

# RIVERSMART HOMES

## WHAT IS RIVERSMART HOMES?

RiverSmart Homes is a District-wide program offering incentives to residents to reduce stormwater runoff from their properties. Residents receive a stormwater assessment to determine their eligibility for financial and technical assistance to install one or more of the following features: rain barrels, shade trees, rain gardens, BayScaping (native plant garden), permeable pavers, and re-vegetation. This program is administered by the Department of Energy and Environment (DOEE).

## STORMWATER RUNOFF AND THE DISTRICT OF COLUMBIA

Stormwater runoff is rainwater that flows off impervious surfaces (rooftops, parking lots, patios, etc.) into sewers and streams, picking up pollutants like debris, chemicals, oil, lawn fertilizer, bacteria, and pet waste.

## BENEFITS OF RIVERSMART HOMES

### To the participants

- Beautifies your home
- Saves on your utility bills
- Improves yard drainage

### To the District

- Improves the quality of local streams and waterways
- Minimizes use of herbicides, pesticides and fertilizer
- Stabilizes soils to reduce erosion

## WANT TO BECOME A RIVERSMART PARTICIPANT?

1. Apply by completing an online application at [bit.ly/riversmarthomesapplication](https://bit.ly/riversmarthomesapplication) or by calling (202) 535-2252.
2. Have a site assessment conducted to determine what features are appropriate for your home
3. Let DOEE know what features from your audit you want installed
4. Work with DOEE partners to have your features installed
5. Maintain and enjoy your features



# RIVERSMART HOMES

## FREQUENTLY ASKED QUESTIONS

### Am I eligible for the RiverSmart Homes program?

All residential homes in the District with four units or fewer are eligible to participate. Renters who have permission from their landlord are eligible to apply for the program as well. Some homes that have already participated in the program may not be eligible for additional funding.

### Is becoming a RiverSmart Home going to cost me money?

Participants make a co-payment for each of the following RiverSmart Homes features installed on their properties (DOEE subsidizes the rest of the cost). The co-payments are as follows:

- Rain barrels = \$50 per rain barrel, depending on rain barrel type (limit two)
- Shade trees = \$0 per shade tree (no limit)
- Rain gardens = \$100 per 50 sq. ft. of rain garden (limit two depending on audit recommendation)
- BayScaping = \$100 per 120 sq. ft. of BayScaping (limit two depending on audit recommendation)
- DOEE provides a rebate of up to \$15/sq.ft. for removing and replacing impervious surface with permeable pavers and/or a \$8/sq.ft. rebate for removing and replacing impervious surface with vegetation. Only properties within the Municipal Separate Storm Sewer System (MS4), Ward 7, and Ward 8 are eligible for this rebate. For eligible properties, there is a rebate limit of \$6,000.

### How and when do I make a co-payment for my RiverSmart Home feature?

Participants make co-payments directly to the nonprofit partner or contractor coordinating the installation of your RiverSmart Home feature. The timeline for these co-payments will vary by feature.

### How long does it take to become a RiverSmart Home?

After an audit of your property (see below for audit details) is completed, contractors should complete work on your property on average within six to eight months.

### What is the process of becoming a RiverSmart Home?



# RAIN BARRELS

Rain barrels capture and store the rainwater running off a rooftop. The harvested rainwater can be stored for later use, released slowly over time, or used immediately for watering lawns and landscaped areas, or washing cars.

RiverSmart Homes offers two types of rain barrels for installation: RainGrid's RiverSides rain barrel and StormWorks' Hydra rain barrel. These barrels are enclosed to eliminate the chance for mosquitoes to breed and have an overflow port to move excess water away from the foundation of your house. If you are interested in installing a different rain barrel, please see information about the Rain Barrel Rebate Program on the back of this flyer.



