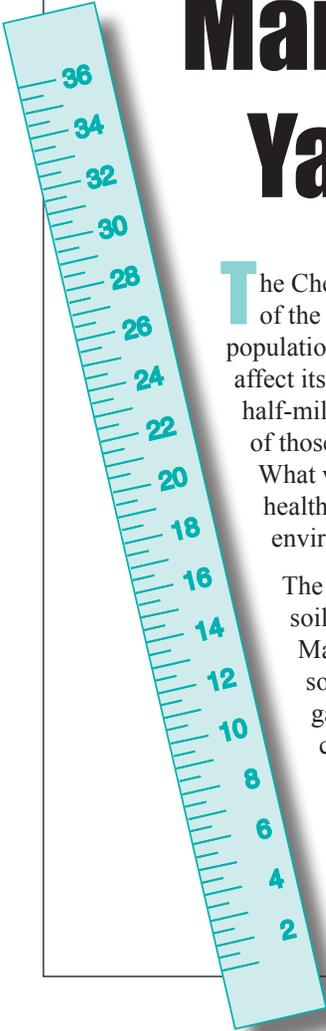


Bay-Wise Maryland Yardstick

**How does
your
landscape
measure up?**



The Chesapeake Bay is a national treasure and a vital part of the state of Maryland. Yet, the Bay is in trouble due to population pressures, from pollution and sediment runoff, which affect its watershed. Most Maryland residents live within a half-mile of a drainage ditch, storm drain, stream or river. Most of those waterways eventually drain into the Chesapeake Bay. What we do to maintain our own landscapes can affect the health of our local waterways, the Chesapeake Bay and our environment.

The overuse and misuse of pesticides and fertilizers, soil erosion and poor plant selection have all damaged Maryland's streams, rivers and the Bay. Environmentally sound gardens and yards combined with sustainable gardening practices can help improve water quality and conserve our natural resources for future generations.

We all need to do our part to take care of our waterways and environment.

By changing a few simple landscape practices, you and your family can help keep Maryland communities healthy.



“What we do to maintain our own landscapes can affect the health of our local waterways, the Chesapeake Bay and our environment.”

Are you a Bay-Wise homeowner?

Homeowners can contribute to a cleaner local waterway, Chesapeake Bay and environment by using several environmentally sound approaches.

- **Control Stormwater Runoff**
- **Encourage Wildlife**
- **Protect the Waterfront**
- **Mow Properly / Water Efficiently**
- **Manage Yard Pests with Integrated Pest Management (IPM)**
- **Mulch Appropriately / Recycle Yard Waste**
- **Fertilize Wisely**
- **Plant Wisely**

Directions: Listed in this brochure are approaches and management practices designed for individual home landscapes. Read through the choices carefully. Select those actions that you have already taken in your yard. Mark off your credits on the yardstick (on the front page) as you complete each action. Your goal is to equal or exceed 36 inches.

Control Stormwater Runoff

Any rain and irrigation water that runs off carries soil, debris, fertilizer and pesticides from your yard into neighborhood storm drains that lead to local streams, rivers, drinking water reservoirs and the Bay. These substances can harm living organisms, habitats and water quality. Reducing runoff from your property minimizes these problems. One easy way to do this is to keep grass clippings, fallen leaves and other yard waste out of storm drains, waterways and drainage areas. Another way is to avoid compacting the soil to encourage stormwater infiltration.

Actions:

- Direct down spouts and gutters to drain onto the lawn, plant beds or rain gardens where rain will soak into the soil rather than running off. However, direct this water away from the house to avoid wet basement and foundation problems. **Credit: 1 inch**
- Plant groundcovers on thinly vegetated areas, under trees or on slopes to decrease erosion. **Credit: 1 inch**
- Use porous pavers, brick or paving stone set in sand, gravel, mulch or other porous surfaces for walkways, patios and driveways. **Credit: 1 inch**
- Create swales (low areas) or terracing to catch and filter stormwater. **Credit: 1 inch**
- Plant mulched beds containing trees, shrubs, or groundcovers along the low edges of your property to catch the run off. **Credit: 1 inch**
- Install a rain garden where it will catch runoff from roofs or other impervious surfaces trapping pollutants. This will also slow and direct the flow of stormwater instead of allowing it to run off your property. **Credit: 1 inch**
- Install rain barrels to collect water from downspouts to be used later. This reduces runoff and reuses this natural resource. **Credit: 1 inch (for each rain barrel, up to 4)**

