

# RAINSCAPES REWARDS Plant Spacing Guide

Environmentally Friendly Landscapes for Healthier Watersheds



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## Plant Types and Their Typical Spacing

*RainScapes projects are designed to manage stormwater, so they must be planted more densely than traditional gardens. This ensures they will fill in quickly in order to handle water flow. The purpose of this guide is to ensure consistency of planting documentation for all planted RainScapes projects and for projects to be successful in managing stormwater flow.*

### Groundcovers\* 12" o.c. (on center)

Small 8-12" spread Ex.: *Carex radiata*

### Grasses, Sedges & Rushes 12-24" o.c.

Small 12-18" spread Ex.: *Schizachyrium scoparium*  
Medium 18-24" spread Ex.: *Panicum virgatum* 'Shenandoah'

### Perennials and Ferns 15-36" o.c.

Medium 12-18" spread Ex.: *Asclepias tuberosa*  
Large 18-24" spread Ex.: *Baptisia australis*  
X Large 24-36" spread Ex.: *Hibiscus moscheutos*

### Shrubs 24-48" o.c.

Small 24-36" spread 2'0" o.c. Ex.: *Itea virginica* 'Little Henry'  
Medium 36-48" spread 3'0" o.c. Ex.: *Fothergilla major*  
Large 48"+ spread 5'0"-15'0" o.c. Ex.: *Ilex verticillata* 'Winter Red'



### NOTES:

\*Groundcovers are defined as any low-growing native plant species that will fill in and cover the ground within 3-5 years; should be used as an underplanting for tree, shrub and taller perennial species; preferably evergreen, semi-evergreen or maintains basal leaves in winter.

Small, Medium and Large sizing relates to mature plant size, not container size.  
Base your planting spacing on 2/3 of spread at maturity.



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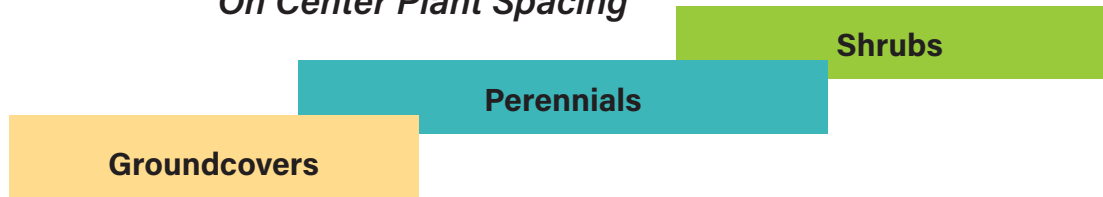
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# How Many Plants Do I Need?

## On Center Plant Spacing



Coverage Area in Square Feet	On Center Plant Spacing								
	8"	10"	12"	15"	18"	24"	36"	48"	
25	57	36	25	16	11	6	2.75	2	
50	114	72	50	32	22	12	6	3	
75	171	108	75	48	33	18	8.25	4	
100	228	144	100	64	44	24	11	5	
150	342	216	150	96	66	36	16.5	8	
200	456	288	200	128	88	48	22	10	
250	570	360	250	160	110	63	28	13	
500	1140	720	500	320	220	125	55	25	
1000	2280	1440	1000	640	440	250	110	50	
2500	5700	3600	2500	1600	1100	625	275	125	
5000	11400	7200	5000	3200	2200	1250	550	250	
<b>Multiplier</b>	<b>2.28</b>	<b>1.44</b>	<b>1</b>	<b>0.64</b>	<b>0.44</b>	<b>0.25</b>	<b>0.11</b>	<b>0.05</b>	
4" pots or Landscape Plugs			Quarts				Gal/ Larger		
			Quarts/ Gallons						

On Center Spacing (o.c.) is indicated in the top row. The quantity of plants to cover the square feet in the left hand column are shown in each cell, rounded up to the nearest whole plant.