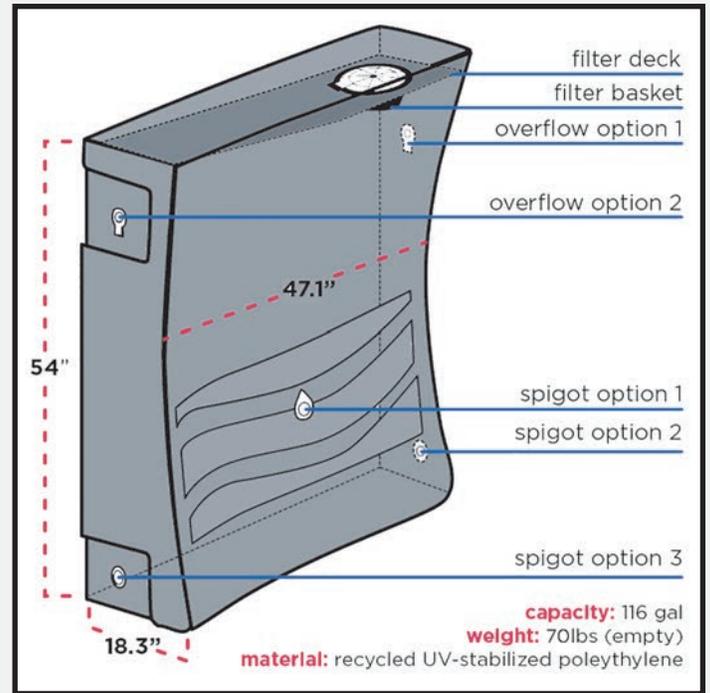
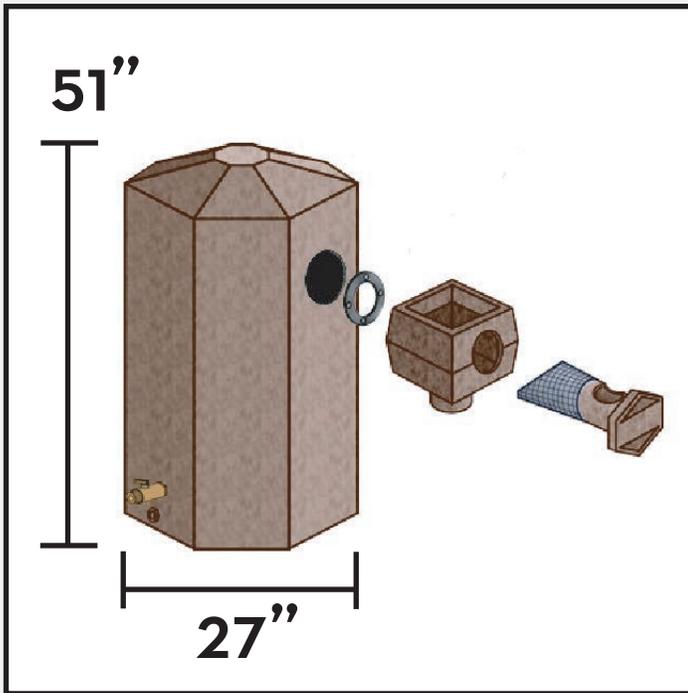
- 132-gallon capacity
  - Made with recycled plastic & UV-treated to resist fading, warping, and cracks
  - Includes spigot and 30-foot soaker hose
  - Diverter box to bypass or collect rainwater depending on season/need
  - Weighs approximately 35 lbs. when empty
- 116-gallon capacity
  - UV-treated to resist fading, warping, and cracks
  - Includes spigot and 30-foot soaker hose
  - Automatic overflow connection
  - Manual diverter to bypass or collect rainwater depending on season/need
  - Weighs approximately 58 lbs. when empty

**\$50 co-payment per rain barrel (limit two per property)**

## MAINTAINING YOUR RAIN BARREL

Rain barrels will need to be drained between rainstorms to maximize the rainwater it can capture. The filter will need to be regularly cleaned and rinsed to prevent clogging. To prepare the barrel for winter, empty the barrel, switch diverter to bypass mode, and leave the spigot open. For more maintenance information and how-to videos, visit [riversmarthomes.org/rainbarrels](https://riversmarthomes.org/rainbarrels).

# RAIN BARRELS



## NEXT STEPS

If you are interested in a rain barrel, please do the following:

1. Become eligible for a rain barrel through a RiverSmart Homes assessment
2. If you are eligible, let your assessor know you want a rain barrel(s) installed
3. Make your copayment and have your rain barrel(s) installed
4. Maintain your rain barrel

## INTERESTED IN MORE THAN TWO RAIN BARRELS OR WANT A DIFFERENT MODEL OF RAIN BARREL?

Rebates are available for participants who purchase and self-install eligible rain barrels. Rebates are issued as a direct reimbursement of \$2 per gallon stored by the rain barrel or cistern. Rebates can be used in combination with RiverSmart Homes funding.

The minimum capacity required is 50 gallons, which would provide up to a \$100 rebate.

