

Why Use Compost For Construction Projects?

Using compost can save you time and money. Compost improves low quality soils by adding stable organic matter. It contains beneficial soil microbes that out-compete soil diseases for nutrients. Plants grow healthier and the user saves by reducing the need to use fertilizers and pesticides. The reduction or elimination of the use of these chemicals protects water quality in local streams and wells. To summarize, compost use can:

1. prevent erosion.
2. promote plant establishment.
3. improve moisture retention.
4. reduce the need for fertilizers.
5. suppress soil-borne plant diseases.
6. be less expensive than topsoil.
7. divert a valuable resource from the waste stream.

Construction Uses For Compost

This brochure contains descriptions on how to apply compost at construction sites for:

1. **Blended Topsoil**
2. **Turf Establishment**
3. **Turf Renovation**
4. **Top Dressing**
5. **Improving Sandy and Clay Soils**
6. **Sod Production**
7. **Tree and Shrub Planting**
8. **Forestry**
9. **Wetland Restoration**
10. **Erosion Control**

Compost Quality

Compost must be of good quality.



Quality includes the ingredients of the compost as well as the maturity of the compost. Mature compost will be dark in color and have a crumbly, humus-like texture. Its odor should be a pleasant soil smell. It should not reheat or develop an unpleasant odor if it is mixed or water is added to it.

When purchasing compost, it is best to buy from companies with known feedstocks. There are currently no requirements for labeling compost and few regulations regarding compost quality. Good compost companies will provide the buyer with a typical analysis of the finished compost. Of particular importance are the pH and the salt content, which, when high, can stunt plant growth. Growth tests with cress or other fast growing plants help insure the quality.

If the compost was made from sewage sludge or mixed solid waste, the compost must undergo extensive testing for metals and other contaminants. Application rates should not exceed 4 cubic yards per 1,000 square feet unless another rate has been determined safe by the testing. This limit has been established to minimize environmental risks.

Compost that is below some of the minimum standards can be safely used for constructing highways and golf courses. Compost with excessive contaminant levels can only be used for landfill cover and other lands devoted to waste disposal.

1. Blended Topsoil

The recommended rate for using compost to make blended topsoil is 20-30% mixed with subsoil. A 50% rate can be used with sand or very poor soil. Mix the materials with a rotating drum mixer or soil shredder.

When the topsoil is fully mixed, it can be screened with a 1/4 inch screen, if desired. The topsoil is ready to be used or stored.

2. Turf Establishment

For turf, apply compost at a rate of 135-270 cubic yards per acre, (one or two inch layers). It can be applied with a front-end loader or other such equipment. After the compost is spread, incorporate it five to seven inches into the soil. Any fertilizers or pH



adjusting agents may be added before incorporating the compost. In many cases using compost may reduce or eliminate the need for fertilizers. Smooth the surface with a rake and remove any large pieces of soil, vegetation or rocks. It is now ready for planting and watering.

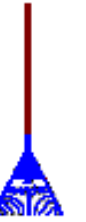
Some landscapers use a 4-6 inch layer of a coarser compost to establish a lawn. Good compost is weed-free and will not contain plant pathogens. This makes it a better value than topsoil. Sometimes it is even less expensive

3. Turf Renovation

Test the soil if necessary for disease or other problems and treat accordingly. Mow the damaged turf low. Apply a 3 to 4 inch layer of compost and seed the new turf.

4. Top Dressing

Fine compost can be used as a top dressing on lawns. It must be finely screened so that the grass will not be smothered. Apply approximately 400 to 800 pounds per 1,000 square feet, or a 1/8 to 1/4 inch layer. Use a rake or rotary mower to spread it evenly into the crevices. This will provide moisture and nutrients to the grass and prevent soil compaction.



Compost can also be used as a top dressing on established woods and orchards. Using a hydromulcher, spray on compost so it forms a four inch layer.

