



**Ten Step Guide to a
Sustainable Grounds Policy**

Background

Every time you see a little yellow sign on a lawn indicating a chemical application has occurred and think to yourself the harmful effects will be gone in a few days, think again. It's also an indication that you're now standing on unhealthier soil that's probably contaminated for a much longer period of time than a few days, you're also probably breathing in air which contains harmful off gassing VOCs and your community's water supply is at risk of being contaminated by the dangerous pesticides, herbicides and petrochemical synthetic nitrogen fertilizer runoff that impacts storm water quality adversely which results in dead zones. <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/01/14/HOG71GLP6A1.DTL>

These synthetic products are being found in our nation's waterways at alarmingly high rates. <http://www.motherjones.com/environment/2006/03/atrazine-water>.

These products are also linked to killing off an array of precious aquatic life and are threatening to human life at their current use levels: <https://www.motherjones.com/blue-marble/2008/11/pesticide-cocktails-kill-safe-doses>

As if that wasn't disheartening enough, your immune, neurological and reproductive systems are exposed to carcinogenic toxins. (*Infertile Ground*, Vogue, 2007) Moreover, when absorbed by your children's bodies, the impact has even greater damaging effects. <http://www.nrdc.org/health/kids/ocar/chap7.asp>

Even though we all know pesticides are a known health risk, we've seemed to forget what Rachel Carson wrote about in *Silent Spring* nearly a half a century ago, that gave birth to the modern day environmentalist movement. Pesticides, herbicides, fungicides and insecticides kill things and have far reaching detrimental effects on all of humanity and the ecosystem. Sadly, long after Ms. Carson's groundbreaking work, you can take a stroll down just about any street in America and find

the signs indicating they've being applied. Or walk down any lawn and garden aisle in a hardware store, some a football field in length, and find thousands of products loaded with the hazards she spoke of so eloquently. The countless array of products shrewdly known by names such as "*weed and feed*", elusively promise miraculous growth and the elimination of weeds and pests are cleverly packaged to understate the painful reality that they unnecessarily inflict harm on humans, animals, plants, our soil, air and water:

[www.RefuseToUseChemLawn.org/Health Data Sheets](http://www.RefuseToUseChemLawn.org/HealthDataSheets)

The good news is that with the advent of green chemistry many safe and effective alternatives exist to make the landscape beautiful without compromising human and ecological health. Whether your healthcare facility is large or small, urban or rural its landscape can easily be retrofitted. Imagine creating safer, sustainable grounds that responsibly protect the health of your healthcare community and the health of the larger surrounding community. By applying The Precautionary Principle to the exterior built environment of the landscape, greater sustainability can be achieved on healthcare grounds. Additionally, greater environmentally efficiency will also meet our urgent demand for strategies to reduce the effects of climate change. The Worldwatch Institute and Ecoagriculture Partners recent study determined greenhouse gases can become sequestered in the soil. The report outlined five strategies to reduce emissions through farming and land use sequestering. The first of which is as follows:

"Soil, the third largest carbon pool on Earth's surface, can be managed to reduce greenhouse gas emissions by minimizing tillage, cutting use of nitrogen fertilizers, and preventing erosion. Soils can store a vast amount of additional carbon by building up organic matter and by burying carbon in the form of biochar (biomass burned in a low-oxygen environment)." (SustainableBusinessNews.com, 6/2009)

Current Policy

Current Integrated Pest Management (IPM) Policy has yet to achieve what it was intended to do. IPM's original goal was the elimination of toxic chemicals on landscapes and to transition the landscape industry, known as the green industry, to non-toxic approaches. Least toxic measures would be the standard and chemical applications only as a last resort after all non-toxic strategies were employed. That mission is a worthy one. However, the execution of the goal has fallen short due to a lack of policy being fully implemented to include monitoring and enforcement. Applicators continue to reach for dangerous pesticides, herbicides and insecticides first and have forgotten that IPM policy's goal was elimination of these products.