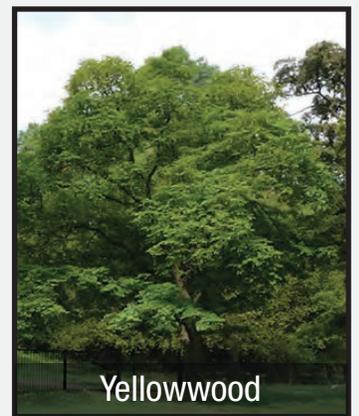
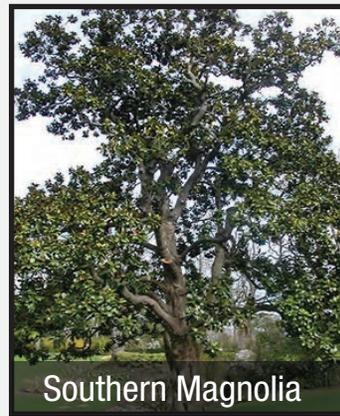
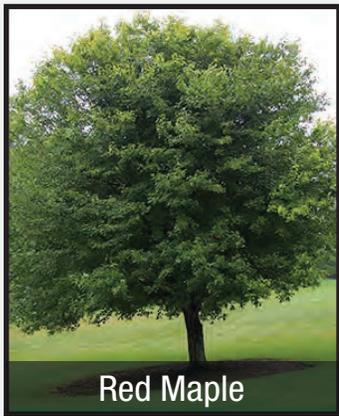
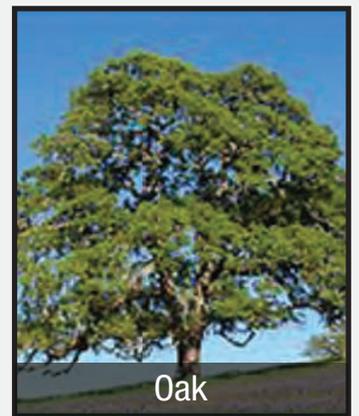
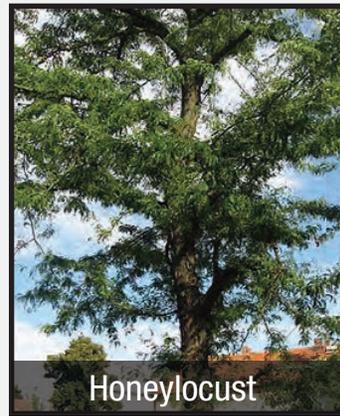
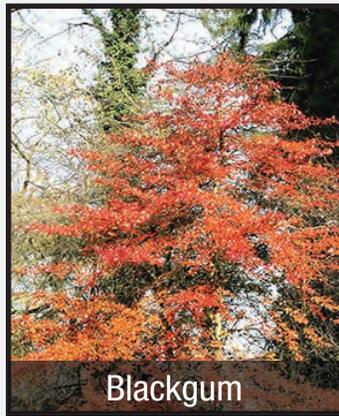
Rebates may not exceed \$1,000 per property.

Visit [doee.dc.gov/rainbarrelrebates](https://doee.dc.gov/rainbarrelrebates) to review the Participant Guide and Rebate Application.

# SHADE TREES

Shade trees are trees with widespread, dense canopies. Commonly planted shade trees in the District include oaks, maples, and evergreens. Shade trees absorb stormwater and allow water to infiltrate naturally. In addition to these stormwater benefits, shade trees can help insulate your home and help reduce utility bills.

Things to consider when planting a shade tree in your yard include the location of utility wires (both above ground and buried), sun exposure, and the distance from your house, sidewalks, fences, and other trees.



**\$0 co-payment per shade tree (no limit per property)**

## MAINTAINING YOUR TREES

Trees need to be watered regularly, especially during the first two years after planting. Use the watering bag provided with the tree to keep it hydrated. Allow the soil to dry out completely between waterings. Apply mulch around the base of the tree in a three foot radius, no greater than three inches deep and three inches away from the trunk. For more maintenance information and how-to videos, visit [www.riversmarthomes.org/shadetrees](http://www.riversmarthomes.org/shadetrees).

# SHADE TREES



## NEXT STEPS

If you are interested in shade trees, please do the following:

1. Become eligible for a tree through a RiverSmart Homes audit
2. If you are eligible, let your assessor know you want shade tree(s) planted
3. Work with the arborist to develop a planting plan
4. Have your tree(s) planted
5. Maintain your tree(s)

## INTERESTED IN PLANTING A TREE SOONER OR WANT A DIFFERENT KIND OF TREE?

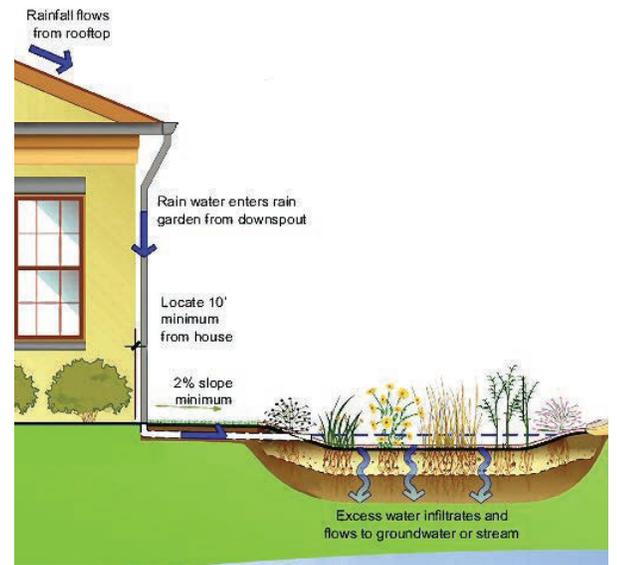
Rebates are available for participants who purchase and plant eligible trees on their property. Rebate amounts vary (\$50 or \$100) depending on the species of tree planted. Rebates are issued as a direct reimbursement to the participant. Species noted for their large canopy and significant environmental benefits qualify for rebates up to \$100 per tree. Rebates can be used in combination with RiverSmart Homes funding. Casey Trees administers the tree rebate on behalf of DOEE.

