Smooth Blue Aster
Symphyotrichum laeve

PLANT NOTES
Common throughout Iowa. Blooms in the fall. Stems are usually 20”-60” long. Flowers are about 1” across with 15 to 30 petals. Yellow center that turns reddish with age. A beautiful addition to any rain garden and landscape.

Photos: Shutterstock
Iowa Rain Garden Design & Installation Guide

What is a Rain Garden?

A rain garden is a type of stormwater best management practice (BMP) used to capture stormwater runoff. Stormwater runoff is generated from impervious surfaces such as rooftops and driveways. Stormwater BMPs collect rain and snow melt. They remove pollutants that accumulate on impervious surfaces and lawns.

Rain gardens and other stormwater BMPs such as rain barrels, soil quality restoration, and native landscaping are also referred to as Rainscaping practices. These practices are landscaping features used to manage stormwater runoff on residential and commercial properties.

Rain gardens are designed as shallow, landscaped depressions. They promote infiltration of rainwater into the landscape, rather than it running off into a storm drain. Runoff that enters the rain garden is temporarily ponded so that the rain can soak into underlying soils and be cleansed.

Homeowners can add value to their property and improve local water quality through the installation of a rain garden. Many rain gardens utilize native plants, which provide excellent habitat for birds, bees, and butterflies. Native plants provide added benefit because once they are established, they require less maintenance over the long term.

Terms to Know

- **Stormwater BMP**: Landscaping practice that is designed to temporarily impound and treat stormwater runoff.
- **Stormwater Runoff**: Rainfall and snow melt that drains off impervious surfaces and is not absorbed into the landscape.
- **Rainscaping**: Landscaping method that promotes the use of infiltration-based stormwater management practices in Iowa.
- **Impervious**: Surfaces (such as roofs, driveways, and streets) that are unable to absorb rainfall and thus contribute to stormwater runoff.
Why Install a Rain Garden?

When Iowa was covered by prairie and forests in the early 1900s, rainfall was able to slowly infiltrate into soils. This allowed streams to be recharged naturally via groundwater flow. Before these ecosystems were altered and eliminated, waterways had clean water, stable levels, and minimal flooding.

The tallgrass prairie ecosystem was dominated by grasses and flowering plants, or forbs, that had deep, fibrous root systems. Annually, as a part of the root system died off and decayed, organic matter was formed to create deep, rich, and porous soils.

These two features – high organic matter and high porosity – gave prairie landscapes the ability to infiltrate most rainfall into the soil. Forests also had deep-rooted trees and plants that helped build healthy soils that could intercept and infiltrate rainfall.

As Iowa landscapes became more altered, soils were either replaced by impervious surfaces or were so heavily disturbed that they lost significant amounts of organic matter and pore space. The result is increased stormwater runoff.

Rain gardens are attractive landscape features that homeowners can use to restore the natural function of landscapes. Homeowners that manage stormwater on their property help reduce the amount of stormwater runoff that can degrade local streams.

Terms to Know

**Organic Matter:** Fraction of soil that consists of decomposed plant or animal material that acts like a sponge to hold water and provide nutrients to plants.

**Porosity:** The amount of pores or open space in soil, expressed as a percentage of the total volume of the soil material.

Did you know? You can get money to help build your rain garden!

Some communities and Soil and Water Conservation Districts (SWCDs) in Iowa have cost share programs to help homeowners pay for installing a rain garden. The goal of cost share programs is to encourage homeowners to incorporate stormwater practices on their property. This helps to improve local water quality and reduce localized flash flooding. Learn more at www.bit.ly/IowaCostShare.
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Overview of the Design to Install Process

This guide will assist homeowners and contractors with the design and installation of rain gardens. The following is an overview of the step-by-step process that will be detailed in subsequent chapters.

1. Locating a Rain Garden

This chapter will address the best locations for rain gardens. Factors include direction of rainwater drainage across the landscape, locations of utilities and trees, clay content of soils, natural and hardscape features, and personal preferences. Rain gardens will perform well when located properly.

2. Evaluating Soil Conditions

Conduct soil color, ribbon, and percolation tests to determine how the soils drain at the project site. Adequate drainage is a crucial component when designing an effective rain garden. This is perhaps the most important step in the process!

3. Choosing the Type of Rain Garden

In this step, the type of rain garden will be chosen. This guide details two types, basic and enhanced rain gardens. Simple soil tests and site conditions play a role in the type of rain garden installed. Basic rain gardens can be used in areas with good percolation rates while enhanced rain gardens, which feature a subdrain, are recommended where soils drain slower.

4. Designing a Rain Garden

This guide provides instructions for determining the appropriate size, depth, and layout of basic and enhanced rain gardens. Rain garden design also includes considerations for subsurface drainage, overflow devices, inlets and outlets, berms, and retaining walls. It also includes methods for directing rainwater to the rain garden.

Most rain gardens receive rainwater from roof gutters.
Estimating Materials

Once the size and depth of the garden are determined, an estimate of the amount of materials required for the project can be made. This might include sand, topsoil, compost, mulch, rock aggregate, a subdrain, or hardscape features. Instructions are provided in this chapter for purchasing by the bag or in bulk.

Constructing a Rain Garden

When weather permits, the site will need to be prepped, excavated, and graded before any plants can be put into the ground. This step also calls for excavation of the depression, installation of inlets and outlets, overflow features, and construction of berms and retaining walls. If constructing an enhanced rain garden, an aggregate layer and subdrain are also installed at this time. Soil amendments and mulching are completed prior to planting.

Planting Vegetation

Add some color! Select plants from sample layouts or design your own. Select plants suited to sunlight availability, soil conditions, and homeowner preferences. Clumping species and simplifying the design can make weeding easier. Need some inspiration? Check out the following page for examples of beautiful rain gardens.

Maintaining a Rain Garden

Keep an eye on your rain garden and periodically inspect it using the checklist included in this guide. Routine inspections and subsequent maintenance prevent additional costs and protect the landscaping investment. Taking good care of a rain garden ensures that it functions properly and looks great.
INTRODUCTION: WHAT IS A RAIN GARDEN?

1. A basic rain garden in a residential backyard after a rain storm. *Photo: Polk SWCD*

2. Rainwater temporarily ponded in a residential rain garden located downslope from the home. *Photo: Polk SWCD*

3. Rainfall is moved to this small, circular rain garden through a rocked channel connected to one of the home’s downspouts. *Photo: Blackhawk SWCD*

4. A large, oblong rain garden is carved into a steep hill featuring boulders for soil stabilization. The newly established garden has young native plant plugs. *Photo: Polk SWCD*

5. This multi-cell rain garden captures stormwater runoff from a nearby street. *Photo: Forever Green Garden Center*