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## Examples and Landscape Plug Use

**Example 1:**

200 SF area to be planted with *Rudbeckia fulgida*, a perennial.

For 18" o.c. spacing multiply 200 square feet by multiplier 0.44 = **88 plants**

For 15" o.c. spacing multiply 200 square feet by multiplier 0.64 = **128 plants**

**Example 2:**

200 SF mixed planting of 60% *Rudbeckia fulgida*, a perennial, and 40% *Packera oblongifolia*, an evergreen groundcover.

For 18" o.c. spacing of *Rudbeckia fulgida*, multiply 200 SF by multiplier 0.44= 88 plants. Multiply 88 by .6 (60%) = **53 plants. (or multiply 220 by .6 and then multiply by the multiplier 0.44 = 53 plants)**

For the 40% of 200 SF of *Packera* at 12" o.c. spacing, multiply 200 SF by the multiplier 1=200 plants. Multiply 200 by .4 (40%) = **80 plants.**

*There would be 133 total plants needed for the mixed planting with Rudbeckia spaced at 18" o.c. If there are shrubs which are over the groundcover, subtract the typical SF/planting hole (3 SF/ shrub, or 3- 12" o.c. spaced plants/ shrub) from the total of the groundcover plants.*

**Guidance for Using Landscape Plugs**

Landscape plugs are 4"-5" deep and 2" wide and are sold in trays of several standard quantities: 32 and 50 plants. Plugs should generally be planted using 12" spacing, particularly for ground covers, however, some species may be acceptably planted at 15" to 18" spacing **with prior approval.**

Landscape plugs are a convenient and cost-effective means of obtaining plant material and achieving plant coverage, particularly for large areas and in conservation landscapes. If properly planted and cared for, landscape plugs will quickly establish and perform on par with plants in larger pot sizes.

**Planning , selecting and installing landscape plugs as part of your RainScapes conservation landscape or rain garden:**

- Trays of 32 or 50 only.
- Trays must be for Landscape Plugs; minimum depth of 3 1/2 inches for 32 and 5 inches for trays of 50.
- Landscape plugs should **not** be planted between October 15th and March 1st.
- Do not plant if the ground is frozen or at risk of becoming frozen soon after planting.
- Regular watering is critical until establishment; the root systems can easily dry out due to their small size and limited soil media. Follow the grower's watering instructions.
- Plugs should be planted immediately upon receipt, so plan your installation accordingly.



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## Plan for success

**Keeping the ground covered is a key objective of vegetated stormwater management practices.**

Plans are evaluated for coverage within 2 years, if the design protects the flow path from erosion and what the proposed garden can reasonably be expected to absorb before water passes through. This includes noting how water will be directed in the event of larger storms. Native plant percentages apply to **both** coverage and diversity of species.

### Planting Guidance for Spring Ephemerals, Biennials and Short-lived Perennials

To ensure year-round coverage, we require that spring ephemerals, biennials and short-lived perennials be interplanted with other, more lasting or long-lived species.

#### Examples of native spring ephemerals:

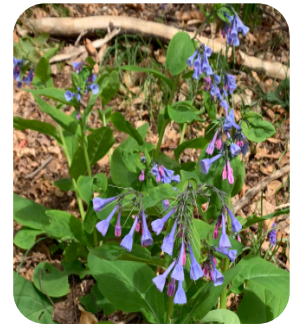
Virginia Bluebells (*Mertensia virginica*), Wake Robin (*Trillium spp.*)

#### Examples of native biennials and short-lived perennials:

Black-eyed Susan (*Rudbeckia hirta*), Common Evening-primrose (*Oenothera biennis*)

#### Examples of native species that unreliably reproduce:

Cardinal flower (*Lobelia cardinalis*)—Not a true perennial as the flowering stem and associated roots die after setting seed (biennial). May not establish itself well from reseeding.



*Mertensia virginica* emerges in the Spring and blooms for a few weeks before disappearing into dormancy for the rest of the year

### Key points to remember

- Planting designs that conform to this guidance will enable more efficient review by RainScapes.
- If you are concerned about needing to make substitutions, include your probable subs on the initial planting design submission.
- In addition to this spacing guidance, please use the [How to Make a Planting Plan](#) document as a minimum standard for plans that are submitted for review.
- **We will return any plan that is not legible or complete.**
- The RainScapes projects are a key part of a County-wide strategy to expand the number of properties that manage their runoff on site. Our reviews evaluate the probability of success of your projects in helping to meet this objective.