Beyond Pesticides 2008 report, [Taking Toxics Out of Maryland's Health Care Sector](http://www.beyondpesticides.org/) <http://www.beyondpesticides.org/> explores the over reliance on toxic chemical usage by health care institutions.

"Similar to other sectors, pest management in health care settings often escapes the scrutiny of institutional "greening" efforts." Reasons for this extend from a fundamental misunderstanding of the health risks of chemical pesticides (especially for vulnerable and sensitive populations in health care facilities), false belief that toxic pesticides are necessary in pest control, to the outsourcing of pest control to service providers that utilize chemical-intensive approaches. These factors typically lead to a widespread and systematic reliance on chemical pesticides to prevent and control pests in the health care sector and generally in pest control."

The report concluded that standard IPM policy for healthcare facilities lacks:

- Prioritizing non-chemical methods
- Mandating a reduction or elimination of chemical usage, and
- Vigilant oversight of vendors

Additionally, the findings indicate that delegating application decisions to the pest

management industry, without governing policy can institutionalize unnecessarily hazardous approaches to pest management. This report focused primarily on structural pest management yet, the data collected by investigators revealed the same situation exists when it comes to the use of chemical methods on lawns and landscape.

How can we Institutionalize Sustainable Ecological Landscapes?

The best way to achieve meaningful sustainability on the landscape is through measurable reduction with the real goal of elimination of these harmful landscape products. First by adopting Health Care Without Harm's overriding mission of "Do No Harm" <http://www.noharm.org> for the natural landscape. Practice Greenhealth's mission <http://www.practicegreenhealth.org/> further supports the implementing of greener ecological landscape policy for healthcare facilities grounds. In accordance with this mission, the GGHC Sustainable Grounds Section 5 Operations 2.2 addresses this area of concern. Credit 1.2 can be earned when you implement a sustainable grounds initiative on your site.

In response to a need to strengthen and fully implement IPM Policy in tandem with their mission of promoting environmental stewardship, on the following pages Practice Greenhealth provides the 10 steps to healthy ecological landscapes. It is the intent that each of these steps help foster the development and implementation of sound ecological landscape policy. These steps include greener recommendations and supply information on practices and products, which will serve to educate the healthcare community and provide resources on toxic waste reduction and energy efficiency of the natural landscape that will help to halt climate change.

Step 1: Educate patients, staff, administration and your community about the dangers of the current chemical landscape fertilization program

The U.S. Center for Disease Control and Prevention (CDC), in a sample of 9,282 people nationwide, found pesticides in 100% of the people who had both blood and urine tested. The average person carried 13 of 23 pesticides tested. Exposure to conventional lawn chemicals have been linked to breast cancer, childhood leukemia, endocrine disruption and neurological disorders. (www.ReuseToUseChemLawn.org)

Apply The Precautionary Principle to the exterior built environment of the landscape to enhance working policy. The Precautionary Principle states that:

When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

Step 2: A commitment is essential to sustainable grounds policy

Once it's revealed just how unsafe current practices are and what an unnecessary risk they are to health and the environment, management and staff need to be empowered with information about safe and effective alternatives. It's time to make a commitment. In order for new policy to be effective, management and staff have to get on a path by committing to adopting a policy of pesticide and petrochemical reduction with the goal of achieving elimination for the protection of patients, staff and community.

Step 3: Develop a sustainable grounds policy

This strategy consists of creating a plan that can immediately be implemented and allows for a 1 to 3 year complete phase out of chemical measures. This strategy was successful in Canada. In 2006, over 300 cosmetic lawn chemicals were completely phased out of use in the Province of Quebec after 3 years. The campaign was later successfully implemented in the largest Canadian Province of Ottawa a few years later. Now half of Canada has this ban in place. The campaign was effective due to support of the health care community. The Canadian Physician's for The Environment and Ottawa Family Physicians both backed this effort. The healthcare community can lead the way in the US by transitioning healthcare grounds to a pesticide and petrochemical free approach and paving the way for a national policy of elimination for the preservation of human and ecological health and the promotion of carbon sequestration of the landscape.

