is used by the DOT is available to them at no cost. Mr. Broadbent suggested working with the California Integrated Waste Management Board to increase the use of compost products. He expressed a general satisfaction regarding the performance of compost mulch. Their only negative experience resulted from the application of unclean, urban “green waste” prior to specifications being in place.

6. Colorado

Contact Name/ Title: Mike Banovich, Landscape Architect

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Specifications and uses

The CODOT has had a specification for compost products since about the late 1980’s. It is listed for use as a general soil amendment and as part of a backfill mix.

Compost Feedstocks

Cow or sheep manure and wood residue are listed as allowable compost feedstocks. Biosolids may be added in the near future.

Application Rates

4 cubic yards of compost per 1,000 square feet is the soil amendment application. The backfill rates are 0.50 cu. ft. per tree and 0.10 cu. ft. per shrub.

Usage and Potential

113 acres were landscaped by the CODOT in 1997, the most recent record on file. Annual landscaping can run between 100 to 300 acres per year. 100% of landscape construction is contracted out. A 1 year maintenance provision is included with these contracts. There is only minimal maintenance completed by the state work force after this 1 year period.

Compost Product Testing

There are both compost product standards and product testing required. The finished compost is tested for organic matter (30% minimum), pH (5.0 to 8.5) and C:N ratio (between 20/1 and 35/1), as well as temperature/time requirements.

State Directives

Mr. Banovich was not aware of any state directives regarding compost use.

Comments

Mr. Banovich has been satisfied with the performance of compost. He suggested working with the state health department regarding the biosolids compost issues.

7. Connecticut

Contact Name/ Title: Emile Fournier, Landscape Designer III

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Specifications and uses

The CTDOT has had a draft specification for compost use since 1998. They are currently meeting in committee with the CTDEP and the University of Connecticut to prepare a finished specification. Various documents, compost trial reports and draft specifications are included with this report. Draft compost specifications have been prepared for soil erosion control, backfill mixes, turf establishment and top dressing.

Compost Feedstocks

Compost derived from leaves and grass (yard trimmings) and source separated organics are currently listed as feedstocks. No biosolids are being considered for approval at this time.

Application Rates

Application rates vary depending on use. Rates are still being discussed by the 'compost working group' described above. Preliminary rates are as follows:

Erosion control - minimum depth of 50 mm (approx. 2")

Backfill mix - 1 part compost to 2 parts site soil

Turf establishment (general soil amendment) - ?" to 2", tilled to a depth of 3"

Topdressing - ?"

Usage and Potential

Mr. Fournier could not provide an estimate of the compost use potential by the CTDOT. He did not have the acreage figures for roadside landscaping. 100% of landscape construction is contracted out. All maintenance is done using the state work force, but very little landscape maintenance is actually done outside of mowing grass.

Compost Product Testing

There has been a compost testing program proposed in the draft specifications. It will include tests for the usual agronomic parameters (pH, moisture, organic matter content, etc.), as well as more compost specific tests such as odor and maturity.

State Directives

Mr. Fournier is not aware of any state directives regarding the use of compost products over peat or natural topsoil.

Comment

The CTDOT has taken a very scientific approach to assuring that compost products be used correctly in their state. They are very interested in the USCC STA program and would like information and direction on it as soon as possible, given that they are formulating a specification and testing program now. Their proposed use of compost in erosion control is innovative and not a typical state DOT specification.

8. Delaware

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Specifications and uses

The DEDOT does not have a specification for compost use. They do, however, have a Memorandum of Understanding (“MOU”) in effect with the Delaware Department of Natural Resources and Environmental Control and the Delaware Economic Development Office that is effectively serving as a specification. This MOU has been in place since late 1999. Compost derived from poultry litter is approved for use as a soil amendment under this MOU.

The DEDOT did have, as far back as 1991, a specification for both biosolids compost and co-composted biosolids/municipal waste for use as a soil amendment. The current status of these specifications is questionable since the Delaware facility that produced these products has not been in operation for several years.

Compost Feedstocks

Poultry litter only.

Application Rates

“Compost shall be applied 1” thick over the ground” and “mixed into the top 6” of soil”

Usage and Potential

Mr. Rosan could not, based on the relatively new existence of this “specification”, project how much compost could be used. The MOU requires that the DEDOT spend \$50,000/year to purchase poultry litter compost, for a 3 year period. It also requires that the compost be used on 5 demonstration projects. 100% of landscape construction is contracted out. These contracts include a 3 year maintenance provision. There is minimal additional maintenance beyond this period.

Compost Product Testing

No formal testing program exists. The compost does have to meet standards for pH, moisture, particle size and soluble salts.

State Directives

The MOU is a state directive concerning the use of poultry litter compost.

Comment

The program is too new to be able to comment on product performance.

9. Florida

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Specifications and uses

The FLDOT placed a formal a specification for compost use into the January 2000 edition of their landscape manual, although compost had been used previously by the DOT. It is specified for use as a mulch and as a soil amendment. Specific producers are listed in the specifications.

Compost Feedstocks

Compost derived from yard waste, yard waste and manure, municipal solid waste (“MSW”) and biosolids are all approved feedstocks.

Application Rates

The only application rate specified is for the use of compost as a soil amendment. Compost is to be “uniformly spread 75 mm (minimum)” (3”) and “mixed with the underlying soil to a combined depth of 150mm” (6”). The general application rate for mulch is a 2” minimum layer.

Usage and Potential

Mr. Henry could not estimate what amount of compost had been used due to the recent addition of it to the manual. The FLDOT landscape approximately 2,000 to 3,000 acres/year with most of this being grass seeding, so significant amounts could be used in the future. Specifications require that this soil contain 10% organic matter initially. 100% of landscape construction and 95% of maintenance is contracted out.

Compost Product Testing

There are minimal standards and testing requirements for compost used on FLDOT projects beyond the health and safety requirements imposed by the FLDEP (Department of Environmental Protection). The project engineer has the right to sample the in-place compost for texture, pH and organic matter content. Compost mulch may contain no visible foreign matter. The permitted particle size range is between 2" to no greater than 6".

State Directives

There is a 1992 Florida statewide directive encouraging the use of compost.

Comment

Mr. Henry wants to give compost a 2 year test period before passing judgment on its performance in FLDOT landscape work. He is very interested in the USCC STA program and would consider implementing this as a requirement for Florida compost suppliers.

10. Georgia

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Specifications and uses

The GADOT has had a compost specification since 1995, and possibly as early as 1992 in some form. It is listed for use under the heading of organic soil additives.

Compost Feedstocks

Compost feedstock reference is generic, consisting of "organic materials which have undergone biological decomposition".

Application Rates

No general application rates are specified. Compost application is project specific. Typical applications are 2" to 3" of compost incorporated into 6" of existing soil.

Usage and Potential

Ms. Hctor did not think that much compost was currently being used in landscape construction projects. Approximately 10,000 cu. yds./year of wood chips (not composted) are being used as mulch. The GADOT maintains about 5,400 acres of landscape area. 90% of new landscape construction is contracted out. This work includes a 2 year maintenance requirement. 90% of landscape maintenance is done by the state work force after this time.

Compost Product Testing

There are only minimal compost standards and no testing requirements in the GADOT specifications. Product standards include color, pH, and references to minimal odor, stabilization and human pathogens. The Georgia Department of Administrative Services has a health and safety compost standard that is comparable to the EPA Part 503 specifications.

State Directives

The Georgia Department of Administrative Services requires that "compost and mulch made from organic material that is recovered from Georgia's non-hazardous waste stream" be given preference over other products in landscape construction.

Comments

Ms. Hctor's limited exposure to compost use has been positive.

