Composting – The Heart of Climate-Wise and Organic Gardening

Compost is a dark brown, soil-like material remaining after plant and/or animal material have decomposed. It contains plant nutrients and humus, which is a complex, fairly stable carbon compound that holds many times its weight in moisture.

Benefits of using compost:

- Adds organic matter, which is beneficial to soil structure (increases water and nutrient-holding capacity of sandy soils and helps lighten heavy, clayey soils);
- Helps soil retain moisture and nutrients;
- A one-time application provides continuous release of the types and amounts of macro and micronutrients plants need in a form they can absorb for about one year;
- Increases biodiversity – compost adds life to the soil in the form of microbial populations, earthworms, nematodes and a host of other soil dwelling organisms;
- Provides nutrients, moisture retention and porosity needed to support soil life.

Benefits of making your own compost

Not all composts are created equal. Homemade compost can be kept free of contaminants and weed seeds. It is often teeming with soil organisms because it usually maintains, or returns to, a temperature hospitable for earthworms and other soil organisms. Biodiversity is one of the reasons why supplying organic matter to the soil in the form of compost (compared to sterilized or dried forms of organic matter) is especially beneficial to soil health. The vast majority of soil organisms are beneficial or benign.

Biodiversity in the Soil

Biodiversity is one of the foundations of organic gardening because organic gardening relies on natural systems to manage pests and enhance growth. Biodiversity makes it possible to control pests without chemicals. Every organism has a natural enemy. If we can create environments where natural enemies will thrive, we don't have to worry about pest organisms taking over a garden. But we need to have tolerance for all creatures, realizing they all have a place and as long as none dominate, they can't threaten the overall health of the garden.

Synergistic Effect of Compost's Attributes Results in Healthy Plants

To have a successful organic landscape, we have to work from a position of strength. Plants must be healthy. That's where compost comes in. Compost contributes so many beneficial effects that it seems to make plants healthy magically. It's the synergy of the known benefits of compost – all working together to make a whole stronger than any of its parts – plus the many aspects of compost and soil ecology yet to be discovered – that results in the phenomenal health and vigor of plants grown in compost-amended soil.

We know this because the individual qualities of compost can be analyzed, and none, on their own, can account for compost's beneficial effect on plants. For example, the nutrient value of compost is only about 1-1-1, not nearly as strong as synthetic fertilizers. Humans have tried to replicate all the individual components that compost

supplies. We aren't nearly as successful, and our attempts for the most part are pitifully unsustainable.

We can try to improve soil structure by tilling, but in the long run, tilling results in a loss of organic matter and greater compaction. We can add nutrients, but chemical fertilizers end up depleting the soil, accumulating salts, ruining soil structure and polluting ground and/or surface water. We can kill pests, but pesticides kill off most organisms, including the beneficial ones. This allows secondary pesticide populations to take over easily because their natural enemies are gone, requiring the application of more pesticides. Over time, organisms can build up resistance to frequently used pesticides. And how can we know what long-term impacts pesticides can have on wildlife, humans, pets and drinking water? Compost, on the other hand, imparts natural disease-resisting qualities to plants, although the mechanism is still unknown. Healthy plants are generally able to survive insect attacks, reducing the need for pest control.

We can add organisms, such as earthworms, to our landscapes, but most introductions aren't successful because the conditions aren't right for the survival and reproduction of the introduced organisms. In the case of earthworms, food in the form of organic matter, and soil moisture are both required. Compost provides both these requirements, as well as young worms and worm cocoons.

Individually, the beneficial qualities that compost provides cannot be artificially replicated as successfully, cost-effectively or sustainably as good quality compost. Nor can we artificially create a product that imparts the seemingly magical, still mysterious, synergistic effects that compost provides. More than any single attribute, it is the combination of attributes possessed by compost that make it so powerful. It's truly a miraculous substance. Not only does compost supply a whole ecosystem of beneficial soil organisms, it also provides all the requirements they need to thrive and multiply – food, moisture-holding humic substances, buffering qualities and enough diversity so none can take over.

Composting – the Heart of Organic Gardening

There are other techniques used in organic gardening, but the key to success is to rely on healthy, vigorous plants to resist pests and diseases. The best way to grow healthy plants is to have healthy soil, and the best way to have healthy soil is to make and use compost. On top of all these horticultural benefits, composting can help us recycle as much as 50% of our household waste. For more information on how to compost, visit the Massachusetts Department of Environmental Protection Home Composting and Green Landscaping website at https://www.mass.gov/lists/home-composting-green-landscaping.

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