

# Rainscaping Mini-course

**I** ILLINOIS  
Extension  
COLLEGE OF AGRICULTURAL, CONSUMER  
& ENVIRONMENTAL SCIENCES

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## Agenda

| TIME                         | ACTIVITY  |
|------------------------------|---|
| 1:30 – 2:15 pm<br>45 minutes | Introduction to Rainscaping and<br>Virtual Rain Garden Tour |
| 2:15 – 3:00 pm<br>45 minutes | Site Selection and Analysis                                 |
| 3:00 – 3:15 pm<br>15 minutes | Break   |
| 3:15 – 3:45 pm<br>30 minutes | Installation and Maintenance                                |
| 3:45 – 5:00 pm<br>75 minutes | Plant Selection & Design<br>(with hand-on design activity)  |



# **rainscaping**

PURDUE RAINSCAPING EDUCATION PROGRAM

# Introduction to Rainscaping



## Learning Objectives

After this session, you will be able to:

- Explain the need for reducing stormwater runoff
- Understand the concept of rainscaping and its benefits
- Understand the basic principles of rain gardens



## Introduction to Rainscaping

# Why Reduce Stormwater Runoff?



What is Stormwater Runoff?  
Water that does not  
soak into the ground.

What prevents  
stormwater from  
soaking into the  
ground?

**IMPERVIOUS  
SURFACES**

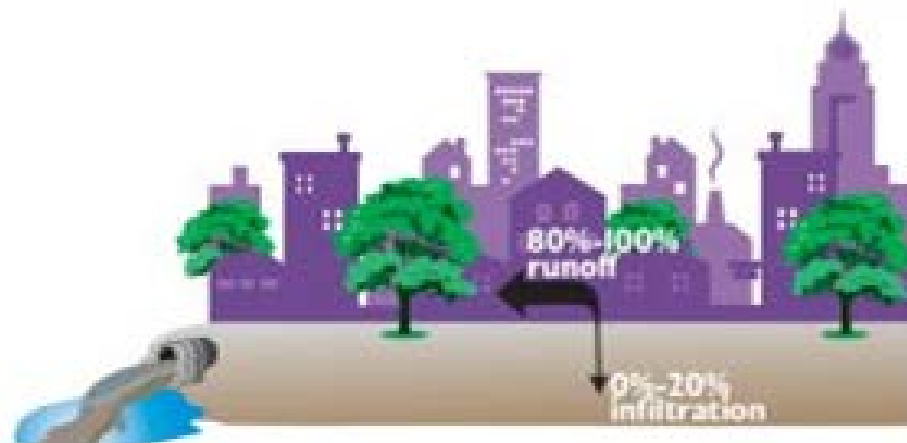
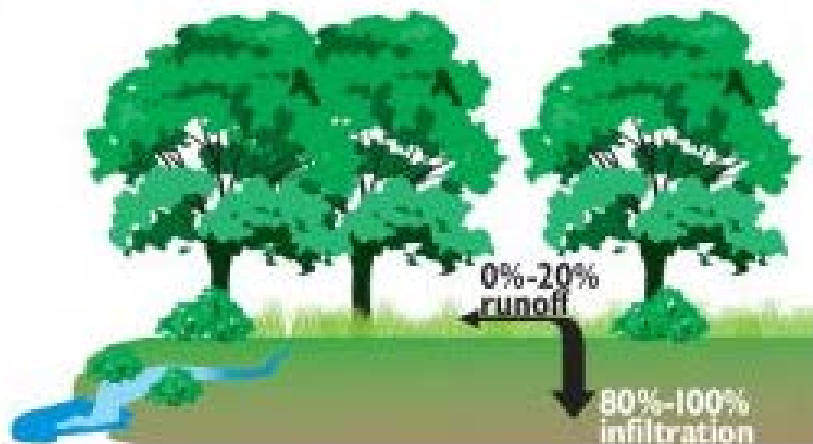


*Photo provided by Eliana Brown*



# What is Stormwater?

Runoff increases as landscapes become more urban/populated



(Percentages are rough estimates.)





Stormwater Runoff is a source of pollution

As stormwater flows  
across impervious  
surfaces it picks up:

Dirt and debris

Pollutants (chemicals,  
nutrients, bacteria)

The stormwater then  
flows into surface waters.



*Photo provided by York County, South Carolina*





## Let's Do Some Math — Residential Runoff

1-inch rain = 0.62 gallon  
of stormwater per square  
foot of roof

The average residential  
roof is 1,200 square feet



1,200 square feet x 0.62 gallon = 744 gallons!

A standard bathtub holds about 60 gallons

## Let's Do Some Math — Commercial Runoff

This large retail store has:

Roof = 221,000 square feet

Parking lot = 353,000 square feet

1-inch rain = 0.62 gallon of  
stormwater per square foot

Roof: 137,020 gallons!

Parking lot: 218,860 gallons!