11. Hawaii

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Specifications and uses

There is no compost specification listed in the HIDOT "Master Guidelines" manual. Mr. Tonaki did indicate that compost had been used occasionally as a general soil amendment.

Compost Feedstocks N/A

Application Rates

Compost, when it was used, was used at the manufacturers recommended application rates.

Usage and Potential

The HIDOT does very little landscaping, according to Mr. Tonaki. He claimed that there was very little land area actually landscaped or potentially available to be landscaped within the land owned by the HIDOT. 100% of new landscape construction and 75% of maintenance is contracted out.

Compost Product Testing N/A

State Directives

Mr. Tonaki indicated that he was aware of a directive giving preference to the use of local recycled products in landscape work, but not specifically to compost.

Comments

The Master Guidelines manual was just revised in December of 1999. New proposed sections on planting soil and planting make no actual reference to compost. There is a specification for "nitrogen stabilized" wood chips under the mulch and soil amendment heading.

12. Idaho

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Specifications and uses

The IDDOT has had a specification for the use of compost as a mulch in slopes "flatter than 1 vertical to 3 horizontal" for about 3 years.

Compost Feedstocks

There are no feedstocks specifically approved in the compost specifications. There are 3 producers listed as possible sources for compost.

Application Rates

The application rate specified for the use of compost as mulch is a minimum 20 cubic yards per acre.

Usage and Potential

Approximately 10,000 cu. yds. of compost were used in 2000. This quantity will vary from year to year. The IDDOT landscapes between 50 to 300 acres/year. 100% of landscape construction is contracted out. All maintenance is done using the state work force, but they use very little compost due to budgetary constraints.

Compost Product Testing

The only compost standards/test requirements are that the compost meet the EPA part 503 regulations for Class A compost and that the supplier provide Solvita maturity test results of 5 or greater to assure the compost is mature. The maturity test is required for very 2 hectares of compost use.

State Directives

Mr. Ross was not aware of any state directives regarding the use of compost products.

Comment

Mr. Ross is very interested in the USCC STA program and would consider implementing this as a requirement for Idaho compost suppliers. He claims that there is a lot of aged manure being promoted as compost in Idaho. He has seen very good results using compost as a mulch.

13. Illinois

Contact Name/ Title: Charles Gouveia, Roadside Maintenance Manager

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Specifications and uses

The ILDOT has had a specification for the use of compost as a soil amendment for about 10 years, since the legislature passed a ban on the disposal of yard waste in landfills. The compost actually becomes part of the "topsoil and compost" specification due to the way the specification is written.

Compost Feedstocks

Yard waste is the primary source of approved compost feedstock. Biosolids compost is not used due to "permitting problems".

Application Rates

A manufactured topsoil consisting of "a maximum of 40% compost by volume shall be substituted for the topsoil" is permitted by specification. The application rate specified for the use of this compost/topsoil is dictated by the specific project grading plans.

Usage and Potential

Mr. Gouveia could provide no estimate of compost use or potential use due to the way the specifications are structured. It is used primarily in urban areas where soil is poor and compost supply is available. 100% of landscape construction and "most" of the maintenance is contracted out.

Compost Product Testing

The ILDOT has only minimal compost quality standards/test requirements. They require that the compost be produced by and meet the requirements of the ILEPA standards for "general use compost" (analogous to part 503 regulations for Class A compost) and that the compost be relatively free of man made materials and "be capable of supporting and germination of seeding".

State Directives

Mr. Gouveia referred to a legislative ban on yard waste in landfills as the closest state directive to encouraging compost use.

Comment

Mr. Gouveia is very interested in the USCC STA program and would consider implementing this as a requirement for Illinois compost suppliers. He claims that there is little compost available outside of the Chicago metropolitan area in Illinois.

14. Indiana

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Specifications and uses

The INDOT has no specification for compost products. Peat moss is the primary source of organic matter. There is no minimum specification for organic matter in planting mixes.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The INDOT plants between 200 to 300 acres per year. The potential for compost use is there, should they begin to utilize the product. 95% of landscape construction is contracted out. Contracts include a 2 to 3 year maintenance requirement. Very little maintenance is done after this period.

Compost Product Testing N/A

State Directives

Mr. Lamb is not aware of any state directives concerning the use of recycled organic products.

Comments

The INDOT does maintain a compost site for "road kill". Very little compost is produced from this site and it is used locally.

15. Iowa

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Specifications and uses

The IADOT has had a specification for compost products since about 1998. They claim that there isn't a need for soil amending in most landscape applications due to the high quality of the natural soils. Compost is listed as a soil amendment material.

Compost Feedstocks

Their general specification includes yard debris compost only. They have, however, included "source separated compostable materials, separated at the point of waste generation that may include, but are not limited to, leaf and yard trimmings, food scraps, food processing residuals, forest residues and bark, and soiled and/or unrecyclable paper, and biosolids" in specific project specifications.

Application Rates

4" of compost and 1" of sand incorporated to a depth of 10" to 12" in planting bed preparation

Usage and Potential

12,000 cubic yards of compost were used in 1999. The IADOT seeds approximately 2,000 to 2,500 acres/year, so the potential for compost use is great. 100% of landscape construction is contracted out. Approximately 95% of landscape maintenance is handled by the state work force.

Compost Product Testing

There are minimal compost standards and no testing requirements for the yard debris compost used in "special provisions for amended soil".

State Directives

The Iowa Department of Natural Resources is encouraging the DOT to use more compost.

Comments

Mr. Masteller was satisfied with the performance of compost products. He indicated that Iowa State University is currently running tests on the use of compost for erosion control. He was very interested in implementing the USCC STA program as a condition for acceptance of compost products on IADOT projects.

16. Kansas

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Specifications and uses

The KSDOT has just added a specification for compost products within the past year (2000). It is listed as "being suitable for general gardening, soil incorporation and plant backfill."

Compost Feedstocks

No specific feedstocks are listed. The compost must, however, come from a Kansas permitted composting facility.

Application Rates

1" of compost incorporated to a finished depth of 6" for turf and planting areas. A mix of 1 part compost to 5 parts soil from the planting hole, for tree/shrub backfill mixes.

Usage and Potential

The KSDOT has just used compost on their first project. They had no projections as to the ultimate potential use of compost at this. 100% of landscape construction and maintenance is contracted out.

Compost Product Testing

The KSDOT does require that compost be tested for a list of parameters. In addition, they also require that a Solvita Compost Maturity Test, be submitted for any compost product proposed for use on a DOT project.

State Directives

Mr. Ross was not aware of any state directives regarding compost use.

Comments

The KSDOT is just getting started with the use of compost. Mr. Ross indicated that they would like the USCC to review their specifications and provide input back to him.

17. Kentucky

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Specifications and uses

The KTC has no specification for compost products, nor do they plan on having one. Both the University of Kentucky and the local nursery association has advised the KTC that soils should not be amended when planting. They claim that plant root balls will tend to stay within the amended backfill mix and ultimately fail to thrive.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The KTC plants between 300 to 400 acres per year. The potential for compost use in Kentucky remains, should they change their opinion on the use of compost. 100% of landscape construction is contracted out. All mowing is contracted out. Very little additional maintenance is done.

Compost Product Testing N/A

State Directives

Mr. Ramsey is not aware of any state directives concerning the use of recycled organic products.

