



Biosolids Compost Informational Handout

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1.0 BIOSOLIDS COMPOST

Biosolids compost is a product of wastewater biosolids that has been biologically decomposed and stabilized under controlled conditions to a state in which it can be safely handled, stored, and applied to the land.

1.1 BENEFITS OF USING COMPOST

- A. Creates a better plant root environment by improving soil structure and porosity, and reduces soil density to resist compaction.
- B. Has a high quantity of organic matter, which is essential for a healthy soil biota.
- C. Improves and stabilizes soil pH.
- D. Supplies a variety of macro and micronutrients such as Nitrogen, Phosphorous, Potassium, Calcium, Magnesium, and Iron.
- E. Improves cation exchange capacity (CEC) of soils and growing media, thus improving their ability to hold nutrients for plant use.
- F. Supplies beneficial microorganisms to soils and growing media.
- G. Increases infiltration and permeability of heavy soils, thus reducing erosion and runoff.
- H. Improves water holding capacity, thus reducing potential water loss and leaching
- I. May control or suppress certain soil-borne plant pathogens
- J. Can bind and degrade specific pollutants.

2.0 HANDLING

Compost, like topsoil, contains living microorganisms. Wash hands with soap after handling material.

3.0 REQUIREMENTS AND GUIDELINES ON USING COMPOST

User shall agree to use biosolids compost in compliance with Federal and State Regulations.

A. IMPROVING MARGINAL SOILS

Evenly apply 1 to 2 inch layer of compost and incorporate into the soil to a depth of 4 to 6 inches, for a volumetric inclusion rate of 25% to 50%, using a plow, rototiller, or disc until compost is uniformly mixed.

B. VEGETABLE GARDENS

Evenly apply 1 to 1.5 inch layer of compost on ground and incorporate the compost to an approximate depth of 6 inches using plow, disc, or other appropriate tools.

C. TURF ESTABLISHMENT

Evenly apply 1 to 2 inch layer of compost on ground and incorporate the compost to an approximate depth of 5 to 7 inches, using rototiller or disc until compost is uniformly mixed.

D. LANDSCAPE MULCH

Evenly apply up to 2 inches of compost around base of trees, shrubs, and other plants using shovel, rake, or other appropriate equipment. Avoid placing mulch against the plant's trunk or stem to avoid potential disease and insect damage. A soil rim or berm may be formed around tree trunk before mulching to help capture water. Once applied, mulch may be watered to help keep it in place.

4.0 NUTRIENT LOADING

Research on biosolids compost has found the following nitrogen mineralization (available to plants) rates:

First season	10%-15%
Second season	5%
Third season	2%-3%

For example, a 1.5 inch layer of GHU biosolids compost applied on 1000 S.F. will have approximately 25 pounds of total nitrogen, but the available nitrogen the first season will be $25\text{lbs} \times 10\% = 2.5$ pounds of plant available nitrogen. Typically, bluegrass has a nitrogen requirement of 2 to 3.5 pounds of nitrogen per year.

Additional information and assistance concerning application rates will be available to user upon request.

5.0 DISCLAIMER

The suggested usage of compost describes processes used successfully by end users and demonstrated effective through research in specific situations and with specific compost products. The suggested rates and data were developed to provide general assistance relative to the use of compost, and should not be considered as formal recommendations for any specific product or project. Due to variations in local field conditions and crops used, consultation with local soil experts, cooperative extension, soil conservation service, or agriculture laboratories is advisable.

6.0 ACKNOWLEDGMENT/ REFERENCES

The Compost Council. 1996. Field Guide to Compost Use. The Compost Council, Alexandria, VA.

The United States Environmental Protection Agency. 1994. A Plain English Guide to the EPA Part 503 Biosolids Rule

The Art & Science of Composting. 1990. The JG Press, Inc.

E&A Environmental Consultants, Inc. Bothell, WA.

Table 1: Plant Growth Parameters

Parameter	Units	GHU Compost
Organic matter content	%	38.8
Bulk density	lb/yd ³	1116
pH	standard units	7.9
Conductivity	mS/cm	6.2
Total kjeldahl nitrogen	mg/dry kg	19,400
Nitrate	mg/dry kg	3.2
Potassium	mg/dry kg	4,575
Phosphorous	mg/dry kg	26,600
Calcium	mg/dry kg	30,000
Magnesium	mg/dry kg	4,505

Sieve Analysis (percent passing respective size)

1 inch	100*
1/2 inch	87.45*
3/8 inch	89.30*
1/4 inch	69.40*
3/16 inch	51.60*
3/32 inch	27.70*
1/25 inch	7.60*

*Historical Data

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Table 2: Compost Product Trace Metal and Pathogen Content

Parameter		Units	GHU Compost	US EPA EQ Limit
Arsenic	-total	mg/dry kg	33	41
Cadmium	-total	mg/dry kg	2	39
Chromium	-total	mg/dry kg	21	1,200
Lead	-total	mg/dry kg	39	300
Mercury	-total	mg/dry kg	2	17
Selenium	-total	mg/dry kg	4	36
Copper	-total	mg/dry kg	622	1,500
Nickel	-total	mg/dry kg	15	420
Molybdenum	-total	mg/dry kg	12	18
Zinc	-total	mg/dry kg	1,420	2,800
Fecal coliform		mpn/g	<3	<1000

nd -not detected
 mpn -most probable number
 EQ -exceptional quality
 < -less than