

Riparian Plant Propagation Resources

Frequently Asked Questions about Gravel Beds

What is a gravel bed?

A gravel bed is an irrigated raised garden bed filled with washed pea gravel. It is used to heel-in bareroot plants so that they are available for fall planting. This method is a low-risk, low-maintenance holding site to offer more flexibility around bareroot planting timeframes.

Why would I want one?

A gravel bed allows you to cultivate bareroot plants roots for fall planting projects. Typical bareroot plants are not available until the winter, so this technique offers more flexibility in planting timelines. The plants can be held without cold storage, it conserves water, and eliminates weeding.

Layout

1. What materials do I need?

The gravel bed can be constructed out of any materials that are on hand including wading pools, wooden framed raised beds, galvanized stock tanks, and jersey barriers used to contain the pea gravel. Use anything that has drainage and achieves a 1.5' depth.

2. How much pea gravel do I need?

Yards of pea gravel needed = (Length' x Width' x Depth' of gravel bed) / 27'

Example: 12 yards pea gravel = (12' x 18' x 1.5') / 27'

3. Why is washed pea gravel used?

Washed pea gravel has rounded edges, which prevents cutting off roots when the plants are harvested from the bed. Also, the pea gravel doesn't compress and maintains large pore spaces between the stones. Large pore spaces facilitate fibrous root development.

4. What is the plant spacing in the gravel bed?

Plant spacing depends on the size of the plants. For smaller plants, you can fit approximately 25 plants per 1 square foot. For larger plants, reduce the density to about 25 plants per 4 square feet.

5. What dimensions should my gravel bed be?

The most important dimension is the depth, which should be 1.5 feet. The length and width can be adjusted to fit your plant needs.

6. How do I know how many plants can fit in the gravel bed?

Small plants = (Length' x Width') * 25

$$\text{Large plants} = (\text{Length}' \times \text{Width}') * 12.5$$

Installation

1. When do I install the plants?

Install the plants in early Spring from late-March to early April.

2. How long can the plants be in the gravel bed?

The longer the plants are in the gravel bed, the more time there is to develop a fibrous root system. Six to eight months is a good amount of time to achieve that.

Species

1. Which species do well in the gravel bed?

Woody riparian species work very well. Examples are:

| | | | |
|-----------------|-------------------|----------------|-------------------|
| Bigleaf maple | Oregon ash | Osoberry | Pacific crabapple |
| Vine maple | Black cottonwood | Water birch | Twinberry |
| Mock orange | Red osier dogwood | Thimbleberry | Cascara |
| Black hawthorn | Pacific ninebark | Douglas spirea | Snowberry |
| Black twinberry | Ocean spray | Service berry | Douglas spirea |

2. Which species have not worked yet?

Conifers don't like the gravel bed.

Irrigation

1. How much water do the plants need?

Irrigation demands change with the seasons. Spring and fall need less water than summer. Peak summer should receive about 100 minutes of water per day, and spring and fall should receive 50 minutes of water per day. Starting in September, reduce watering as much as possible to prepare the plants for dormancy.

2. What intervals should I water?

Spring and fall require less water than the summer because it is cooler and there is less daylight. In the spring and fall, water for fifteen minutes every six hours. In the summer, water for fifteen minutes every four hours. After Sept. 15, water as little as possible.

3. How do I tell if plants get enough water?

Dig down to your first knuckles. If you feel wet, cool stones and see dark, glistening stones, you have the right amount of water. If the stones feel warm and dry and they are light colored, then add water.

4. Can the plants be overwatered?

It is difficult to overwater them. The pea gravel is incredibly well drained as long as there are adequate drainage holes in the bottom of your frame.

5. Does this conserve water?

Yes. The plants use 1/10th of a gallon of water per day.

Plant Care

1. Do the plants need fertilizer?

The plants do not need fertilizer. Fertilizers leach out of the system quickly and most of the fertilizer will be out of the growing zone before the plants use it.

2. What pests are present?

Common pests can be found in the gravel bed. You will find fungal diseases like powdery mildew, rust, and apple scab.

3. How do I control the pests?

Consult the Pacific Northwest Pest Management Handbook for up-to-date information.

Harvest

1. When should I harvest the plants?

Harvest after the fall rains return and before Dec. 1st. It is best to clear out the beds before winter arrives, which ices the plants and makes them difficult to remove.

2. How do I harvest the plants?

You can use a few digging forks to loosen up the pea gravel from around the roots and pry the plants out of the gravel. Shovels may sever the roots and nullify the root volume gains that happened throughout the year.

Post-Harvest Storage

1. How do I care for the plants after they are harvested?

Immediately after harvest, store the plants in a seedling bag, keep the roots moist, and keep them in a cool, dark place. Refrigeration below 40 degrees and above freezing is best.

2. How long should I keep plants in storage?

Plant them as soon as possible. They are not dormant, and they still have leaves. They should be in storage for less than a week.