Visit [caseytrees.org/resources/tree-rebate](https://www.caseytrees.org/resources/tree-rebate) for the eligible species list and application information.

# RAIN GARDENS

A rain garden is a landscaped area strategically placed and connected to a downspout to collect and absorb stormwater from your rooftop. Connecting the downspout to the rain garden directs stormwater away from your home's foundation and holds it there until it can naturally infiltrate into the ground. The rain garden dips slightly into the ground and has engineered soil that increases infiltration. In addition to improving drainage, rain gardens also help keep polluted runoff out of local streams.

Rain gardens are designed to be site specific. They are customized to meet individual site characteristics, factoring in topography, soils, drainage patterns, and sun exposure. The standard rain garden size is approximately 50 square feet.



BEFORE



AFTER

**\$100 co-payment for a 50 sq. ft. rain garden (limit two landscaping projects per property)**  
**If a property qualifies for both a rain garden and BayScaping, a rain garden must be installed first.**

## MAINTAINING YOUR RAIN GARDEN

Rain gardens require watering, weeding, and mulching, especially during the first two years. Maintain the rain garden's raised edge, known as a berm, to keep rainwater inside of the garden and weeds out. The downspout connection should be regularly cleaned to prevent clogging. Homeowners are responsible for replacing dead or dying plants. For more maintenance information and how-to videos, visit [riversmarthomes.org/raingardens](https://riversmarthomes.org/raingardens).

# RAIN GARDENS

## NEXT STEPS

If you are interested in a rain garden, please do the following:

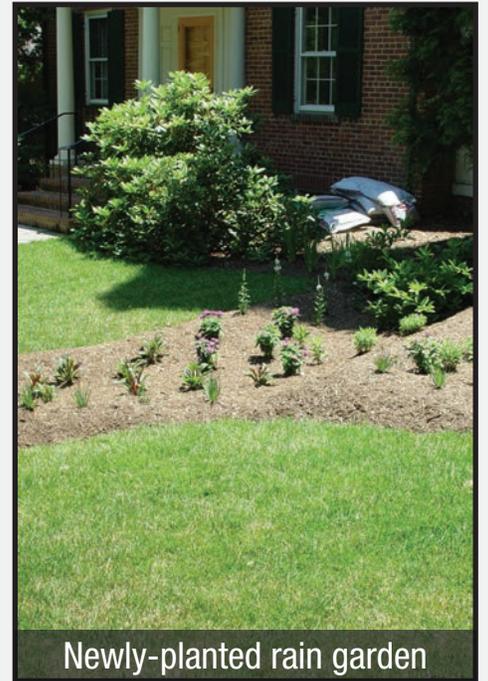
1. Become eligible for a rain garden through a RiverSmart Homes audit
2. If you are eligible, let your auditor know you want a rain garden installed
3. Make your copayment and have your rain garden installed
4. Maintain your rain garden



Mature rain garden



Downspout inlet to rain garden



Newly-planted rain garden

## INTERESTED IN AN ADDITIONAL OR LARGER RAIN GARDEN?

Rebates are available to treat runoff from additional impervious surfaces with a rain garden.

Rebates can be used in combination with RiverSmart Homes funding.

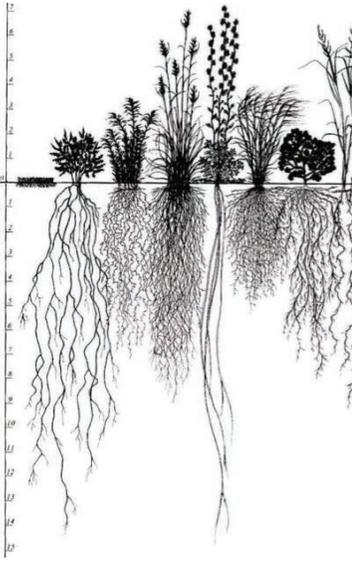
Rebates are issued as a direct reimbursement at a rate of \$42 per square foot of garden area.

Gardens are designed with a 1:10 ratio of garden area to impervious area. The minimum impervious area that must be treated is 400 square feet, and the minimum garden size must be 50 square feet. The maximum rebate available is \$3,000.

Visit [doee.dc.gov/service/raingardenrebate](https://doee.dc.gov/service/raingardenrebate) to review the Participant Guide and Rebate Application.

Visit [riversmarthomes.org/diy](https://riversmarthomes.org/diy) to find construction and maintenance resources for designing your own rain garden.

# BAYSCAPING



BayScaping is a landscaping practice that replaces grass or bare soil with plants native to the Chesapeake Bay region to manage stormwater runoff. Native plants have deeper root systems that absorb more stormwater, reduce erosion, increase infiltration, and are more drought resistant than grass. BayScaping also provides beneficial habitat for pollinators like butterflies and honey bees.

BayScaping is a low-cost alternative to traditional landscaping. It is customized to meet individual site characteristics, factoring in topography, soils, drainage patterns, and sun exposure.

Areas with existing plant material cannot be recommended for BayScaping.



