



## SUCCESSFUL COMPOSTING: The Benefits of Compost

### Defining the Issue

To promote compost successfully to potential customers, understanding the benefits that compost can bring to a soil is vital. Successful sales often begin with effective education: customers need to know what compost can do for them, and a knowledgeable producer is in an excellent position to provide such information.

### Key Concepts

Composts can vary quite widely in their chemical and physical characteristics, since many of these depend on the original feedstocks used and the conditions maintained while the material was composting. In general, though, composts share ability to provide these benefits:

#### PLANT-AVAILABLE NUTRIENTS AND MICRONUTRIENTS

- As compost breaks down in the soil, it provides the fertilizer nutrients of nitrogen, phosphorus, and potassium in forms that are readily available to plants.
- Unlike most inorganic fertilizers, compost functions as a slow-release store of nutrients, so that the nutrients are available as the plants require them instead of in one intense flush.
- Compost also provides a wide range of important micronutrients not found in commercial fertilizers.

#### ORGANIC MATTER

- Added to sandy soils, the organic matter in compost increases the soil's water-holding ability so that both rain and irrigation water are held in the root zone for plant use. This can significantly lower the irrigation requirements in the

- orchard industry and other applications where water use is restricted or prohibitively expensive.
- Compost lightens heavy (high clay) soils, allowing better infiltration of both air and water into the root zone. This improves plant health and helps to prevent sealing of the soil surface caused by water pooling.
- Organic matter functions like a sponge, enabling soil to retain nutrients and moisture in the root zone. Inorganic fertilizer nutrients as well as those released by the compost itself are kept from leaching down into ground water.
- Soil structure is improved, allowing effective drainage, extensive root growth, and soil aggregate stabilization, so that soil is less subject to erosion by either water or wind.
- Earthworm activity is encouraged, further enhancing soil fertility.

#### BIOLOGICAL ACTIVITY

- Compost is biologically active, supplying a range of microorganisms that enhance the health of both soil and crops.
- Compost appears to suppress some types of plant disease—the exact mechanism is not yet fully understood [see *Disease and Pest Control* in Useful Tools].

#### WEED SEED AND PATHOGEN FREE

- Properly processed compost will not introduce weed seeds or human pathogens when applied.

#### **NOTE: COMPOST AS A MULCH**

When used as a mulch, compost can:

- Conserve soil moisture, reducing the need for irrigation in dry areas
- Minimize weed growth
- Insulate soil to slow temperature changes; dark colour may also help soils to warm more quickly in spring and retain heat longer in the fall.

Beyond the traits common to all composts, it is important to know that different feedstocks can produce finished composts that vary in some of their characteristics. Different plant species may be benefited, harmed, or unaffected by particular traits—knowing this can help compost producers match their finished product to applications where it is most likely to be successful. It may also provide an opportunity to produce a custom-matched compost for a particular market. Composts can vary considerably on the following characteristics:

#### PH

- most composts are in the neutral pH range by the time they are mature. Those utilizing feedstocks that are significantly either basic or acidic may end up with a product that is still above or below neutral. Many crop and turf species are not noticeably affected by this difference, but sensitive species can be. In addition, some commercially grown plant species actually prefer relatively acidic or basic conditions.

#### SOLUBLE SALTS

- salts can originate in a number of different feedstocks, most notably manures. Composts that are higher in soluble salts should not be used with sensitive plant species or on soil with high background levels of salts.

#### TRACE ELEMENT CONTENT

- Many trace elements serve as plant micronutrients when present in appropriately small amounts. Some plant species may be harmed by elevated levels of particular elements, while other species may be benefited. Soils, too, vary in the levels of trace elements they contain—compost high in particular elements can serve as an excellent amendment in areas where the soil is poor in those same elements.

### MATURITY

- Immature, active composts may be preferred by those building biofilters or covering landfills, while greenhouse growers require a very mature, stable product to use in seedling mixes. Many applications can tolerate a range in maturity levels, but sensitive crops require a more mature product.

Other physical factors that can vary from compost to compost, and which may affect market targets include:

### INERT CONTENT

- Different applications vary in how much plastic, glass, and other non-compostable material will be tolerated in the final product.

### COMPOST TEXTURE

- Screening the finished compost can produce a more widely desirable end product, but field, orchard; reclamation and landfill applications may not require the expense of this added step. In fact, a coarse-textured product is preferred for applications relying on compost's air filtering ability, such as biofilter construction and landfill covering and capping.

Whether they are growing and maintaining turf, producing trees or plants for sale, or maintaining fruit orchards, commercial growers are familiar with the requirements of their particular crops. To target a particular market effectively, it is important to develop a thorough understanding of that market's particular needs. Compost producers need to be completely familiar with the capabilities of their particular process and with the characteristics of their own product in order to demonstrate and explain the relevant benefits compost can provide to specific groups of horticultural producers.

## **Useful Tools:**

Benefits of Compost:

[http://www.remade.org.uk/documents/organic\\_doc/FAQs\\_modified.pdf](http://www.remade.org.uk/documents/organic_doc/FAQs_modified.pdf)

Using Compost: <http://www.herald-dispatch.com/2001/June/21/LFlist2.htm>

Disease and Pest Control: <http://www.epa.gov/epaoswer/non-hw/compost/>  
<http://www.epa.gov/spdpublic/mbr/compost3.html>

Compost Quality and Use: <http://www.gks.com/NSOGA/compost.php3>  
<http://ibiblio.org/rge/course/>

## **Additional Informational Links:**

US Composting Council: <http://compostingcouncil.org/index.cfm>

Cornell Composting: [http://www.cfe.cornell.edu/compost/Composting\\_homepage.html](http://www.cfe.cornell.edu/compost/Composting_homepage.html)

US Environmental Protection Agency Composting: <http://www.epa.gov/compost/>

The Composting Association of the UK: [http://www.compost.org.uk/dsp\\_home.cfm](http://www.compost.org.uk/dsp_home.cfm)

Washington State University Compost Connection: <http://csanr.wsu.edu/compost/>

Compost Education and Resources for Western Agriculture:

<http://www2.aste.usu.edu/compost/>

Recycling and Composting Online: <http://www.recycle.cc/>

## **Feedback:**

Are you an operator who has had experiences—faced particular challenges, solved specific problems—that would be of help to other operators? To share tips or solutions your facility has developed with regards to the subjects in this fact sheet, please click on the button below. Thanks for sharing your practical ingenuity!

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