Encourage Wildlife

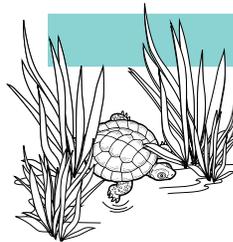


Maryland has a great diversity of wildlife. Providing adequate food, water and shelter can increase the number and variety of species that visit your yard. Local wildlife relies on native plants for food and shelter.

Actions:

- Provide, and properly maintain, a water source, such as a birdbath or small pond, for wildlife. (Change birdbath water every other day to provide a fresh, clean drink and discourage mosquitoes.) **Credit: 1 inch**
- Provide and properly maintain, wildlife shelters such as a toad house, birdhouse, a dead tree (snag) or woodpile. (Keep woodpile away from house to deter unwanted insects.) **Credit: 1 inch**
- Incorporate into your landscape butterfly larva host plants such as white turtlehead (for the Baltimore checkerspot), spicebush (for the spicebush swallowtail), pawpaw tree (for the zebra swallowtail), and milkweed (for the monarch butterfly). **Credit: 1 inch**
- Identify which native trees, shrubs and perennials have a high wildlife value, such as native oaks, sugar maple, river birch and American hickory, and incorporate them into your landscape. **Credit: 1 inch**
- Plant our native honeysuckle, native lobelias such as cardinal flower, and native beebalm to encourage visits from hummingbirds. **Credit: 1 inch**
- Plant native shrubs and perennials that provide cover, nesting areas or produce berries/seeds to encourage birds, such as dogwood, black or red chokeberry, serviceberry, early, tall or three-lobed coneflower, Indian grass and switchgrass. **Credit: 1 inch**
- Encourage pollinators to visit your yard by including nectar-rich plants such as Joe-pye weed, native asters, blazing star and goldenrod. **Credit: 1 inch**

Protect The Waterfront



Waterfront property owners realize the special contribution our waterways and the Bay make to the quality of life. They should also understand how fragile these natural treasures can be. Waterfront property includes those properties that border even the smallest streams.

Actions:

- Establish a border of low maintenance vegetation adjacent to all bodies of water including streams, storm drains and water retention ponds to absorb nutrient, slow runoff, and provide wildlife habitat. **Credit: 3 inches**
- Use native grasses with deep root systems, such as Switchgrass, Little Bluestem, or Indiangrass, to hold hillsides along waterways. **Credit: 2 inches**

- Do not fertilize within 25 feet of any waterway or your well. **Credit: 1 inch**
- Keep grass clippings, other yard waste and animal waste away from stream banks, waterways or the river's edge. **Credit: 1 inch**

Mow Properly / Water Efficiently

Mowing height can affect pesticide use. Cool season grasses (fescues, bluegrasses, ryegrasses) naturally go into a semi-dormant state during summer's heat and drought. Tall fescue lawns are more drought tolerant than Kentucky bluegrass. The most desirable Bay-Wise practice is to conserve water and mimic natural patterns by not watering during summer. If you feel you must keep your lawn growing during this time by watering, do so only when your lawn and landscape really need the water. Minimization of watering is an important key to reducing runoff and maintaining a healthy Maryland landscape.