Step 4: Collection of baseline data and assessment of site under the current policy

Gather an environmental history of the site and what landscape strategies have been employed over time. Begin with a walk thru to assess the current conditions and should include: Baseline soil sampling, an analysis of water quality and quantity to determine reduction and land restoration and protection strategies. Local in addition to national initiatives and regulations should be explored.

- a. Soil Testing – See Cornell University's website on soil testing

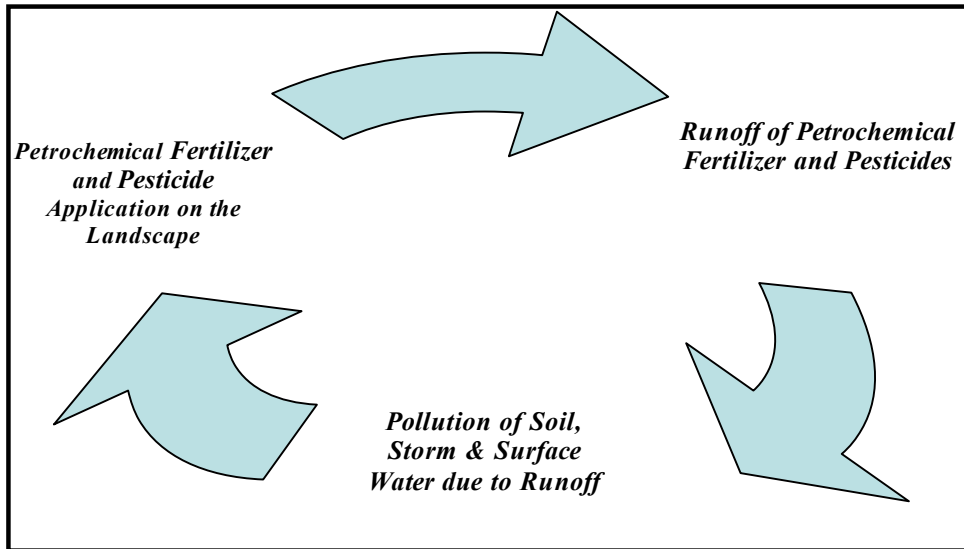
<http://soilhealth.cals.cornell.edu/extension/test.htm>

- b. Water Quantity & Quality Testing – See Cornell University’s website on irrigation practices <http://www.gardening.cornell.edu/lawn/lawncare/watering.html>
- c. USDA’s Web Soil Survey <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Step 5: Review current products and practices in use on the landscape every season

The analysis will provide evidence on how to improve the health of the landscape while protecting storm water quality, the ecosystem and the down stream user.

CHEMICAL DEPENDENCY LOOP



Repeated applications of synthetic petrochemical products shut down the living breathing soil. Once that occurs, the soil becomes anaerobic, and compaction occurs. Compacted soil is most vulnerable to erosion experiences increased run. Petrochemical fertilizer run off is one of the top three leading causes of non-source point water pollution in the environment. Healthy soil is an essential player in feeding plants, protecting water by filtering pathogens, holding nutrients making the soil more sustainable thus able to sustain itself as well as sequester carbon.

Step 6: Engage in environmentally preferred purchasing and practices

Begin phase out of most hazardous portions of existing program with environmentally preferred products. Replace petrochemical fertilizers with renewable non-water soluble fertilizers that strengthen the health of the soil.

- Go Pesticide and Herbicide free! Use non-toxic products and cultural best practices for the effective management of weeds. Replace herbicide with mineral amendments to properly balance the pH of the soil and address the core issue. Reduce compaction with aeration. Crowd out weeds with the planting of new grasses. Replace pesticides with organic biological pest controls that improve the overall microbiology of the soil.
- Employ sustainable erosion controls. Replace high in synthetic nitrogen containing hydro seeding with seeding that includes renewable non-water soluble fertilizers or compost that stabilize the soil long term and fosters its nutrient holding power.