Comments N/A

18. Louisiana

Contact Name/ Title: Sidney Babin, Chief Landscape Architect

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Specifications and uses

There is no true specification for compost products listed by the LADOT. They use a lot of pine bark and manure, but these products are not composted. In fact, "excessively decomposed pine bark will be rejected" is language that is part of their specifications. Pine bark has been in the specifications for over 35 years and manure has been included since the late 1980's.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The LADOT used over 5,000 cu. yds. of mulch in 1999. They estimate that approx. 2,500 to 3,000 acres of roadside are landscaped or seeded annually. 100% of new landscape construction with a 1 year maintenance provision is contracted out. Little additional maintenance extends beyond this time period. An effort is made to employ local community wherever possible.

Compost Product Testing N/A

State Directives

Mr. Babin was not aware of any state directive encouraging compost use.

Comments

There appears to be a huge supply of pine bark available in Louisiana at very low cost to the LADOT. This is what they use for the majority of both their mulching and soil amending needs.

19. Maine

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Specifications and uses

The MEDOT has had a specification for compost products since the early 1990's. It is approved for use in any application as a soil amendment and it is defined under the heading "peat humus". "Wood waste" is specifically approved for erosion control filter berm construction.

Compost Feedstocks

Compost derived "from source separated materials that may include leaf and yard trimmings, food scraps, food processing residues, manure and other agricultural residuals, or biosolids" are listed as acceptable feedstocks.

"Wood waste erosion control mix" consists of a variety of woody feedstocks listed under the heading of mulch.

Application Rates

Wood waste erosion control mix shall be spread to a minimum depth of 100 mm (4"). There are no application rates listed in the specification book for general soil amending with compost. Application rates are project specific depending on what is being planted and on the organic matter content of the native soil at the job site. Tree pits are specified to contain 1/3 organic matter, of some kind, by volume.

Usage and Potential

The MEDOT used 5,000 cu. yds. of wood waste erosion control mix in 1999 and had used 7,200 cu. yds. at the time of this survey. They used 17,200 cu. yds. of loam in 1999 and had used 32,900 cu. yds. in 2000, at the time of this survey. Loam usage can include other sources of organic matter besides compost. Loam must contain 10% to 20% organic matter content by volume. They do not have a way to determine compost usage volume on new landscape construction projects. 700 cu. yds. of biosolids compost was used in the fall of 2000 for a wildflower seeding project. 95% of landscape construction is contracted out. There is no on-going maintenance of landscaped areas.

Compost Product Testing

There are minimal standards for composted products included in the specifications, but no actual outside testing is required. Standards include particle size, soluble salts, pH and a Dewar self heating test for peat humus. Mr. LaRoche claims that the MEDOT "knows the supplier" of their primary source of compost (biosolids), eliminating the need for additional testing. Wood waste erosion control mix has size, pH and soluble salts standards.

State Directives

Mr. LaRoche was aware of a state directive concerning the use of recycled organic products published sometime in the 90's, but did not think it was effective or an incentive to use compost. He believes that the elimination of natural loam and topsoil will increase compost product use.

Comments

Mr. LaRoche has been pleased with the performance of compost products by the MEDOT. He claims that the primary source of compost is biosolids based and his mulch is wood waste based. There does not appear to be any significant source of yard waste compost available for use by the MEDOT. He believes that compost amended soils perform better than topsoil under drought conditions and is currently experimenting with a hydroseeded compost/wildflower seed.

20. Maryland

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Specifications and uses

The MDDOT has had a specification for compost products since at least 1993, and possibly longer, and they are currently in the process of being updated. It is approved for use as a backfill mix additive for tree and shrub planting, but can be approved for other uses as a general soil amendment. Most of the topsoil in the state meets the 1.5% minimum organic matter content requirement and requires no amending. Any soil that falls below 1% is rejected and cannot be amended.

Compost Feedstocks

Biosolids compost and source-separated compost derived from “tree leaf” and “non-tree leaf” (lawn clippings) are approved feedstocks.

Application Rates

No application rates are listed in the specification book. They are project specific based on what is being planted and on the characteristics of the native soil on the job site.

Usage and Potential

The MDDOT only uses about 75 cu. yds. per year of compost. Mr. Cober claims that the products just have not been available for DOT usage, as they are being purchased primarily by the private industry at higher prices than the DOT would pay. 98% of landscape construction and 95% of landscape maintenance is contracted out.

Compost Product Testing

There are standards for composted products included in the specifications. Biosolids compost must be approved by the MDDEP for health and safety standards. Additional MDDOT standards include particle size, soluble salts, re-heating, moisture and pH. Source separated compost must be approved for distribution by the Maryland Dept. of Agriculture which has a compost operator certification program. A soluble salt standard, particle size, re-heating, moisture and pH are additional requirements of the MDDOT for these types of compost products

State Directives

Mr. Cober was not aware of any state directives regarding the use of compost products.

Comments

Mr. Cober has been satisfied with the performance of compost on MDDOT products, but emphasized that little is actually used. He is interested in the activity of the state compost association and the USCC STA program.

21. Massachusetts

Contact Name/ Title: George Batchelor, Landscape Architect

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Specifications and uses

A draft specification for compost should be in place within the next 6 months. Compost has been used on a very limited, project specific basis for about 2 or 3 years. It will be specified for use as an “organic soil additive”.

Compost Feedstocks

Any compost that meets or exceeds the requirements of the Massachusetts Department of Environmental Protection is acceptable for use on DOT projects. This includes biosolids compost that meets the EPA’s part 503 standards for Class A, E.Q. product.

Application Rates

The objective of the MADOT will be to achieve a finished soil with an organic matter content of between 4% to 10%, depending on what is being planted. Compost can be added in “lifts not to exceed 100 mm (approx. 4”). After each lift, the soil shall be well-mixed into the soil layer beneath it.”

Usage and Potential

Potential usage cannot be estimated at this time since application rates will vary from project to project depending on the organic matter content of the project site soil and the plants to be established. 100% of landscape construction is contracted out. Landscape maintenance is split approximately 50/50 between outside contractors and state work forces.

Compost Product Testing

Compost testing, in addition to the health and safety requirements of the Mass. DEP, is required. These tests include a Solvita maturity test, which must be used in the presence of a highway department engineer.

State Directives

Mr. Batchelor was aware of a general state recycling mandate, but nothing specific for organic materials.

Comments

Compost is a relatively new product to the Mass. Highway Department.

22. Michigan

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Specifications and uses

The MIDOT has had a specification for compost products since 1995. It is listed for use as a generic “special provision for compost” (soil amendment). It has recently been listed as a “special provision for slope restoration” (2000).

Compost Feedstocks

Compost derived from yard clippings or other materials is specified under the generic compost heading. Compost derived from “vegetative material (such as yard trimmings), wood or bark” is specified for slope restoration.

Application Rates

The generic compost specification application rate is project plan specific. The slope restoration mix consists of compost, seed and tackifier and is applied at a depth of 1” (25 mm).

Usage and Potential

There was no way to estimate current usage according to Mr. Bokovoy. He did claim that compost use had been increasing annually and that it is currently being used on approximately 15% to 20% of all landscape projects. This is primarily on “right of way” projects for grass seeding which encompasses “thousands of acres annually”. 100% of landscape construction is contracted out with a 2 year maintenance provision included with these contracts. There is only minimal, if any, maintenance completed by the state work force after this period.

Compost Product Testing

There are both compost product standards and product testing required. These differ somewhat for the two compost uses listed above. They include pH, soluble salts, organic matter and other standards. An undefined maturity test is also specified. Compliance with the EPA CFR 40, Part 503 regulations is also required even though biosolids are not listed in the specification.

State Directives

Mr. Bokovoy was not aware of any state directives regarding compost use.

Comments

Mr. Bokovoy has been satisfied with the performance of compost. He is very interested in the USCC STA program and would like to see this implemented by the MIDOT.