Actions:

- Mow cool season grasses high (3 - 4 inches) to encourage a deeper, more drought- and pest-tolerant root system. A higher cut also shades out weeds. Remove no more than a third of the grass blade when you mow. **Credit: 2 inches**
- Use a reel (push) mower or electric mower instead of gas-powered one to eliminate, or at least reduce, air pollution from burning fossil fuels. According to the EPA, operating a typical gasoline-powered lawn mower for one hour produces the same amount of smog-forming hydrocarbons as driving an average car almost 200 miles under typical driving conditions. **Credit: 2 inches**

Lawn Irrigation:

- Allow cool season grasses to go dormant during summer months. **Credit: 3 inches**
- If you must irrigate your lawn, do so only when it begins to wilt. Be sure to follow local water ordinances. Apply ½ to 1 inch per application (to a depth of 6 inches), but never more than the soil will absorb. Stop watering when water begins to run off. Long, slow soaking applications are good; avoid short, frequent, shallow applications, which can actually do more harm than good. **Credit: 1 inch**
- Water in the morning to conserve water (watering during the heat of the day causes higher losses to evaporation). Morning watering also reduces potential disease problems (evening watering encourages diseases). **Credit: 1 inch**

Landscape Irrigation:

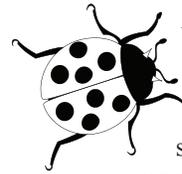
- Direct water to the soil at the base of the landscape plant. Excess water on the leaves increases the potential for foliar diseases. **Credit: 1 inch**
- Occasional overhead watering, during hot dry weather, can temporarily help to cool plants and provide moisture for beneficial insects & spiders. Water overhead in the morning only. This allows time for the leaves to dry before disease can set in. **Credit: 1 inch**

- Design and maintain a landscape that, once established, will survive on natural rainfall amounts by planting trees, shrubs and perennials that are native/adapted to your area. **Credit: 3 inches**
- Use drip- or micro-irrigation to conserve water in plant and flower beds. **Credit: 1 inch**

For landscapes that use an in-ground irrigation system:

- Give your irrigation system a check-up. Replace broken and mismatched sprinkler heads. Redirect sprinkler heads so that water falls only on lawn and garden areas, not on paved surfaces. **Credit: 1 inch**
- Calibrate your irrigation/sprinkler system to apply no more than 1 inch of water per application. **Credit: 1 inch**
- Install a rain shut-off device on your automatic sprinkler system. The shut-off device will override your system's timer when an adequate amount of rain has fallen. **Credit: 1 inch**
- Because their water needs are different, design or modify your irrigation system to water lawn areas separately from plant beds. **Credit: 1 inch**

Manage Yard Pest with Integrated Pest Management (IPM)



An insect- and disease-free landscape is a sterile one. Improper use of pesticides can harm humans, pets, beneficial organisms and the environment as well as produce pests that are resistant to and require ever more powerful pesticides for their control. Pesticides should be used only for treatment of serious pest problems. IPM is a comprehensive process used to manage pests. It involves an understanding of the life cycle of the pest, other organisms, (like beneficial organisms, our pets and ourselves) and the effects of a pesticide on all of these things. The result is, when confronted with a pest, you should consider all possible ways to control it before doing so. Steps of IPM include regularly monitor for signs of plant problems and insect pests (use a hand lens for a closer look and don't forget the leaf undersides); prevent pest problems before they occur; once identified, consider cultural or mechanical means of control; and as last resort, if deciding to use a pesticide, try bio-rational materials like insecticidal soap, horticultural oil, neem, B.t. (for caterpillar pests) and other beneficial organisms first.

Actions:

- Learn to recognize and understand that some damage is okay and even necessary in establishing a healthy ecosystem. Check here if you don't use pesticides at all. **Credit: 5 inches**
- Avoid routine applications of pesticides. Spot treat only affected plants or lawn areas rather than spraying your entire lawn and landscape. (Ask your lawn and landscape maintenance company to follow these strategies if they maintain your landscape). **Credit: 1 inch**