- Engage in improving soil health. Increased organic matter in soil to makes it hold water more efficiently reducing and eventually eliminating the need for irrigation.
- Explore regional sources of soil amendments, plants and landscape materials. Know vendors and the sustainability of their practices. Buy materials from sources with local, regional or national certifications programs.
- Revise vendor RFP's to engage in environmentally preferred purchasing of grounds maintenance services. Seek out accredited professionals. Work to develop greener RFP's to green your existing vendor.
- VOC free for the environmentally sensitive population: Alternatives exist that have no VOCs and aren't an inhalation hazard, posing no health risk to vulnerable healthcare population.

Step 7: Retrofit the landscape with renewable energy efficient approaches

Don't have the resources for a major landscape renovation? Retrofitting the landscape by transitioning to renewable energy efficient approaches will provide savings and ROI in a couple of seasons. Eliminating the use of inefficient non-renewable sources of fertilization, pest management and landscape materials, increases energy efficiency on the landscape today. Increased soil health of lawn and gardens lowers costs and provides the following efficiency benefits in the future:

- Mitigates erosion.
- Keep soils on site.
- Decreased plant die off lowering the expensive costs associated with new installations and plant replacement.
- Promotion of the soil's health results in its increased nutrient holding ability, and efficiency as a carbon sequester.
- Nutrient recycling on landscape. Proper mowing cultural landscape practices to mulch clippings in to naturally fertilize lawns.
- Onsite composting of other landscape material can result in the creation of natural fertilizer at no added cost.
- Natural irrigation strategies on the landscape reducing potable water demand

Step 8: Offer training in the best green practices

Training in the best green practices will make implementing the new systems approach easier. The following organizations have fashioned useful information:

- a. Green Guide for Health Care <http://www.gghc.org>
- b. EPA's WaterSense Program <http://watersense.org>
- c. EPA's Greenscapes
<http://www.epa.gov/epawaste/partnerships/greenscapes/howto.htm>
- d. ASLA -Sustainable Sites Initiatives
<http://www.sustainablesites.org/>
- e. Organic Pest Management
<http://www.beyondpesticides.org/>
- f. Erosion Remediation in LEED Sustainable Sites
<http://www.usgbc.org>

Listed below is a summary of Northeast Organic Farmer's Association (NOFA) Organic Land Care Standards which promote "Do No Harm" practices used in organic farming and are applied to the landscapes.

- Test Soil. Collection of baseline data is essential to assessing the site's conditions and must be done before amending the soil. There are a variety of soil labs and many are available through the extension services of land grant universities.
- Bare soil is unhealthy soil. Unhealthy soil is the cause of most weed, pest and disease problems. By properly amending the soil you can reduce weeds, pests and disease naturally.
- Creation of compost for lawns and gardens.
- Introduction of compost to increase organic matter, address deficiencies in the soil and boost your landscapes' power to be a natural carbon sequester.
- Avoiding "bratty" plants not well suited to your geographic region and requires excessive fertilizer and pesticides. Because they're incompatible with the soil conditions, healthy growth is an uphill battle.
- Introduce native species well suited to soil conditions and geographic region. Native species have greater resiliency to incidences of die off and pest infestations which lowers costs.
- Get lawns off drugs and organically fertilize! What makes grass unsustainable is the excessive use of petrochemical fertilizers, herbicides, and pesticides. These products require excessive amounts of water to activate and create shallow grass roots and plants not resilient to environmental stress or disease.
- Balance the landscape. Border lawn and limit lawn area with perennial beds to assist in carbon sequestering on your landscape.
- Engage in nutrient recycling. Mow height of 3" or more. Don't remove clippings off site. Don't grow grass up to trees.
- Limit the square footage of turf and have a balanced landscape.
- Engage in best mulching practices. Apply no more than 1-2" a year. Avoid dyed products that have paint coating some of which have been found toxic to applicator and ecosystem. Eliminate volcano-like mulching contributing to the decline of tree and shrub health. Compost can be successfully employed as mulch. Other mulch materials from post consumer recycled products exist with less reapplication frequency required.
- Improve sanitation practices on the landscape (i.e. pruning vs. sheering of shrubs and perennials to reduce the introduction of disease resulting from the stress of sheering)

Step 9: Identify the ecological zones that exist on your site.