23. Minnesota

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Specifications and uses

The MNDOT has used compost since as early as 1988. A formal specification has been in place since 1995. It is specified for use as a soil amendment for turf establishment and landscape planting. Compost is specified according to feedstock as described below. The MNDOT is currently working on an experimental use of compost as a biofiltration agent to build wetlands. They have applied a 6” layer of compacted compost, using 12,000 cu. yds., over a 6 acre site (2,000 cu. yds./acre). The initial results are promising and a final report will be written in the spring of 2001.

Compost Feedstocks

The MNDOT assigns only certain compost feedstocks to specific uses. This is done as follows:

- Grade 1 compost - animal manure compost for use in turf establishment
- Grade 2 compost - yard debris compost for use as a landscape planting medium
- Grade 3 compost - 90% or more of yard debris compost, with a maximum of 10% animal manure compost, for turf establishment

Biosolids as a compost additive or co-compost material shall be acceptable if it meets all specifications for Grade 1 compost.

Application Rates

The MNDOT requires a 4% organic matter content in their finished “ready to plant” soil. Application rates for compost are determined by measuring the organic matter content of the project site soil and of the compost to be used, and then determining how much compost will be needed to meet the 4% minimum standard. Typically, this results in a 1” to 2” application of Grade 1 compost or a 3” to 4” application of Grade 2 compost.

Usage and Potential

Mr. Stenlund estimated that between 5,000 to 20,000 cu. yds. of compost are used annually by the MNDOT, depending on how much landscaping is being done in a given year. There are approximately 3,000 to 4,000 acres landscaped annually, so the ultimate compost use potential is much higher than what is currently being utilized. 100% of landscape construction is contracted out. All landscape maintenance is completed by the state work force.

Compost Product Testing

An extensive compost product standard and testing protocol exists. Compost must be tested prior to delivery to the job site by the project engineer. These tests include a maturity test, a seed germination test, proof of PFRP and an array of other physical and chemical tests.

State Directives

Mr. Stenlund indicated that the Minnesota Office of Environmental Assistance has been actively encouraging the use of compost products.

Comments

Mr. Stenlund is aware of the USCC STA program and has tried to model the MNDOT’s testing program around early drafts he has read. He would like to receive updated information on this program. He would also like the state to elevate the quality of compost products available for use and wants all compost to meet Minnesota Grade 1 standards.

24. Missouri

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Specifications and uses

The MTDOT does not have a formal specification for compost products. Mr. Swanigan was aware of some turkey manure compost being used on a few jobs. There is no minimum organic matter specification for landscape planting soils.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The MODOT landscapes approximately 1% to 2% of their 385,000 acres (3,850 to 7,700 acres) annually. Approximately 50% of landscape construction is contracted out. Approximately 95% of landscape maintenance is done by state work forces.

Compost Product Testing N/A

State Directives

Mr. Swanigan was not aware of any state directives regarding the use of compost products.

Comments

Mr. Swanigan believes that a combination of limited product availability and high transportation costs have thus far minimized the use of compost by the MODOT.

25. Mississippi

Contact Name/ Title: Dave Thompson, Landscape Architect

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DOT Website: www.mdot.state.ms.us

Specifications and uses

The MSDOT does not have a specification for compost products. Their manual was last updated in 1990. They have no minimum organic matter standard in their specifications. No soil amending is required as a result.

Compost Feedstocks N/A**Application Rates** N/A**Usage and Potential**

The MSDOT could landscape as much as “thousands of acres per year” according to Mr. Thompson. He emphasized that this figure is highly variable. Approximately 60% of landscape construction is contracted out. Approximately 90% of landscape maintenance is done by state work forces.

Compost Product Testing N/A**State Directives**

Mr. Thompson was not aware of any state directives regarding the use of compost products.

Comments

Mr. Thompson suggested contacting several groups in order to encourage compost utilization in Mississippi. Both “Keep Mississippi Beautiful” and “Keep Jackson Beautiful” might be interested in compost. He also indicated that the Transportation Research Board (“TRB”) has a senior landscape architect (Carol Braun at 651-296-1648) who works with all state DOT’s, as a point of contact.

26. Montana**Contact Name/ Title:** Phil Johnson, Reclamation Specialist**Organization:** Montana Department of Transportation**Address:** 2701 Prospect Ave., PO 201001, Helena, MT 59620-1001**Phone:** 406-444-7657**E-mail Address:** phjohnson@state.mt.us**DOT Website:** www.mdt.mt.gov**Specifications and uses**

The MTDOT does not have a formal specification for compost products. It does, however, list compost in its “seeding special provisions” for use as a mulch. It is approved only for use on areas that must be drill seeded and mulched, on slopes steeper than 3:1, and “on a 15’ wide strip adjacent to the finished pavement, along both roadsides”. There is no minimum organic matter requirement for general planting site soils.

Compost Feedstocks

Compost producers, not feedstocks, are approved. The 3 approved producers in Montana supply biosolids compost only.

Application Rates

Compost applied as a mulch on slopes is specified at 1,000 dry pounds per acre. It is applied using hydroseeding equipment. There is no application rate specified for the roadside mulch application.

Usage and Potential

The MTDOT re-seeds approximately 1,200 acres per year. Only about 600 cubic yards of compost were used in 2000. 100% of landscape construction is contracted out. These contracts include a 1 maintenance provision. There is no additional maintenance beyond this period.

Compost Product Testing

The only testing required are the health and safety requirements of the Montana Department of Environmental Quality, which are the same as the EPA’s part 40 CFR Part 503 regulations.

State Directives

Mr. Johnson was not aware of any state directives regarding the use of compost products.

Comments

Mr. Johnson believes that the MTDOT gets good results using compost as a mulch on slopes.

27. Nebraska**Contact Name/ Title:** Art Thompson, Landscape Architect**Organization:** Nebraska Department of Roads**Address:** PO 94759, Lincoln, NE 68509-4759**Phone:** 402-479-4839**E-mail Address:** not available by request of Mr. Thompson**DOT Website:** www.dor.state.ne.us**Specifications and uses**

The NEDOT does not have a specification for compost products. They have experimented with yard waste compost for use as a seed topdressing mix over the last 6 years. Mr. Thompson claims that national and state forest services are opposed to compost use due to a “flower pot” effect, which limit the roots from leaving the backfill mix thereby jeopardizing plant viability. He also believes that amended soils are not beneficial in non-maintained areas.

Compost Feedstocks N/A**Application Rates** N/A**Usage and Potential**

The NEDOT re-seeds approximately 20 to 30 lanes miles per year. Each lane mile has 60 feet of roadside to seed.

100% of landscape construction is contracted out. These contracts include a 1 year maintenance provision. There is minimal additional maintenance completed by state forces beyond this period.

Compost Product Testing N/A**State Directives**

Mr. Thompson was not aware of any state directives regarding the use of compost products.

Comments

The NEDOT is looking into the use of some composted manure.

28. Nevada**Contact Name/ Title:** Don Payne, Landscape Architect**Organization:** Nevada Department of Transportation**Address:** 1263 S. Stewart St., Carson City, NV 89712**Phone:** 775-888-7537**E-mail Address:** epayne@dot.state.nv.us**DOT Website:** www.nevadadot.com**Specifications and uses**

The NVDOT does not have a specification for compost products. They are, however, about to embark on a statewide DOT master plan development project that may change this. The first meeting took place on Nov. 16, 2000 and the plan will probably take 2 years to complete. Mr. Payne is the first landscape architect hired by the NVDOT in about 25 years.

There is no minimum organic matter requirement for soils. Each planting site is reviewed for need.

Compost Feedstocks N/A**Application Rates** N/A**Compost Product Testing** N/A**State Directives**

Mr. Payne was not aware of any state directives concerning compost use.