**\$100 co-payment for a 120 sq. ft. BayScaping (limit two landscaping projects per property)**  
If a property qualifies for both a rain garden and BayScaping, a rain garden must be installed first.

## MAINTAINING YOUR BAYSCAPING

BayScaping requires watering, weeding, and mulching seasonally, especially during the first two years. Participants are responsible for replacing dead or dying plants. For more maintenance information and how-to videos, visit [riversmarthomes.org/bayscaping](https://riversmarthomes.org/bayscaping).

# BAYSCAPING



## NEXT STEPS

If you are interested in BayScaping, please do the following:

1. Become eligible for BayScaping through a RiverSmart Homes audit
2. If you are eligible, let your auditor know you want BayScaping installed
3. Make your copayment and have your BayScaping installed
4. Maintain your BayScaping



## CREATE YOUR OWN BAYSCAPE

Rebates are not available for BayScaping projects; however, installing BayScaping on your own is easy. Check out these resources to create your own BayScaping project:

- Chesapeake Bay Native Plant Center's Database: [nativeplantcenter.net](http://nativeplantcenter.net)
- Pollinator Gardening Resources: [doee.dc.gov/pollinators](http://doee.dc.gov/pollinators)
- The Alliance for the Chesapeake Bay's Yard Design tool: [stormwater.allianceforthebay.org/yard-design](http://stormwater.allianceforthebay.org/yard-design)
- More Resources: [riversmarthomes.org/diy](http://riversmarthomes.org/diy)

# PERMEABLE PAVERS & RE-VEGETATION

Permeable pavers are a self-draining system that allows rainwater to seep around the pavers, through the gravel in between and underneath of them, and soak naturally into the ground below. Re-vegetation entails replacing impervious surfaces with vegetation, including native plants or grass. An impervious surface is an area that does not allow water to soak into the ground.

To be eligible, you must remove and replace an existing large patio, driveway, or parking area. Walkways are not eligible. Only properties within the Municipal Separate Stormwater Sewer System (MS4), Ward 7, or Ward 8 are eligible for this rebate. There is a rebate limit of \$6,000 per property. Permeable pavers are more expensive than conventional paving but can last longer. The total installation cost depends on site specifics and materials. Refer to the specifications below:

## Permeable Pavers

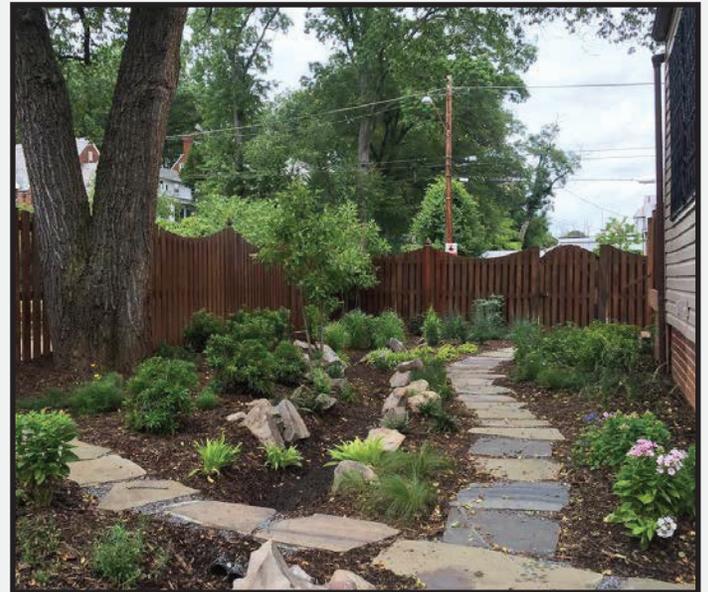
- 100 square-foot minimum area
- Costs range from \$40-\$50 per square-foot on average

## Re-Vegetation

- 200 square-foot minimum area
- Costs range from \$10-15 per square-foot on average



**Permeable Pavers:  
\$15 Rebate Per Square Foot**

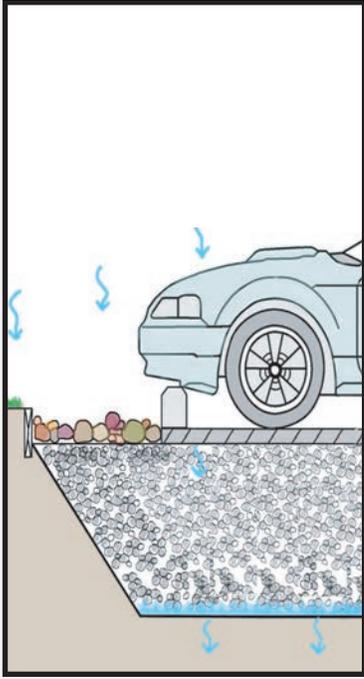


**Re-Vegetation:  
\$8 Rebate Per Square Foot**

## MAINTAINING YOUR PAVERS

It is crucial that you keep debris from accumulating between the gaps in the pavers, because it can cause clogging. Sweep or vacuum your pavers regularly to prevent build-up. For more maintenance information and how-to videos, visit [riversmarthomes.org/permeablepavers](https://riversmarthomes.org/permeablepavers).

