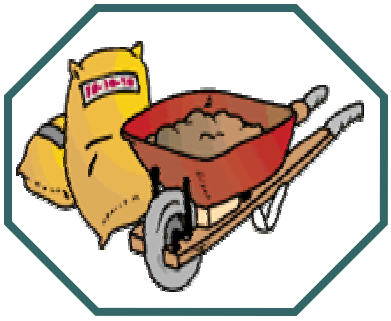
The Benefits of Using Compost

Supplies of high-quality, low-cost top-soil are declining, particularly in urban areas where the demand is greatest. Compost is, therefore, becoming particularly important in applications requiring large amounts of topsoil. Increasingly, compost is being used as an alternative to natural topsoil in new construction, landscape renovations, and container gardens. Using compost in these types of applications is not only less expensive than purchasing top-soil, but it can often produce better results when trying to establish a healthy vegetative cover.

Compost has been widely recognized as a valuable soil amendment and soil supplement to enhance plant growth. Additional benefits of incorporating compost into the soil are as follows:

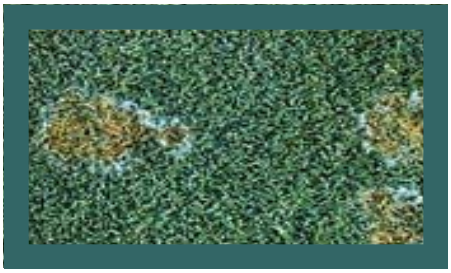


Supplies Slow-Release Nutrients to Plants
Compost is a good source of nitrogen, phosphorus, potassium, sulfur, other nutrients, and the variety of microorganisms essential for plant growth. Since compost is made of relatively stable organic matter, these nutrients are slowly made available for root uptake. In this way, nutrients are less likely to be lost through leaching. The addition of compost to the soil reduces the need for fertilizers as much as 50%, and lowers irrigation, fertilizer and pesticide costs

Improves Drought Tolerance and Reduces Erosion
Compost has a large capacity to hold water, frequently many times its own weight. This water holding capability minimizes water loss and leaching from the soil. Because of its ability to retain moisture, compost also helps protect soil from wind erosion and during droughts. Compost reduces the potential for erosion by improving soil structure. Better drainage allows water to flow into lower soil layers, rather than puddle on top and run off.

Improves Soil Structure and Alleviates Soil Compaction
In heavy clay soils, the addition of compost enhances the physical make-up of soil, improving soil structure, porosity and bulk density, and creating a better environment for plant growth.

Compost improves the structure of compacted soils by creating passageways for air and water to infiltrate provide ideal conditions for enhanced root growth..



Suppresses Soil-Borne Diseases and Plant Pathogens

Plant diseases are frequently influenced by the level and type of organic matter and microorganisms present in the soil. Detrimental organisms like root-knot nematodes, plant diseases such as pythium or fusarium, as well as a number of lawn diseases, can be suppressed by certain microorganisms found in compost.

Immobilizes and Degrades Pollutants

Compost has the ability to bind heavy metals, pesticides, herbicides and other contaminants, reducing both their leachability and absorption by plants. Soil microorganisms that compost supports also help break down pesticides, fertilizers and hydrocarbons. This same binding and bio-remediation effect allows compost to be used as a filter for storm water and other runoff. Studies have show that compost serves as an avenue for pollution remediation in a variety of ways: (a) absorbs odors and degrades volatile organic compounds, (b) binds heavy metals and prevents them from migrating to water resources or being absorbed by plants (c) degrades, and in some cases, completely eliminates wood preservatives, petroleum products, pesticides, and both chlorinated and nonchlorinated hydrocarbons in contaminated soils.

Provides Organic Matter and Increases Soil Microbial Action

Compost supplies organic matter to the soil stimulating the increase of micro organisms. The activity of microorganisms promotes root development and assists in the extraction of nutrients from the soil. It also encourages the growth of earthworms and other macro-organisms, whose tunneling increases water infiltration and aeration of the soil.

Environmental Benefits: In a study carried out by the Department of Environment and Conservation (NSW) Sustainability Programs Division, a full range of environmental indicators were used, including energy consumption, greenhouse effect, photochemical oxidant formation, human and eco-toxicity, resource depletion, eutrophication, and land use.

The results of the study show that the management of organics through source-separated collection systems, commercial composting and the application of recycled organics to agriculture offers significant benefits to the environment, including substantial reduction in greenhouse gas emissions. Other significant findings are:

- Commercial composting of organic waste and application of compost materials to agricultural soils results in net greenhouse gas reduction, even if the recycled materials have to be transported up to 600 km for agricultural applications.
- Positive benefits were found under all the other environmental indicators, including reduced potential for human toxicity, eco toxicity and eutrophication.
- Small negative environmental impacts related to photochemical oxidation potential and abiotic resource depletion. This arose largely from the production and use of diesel fuel consumed while applying the compost material to agricultural soils..

Habitat Revitalization, Reforestation and Wetland Restoration

What little organic material that is present in Florida's soils has frequently been stripped by urban development, flooding, mining, and other natural and man-made stresses. These barren soils can be enhanced through the addition of compost. Compost adds the missing texture, structure and nutrients that plants need to re-establish themselves in nutrient-depleted locations.

Economic Benefits

When managed efficiently, composting has been shown to be a very cost effective process. The soil enrichment benefits of compost can lead to cost savings in reduced irrigation or increased soil moisture retention; reduced fertilizer and pesticide use; and increased crop yields in some crops.

Compost production provides a cost-saving disposal alternative for companies producing organic waste from their operations. One company's organic waste has the potential of being a compost producer's feedstock for another company. In addition to traditionally used organic materials (i.e., manure), composters are also now using paper mill sludge, restaurant and grocery store food waste, animal carcasses, fishery by-products, and biosolids to produce a finished product. Compost is now being used for more than farming and backyard landscaping. Nurseries, commercial landscapers, state highway departments, sod producers and bioremediation firms use compost for turf establishment, upgrading marginal soils, backfill mix component, nursery bed production, sod production media, soil mulch for erosion control, forestry establishment, and remediation of contaminated soils.