

## The Sustainable Garden

By Elizabeth Haegele, Assistant Education Coordinator

The word “sustainable” seems to be everywhere these days. Everything from architecture to forestry has been impacted by the global movement towards sustainability. But what exactly does it mean? The US Environmental Protection Agency defines sustainability as the ability to achieve continuing economic prosperity while protecting the natural systems of the planet and providing a high quality of life for its people (<http://epa.gov/sustainability/>). The challenge of providing for human and natural environments both now and in the indefinite future to ensure resources for future generations is worthy of consideration. So how, exactly, does this apply to gardeners?

Responsible gardeners, as stewards of the land, regard and relate to their gardens as ecosystems. Gardens are not just beautiful places for people to enjoy, but are complex communities with dozens of living organisms and nonliving components working together. By understanding these relationships, gardeners can begin to apply sustainable practices in the garden to encourage wildlife habitats, decrease soil erosion, and contribute to water preservation.

Gardeners can introduce sustainable practices in nearly every facet of their gardens, but some of the most important applications have to do with promoting and maintaining healthy soil and conserving water. A major way to encourage healthy soil is to increase its organic matter, most commonly in the form of compost. Over 60% of all trash sent to landfills is either compostable or recyclable, so some of those waste materials can be put back into the garden rather than filling landfills. Compost loosens and aerates clay soil as well as tightening overly sandy soils. It aids plants in absorbing water and nutrients as well as neutralizing pesticides and other toxins. Increasing organic matter also promotes the growth of good microorganisms and helps to prevent soil compaction.

Soil erosion is another major issue around the world. Erosion steals the richest part of the soil and turns it into an environmental pollutant. The best way to avoid soil erosion in your garden is to plant strongly rooted perennials on sloped areas. Consider building terraces into steep slopes in your garden as well.

All gardeners know how difficult it is to garden in compacted soils. Certain plants act as indicators of compacted soils such as selfheal, *Prunella vulgaris* and nut-sedge, *Cyperus esculentus*. More than two-thirds of all soil compaction damage occurs on the initial impact. If you have to walk in your garden beds, use walkways or lay boards down and always use the same spaces to walk, rather than damaging more of the bed than necessary.

Worldwide, drinking water is becoming a scarce commodity. Currently, agriculture is the greatest consumer of water as far as human activity is concerned, but you might be surprised to learn home gardeners use several times more water per area of land than commercial agriculturists. There are many ways people can garden sustainably in the face of the water shortage challenge. First, try to minimize your dependence on irrigation by choosing drought-tolerant plants. You can also group plants in your garden according to water needs so you won't be watering unnecessary areas. Mulching is an excellent way to reduce evaporation. Also, remembering to water during the cooler part of the day can reduce evaporation as well. And capturing runoff from roofs and paved areas is a great way to use rainwater to irrigate your garden.

At the Scott Arboretum, we have implemented practices and principles with the idea of educating the public on sustainability and the effects of the built environment on the natural

environment. Due to the increase in impervious surfaces, stormwater runoff has caused flooding and erosion of our local waterways. The BioStream Garden was installed as an effort to mitigate some of this destruction. This planted area allows storm water to recharge into the ground along the length of the “stream” before running into the underground piped storm water system. The plantings along the BioStream are tolerant of periods of wetness. Other projects around campus include the LEED (Leadership in Energy and Environmental Design) certified Science Center, which uses infiltration beds planted with prairie dropseed, *Sporobolus heterolepis*, to capture stormwater runoff, allowing it to be stored in a series of underground water tanks used for irrigation. Stormwater is also captured from the roof in the Water Stairway and the Water Wall. This helps to conserve stormwater and reduces soil erosion impacting the Crum Woods slope and creek. The Alice Paul Residence Hall’s greenroof is an extensive vegetative roof that not only retains 50-90% of the rainfall, but saves on air conditioning expense as well as providing a habitat for insects.

In March 2007, the Scott Arboretum received its first order of peat-free potting mix from The Organic Mechanics Soil Company. Mark Highland, president, has been developing his mix for over 10 years. The soil mix is a combination of different types of compost, worm castings, coir (coconut husk fiber), and perlite. The product is currently available at some local garden centers. It is totally organic, produced locally, peat-free, and delivered by a vehicle running on biodiesel. The Arboretum has a goal of becoming peat free because we are not certain of the source of peat in potting mix and if it is from a renewable sustainable source. While all of these aspects can make an unprecedented impact on the world of horticulture, Mark hopes that education of the end consumer will make the biggest impact on increasing sustainable practices in horticulture. **Don’t miss his workshop at Scott on February 12, *Compost 101: Just Do It!***

You can make an impact with your choices while gardening. Gardeners, as nurturers, should wish to leave the planet more attractive and healthier than when they arrived, and practicing sustainable gardening will help to do this.

**Resources: (optional)**

Carrol, Steven B. and Steve D. Salt. *Ecology for Gardeners*. Portland: Timber Press, 2004.

McDonough, William and Michael Braungart. *Cradle to Cradle: Remaking the Way We Make Things*. New York: North Point Press, 2002.

Online:

<http://www.organicmechanicsoil.com/>

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