Comments

Mr. Payne is very interested in learning more about the USCC STA program and in receiving compost use information. He indicated that he would consider building the STA program into the master plan being developed.

29. New Hampshire**Organization:** New Hampshire Department of Transportation**Address:** 78 Regional Dr., Concord, NH 03302**Phone:** 603-271-6476**E-mail Address:** ggiunta@dot.state.nh.us**DOT Website:** www.dot.state.nh.us**Specifications and uses**

The NHDOT has a specification for compost products. Source separated composts are formally approved for use as a soil amendment in seedbed establishment. A specification for "non-sludge" based compost products has been in place since 1998. Special provisions allowing the use of compost in backfill planting mixes are written for specific projects. The soil in New Hampshire, in general, is "very good" requiring minimal amending.

Compost Feedstocks

"Source separated compostable materials, separated at the point of waste generation, that may include, but not limited to, leaves and yard trimmings, food scraps, food processing residues, manure and/or agricultural residuals, forest residues and bark, and soiled and/or unrecyclable paper" are approved for use on wildflower establishment. "Municipal waste water treatment sludge" was specifically excluded in the specification amendment of 12/23/98. However, a manufactured loam mixture that contains biosolids compost has been used in backfill mixes (on a job specific basis only).

Application Rates

Wildflower bed preparation can consist of either 2" of compost tilled into 4" of soil or 6" of compost applied to the surface of the prepared area. The actual use is dictated by the specific project description. A project specific special provision for compost used as part of a backfill planting mix specifies 6 cu. ft. of compost per cu. yd. of acceptable loam.

Usage and Potential

The NHDOT constructs about 10 acres/year of wildflower beds, using a minimum of 2" of compost (2,700 cu. yds./yr.). Approximately 1,000 cu. yds. of compost goes into shrub and tree planting annually. 100% of landscape construction with a 1 ? year maintenance requirement is contracted out.

Compost Product Testing

The NHDOT has both a set of standards and testing requirements for compost. These include organic matter content, moisture, particle size, stability (undefined) and pH. The compost must also "be approved by the Engineer prior to use".

State Directives

There was a state directive 'of some kind regarding compost use around 1993'. It was designed to "encourage contractors to use locally produced compost", but was not very formal in structure.

Comments

Mr. Giunta is very interested in learning more about the USCC STA program. The NHDOT has been very innovative in the past and is currently working with representatives from the NH Division of Economic Development (James Robb at 603-271-2591) to discuss ways of increasing compost use. They think that the landscape industry is moving away from amending planting backfill mixes due to conflicting success stories. The NHDOT is considering using compost for wetland construction if regulations and NIMBY's allow.

30. New Jersey

Contact Name/ Title: John Spedding, Landscape Architect

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DOT Website: www.state.nj.us/transportation

Specifications and uses

The NJDOT has had a specification for compost since 1989. The specification is for composted "sewage sludge" (only), for use as a general organic soil amendment. The NJDOT requires that topsoil contain a minimum of 2.75% organic matter.

Compost Feedstocks

Biosolids compost is the only compost currently approved by the NJDOT. They have been approached by yard waste compost suppliers, but have not acted thus far to include other compost products in their specifications.

Application Rates

There are no specific application rates specified beyond the need to increase the organic matter content to 2.75%.

Usage and Potential

Mr. Spedding does not believe that more than about 50 cu. yds. of compost is used on NJDOT jobs annually. This is primarily due to a lack of biosolids compost supply. The NJDOT does landscape approximately 100 acres/year, at a minimum, so much more compost could be used. 99% of landscape construction and maintenance is contracted out.

Compost Product Testing

The only product standards and testing required pertain to moisture content and pH. The New Jersey Department of Environmental Protection is responsible for approving all biosolids compost for sale, using EPA's 503 standards for product safety.

State Directives

Mr. Spedding was vaguely aware of some legislation passed encouraging the use of recycled products in general, but does not think that it was useful regarding the use of compost.

Comments

Mr. Spedding has been generally satisfied with the results of biosolids compost use. The NJDOT has experienced some odor problems with the use of this compost in the past.

31. New Mexico

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Specifications and uses

The NMSHTD has no specifications for compost products. Only native plants are used in landscape construction, which they believe require no organic matter amendment of any sort.

Compost Feedstocks N/A **Application Rates** N/A

Usage and Potential

The NMSHTD has no experience or usage of compost products. They seed approximately 2,000 to 3,000 acres per year, so there is a large potential market for compost products. 100% of landscape construction is contracted out. 100% of landscape maintenance is done using the state work force.

Compost Product Testing N/A

State Directives

Mr. Stem was not aware of any state directive regarding the use of compost.

Comments N/A

Usage and Potential

Mr. Payne could not estimate potential usage since no records of landscape work exist. 100% of landscape construction and maintenance is contracted out.

32. New York

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Specifications and uses

The NYDOT had approved compost and has a specification for its use as an “organic material used in conjunction with amending or manufacturing topsoil”. There is no specification for the direct use of compost in landscape applications.

Compost Feedstocks

All feedstocks, including leaves, yard trimmings, food scraps, biosolids, food processing residuals, manure, soiled paper, other source separated organic residuals are approved compost sources. However, biosolids compost must adhere to a higher level of testing than do the other compost products.

Application Rates

No application rates for compost are specified since it is only approved for use as an amendment to raise the organic matter content of topsoil. Topsoil must contain between 2% and 20% in organic matter content.

Usage and Potential

Mr. Nagel cannot estimate the annual usage of compost due to the way the products are used. The NYDOT landscapes between 300 to 500 acres/year and plants about 10,000 trees, shrubs and flowers. 100% of landscape construction is contracted out. All maintenance is completed by state work forces, but very little is actually done besides mowing grass and spreading mulch.

Compost Product Testing

A relatively basic analysis of compost products is all that the NYDOT requires for their testing program. Biosolids compost does require more extensive testing, which is comparable to the EPA part 503 biosolids regulations.

State Directives

There are no state directives or preferences of which Mr. Nagel is aware.

Comments

Mr. Nagel has been satisfied with the results of compost used by the NYDOT. He is very interested in implementing the USCC STA program. He believes that contractors in the state need to be made more aware of compost availability and benefits before significantly more will be used on DOT projects.

33. North Carolina

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Specifications and uses

The NCDOT has a procurement specification in the form of a Request For Quotation (“RFQ”) for compost. It was written in 1996. Its use is primarily as an organic fertilizer and limited source of organic matter for the establishment of wildflower beds. Yard waste, not necessarily compost, is used in large quantities across the state as a mulch. There is no NCDOT specification for this and product quality appears to be very variable.

Compost Feedstocks

The specification is specifically written for poultry litter compost, although Mr. Smith indicated that other sources would be considered. Other waste derived compost products, including biosolids, may be used as a filler (“material added to the poultry litter compost in order to augment pH or alter nutrient content or fill space”) with the poultry litter compost. Approved compost suppliers are listed by the NCDOT.

Application Rates

Project specific. Nutrient value must be declared and guaranteed.

Usage and Potential

The NCDOT has stopped using compost in the last 2 years due to lack of supply. The NCDOT plants hundred’s of acres of wildflowers annually and could use several thousand cubic yards per year, if it were available and cost effective. Several thousand cubic yards of yard waste are used annually as mulch. Approximately 70% of landscape construction and 50% of landscape maintenance is contracted out. The remainder is done using the state work force.

Compost Product Testing

The NCDOT has a very extensive product standards and testing program included in the RFQ. They work closely with the North Carolina State University which runs many of the tests for them. Testing includes nutrient content (N-P-K), pH, moisture, composting criteria, soluble salts and, in some cases, actual growth plot testing.

