

## **Raised Bed and Container Vegetable Gardening** (published 2024-10-12)

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There are two types of raised garden beds. For centuries, and even today, gardening has been done by spreading a 2-to 3inch layer of soil or organic material in rows over the soil. This creates mounded or unframed raised beds with walkways between the raised beds. Most gardeners today create framed raised beds. The frames can be made of lumber, composite wood, concrete blocks, bricks or metal. Old railway ties should not be used as they have been treated with creosote which is toxic to plants. One advantage of using wood for building framed raised beds is that it is substantially less expensive. If you can afford and find rot-resistant lumber such as redwood or cedar that would be a great choice. However, these are not readily available and are much more expensive than choices such as Douglas fir or southern pine.

When using wood for building framed raised beds, be sure to use ground contact treated wood. These have been pressure treated with copper-containing compounds which significantly lengthen the time before the wood begins to rot. Before 2000 they were usually treated with arsenic which is definitely harmful to plants and humans. That is no longer done. If you check out the research done at the University of Oregon you will learn that treatment with copper is not a problem. <https://extension.oregonstate.edu/gardening/soil-compost/pressure-treated-wood-raised-bed-construction-willamette-valley>

When building your raised beds with wood, be sure to use screws meant for outdoor use. Nails will not hold the wood in place for very long. At least two-inch lumber is the best thickness to use. If you were growing only shallow rooted vegetables, such as lettuce, cabbage, chive and radish over high quality garden soil, you theoretically need to build it only 6 inches tall. However, if you are planning to grow deeper rooted items such as tomatoes, cucumbers, beans, carrots, and peas, or over poor-quality soil, such as heavy clay, then build the frame at least 18 to 24 inches tall. If your beds are more than 6 feet long or taller than about 18 inches, they should be reinforced with cross cable, or anchored stakes both inside and outside the frame. If the boards are thicker than 2" they will last longer, similarly a 2" x 6" board will last longer than a 2" x 4" board. You can use a nontoxic wood sealer that is FDA food-contact safe to protect the wood, so it can potentially last twenty years. It is recommended to paint the inside of the frame with three coats of the wood sealer to significantly increase the lifespan of the wood frame. Another option is to line the inside of the frame with heavy duty plastic. However, do not put plastic or landscape cloth-like material on the bottom of the bed as that would interfere with root growth and water retention.

Be sure to leave pathways between the raised beds. If you want to leave room for a wheelbarrow or carts, you need to have paths at least three feet wide. The pathways can be left as lawns or covered with landscape cloth and then small pebbles or wood chips. If you can reach in from both sides of the raised bed you can make them up to four feet wide to be able to reach into the middle from either side. If the bed is against a wall or fence on one side, then it should be no more than three feet wide so you can reach fully across the bed for planting, weeding and harvesting.

Once you have built the frame, the next step is to fill the bed with the growing material. If the bed is at least 12" in height, it is not necessary to try and eliminate the grass or weeds growing on the ground. Cover the bottom of the bed with several layers of paper or two or three layers of cardboard. Be sure to remove any tape and printing from the cardboard before laying it down. Then lay down organic material to reduce the amount of compost or quality gardening soil that is initially required. Examples include dead leaves, grass clippings, straw, thin branches and twigs which will decompose within a couple of years. On top of this lay down a minimum of 6" of quality soil, potting soil and ideally 2" of compost.

The plants will consume nutrients from the soil so additional quality soil, compost and fertilizer is needed on top of the soil in the bed at least every other year. Add fertilizer based on soil testing for best results.

Raised beds enable three-season gardening and four-season harvesting. Using flexible PVC pipe or metal hoops, you can make a tunnel using row cover. The light-weight cloth will allow rain and 80% of the light through to the plants. It provides four degrees F protection so the temperature has to drop to 28F before the plants will experience frost.

You can begin sowing seeds or transplanting two or more weeks before the predicted last frost, and in the fall the plants will be protected for about two weeks after the first frost. Those cold hardy vegetables like spinach, cabbage, kale, and root vegetables like carrots, beets and radishes protected by row cover will typically survive through the winter and can be harvested during the winter months. They will begin growing again early February. Additionally, the row cover prevents insects from reaching the plants, thus protecting the plants from being eaten or having eggs laid on them. However, if the plants require pollination, remove the row cover when plants are in bloom.

A great option for those who have limited space for gardening is to use containers which can be placed anywhere that there is space and sufficient sunlight. Traditionally, containers were made of wood, terracotta, pottery and plastics. These can be very appropriate for growing flowers and vegetables. It is important that the containers are large enough to support root growth. They must have drain holes at least in the bottom so excessive amounts of water can flow out. One disadvantage of solid containers is that air can only be absorbed into the soil to support the roots through the very top layer soil. Ideally there should be some air holes through the sides of the container. One option to using things like 5-gallon plastic pails for growing vegetables is to drill some small holes in the sides in addition to drainage holes in the bottom.

Recently breathable fabric containers have become popular. They are available in sizes ranging from as small as one-gallon and as large as 100-gallons for growing a tree. They are porous, so air can get through the sides. The roots will stop growing when they come in contact with air, therefore, the plants will not become rootbound within the fabric container. A disadvantage to the porousness of fabric containers is that water will easily leak out and thus you need to water more frequently. A 3-gallon container is large enough for a pepper plant or a couple of plants like lettuce or peas. Five-gallon and larger containers are suitable for other vegetables. Ten-gallon bags are exceptionally good for growing potatoes.

## Resources

“Raised-bed Gardening,”

<https://extension.missouri.edu/publications/g6985>

“Raised Bed Gardening,”

<https://extension.usu.edu/yardandgarden/research/raised-bed-gardening>

“Soil to Fill Raised Beds,”

<https://extension.umd.edu/resource/soil-fill-raised-beds/>

“Growing Vegetables in Containers,”

<https://extension.illinois.edu/container-gardens/growing-vegetables-containers>

“Container Food Gardening,”

<https://extension.umd.edu/resources/yard-garden/containers-and-small-spaces/container-food-gardening/>

“Fabric Container Gardening: Growing Plants in a Pouch,”

<https://theplantbible.net/fabric-container-gardening/>

For more information about gardening, visit UTHORT’s YouTube site for helpful videos:

<https://www.youtube.com/channel/UCjS3d1IkIH1OZ1Z2qPvhgfQ>

Or Washington County’s YouTube site: <https://www.youtube.com/@utextensionwashingtoncounty>

## How do I ask a question?

If you have a question for the Master Gardeners, submit them to us on our website at [www.netmga.net](http://www.netmga.net). Click the link at the top of the page, “ASK A MASTER GARDENER” to send in your question. Questions that are not answered in this column will receive a response from a Master Gardener to the contact information you provide.