

## Pesticides and the Chesapeake Bay Watershed Project

### Organic & Phosphate-Free Landcare for Public Spaces, Playing Fields & Landscapes

Attitudes are changing throughout the Chesapeake Bay region in the way we view the management of our public spaces. Growing concern about the health and environmental impacts of pesticides – on our health and on the Bay – is causing many local government agencies to adopt a non-toxic approach to managing public spaces.

Other large landholders, such as faith-based congregations, eldercare institutions and hospitals, are raising similar concerns, due to increased awareness of research suggesting an association between pesticide exposures and chronic diseases such as certain cancers, as well as reproductive, neurological, respiratory and developmental disorders.

#### **Why** organic landcare?

Organic Landcare eliminates the use of and exposure to pesticides in the management of public spaces, playing fields, lawns, and landscapes. It promotes non-chemical methods of pest prevention and management. The goal of a natural turf and landscape management program is to create and maintain high quality turf grass that is environmentally friendly and free from toxic chemicals. This is achieved by establishing and maintaining a soil profile rich in microbiology, producing strong, healthy turf that can withstand insects, weeds, disease, drought and heat.

#### **What** does organic landcare involve?

Within a program for turf and landscapes, there is an established protocol. It is based on a systems approach that integrates soil health, plant vigor, and proper cultural practices. The goal is to follow a series of preventive steps to reduce the chance that problems will arise. Then, if problems do become an issue, they generally are easier to address. Careful monitoring and the development of acceptable threshold levels must be established in the protocol. This complete program should mitigate most serious pest pressures. If a pest has not been successfully managed or controlled by these strategies, then least-toxic non-chemical controls can be used.

# Six Steps to Natural Turf and Landscape Success

- 1. Develop healthy soil with proper pH.** This is achieved with regular (at least annual) soil testing and assessment for balancing pH and identifying needed soil amendments. The first step for achieving soil health is at minimum annual soil testing to understand the soil condition and identify deficiencies. Apart from identifying the basic pH parameter and any need for balancing pH at or near 6.8 (through application of iron sulfate to high pH, alkaline soil or, more likely, lime to low pH, acidic soil), the test will identify the need for soil amendments such as bone meal for increasing micronutrients, calcium, magnesium and zinc. Testing also should cover organic material concentrations.
- 2. Plant well-adapted, pest-resistant grass varieties.** Select grass and ornamental varieties that naturally resist insects, fungal diseases and fluctuations in weather. Planting is best done in the fall for superior results. Grasses best suited to the climate in most of Maryland are “cool season” varieties such as Kentucky bluegrass, perennial ryegrass, fescues and bentgrass. “Warm season” zoysiagrass may be suitable for the transition zone in the southern part of the state. Note that cool season varieties are active in the spring and fall and dormant in the summer, while the opposite occurs for warm season varieties – active in the summer, dormant otherwise.
- 3. Select compost fertilizer.** Compost fertilizer formulations, ideally applied once a year (usually in the fall but subject to change based on soil test results), increase the efficiency of nutrient uptake, reduce nutrient runoff and leaching and increase the water-holding capacity of the soil. Slow-release compost fertilizers with zero phosphorus content are selected. While generally there is a tradeoff in nitrogen concentrations when selecting compost fertilizers, the market for these products continues to grow, with their success demonstrated in a variety of settings.
- 4. Adopt proper management practices.** Practices such as dethatching, aeration and topdressing increase soil performance and reduce susceptibility to insects, disease and weather stress. Dying, matted grass thatch on the surface prevents air, water, and fertilizer from reaching soil. Dethatching removes the problem and promotes decomposition rather than accumulation of grass clippings. Aeration reduces compaction, thereby promoting air exchange in soil and allowing water and nutrients to reach plant roots. Top dressing with 1/8”-1/4” of composted material should be applied as needed to maintain OM concentrations of approximately 5%.

5. **Adopt proper watering methods.** Watering procedures should wet the soil to the depth of the grass root zone, allowing soil to become dry before the next watering and eliminating more frequent, shorter waterings, which promote shallow root systems.
6. **Mowing.** Mowing with sharp blades set to 3” minimizes adverse effects and retains a lawn’s competitive ability. A single mowing should never cut more than 1/3 of grass blades, rotating the mowing pattern to reduce lawn compaction, and leaving a light layer of grass clippings on the grass, which can provide up to half the lawn’s nitrogen requirement. Stressed or dormant grass should not be mowed.

**The Pesticides and the Chesapeake Bay Watershed Project** was established in 2007 by the Maryland Pesticide Network and the Johns Hopkins Center for a Livable Future. The Project is the first working group in Maryland dedicated to reducing the occurrence and risks of pesticides in the Bay watershed, in order to protect water quality, aquatic life, wildlife and public health. Project participants include scientists, public health experts, water keepers, watermen, federal, state and county government agency representatives, representatives of the agricultural and pest management industries and environmental organizations.

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[www.mdpestnet.org](http://www.mdpestnet.org)

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