# What Can We Do?





Rainscaping  
**GOAL = Reduce  
imperviousness**

Rain gardens

Green roof

Pervious pavement

Keep existing trees,  
shrubs, and prairies,  
native plants

Rainwater harvesting

Limit concrete





## Other Rainscaping Practices

- Redirect downspouts into lawns or gardens
- Landscape with native plant species



*Photo provided by Illinois-Indiana Sea Grant*





## Redirect Downspouts

Divert downspouts away from paved surfaces and stormwater systems

Redirect downspouts to:

- Lawns or landscapes
- Rain barrels
- Porous pavement
- Rain gardens or swales



*Photo provided by Chesapeake Stormwater Network*



## Rain Barrels

Collect water for irrigating lawns and landscapes

- Barrels 40-80 gallons
- Make sure to direct overflow to gardens and lawns
- Average Indiana roof can accumulate more than 40,000 gallons a year



*Photo provided by Electric Tree House*





## Reduce Impervious Surfaces

Instead of concrete or asphalt, install:

- Brick pavers
- Pervious concrete
- Gravel



*Photo provided by Great Ecology*



## Bioswales

Gently sloped channel

Conveys and slows stormwater runoff to promote filtration and trap particulates

Lined with vegetation, but swales may also include riprap, compost, rocks, or other materials

Frequently installed adjacent to parking lots and roads to filter pollutants

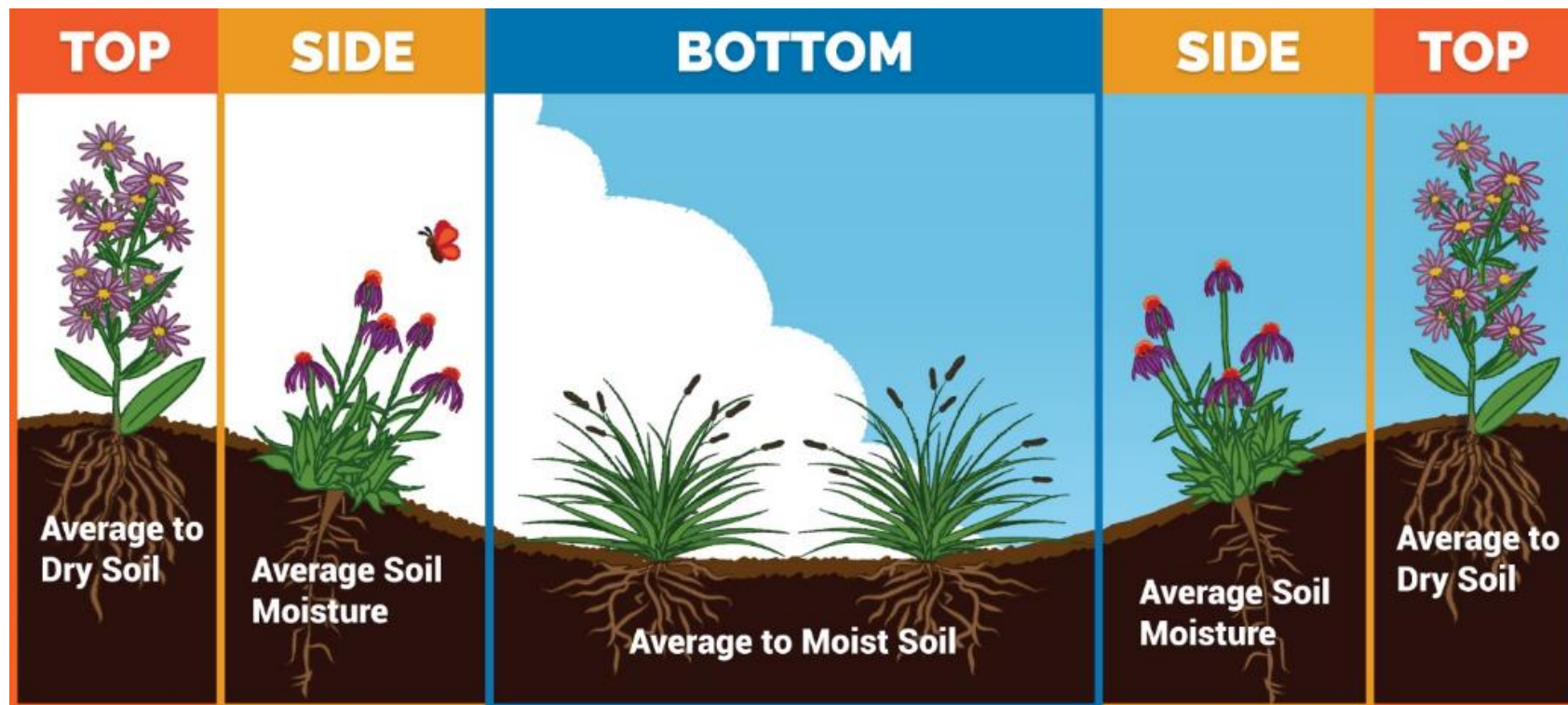


*Photo provided by Eliana Brown*



## Overview of Rain Gardens

# What is a rain garden?







## Overview of Rain Gardens — Benefits

Rain gardens:

- Increase water infiltration and reduce pollutants
- Absorb 30 percent more water than the equivalent area of lawn
- Provide wildlife habitat
- Reduce maintenance and irrigation once established — but they are *not* maintenance-free!