State Directives

Mr. Smith was aware of a state directive encouraging the use of recycled products wherever feasible, but believes that this is cost prohibitive regarding compost in many situations.

Comments

Mr. Smith has been satisfied with the performance of compost in the state’s wildflower program.

34. North Dakota

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DOT Website: www.state.nd.us/dot

Specifications and uses

The NDDOT has no specification for compost products and have not considered the use of them on DOT projects. The state has, however, contracted much of the design work out to an independent landscape architect at the North Dakota State University (Dennis Colliton at 701-231-8011). He claims that an organic matter content of 12%, which could include compost as an amendment, has been part of typical planting specifications that he has prepared for almost 10 years. This is typically supplied by the addition of manure.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The NDDOT landscapes and seeds several hundred acres a year, mostly the result of grading projects. 100% of landscape construction is contracted out. 100% of landscape maintenance is done using the state work force.

Compost Product Testing N/A

State Directives

Mr. Kubischta was not aware of any state directives encouraging the use of compost products.

Comments N/A

35. Ohio

Contact Name/ Title: Bill Sherman, Landscape Architect

Organization: Ohio Department of Transportation

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Phone: 614-752-0399

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DOT Website: www.dot.state.oh.us

Specifications and uses

The OHDOT has had a vague compost specification since 1997. It is listed for use as part of a planting backfill mix. There is no soil amending required for seeding projects and there is no minimum organic matter specification.

Compost Feedstocks

Ohio "EPA rated Class IV rated compost" is listed as the only approved feedstock. This grade of compost consists of "source separated yard waste, (with) authorized bulking agents" only.

Application Rates

A mix of 1/3 compost with 1/3 sand and 1/3 soil is the listed application rate.

Usage and Potential

The OHDOT only uses between 50 to 100 cubic yards of compost per year. They do very little landscaping, according to Mr. Sherman. 100% of new landscape construction is contracted out, but only as part of highway building projects. There is no landscape maintenance completed except for mowing.

Compost Product Testing

There are no compost standards and no testing requirements within the OHDOT specifications.

State Directives

Mr. Sherman was not aware of any state directives concerning compost use.

Comments

Ms. Sherman indicated that he found minimal interest in compost use on the part of Ohio road contractors. He suggested that the private sector engineering associations needed education in order for compost to become an accepted product for roadside landscape use.

36. Oklahoma

Contact Name/ Title: Micky Dolan, Agronomist, Roadway Design

Organization: Oklahoma Department of Transportation

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Phone: 405-521-6771

E-mail Address: mdolan@odot.org

DOT Website: www.okladot.state.ok

Specifications and uses

The OKDOT has no specification for compost products. They do, however, have a 15% minimum organic matter content required in planting soils.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The OKDOT landscapes and seeds a minimum of 2,000 acres a year. They have had some experience in using "sludge", but not compost. 100% of landscape construction and maintenance is contracted out.

Compost Product Testing N/A

State Directives

Ms. Dolan was not aware of any state directives encouraging the use of compost products.

Comments N/A

37. Oregon

Contact Name/ Title: Paul Edgecomb, Landscape Architect
Organization: Oregon Department of Transportation
Address: Transportation Bldg., 355 Capitol St., Salem, OR 97310-3871
Phone: 503-986-3550
E-mail Address: paul.g.edgecomb@odot.state.or.us
DOT Website: www.odot.state.or.us

Specifications and uses

The ORDOT has had a compost specification since about 1984 and new specifications will be published early in 2001. Compost is listed as a soil conditioner in these new specifications.

Compost Feedstocks

Mushroom compost and composted yard debris are specifically listed under the soil conditioner heading. Mr. Edgecomb did indicate that biosolids compost had been used but these are not included in the new specifications.

Application Rates

Application rates vary depending on what is being planted and on the existing organic matter content of the project site soil. An organic matter content of 2% is required for finished topsoil. Application rates are as follows:

- **Cultivated Planting Areas, non-lawn** – 2" (50 mm) of compost incorporated into 12" (300 mm) of bed soil
- **Non-cultivated planting areas** - add as needed with backfill at each plant pit to achieve desired organic matter content
- **Sod lawn and seeded lawn areas** - add 0.5 cu. meters/100 sq. meters, or as recommended by soil testing

Usage and Potential

The ORDOT purchased approximately 3,600 cu. yds. of compost in 1999. They complete about 60 acres of new landscape construction per year. They maintain about 1,000 acres in total. 100% of landscape construction is contracted out. This includes a 1 year maintenance requirement. Any landscape maintenance beyond this time is completed by state work forces.

Compost Product Testing

There are minimal standards and testing requirements within the ORDOT specifications.

State Directives

There is an Oregon Governor's Proclamation encouraging the use of recycled products.

Comments

The ORDOT has been using compost for so long that it has become just another commodity "that works as it is supposed to work", according to Mr. Edgecomb.

38. Pennsylvania

Contact Name/ Title: John Whaley, Landscape Architect
Organization: Pennsylvania Department of Transportation
Address: 555 Walnut St., Forum Plaza, Harrisburg, PA 17101-1900
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DOT Website: www.ppt.psu.edu

Specifications and uses

The PADOT has had a specification for composted "sewage sludge" since the mid 1980's for use as a mulch and as a soil amendment. Specifications were amended in 1996 to include paper mill sludge compost and compost derived from agricultural, food and organic yard waste for use as a soil amendment for backfill mixes for planting and transplanting.

Compost Feedstocks

Feedstocks include sewage sludge (biosolids) and agricultural, food and yard organic matter.

Application Rates

A mixture of 1 part compost to 3 parts soil is specified for the backfill mix. Compost is specified for use as a mulch, but specific application rates are not listed.

Usage and Potential

Mr. Whaley cannot estimate the annual usage of compost due to the way the products are used. There is no state contract and no specified compost contract price. The PADOT owns over 100,000 acres of roadside, so obviously, much more compost could be used. 100% of landscape construction is contracted out. A 1 year maintenance period is included in the construction contracts. All additional maintenance is completed by state work forces, but very little is actually done besides mowing grass and spreading mulch.

Compost Product Testing

No arbitrary testing is required although compost product standards have been established.

State Directives

State Act 101 requires state agencies and municipalities to use recycled materials wherever possible.

Comments

Mr. Whaley has been satisfied with the results of compost use by the PADOT. He did experience some odor complaints as a result of the use of biosolids compost at various times. He believes that more compost is needed in order to get landscape construction companies using more of the product on state projects. A large landscape construction project has begun around the state capital in Harrisburg. This "capital beltway" project does have compost specified and could be a landscape showplace for compost use.

39. Rhode Island

Contact Name/ Title: Barbara Petrarca, Landscape Architect

Organization: Rhode Island Department of Transportation

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E-mail Address: bptrarca@dot.state.ri.us

DOT Website: www.state.ri.us

Specifications and uses

The RIDOT has no specification for compost products. They do add loam to create a 4% organic matter content when doing general planting and 10% when building wetlands.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The RIDOT landscapes and seeds a minimum of 1,000 acres a year. 95% of landscape construction is contracted out. These projects possess up to a 3 year maintenance requirement. There is minimal maintenance beyond that point.

Compost Product Testing N/A

State Directives

Ms. Petrarca was not aware of any state directives encouraging the use of compost products.

Comments

Ms. Petrarca claims that landscape contractors have expressed no interest in using compost and that the state has neither the time nor money to pursue developing a compost use program at this time.