# PERMEABLE PAVERS & RE-VEGETATION



## NEXT STEPS

If you are interested in permeable pavement or re-vegetation, please do the following:

1. Review the Permeable Surface Rebate Applicant Guide and Application
2. Select a contractor or determine the equipment you will need if you will be performing the work yourself
3. Submit the Rebate Application and schedule a pre-construction inspection
4. Notify us when the construction is complete and schedule a post-construction inspection
5. Receive a rebate check four to six weeks after post-construction approval

Visit [doee.dc.gov/service/permeablesurfacerebate](https://doee.dc.gov/service/permeablesurfacerebate) to review the Applicant Guide, Contractor List, and Rebate Application.



Above photos show impervious surface removal and replacement with vegetation.

# FERTILIZER



The District of Columbia's fertilizer law applies primarily to landscape professionals, but it also provides important guidance for District homeowners and residents on how, when, and where to apply fertilizer to lawns. Fertilizers help create lush green lawns, but also have the potential to contaminate our local streams, rivers, and groundwater. Improper application of fertilizer can be harmful to your lawn, the environment, and human health.

Proper lawn care can reduce or eliminate the need for fertilizer. Keep your lawn at least three inches tall; taller grass has deeper, healthier roots, prevents weed infestations, and is more tolerant to drought. When you do mow, mulch the clippings back into your lawn to add nitrogen to your soil.

## WHAT'S IN FERTILIZER?

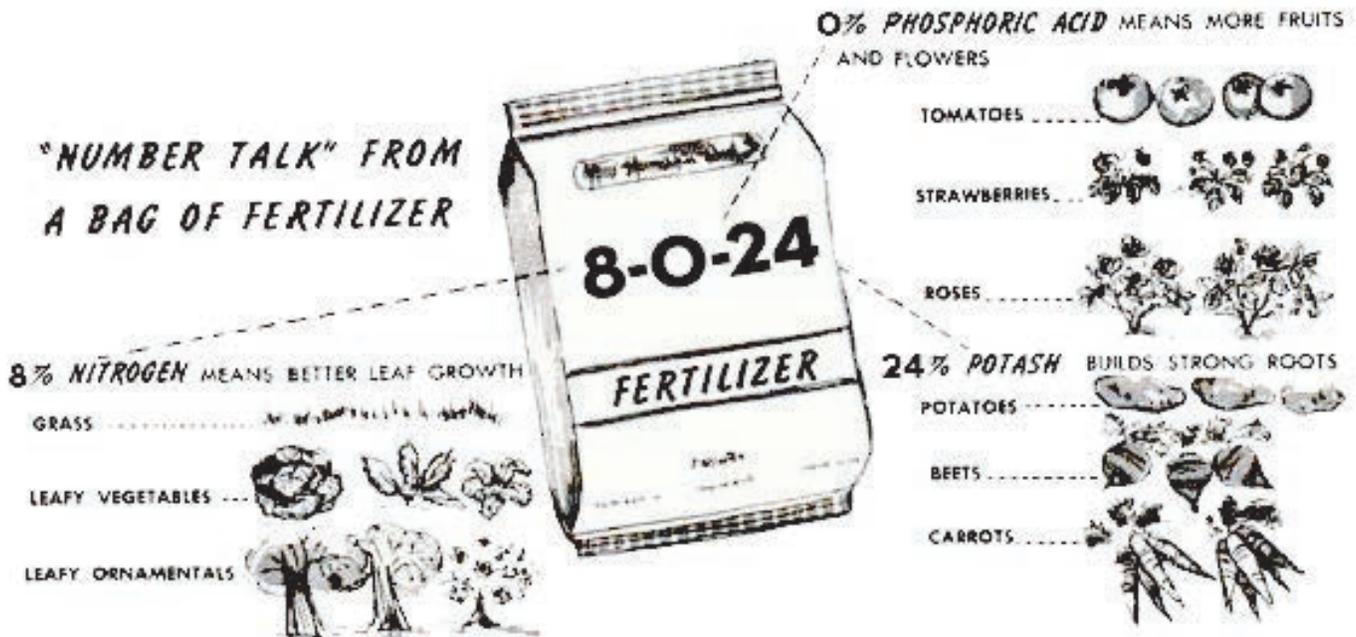
All fertilizers are labeled with three numbers that show the percentage, by weight, of key nutrients that contribute to plant growth and health. These nutrients, when over-applied, can cause serious environmental harm:

**N - Nitrogen** – Nitrogen contributes to the growth of healthy, green leaves. Only apply a fertilizer that contains nitrogen if it is at least 20% slow release. An overabundance of nitrates in our waterways can contribute to algal blooms, cause plants/lawns to suffer from nitrogen burning, and contaminate our groundwater supply.