## Overview of Rain Gardens — Maintenance

After installing a rain garden, plan on maintaining them:

- Water new plants
- Remove weeds
- Cut dead vegetation
- Dead-head plants
- Add mulch
- Remove debris from inlet and overflow pipes





# Virtual Rain Garden Tour





## Example: Native Prairie in Full Sun





# Formal Rain Garden



PORTLAND, OR

Source: <http://www.clarkamas.com>



# Formal Rain Garden



PORTLAND, OR

Source: <http://www.clarkamas.com>



# Part of landscaping





# Stand alone planter



PORTLAND, OR  
Source: Eliana Brown, IWRC

# Spiral Rain Garden





Water goes IN to the garden





# Water IN to the garden





# Water goes IN to the garden



VILLA GROVE, IL  
Source: Jeremy Neighbors

# Water OUT of the garden



PORTLAND, OR  
Source: Eliana Brown, IWRC





Water IN and OUT of the garden



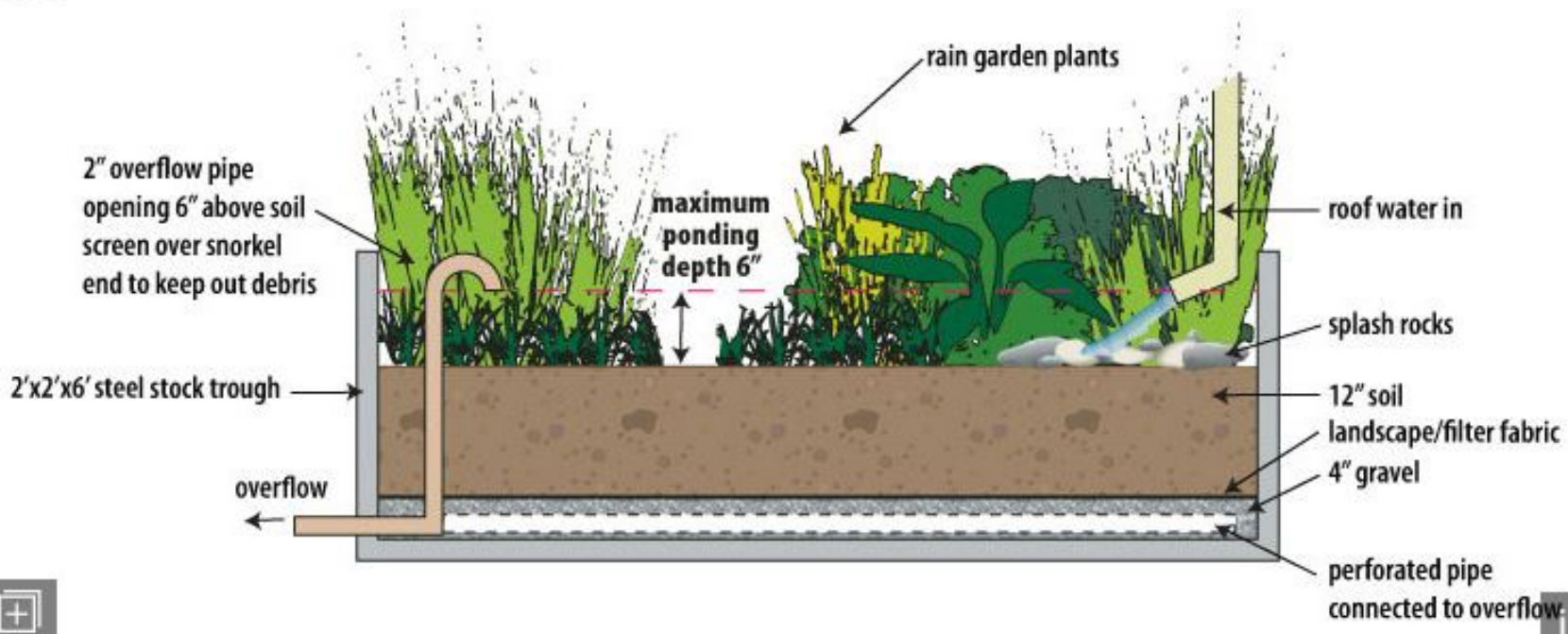


# Stormwater Planters





## 2'x2'x6' Stock Trough Stormwater Planter



# Stormwater Planters



# Stormwater Planters





# Stormwater Planters