40. South Carolina

Contact Name/ Title: Timothy Edwards, Landscape Architect

Organization: South Carolina Department of Transportation

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Phone: 803-737-1953

E-mail Address: EdwardsFT@dot.state.sc.us

DOT Website: www.dot.state.sc.us

Specifications and uses

The SCDOT has had a specification for compost products since 1989. It is approved for use in a backfill mix, for filling plant pits. They also have a special provision for the use of compost in soil preparation for the planting of Cannas and Daylilies. The SCDOT does not have a minimum organic matter specification for soil.

Compost Feedstocks

Mushroom and cow manure compost are specifically approved, with "other types of organic compost" capable of being approved by the landscape architect.

Application Rates

The general backfill mix consists of 25% compost mixed with 75% soil. The "special provision" application rates require that a 6" layer of compost be applied and mixed into 12" of soil.

Usage and Potential

Mr. Edwards could not estimate the annual acreage landscaped by the SCDOT. He believed that only about 50 tons of compost was being used by the DOT on an annual basis. 100% of landscape construction and 75% of maintenance is contracted out.

Compost Product Testing

The SCDOT has no formal standards or testing program. The specification only requires that the compost “be decomposed enough so as to not cause burning of plant material.” They do require proof that the compost does not contain seeds of the Tropical Soda Apple, a noxious weed.

State Directives

Mr. Edwards was not aware of any state directives encouraging the use of compost products.

Comments

Ms. Edwards would like a more formal testing program to be implemented by the SCDOT.

41. South Dakota

Contact Name/ Title: Sharon Kayser, Landscape Architect
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DOT Website: www.state.sd.us/state/

Specifications and uses

The SDDOT does not have a specification for compost products. They have never used compost.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

Ms. Kayser guessed that the SDDOT landscapes “thousands of acres” each year. About 95% of landscape construction and maintenance is done by the state work force.

Compost Product Testing N/A

State Directives

Ms. Kayser was not aware of any state directives encouraging the use of compost products.

Comments

Ms. Kayser has been approached by compost suppliers and would like to specify and see compost used by the SDDOT, but has no authority to make that happen. That direction would need to come from the Secretary of Transportation.

42. Tennessee

Contact Name/ Title: Patrick Thurman, Landscape Architect
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DOT Website: www.state.tn.us/transport

Specifications and uses

The TNDOT does not have a specification for compost products. They have never used compost. They also do not have a minimum organic matter specification. Mr. Thurman claimed that the natural soil contained adequate amounts of organic matter due to the abundance of coniferous trees (and the resulting pine needles) in the state.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

The TNDOT plants about 200 to 300 acres of wildflower each year. About 98% of landscape construction and maintenance is done by the state work force.

Compost Product Testing N/A

State Directives

Mr. Thurman was not aware of any state directives encouraging the use of compost products.

Comments N/A

43. Texas

Contact Name/ Title: Barrie Cogburn, Landscape Architect

Organization: Texas Department of Transportation

Address: 125 E. 11th St., Austin, TX 78701-2483

Phone: 512-416-3086

E-mail Address: bcogburn@dot.state.tx.us

DOT Website: www.dot.state.tx.us

Specifications and uses

The TXDOT has one of the more sophisticated and aggressive compost use and specification programs in the United States at both the DOT and legislative levels. The specification was originally created in 1993, and is currently being redone. Compost is approved for use as a general soil amendment, to manufacture topsoil, and for erosion control as a soil mulch and filter berm mulch.

Compost Feedstocks

Compost produced from "leaves and yard trimmings, biosolids, food scraps, food processing residuals, manure and/or other agricultural residuals, forest residues and bark, and soiled and/or unrecyclable paper" are all permitted. Class B biosolids and mixed municipal solid waste are specifically prohibited.

Application Rates

Application rates are as follows:

Manufactured Topsoil - 5% to 30% compost

General Use and Erosion Control (slopes less than 2:1 steepness) - surface applications that are applied at project specific application rates

Filter Berm Mulch - a berm with dimensions ranging from 1' to 2' high by 2' to 4' wide

Usage and Potential

Ms. Cogburn claimed that the TXDOT is committed to using at least 100,000 cubic yards of compost per year. They used 12,000 cu. yds. in August 2000 alone. The TXDOT landscapes/seeds approximately 80,000 acres/year. 100% of new landscape construction is contracted out. 80% of landscape maintenance is done by the state work force.

Compost Product Testing

The TXDOT has a very detailed compost standards and testing program that varies depending upon the 4 specified end uses. It includes testing for particle size, organic matter, soluble salts, maturity, pH, time and temperature standards and EPA part 503 testing for biosolids.

State Directives

The Texas Recycling Law HB 1340 and environmental campaigns like Clean Texas 2000, along with national initiatives are taken very seriously by the TXDOT and the use of compost is very widespread.

Comments

Ms. Cogburn is known as the "compost lady" within the TXDOT. She is a strong advocate of compost use and has experienced very good results with the use of compost products. The TXDOT has printed several case studies concerning their success with compost use. They are very interested in implementing USCC STA program.

44. Utah

Contact Name/ Title: Terry Johnson, Landscape Architect

Organization: Utah Department of Transportation

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DOT Website: www.sr.ex.state.ut.us

Specifications and uses

The UTDOT does not have a specification for compost in their landscape manual. They do, however, occasionally write "special provisions" for specific projects. Compost has been used as a general soil amendment and for top dressing turf. It has been used on UTDOT projects for about 8 years.

Compost Feedstocks

Compost derived from animal manure and yard trimmings. Turkey manure is plentiful in Utah.

Application Rates

The specified application rate is to place a 2" (50 mm) layer of compost over the soil and incorporate it to a depth of 8" (200 mm).

Usage and Potential

Mr. Johnson estimates that the UTDOT uses between 7,000 and 9,000 cu. yds. of compost annually. The UTDOT seeds about 400 acres/year. 100% of landscape construction is contracted out. All maintenance is done using the state work force, but very little landscape maintenance is actually done outside of mowing grass.

Compost Product Testing

There are minimal testing requirements listed in the "special provisions". Test analysis results for compost scheduled for delivery to a UTDOT project site must be submitted 7 days prior to delivery. It is visually inspected and tested for salt content and pH.

State Directives

Mr. Johnson is not aware of any state directives regarding the use of compost products.

Comments

Mr. Johnson would like to learn more about the USCC STA program and perhaps implement it as a standard for compost suppliers to the UTDOT. He has been generally satisfied with the performance of compost on DOT projects.

45. Vermont

Contact Name/ Title: Craig Dusablon, Landscape Coordinator, Maintenance Division

Organization: Vermont Agency of Transportation

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DOT Website: www.aot.state.vt.us

Specifications and uses

The VTAOT has no specification for compost products. There is "a lot of good topsoil" still available in the state. The VTAOT also attempts to match plantings to soil type, thereby minimizing the need for added organic matter.

Compost Feedstocks N/A

Application Rates N/A

Usage and Potential

There are only 2 compost facilities in the state and their products are too expensive for AOT usage, according to Mr. Dusablon. The VTAOT does very little landscape construction. 100% of landscape construction and 95% of maintenance is contracted out.

Compost Product Testing N/A

State Directives

Mr. Dusablon was not aware of any state directives regarding compost use.

Comments

Vicky Viens of the Vermont Agency of Natural Resources has been trying to promote greater compost use within the state

46. Virginia

Contact Name/ Title: Ken Oristaglio, Environmental Program Planner

Organization: Virginia Department of Transportation

Address: VADOT Environmental, 1401 E. Broad St., Richmond, VA 23219

Phone: 804-786-2801

E-mail Address: oristaglio_kl@vdot.state.va.us

DOT Website: www.vdot.state.va.us

Specifications and uses

The VADOT has a draft specification for compost products currently under development. It shall be specified as a general soil amendment and possibly for erosion control purposes too

Compost Feedstocks

The only feedstock currently being approved is "composted yard waste which shall consist of leaves, branches and grass clippings".