- Learn to identify three beneficial insects that provide natural control of harmful pests. List them _____, _____ & _____. (Note: praying mantids are not necessarily beneficial - they will eat beneficial insects as well as pests; but they do indicate an environment where few harsh pesticides are used). **Credit: 3 inches**
- Many plants that attract & feed beneficial insects are edible. Plant at least one or two in the garden to do double duty: anise, basil, carrot, coriander, dill, fennel, mints, anise hyssop, kale, Asian green, parsley, sage and thyme. **Credit: 1 inch**
- Use non-pesticide tools such as attractants (like slug traps), barriers (like floating row cover), and hand picking insects to control pests in preference to pesticides. Avoid using the Japanese beetle traps in your landscape. They will actually attract more beetles to you landscape than what were originally there. **Credit: 1 inch**
- Hand-pull weeds where possible. If removed when they are young and tender, it requires less effort. This is a non-toxic way to control weeds. **Credit: 1 inch**
- Remove plant debris and diseased plants to prevent the spread of disease from one season to the next. **Credit: 1 inch**
- Choose resistant varieties to reduce potential need for pesticides. **Credit: 1 inch**
- If deer, groundhogs, raccoons or rabbits are a problem in your garden, use fencing or repellents to deter or repel them. **Credit: 1 inch**
- Attract beneficials to your garden by planting beds with a variety of native plants. These plants and other herbs help diminish pest invasions and provide habitat and produce small flowers that are nectar and pollen sources for beneficials. **Credit: 1 inch**

Mulch Appropriately / Recycle Yard Wastes

Mulching retains soil moisture, moderates soil temperature and helps prevent erosion and weeds. By using mulch you'll use less water, have healthier plants and fewer weeds. (Note: Never use freshly ground organic material, like brush or hardwood bark, as mulch. It robs nitrogen from the soil and can cause plant yellowing. Allow these materials to age for at least 6 months before using.) Also, in a Maryland landscape, grass clippings, leaves, yard trimmings, and organic kitchen scraps, such as vegetable & fruit peelings, egg shells and tea & coffee grounds, should be recycled rather than sent to the landfill or down the kitchen disposer.



Actions:

- Maintain no more than a 2- to 3-inch layer of organic mulch over the roots of trees, shrubs and in planting beds. Deeper mulch may prevent water from filtering down to the plant roots. Prevent wood mulch from coming in contact with tree or shrub bark. The same microorganisms that break down the mulch

will damage and destroy woody plants. Leave at least 1 inch of space between the base of the tree or shrub and the mulch. **Credit: 2 inches**

- Create self-mulching areas under trees and shrubs where non-diseased leaves and pine needles can remain where they fall. **Credit: 2 inches**
- Use by-product mulches such as shredded hardwood, pine bark, or pine bark nuggets. These are available from your community or check your local garden center. (Caution! Excessive use of hardwood mulch can cause manganese toxicity in acid-loving plants, like azaleas.) **Credit: 1 inch**
- Use compost or leaves as an alternative to hardwood mulch. **Credit: 1 inch**
- Use fallen leaves, dried grass clippings and pine needles found in your yard as mulch under trees, shrubs and in flower beds rather than bagging and discarding them. Pine needles are great in beds of acid-loving plants like azaleas, Japanese pieris and rhododendron. They make attractive natural mulch and they're free. **Credit: 1 inch**
- Create and maintain a compost pile with collected clippings, leaves and kitchen scraps (no animal products, please). Check your local county ordinances to see if kitchen scraps can be used. **Credit: 2 inches**
- Vermicompost indoors in addition to (or if unable to) composting outdoors. **Credit: 1 inch**

Fertilize Wisely

Fertilizers can be harmful to the environment and your yard if not used properly. When applied at the wrong time or over-applied, fertilizers can create salt problems in the soil, affect winter hardiness, exaggerate pest problems and make plants grow excessively (which can mean more mowing too!) Fertilize only as needed to maintain the health and quality of lawns. Do not over-fertilize. The University recommends using no more than 1 pound of actual Nitrogen per 1,000 square feet of lawn per application and no more than 2 to 3 applications per year. Excess nitrogen and phosphorus (two components of fertilizers) can leach out of the soil and pollute groundwater or wash off landscapes and pollute local streams and rivers, and eventually, the Chesapeake Bay. If heavy rain is forecast, avoid using fertilizer on lawn to prevent polluted runoff.