**P - Phosphorus** – Phosphorus encourages root development, but it also contributes to rapid growth of algae and weeds, depleting the oxygen in our waterways and seriously harming fish and other aquatic wildlife. Do not use fertilizers that contain phosphorus unless a test shows that the soil is deficient.

**K - Potassium** – Too much potassium in the soil interferes with the plant's ability to uptake other nutrients, which can cause a variety of visible effects to the plant. Excess potassium can decrease a plant's ability to tolerate stress and disease.

# FERTILIZER



Use organic fertilizer when possible – food and yard waste can be composted to make your own organic fertilizer at home. Remember, fertilizer that washes off your yard and into the street enters the storm drain system, which often leads directly to the Potomac, Rock Creek, and Anacostia Rivers.

## WHEN AND WHERE TO FERTILIZE

- Do not apply fertilizer within 15 feet of a waterbody or near a storm drain or drainage ditch. A waterbody is a creek, stream, river, wetland, or other similar water resource.
- Do not apply fertilizer between November 15 and March 1. Fertilizer applied to dormant plants or dry or frozen ground is not taken up and instead runs off into nearby creeks and streams.
- Do not apply fertilizer when it is raining. Wait at least 24 hours after a rain storm before fertilizing.

## HOW TO FERTILIZE

- Test your soil before applying any fertilizer. Local nurseries and university labs can conduct soil nutrient tests for a fee. Only apply the nutrients recommended by a soil test.
- Calibrate your fertilizer spreader appropriately. Each fertilizer will come with detailed application instructions specific to that product, including recommended spreader settings.
- Overlap fertilizer by spreading half of the fertilizer in one direction and the rest in the opposite direction to ensure even application.
- Turn off the spreader when walking over sidewalks or driveways. Never apply fertilizer to impervious surfaces. If you accidentally apply fertilizer to walkways, clean it up with a broom and not a hose.

# INTEGRATED PEST MANAGEMENT



Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a holistic set of practices.

The goal of IPM is to manage pests at acceptable levels rather than trying to eliminate them. Insecticides and pesticides should not be relied upon as a primary means of pest control because the residual components of these chemicals can persist in the environment for days, weeks, or months. IPM involves an understanding of all factors in plant growth such as soil, water, air, nutrients, weather, and insects.

The main principles of IPM are prevention and monitoring. Many pest-control problems in a garden are a result of pre-existing stressors. Pests are not always the cause of a plant's decline, but are usually a symptom of poor plant selection, placement, insufficient nutrients, or lack of or too much moisture.

## PREVENTION

Stressed plants are more susceptible to insects, fungi, and viruses. Select plants that will grow well in the Washington, DC region and under the soil, water, and light conditions of your yard. To prevent unwanted guests in the garden take the following steps:

- Select native and disease-resistant varieties
- Water and fertilize plants according to their individual species needs
- Remove problem or diseased plants
- Increase air circulation to minimize certain diseases
- Build soil fertility by using plenty of organic matter and avoid over-fertilization with synthetic fertilizers
- Mulch to help retain moisture, suppress weeds, and prevent soil erosion

# INTEGRATED PEST MANAGEMENT

## MONITORING

Monitor plants each week and be familiar with the insects, bacteria, and fungi. Examine leaves, stems, and the crevices of bark. Look for organisms by appearance and their effect on plants. Try to identify pests in each stage of its life cycle. Pest identification assistance is available through the Maryland Home and Garden Information Center at <http://extension.umd.edu/hgic>.

### Know beneficial insects from harmful insects

Many organisms do not harm plants and should not be eliminated. Other organisms considered pests are not harmful in small numbers. These pests should be monitored to ensure their populations do not “explode.” For example, a small infestation of scale will not prevent azaleas from thriving. Some organisms are beneficial because they consume pest species. When beneficial organisms are present, do not apply a pesticide.

### Plants can thrive with insects, fungi, and bacteria for a long time

- A tree can lose up to 30% of its leaf canopy because it experiences stress
- Roses and peonies are highly tolerant to Powdery Mildew

## WHEN TO ACT

Organism populations may reach a point at which the plant cannot tolerate damage. Through careful monitoring, each resident can determine an action threshold based on individual needs and health of their plants.

## WHAT TO DO

If monitoring and action thresholds indicate that pest control is required, choose a control method based on effectiveness and risk.

### Mechanical Controls

- Physical removal – pick pests off by hand or remove by pinning infected branches
- Pheromone and sticky strip traps – trap pests in their flying stage

### Biological controls

- Beneficial organisms – release beneficial organisms such as ladybugs and nematodes to prey on harmful insects
- Bt (*Bacillus thuringiensis*) – this bacteria releases toxins in the stomachs of susceptible insects

### Chemical Controls

- Insecticidal soap – soap penetrates the insect’s outer covering and causes the cells to collapse
- Horticultural oil – the oil coats and suffocates insects

# COMMON INVASIVE PLANTS

Invasive plants are those that cause harm to the environment, economy, or public health. Invasive plants often grow in dense patches, causing them to outcompete native plants and reduce the biodiversity and available habitat found throughout the District. Many residents within the District have invasive plants in their yards without even knowing it.