Application Rates

2" of compost tilled into no less than 4" of existing soil

Usage and Potential

The VADOT has experimented with the use of compost in wildflower bed plantings, but has not used significant amounts of compost in these projects. They landscape about 30 acres each year. 100% of landscape construction and 80% of maintenance is contracted out.

Compost Product Testing

There are standards included in the draft specifications for pH, moisture, particle size, stability, maturity, soluble salts and nutrients. The VADOT also requires that the yard waste compost meet the heavy metal requirements of the EPA Part 503 regulations.

State Directives

Mr. Oristaglio was not aware of any state directives regarding compost use.

Comments

Mr. Oristaglio is very interested in implementing the USCC STA program in Virginia.

47. Washington

Contact Name/ Title: Bob Barnes and Mark Maurer, Landscape Architects

Organization: Washington State Department of Transportation

Address: 310 Maple Park, PO 47300, Olympia, WA 98504-7300

Phone: 360-705-7242

E-mail Address: maurerm@wsdot.wa.gov

DOT Website: www.wsdot.wa.gov

Specifications and uses

The WADOT has had a general specification for compost products since at least 1996. It is used as a general soil amendment, for erosion control and for biofiltration, although actual use directions are not listed in their general specifications. They work on a project specific basis. The WADOT uses a grade system consisting of AA (compost suitable for use within 30' of wetland and stream sides) and Grade A compost which is suitable for use anywhere.

Compost Feedstocks

They approve the use of a compost that is "stable, decomposed organic solid waste that is the result of the accelerated, aerobic biodegradation and stabilization". It must originate from a "minimum of 65% by volume from recycled plant waste. A maximum of 35% by volume of other approved organic waste and/or biosolids may be substituted for plant waste".

Application Rates

Application rates are project specific, but typically consist of a 3" application of compost incorporated into 10" to 12" of soil. Typical biofiltration "strips or swales" consist of 3" of compost mixed into 10" to 12" of soil, covering an area that is 10' wide along the side of the roadway.

Usage and Potential

Mr. Maurer estimates that the WADOT uses between 60,000 to 100,000 cubic yards of compost annually. This quantity has been more or less consistent over the past several years. 60% of landscape construction is contracted out, which includes a 3 year maintenance requirement for general landscaping and 5 to 10 year maintenance for wetland construction. There is a \$50,000 cap on landscape construction projects. 80% of maintenance is completed by contractors. 40% of landscape construction and 20% of maintenance is completed by public work forces (usually city or county and not the WADOT).

Compost Product Testing

There are compost quality standards included in the specifications for pH, particle size, maturity, soluble salts, organic matter and inerts. Product acceptance is based upon the submittal of test results for these standards as well as feedstock verification, and other product certifications.

State Directives

Washington state did publish a mandate back in 1992 requiring the use of compost by the WADOT, cities and counties in landscape projects. This mandate reads as follows:

City and County Projects

"Any contract awarded in whole or in part for applying soils, soil covers or soil amendments to road right of way shall specify compost materials to be purchased" as follows:

7/1/92 through 6/30/94 = 25% of total dollar amount

after 7/1/94 = 75% of total dollar amount

WADOT Projects

The WADOT was required to purchased compost for “soil cover or soil amendment” use, as follows:

7/1/96 through 6/30/97 = 25% of the total dollar amount

7/1/98 through 6/30/99 = 50% of the total dollar amount

Comments

Mr. Maurer is very interested in the USCC STA program. He indicated that compost use by the WADOT is actually starting to decline due to both the “sunsetting” of the 1992 mandate and the desire by the WADOT to incorporate less nitrogen into native soils. He believes that adding nitrogen sources to native soils encourages the growth of “pioneer weeds”. They are using higher carbon sources (usually semi-composted brush, wood chips, etc.) as organic amendments to prevent this.

48. West Virginia

Contact Name/ Title: Terry Kesner, District Operating Supervisor and Bruce Dehaven, Interstate Supervisor

Organization: West Virginia Department of Transportation

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Phone: 304-289-3521

E-mail Address: tkesner@dot.state.wv.us

DOT Website: www.state.wv.us/wvdot

Specifications and uses

The WVDOT has no specification for compost products. They have 3 “roadkill” compost facilities in operation. The limited product produced at these sites is simply spread 3” to 4” thick over high limestone soil areas.

Compost Feedstocks N/A **Application Rates** N/A

Usage and Potential

The WVDOT maintains about 10 acres of wildflowers and 2 acres of other landscaping. 100% of landscape construction and maintenance is completed by state work forces.

Compost Product Testing N/A

State Directives

Mr. Kesner was not aware of any state directives regarding compost use.

Comments N/A

49. Wisconsin

Contact Name/ Title: Richard Stark, Landscape Architect

Organization: Wisconsin Department of Transportation

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DOT Website: www.dot.state.wi.us

Specifications and uses

The WIDOT has had a specification for compost products since the mid 1960’s. It is listed for use as part of the “backfill material”. The WIDOT has no minimum organic matter specification for topsoil.

Compost Feedstocks

“Compost shall be a standard commercial compost of cattle, sheep or poultry manure or other organic material acceptable to the engineer.”

Application Rates

1 part compost to 6 parts topsoil

Usage and Potential

The WIDOT uses less than 100 cubic yards of compost per year. They do landscaping of some sort on 500 to 1,000 acres annually. 100% of landscape construction is contracted out, which includes a 2 year plant guarantee. The WIDOT has no state landscape maintenance work force. Any required maintenance is handled by counties.

Compost Product Testing

There are no compost product standards and no required testing.

State Directives

Mr. Stark was not aware of any state directives regarding compost use.

Comments N/A

50. Wyoming

Contact Name/ Title: John Sampson, Agronomist
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DOT Website: www.wydotweb.state.wy.us

Specifications and uses

The WYDOT has had a specification for compost products since 1993. It is listed for use as a “Type V fertilizer” and in a “special provision” for landscaping work as both an organic soil amendment and as an organic fertilizer.

Compost Feedstocks

Animal manure is the only approved feedstock, with two suppliers listed in the specifications.

Application Rates

Application rates are specified based on the specific needs of the landscape projects.

Usage and Potential

The WYDOT uses very little compost due to both limited product availability and the cost of transportation. 4,000 to 5,000 acres are planted each year, primarily in grass. Trees and shrubs don’t do well in the harsh Wyoming climate. 99% of landscape construction and maintenance is contracted out.

Compost Product Testing

There are both compost product standards and some testing required on compost used both as a fertilizer and as a soil amendment. They are:

Type V fertilizer - NPK, organic matter and moisture with commercial testing laboratory certification

Organic Soil Amendment - organic matter, inerts and pH, with no certification need listed

There is a concern that too many test requirements will discourage product usage.

State Directives

Mr. Sampson was not aware of any state directives regarding compost use.

Comments

Mr. Sampson claims that there is a serious lack of compost supply in Wyoming, and this supply is inadequate to meet the needs of the WYDOT. Production is limited, in part, due to a lack of adequate carbon sources to mix with the large quantities of animal manure that is available for composting. He has had to import compost from out of state on occasion to meet the needs of some WYDOT landscape projects.

3.3 COMPILED STATE DOT COMPOST SPECIFICATIONS TABLES

In order to examine various State DOT compost specifications at a glance, following are three (3) compiled specifications tables. Specifications tables include:

- Soil incorporation compost specifications – compost used ‘in the soil’
- Soil mulching and erosion/sediment control specifications – compost used ‘on the soil’
- All specifications