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COMPOSTING

Summarized Field Manual

waste is gold techlogories pvt ltd
9/01/2018

Guide to Composting

Contents

Process for Composting

What is Compost?

- Compost is an organic matter that has been decomposed and recycled as a fertilizer and soil amendment.
- Compost is a key ingredient in organic farming.
- Decomposition / Biodegradation of organic matter.

Benefits of Composting:

- Improves the structure and texture of the soil, enabling it to better retain nutrients, moisture, and air for the betterment of plants.
- Can reduce the need for pesticides by increasing soil biological activity.
- Adds organic matter and nutrients to soil, reducing the need for chemical fertilizers
- Improves availability of micronutrients in the soil other than the basic nutrients. In a commercial fertilizer micronutrients are often missing.
- Maintains a balanced soil ecology.

- Kills pathogens and weed seeds.
- Prevents soil erosion.
- Helps alleviate vacant site requirement for landfills

Factors Affecting Composting:

- Food Factor
  - ✓ Bacteria use carbon for energy and nitrogen to grow and reproduce.
  - ✓ C:N ratio ranging between 25:1 and 30:1 is the optimum for rapid decomposition.
- Air
  - ✓ Oxygen level of about 5% is necessary.
- Moisture
  - ✓ Optimum level of 40% to 60% is necessary.
- Temperature
  - ✓ Temperatures between 32° to 60°C indicate rapid decomposition.
- Particle Size
  - ✓ More the surface area, faster will be the decomposition of the material.
- Volume
  - ✓ Important factor to retain heat in the pile

Getting the Right Heat & Moisture

- When suitable material is collected, naturally occurring micro-organisms such as bacteria, fungi and algae start to feed on the ingredients.
- At this stage, the heap should heat up to between 40 - 60°C
- This heat speeds the rate of breakdown and can kill diseases and weed seeds
- It is also too hot for cockroaches & flies to breed

Getting the Right C:N Ratio

- Green materials are rich in **Nitrogen (N)**; brown materials are rich in **Carbon (C)**.
- Most materials for composting do not meet the ideal 25:1 ratio, so different materials can be mixed to achieve the ratio required
- Wood pellets are added in the Ratio 1:15 (Wood Pellets : Waste) to add carbon and to absorb moisture by weight
- If using sawdust, the ratio needs to be 1 : 5 (Sawdust : Waste) by weight
- Coir (coconut fiber) can also be used successfully

Getting Oxygen to the Compost

- Open pockets open up the pile to air which helps in the decomposition
- Turn your compost heap over every week to get air to it - Mild mixing should be enough
- You can do this with a garden fork allowing enough aeration

Why Shred before composting?

- Shredding increases the surface area of the compostable material and allows for faster decomposition of the organic matter as there is more surface area (hence more food) for the micro-organisms to act on.

Finished Compost:

Compost is finished and ready to use when

- It is dark, brown, and crumbly with an earthy odor.
- The original materials that went into the compost pile should no longer be recognizable in finished compost.
- The temperature of the finished compost should be the same as the outside air temperature.
- The material should not reheat.

What can be Composted?

Green / wet materials

- ✓ Fruit and veggie scraps
- ✓ Egg shells
- ✓ Tea bags, tea leaves
- ✓ Fresh green grass clippings and plant trimmings
- ✓ Plate scrapings – Meat, Bones & dairy products are okay as a part of plate scrapings

Brown / dry materials

- ✓ Dry leaves, dried grass clippings
- ✓ Wood shavings or sawdust
- ✓ Nuts and shells
- ✓ Coffee grounds and filters
- ✓ Shredded egg cartons (the paper kind)
- ✓ Shredded newspaper and tissue paper
- ✓ Twigs, Hay
- ✓ Paperboard items & Cartons
- ✓ Household paper & paper bags (non-coloured)

Unsuitable for Composting

- ✓ Metals, Rubber, Vacuum cleaner bags
- ✓ Heavily printed materials – envelopes, newspapers
- ✓ Plastics
- ✓ Milk & juice cartons (they are waxed)
- ✓ Coloured wood
- ✓ Liquids – milk, soup etc
- ✓ Disposable nappies

Do's and Don't

- ➢ Don't let the waste get too wet. If it is too wet then more brown material can be added to absorb the excess moisture

- Don't let the waste get too dry – moisture is necessary for the nourishment of the micro-organisms that break down the waste.
- Don't add too much sawdust or wood pellets at one time. They both have exceptional absorption properties and if the waste becomes too dry the decomposition will be impeded and the mixture will form lumps.
- Try to maintain the previously mentioned C:N ratio

Advantages ->

- Biodegrades all biological wastes excluding night soil
- Continual process, does not require maintenance
- Organic wastes can be continually fed in without the necessity to wait for the pre-existent decomposing waste to completely decompose.
- Completely decomposed matter is ready between 10 – 15 days based on the optimum conditions.
- Output is an easily handle-able, non-toxic, non-infectious, odourless material that is crumbly to touch and be used directly in the garden for plants as bio-fertilizer.
- Possibilities for the use of the compost includes:
  - In the garden
  - To sell the compost for a price to organic food growers
- Potential to highlight ourselves as a socially, environmentally and economically conscious society and for being showcased in various departments.