Engage in conservation, preservation and promotion of the health of the natural resources by using various areas of the site for what they're best suited. Provide education to patients, staff and the community. Facilitate meaningful connection with the natural environment by creating areas on your site for the following:

- Places of respite in the natural environment. Healing gardens to serve as restorative meditation space for patients and staff. Introduce diverse native plants, to promote the influx of birds and beneficial. Make these spaces the first areas to be pesticide and petrochemical free for the protection of those patients with vulnerable immune systems in need of contemplative areas.
- Protection of wildlife habitat. Conservation of open space. Consider no mow or high mow grasses and wildflowers meadows for buffers and ecologically sensitive areas.
- Provide an organic vegetable garden for staff and patients to grow food for the healthcare community.

- Connect with the local community by providing safe volunteer opportunities to green the landscape (i.e. weeding, pruning and composting).
- Create respite area and green space on your roof. This will result in a reduction of roof heat effect, aid in storm water quality management, and reclaim green space lost due to the development of the site.
- Educate staff and community with an exhibit about the implementation of new ecological landscape policy initiative on site. Offer how to workshops to the healthcare community. Promote healthier landscape practices community wide.
- Demarcations of pesticide and petrochemical free zones that are being retrofitted as visual demonstration areas.

Step 10: Perform Ongoing Site Assessment and Data Collection

- Oversight by all staff involved in operations
- Seasonal data collection
- Yearly retesting
- Comparative Cost Analysis over time
- Revise benchmarks, if necessary

The health care industry can be a leader by demonstrating its commitment to environmental health and energy efficiency by adopting and implementing sustainable grounds policy. Reduction and elimination measurement and verification will in turn result in the reduction and elimination of the unnecessary risks associated with toxic petrochemical landscape products. More research needs to be done on further strategies.

Lead the way in responsible buildings and operations practices with a more defined policy that provides greater protection of the health and safety of patients, staff, community and ecosystem. Similar to the transition to green cleaners on the interior environment, the health care industry can model the switch to sustainable grounds policy and products on the landscape.

Environmentally preferred purchasing of landscape products and services demonstrates a healthcare institutions commitment to socially and ecologically responsibility buying. Moreover, by eliminating toxic synthetic chemicals it will reduce the lifecycle costs associated with these products.

The healthcare industry can be instrumental in setting new and improved standards of eliminating toxic waste and increased energy efficiency on the landscape. By greatly reducing hazardous runoff we can greatly reduce the erosion and preserve our soil. "While other carbon sequestering technologies may take decades to perfect, using land to sequester carbon is the most tangible, effective tool at our disposal today to reduce carbon emissions and help mollify climate change, they say."

Sustainable <http://www.sustainablebusiness.com/index.cfm/go/news.display/id/18334>

Healthy landscapes can protect from the pollution of pathogens and now can also, aid us by becoming the most valuable carbon sequester available currently. The Earth is calling us to heal the soil itself and use it as a tool to halt climate change.

*This document was prepared by Practice Greenhealth with support from **Bernadette Giblin**. Ms. Giblin holds an Accreditation in Organic Land Care from the Northeast Organic Farmer's Association. She is principal of Safeground Organic Landcare, a mission driven company committed to providing education, training and consulting services to organizations interested in creating safe, energy efficient grounds programs. Safeground Organic Landcare is a USGBC member.*