A Model of Pesticide-free Land Care: The Maryland State House Grounds

The Maryland State House located in Annapolis is a model for health care facilities in the state for its transition and maintenance to beautiful pesticide-free grounds. The project was a collaboration between Maryland Departments of General Services and Natural Resources and Maryland Pesticide Education Network. The transition began in 2012 and was created using the following pesticide-free guidelines.

Share these guidelines with your groundskeeping staff and/or contracted land care vendor.

Pesticide-free Land Care

Background:

A growing body of scientific evidence links toxic pesticide use to serious health issues, especially for vulnerable populations, even at low levels. Hospital patients who have compromised immune and nervous systems, the elderly, infants and children, and those especially sensitized to pesticides are particularly vulnerable to toxic chemical exposure. Patients taking certain medications may also have heightened reactions to pesticides. From and environmental perspective, the use of pesticides and fertilizers are a major contributor to pollinator declines, including local Maryland honey bees, and they negatively impact the health of the our waterways.

That is why many communities, municipalities, school districts, local parks, home owners, and, especially, the health care industry are transitioning from pesticide-intensive to pesticide-free land care, which relies on proven safe, effective, and affordable ways to maintain attractive lawns and landscaping without the use of toxic pesticides. People, governments, agencies, and industries that have made the switch are following a systems approach focused on preventive strategies for weed and insect management, proving that it is possible to transition to natural lawn care that does not rely on harmful pesticides.

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Pesticide-free Land Care, *continued…*

Pesticide-Intensive Land Care

Studies show that hazardous lawn chemicals do not stay on treated lawns. They are tracked indoors, and they drift into hospitals, homes, and other buildings where they contaminate indoor air and surfaces, exposing people at levels ten times higher than pre-application levels. Of the 30 commonly used lawn pesticides, 17 are linked to cancer, 11 are linked to birth defects, 19 to reproductive effects, 24 to liver or kidney damage, 14 to neurotoxicity, and 18 to disruption of the endocrine (hormonal) system.

Synthetic fertilizers and chemical pesticides restrict water and air movement in the soil while high nitrogen fertilizers can disrupt the nutrient balance, accelerate turf growth, and increase the need for mowing. Pesticides harm the microorganisms, beneficial insects, and earthworms that are essential to maintaining a healthy soil and turf.

Pesticide-free Land Care

Peticide-free land care is a systems approach to land care. This systems approach is based on three basic concepts: (1) pesticide-free and organic products where use is indicated by soil testing, (2) an understanding that the soil biomass plays a critical role in soil fertility and turf grass health, and (3) specific and sound cultural practices.

The goal of a pesticide-free turf management program is to create turf that is both aesthetically pleasing and meets site objectives. At the same time, this turf will provide a healthy surface free from toxic chemicals. From an environmental perspective, the approach is designed to utilize materials and adopt cultural practices that will avoid any runoff or leaching of nutrients and control products into the Chesapeake Bay watershed and water table.

Pesticide-free turf management is a “feed-the-soil” approach that centers on chemical-free organic fertilization, microbial inoculants, compost teas, microbial food sources, and topdressing as needed with high quality finished compost. It is a program that supports the processes that nature designed and has already in put in motion. These inputs, along with very specific cultural practices, which include mowing, aeration, irrigation, and overseeding are the basis of the program.

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Pesticide-free Land Care *continued...*

Transitioning to Pesticide-free

Fall is the best time to start transitioning to a pesticide-free lawn. The key to a healthy lawn is healthy soil and good mowing, watering and fertilizing practices. Weeds thrive in soil that is compacted, poorly fertilized, and not pH balanced; and in lawns that are improperly watered, seeded, and mowed.

If the lawn is hard, compacted, and full of weeds, aerate to help air, water and fertilizer enter the soil below the surface.

Build healthy soil containing high organic content and biological life. Spreading compost over grass will increase water retention, increase organic matter, and "feed the soil." A healthy soil feeds the grass. If a fertilizer is needed, choose organic and use it sparingly.

When selecting a land care vendor or recontracting with an existing vendor, we encourage you to contract for a turf and landscape program that builds soil health instead of relying on synthetic fertilizers, herbicides, fungicides, and insecticides to treat problems. Healthy soil can eliminate the use of pesticides.

Healthy soil supports the development of healthy grass that is naturally resistant to weeds and pests. Once the lawn is healthy, natural organisms will help it to remain aerated. Adding new grass seed over an existing lawn will create a thick lawn which prevents weeds from taking root.

In a healthy, fertile and well maintained lawn, diseases and pest problems are rare. Once established, a pesticide-free lawn uses fewer materials, such as water and fertilizers, and requires less labor for mowing and maintenance. More importantly, the lawn will be safe for the patients, residents, staff, and visitors at a health care facility.

A health care facility must be a safe haven for young families, children, the elderly, and people with weakened immune systems. Now is the time to make the transition and eliminate from your grounds unnecessary toxic chemicals that put people and the environment at risk.

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Pesticide-free Land Care *continued...*

8 Steps to a Toxic-Free Lawn

1. **Develop healthy soil**. Dig a 10" deep smooth narrow hole to examine the soil. The lawn should have between 5"-6" of topsoil; the darkest soil layer. If needed, add organic matter such as compost.

2. **Plant well-adapted, pest-resistant grass varieties**. Learn which grasses are most suitable to your climate. A mix of two or more appropriate grass varieties is preferable. Overseeding, or providing additional seeding, of established lawns may reduce weed problems.

3. **Aerate the lawn twice a year**. Soil compaction is one of the largest causes of weed problems. Aerating, or removing small cores or "plugs" of soil, allows air, water, and nutrients to reach the roots of the grass.

4. **De-thatch**. Thatch is a dense layer of grass stems and roots on the surface of the soil. When thatch layers become ½" or more, the roots will grow up within the thatch instead of down into the soil, making grass susceptible to insects, disease, and weather stress. Thatch is reduced by aeration, organic matter topdressing, or by vertical mowing or power raking.

5. **Maintain proper pH**. Test your soil and adjust the pH accordingly. Low pH means high acid content – add lime to raise the pH. High pH means high alkaline – add sulphur to lower the pH. Watch for hints of pH imbalance, such as a dandelion infestation. Dandelions prefer soil with a pH of 7.5, while grass prefers a pH of 6.7 to 7.0.

6. **Fertilize.** Use a slow release, chemical-free organic fertilizer once a year, usually in the fall, to increase nutrient uptake and reduce nutrient runoff and leaching. Avoid conventional synthetic nitrogen-rich fertilizers that feed only the plant not the soil. Learn to read signals. For example, if clover is taking over the lawn, the soil is lacking nitrogen since clover gets nitrogen from the air and grass gets nitrogen from the soil.

7. **Water properly**. Over or under watering can induce pest outbreaks. Enough water should be applied each time to wet the soil to the depth of the grass root zone. The soil should be allowed to become nearly dry between waterings. Avoid frequent, short waterings, which promote shallow root systems and reduce stress resistance. Chemical-free fertilizers can increase the water-holding capacity of the soil.

8. **Mow correctly**. Mow with sharp blades set to 3" to minimize adverse effects and retain the lawn's competitive ability. Never cut off more than 1/3 of the grass blades in a single mowing. Rotate the mowing pattern to reduce lawn compaction. Leave a light layer of grass clippings on the grass, which can provide up to half the lawn's nitrogen requirement.

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