5. Improving Sandy and Clay Soils

Use compost to improve the porosity, nutrient content and water holding capacity of sandy and clay soils. Spread a four inch layer of mature compost over the soil and incorporate it five to eight inches into the soil. Compost adds organic matter to sandy soil. It helps to aggregate clay soil and increase its porosity.

6. Sod Production

Spread a one or two inch layer of compost on a plastic sheet covered with hay using a manure spreader or blower. Seed according to standard practice. The nutrients in many composts will grow a healthy sod with little or no pesticides or fertilizers. Test the nutrient level in the compost and supplement if needed.



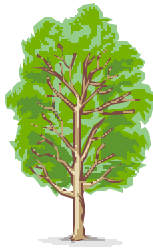
7. Tree and Shrub Planting



Mix compost with soil from the hole for planting the tree. The mixture should be about 1/3 compost and 2/3 native soil. Use this to fill in the bottom of the hole around the root ball, then water.

8. Forestry

For new plantings, evenly apply compost on the land. The application rate should not exceed 100 dry tons per acre but rates will vary depending on soil conditions. Use a front-end loader or manure spreader.



The compost can be applied on the entire site. Apply any necessary pH adjusting agents or fertilizers, then rototill the compost to a depth of about six inches. Compost use will reduce the need for fertilizers.

Raised beds (6-12 inches) should be created in areas where the water table is shallow. Compost can be used with subsoil from basements or land sculpturing to create a blended topsoil (see number one above) for the raised beds.

9. Wetlands Restoration

Compost is beneficial for restoring wetlands because of its high organic levels and nutrients which are needed to reestablish targeted wetland plant species. A study by the Clean Washington Center found that using compost increased the rates of survival for targeted wetland species and did not degrade the water quality



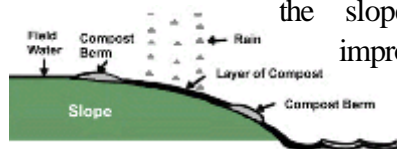
10. Erosion Control

Compost made from woody material and yard waste has large particles that can immediately stabilize steep slopes. Traditional methods using topsoil and seed applications are less stable and may require reseeding every year.

Nutrients in compost are released slowly and contain microorganisms that aid in establishing vegetation. Apply a 3-4 inch layer of compost evenly over the eroded surface (400-540 cubic yards per acre). It can be applied to slopes up to a 2:1 grade. It should be tracked and compacted with a bulldozer or applied with a hydromulcher. Apply the compost 3 feet beyond the top of the slope to prevent water gullying under the compost layer.



To control silt, construct a berm of compost along the bottom of the effected slope or on the perimeter of the construction lot. The berm can be up to two feet high with a four foot wide base depending on the steepness of the slope. Compost berms are more effective than silt fences or hay bales because they capture sediment and allow water to drain. They are more stable and generally don't 'blow out' during heavy rain storms. If one is breached, it is easily repairable. Piles will eventually decompose eliminating the need to remove them later on. If desired, when the berm is no longer needed it can be spread on the slope to further improve the soil.



Resources:

Field Guide to Compost Use. United States Composting Council. 1996.

www.compostingcouncil.org/pdf/FGCU_3.pdf

Using Compost to Control Erosion. Connecticut Department of Environmental Protection. <http://www.dep.state.ct.us/wst/compost/dotcompost.htm>

Compost Use in Restoration Projects. Clean Washington Center <http://www.cwc.org/cwc/organics/organic.htm/cm962rpt.htm>

Composting to Reduce the Waste Stream. Natural Resources Agricultural Engineering Service. 1991.

Prepared by the:



103 South Main Street
Waterbury, VT 05671-0404
802-241-3448, vviens@dec.anr.state.vt.us

with assistance from
The NEBHE New England
Environmental Internship Program:
<http://www.nebhe.org/env.html>

For more information about compost and compost use go to the ANR webpage at www.anr.state.vt.us/compost

Clipart Courtesy of the United States Compost Council and other web and program sources.

Compost Use On Construction Sites



State of Vermont
Agency of Natural Resources
Compost Center