## Harmful Impacts

Invasive plants can affect the District's biodiversity and your yard by:

- Reducing food and habitat resources for native animals since invasive plants are often inedible or not palatable
- Altering soil chemistry, ecosystems, nutrient cycles and local hydrology
- Overtaking and causing harm to already-established trees and landscaping

## SIMPLE REMOVAL TECHNIQUES

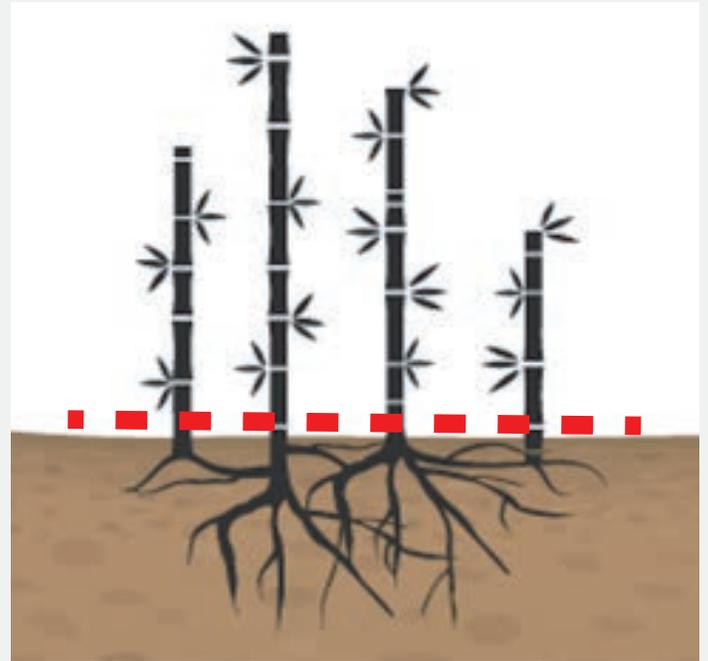


### English Ivy

Use pruners to remove a section from the vine around the entire trunk of all infested trees, about 2 feet above the ground. Large vines will require the use of loppers or saws.

Once cut, leave ivy on the tree. Do not pull it off because that could harm the tree. The vine will dry out within 6 months, making it easier to remove. Pry cut and dried vines off the tree. Pull all ivy vines from the ground, clearing a 2 foot ring around the base of the tree. This will save the tree from future infestations.

Ivy will gradually die and fall off.



### Common Bamboo

1. Using a pruner or saw and, being as thorough as possible, cut all shoots at ground level (red line).
2. Monitor the area and remove new shoots or growth as soon as possible. Continue doing this until new growth stops.

# COMMON INVASIVE PLANTS



## Porcelainberry:

A woody vine with green lobed leaves. In mid-summer, there are tiny greenish-yellow blooms that are followed by clusters of bright blue, pink, and purple berries. The best control method for this plant is to cut or pull the vines.



## Multiflora Rose:

A multistemmed, thorny shrub with clusters of white to pinkish flowers that have 5 petals each and are about 1 inch wide. The leaves have serrated edges. An effective form of control for this plant is repeated cutting or mowing (about 4-6 times per growing season) over the course of 2-4 years.



## Japanese Knotweed:

Best recognized by zig-zag stems that resemble soft bamboo. The leaves are green and heart-shaped in the summer, and clusters of small white flowers appear in early autumn. Repeated cuttings and herbicide applications over several seasons is the best approach to eradication.



## Bush Honeysuckles:

There are several different types of bush honeysuckles in the DC area. These plants grow as bushy shrubs with leaves that are pointed or oval. Small, tubular flowers also occur annually. These species tend to re-sprout when cut, so a combination of cutting and herbicides is used for best control.



**Japanese Stiltgrass:** A grass that grows to about 2-3 feet tall and resembles a small bamboo. The leaves are a pale green, about 3 inches long, and taper to a point at the ends. This plant looks very similar to a lot of native grasses, so make sure to properly identify Japanese Stiltgrass before removing it. Removal can be done through hand-pulling or by using a mower or weed-wacker.



**Tree-of-Heaven:** A tree with fairly smooth grey bark and long leaflets consisting of individual leaves. In the summer, the tree has large clusters of yellow, orange, or red winged seeds that turn beige by early winter. Control is best achieved by removing tree trunks and killing the root system to prevent regrowth. This can be done through manual removal and basal bark herbicide applications.

## DISPOSING OF INVASIVE PLANTS

Once you remove invasive plants from your yard, it is important to properly dispose of them. For woody plants, remove them and leave them to rot, or add them to yard waste once they have dried out. For other invasive plants, you can place them in the regular trash that goes to landfill.

For more information on invasive plants in the Mid-Atlantic and tips on how you can remove them, visit: [www.invasive.org/alien/pubs/midatlantic/midatlantic.pdf](http://www.invasive.org/alien/pubs/midatlantic/midatlantic.pdf)