Actions:

- Test your soil every 3 to 5 years. Fertilize and lime according to the soil test recommendations. Call your county Extension office or the Home and Garden Information Center, HGIC, at 1-800-342-2507, for information on getting your soil tested. **Credit: 2 inches**

- Use a fertilizer with the proper balance of nutrients for landscape plants. Generally, trees and shrubs need a ratio of 3:1:1 of Nitrogen, Phosphorous, Potassium (NPK); lawns need a fertilizer high in N, no or low in P and moderate in K, while flowering plants need a higher amount of P than N and K. Use appropriate fertilizer on turf. The N should be higher than the K. Appropriate formulations might be: 28-0-4 or 35-0-6. **Credit: 1 inch**
- Minimize the need for synthetic lawn fertilizers by using a mulching blade on your mower and leaving grass clippings on the lawn to decompose. This is called grass-cycling and can “fertilize” your lawn for free. **Credit: 1 inch**
- Fertilize cool season grasses (fescues, bluegrass and ryegrass) only in the Fall (September through early November). Warm season grasses such as Zoysia and Bermudagrass should only be fertilized from mid May to early June. **Credit: 1 inch**
- Use compost, slow release or natural organic fertilizers. Buy fertilizers that contain 30% or more of the nitrogen in slow release forms. Look for words such as water insoluble nitrogen (WIN), controlled release nitrogen, sulfur coated urea (SCU), IBDU, ureaformaldehyde (UF) or resin-coated urea to indicate slow release forms. **Credit: 1 inch**
- Avoid spilling/leaving granular fertilizer on paved surfaces. Sweep it back onto the lawn or collect it for use later. **Credit: 1 inch**
- During autumn, mow lawn lightly covered with fallen leaves. Leave finely shredded leaves on lawn to decompose and release nutrients to the lawn. Mulching mowers are great for this task. **Credit: 3 inches**
- Acid-loving plants such as azalea, camellia, heath, leucothoe, mountain laurel, pieris and rhododendron grow best in soils with a pH of 4.5 to 6.0. Fertilize with acid-forming fertilizers, but test soil periodically to prevent making the soil too acid. **Credit: 1 inch**
- Check here if you never fertilize your lawn and/or landscape plants. **Credit: 7 inches**
- Check here if you don't have a lawn. **Credit: 9 inches**

Plant Wisely

Plants suited to your site, especially Maryland natives, will require minimal amounts of water, fertilizer and pesticides; and may provide benefits to your home. A variety of plants helps create a healthy environment. Group plants in the landscape according to their water and maintenance needs.



Actions:

- Replace problem-prone plants with better adapted, non-invasive species. **Credit: 1 inch**
- Incorporate a variety of native plants into your landscape. Give yourself credit if you have at least 4 different species. List them. _____
_____ **Credit: 2 inches**

- If a lawn is necessary, plant drought-tolerant turfgrass species such as turf-type tall fescue, fine fescue, or zoysiagrass instead of higher-maintenance species like Kentucky bluegrass. In areas with no foot traffic, consider planting native grasses, ground covers or shrubs. **Credit: 1 inch**
- Determine how much grass you need for children, pets, recreation or ornamental purposes. Grass requires extensive maintenance to grow well, potentially resulting in greater air and water pollution. Where possible, replace unneeded lawn areas with beds of low or no maintenance ground covers, perennials, shrubs or trees. **Credit: 2 inches**
- Save energy by using trees and shrubs to shade the southern and western walls of your home and your air conditioner compressor. **Credit: 1 inch**
- Use deciduous trees on southern exposures to allow the sun to passively heat your home in winter. And/or use evergreen trees and shrubs on northwestern exposures to protect your home from cold winter winds. **Credit: 1 inch**
- Educate yourself about what is invasive in our area and avoid planting these plants. Help stop the spread of invasive, exotic plants such as Purple loosestrife, Japanese honeysuckle, Norway maple, ‘Bradford’ callery pear, Russian olive, Chinese bittersweet, Multi-flora rose, Kudzu and Tree of heaven by removing them from your landscape. **Credit: 1 inch**

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For specific information on how to pursue an action contact:

University of Maryland Extension
Home & Garden Information Center (HGIC)
1-800-342-2507
or visit us at www.hgic.umd.edu
You can also order fact sheets by phone or on-line
Find list at <http://www.hgic.umd.edu/content/onlinepublications.cfm>