

Raised Bed Gardening

The centuries-old technique of **Raised Bed Gardening** is having a modern resurgence due to the popularity of homegrown vegetables.

These high yielding gardens maximize available space and offer soil improvement. Problems such as poor drainage in high clay compacted soils are eliminated. The gardens are easy to maintain and can extend the growing season.

Construction will take varied amounts of time, labor and expense. Raised beds can be architecturally interesting and are easier to tend which is especially helpful for gardeners with limited mobility. The following steps will help you achieve success.

Step 1: Site Selection

Your raised bed should receive 6 to 8 hours of full sun. It should not be at the tree drip line and should be 100 foot away from any walnut tree. There is no clear advantage to N-S or E-W orientation so choose what works best for your landscape. The ideal site should offer protection from drying summer winds and should have easy access to a water source.

Step 2: Bed Construction

The simplest and least expensive construction is a **Temporary Raised Bed**. Till a strip of garden 9 foot wide and make a 2 foot aisle on either side by throwing the soil onto the center mound. Slope the sides of the mound inward at a 45-degree angle to avoid erosion by wind and water. Organic matter should be mixed into the soil mix before or after mounding. This will only last a growing season but can be similarly refreshed the next year.

More common is a **Supported Raised Bed** which although more expensive and labor intensive, is

longer lasting. As most individuals can arm reach 3 foot, the ideal bed width is 4–5 foot. Bed length is determined by space availability. Common are beds 4 x 8 foot and 4 x 10 foot. Bed depth is variable although depths of 6, 8, or 10 inches are common. The feeder roots of most vegetables are 6-8 inches below the surface. If the soil height in the bed is less than 8 inches, the ground soil below the bed should be spaded or tilled and the bed soil should be incorporated into the top 2 inches. This avoids poor drainage from different soil interfaces.

The frame can be constructed from a variety of materials. Cinder blocks, untreated, rot-resistant lumber, landscaping stones, or other materials may be used. Avoid using treated lumber or railroad ties due to chemical content that can be harmful.

Step 3: Soil

One of the greatest advantages of raised beds is the ability to create new soil for a bed. Due to intensive planting, raised beds require better than average soil. Costs and labor vary with soil choices.

A great soil would be equal proportions of top soil and compost from a reputable source. Excavated soil or bagged top soil mixed with organic material such as leaf mold, compost, or coir mulch is another choice.

As soon as soil is placed in the raised bed, have a soil test done by your local University Extension office. Ideally, the soil pH should be 6.0 to 6.5 and the organic matter content should be 4%.

Remember, there is no legal definition for top soil, planting soil or black dirt. A reputable dealer is your best choice. Large bags of soilless potting soil are also good, but expensive choices.

Determine soil amounts by calculating cubic foot or cubic yards of space. Cubic foot = length x width x depth. Divide this number by 27 to determine cubic yards. A 4 x 8 foot bed with a soil depth of 9 inches would be 4 x 8 x 0.75 = 24 cubic foot; this divided by 27 = 0.89 cubic yards.

The **cardinal rule of raised bed gardening** is NEVER STEP ON THE SOIL as this destroys the properties that make this technique ideal.

Step 4: Planting

Without aisles, compact plantings can increase yield 5 fold over standard row layouts and in some kitchen garden layouts as much as 15 fold. Soil warms earlier in the spring allowing gardeners to jump start cool season vegetables.

For a truly productive raised bed garden, block style plantings, interplantings and successive plantings should be utilized.

In **block style**, gardening crops are planted equidistant between neighboring plants in both directions, such as, a 1 foot block of carrots on 3 inch centers containing 25 plants.

In **successive planting**, short season crops such as lettuce, spinach or radishes once harvested are replaced with beans, cucumbers or other warm season vegetables and these could be replaced by fall crops of broccoli, cauliflower or brussel sprouts.

In **interplanting**, a late summer crop is planted among an early harvest plant, such as, tomatoes and peppers planted adjacent to a row of onions. The onions will be harvested before the tomatoes or peppers grow large.

Gardeners must rethink garden layouts and learn to plant more efficiently. Gone are long straight rows and wide spacing in between

rows. Large crops such as tomatoes or squash can be planted on 18-24 inch centers. Medium-sized vegetables, such as, snap beans, peas or onions, can be planted 4-6 inches apart. Small plants such as green leafy vegetables and root vegetables can be scattered over a small square in the garden. Sprawling vegetables will need trellising, staking or caging for efficiency.

In selecting plant cultivars for a raised bed garden always choose the smaller compact varieties.

Step 5: Fertilizing

Your initial soil test gave you a start. In general, fertilizer should be incorporated into the soil before planting and later in the season fertilizer can side dress the plantings. A balanced fertilizer such as 10-10-10 is ideal in a raised bed at a rate of 1 lb per 100 square foot garden. Organic fertilizer choices are compost, bone meal, blood meal, or fish emulsion. If manure of any kind is applied to food gardens, it should be done after the final harvest so that it can be overwintered to eliminate any human disease potential.

Over fertilization of plants will lead to leaf and shoot overgrowth and decrease in productivity.

Step 6: Watering

The soil should remain moist 6-8 inches deep in the bed. Ideal would be 1-2 inches of rain per week. Since this is unreliable, additional water can be provided by soaker hoses or drip irrigation. Overhead sprinkler irrigation can lead to plant disease and if possible should be avoided. Overall, in raised bed gardens less water is used and water efficiency is increased.

Summer hot winds can be especially drying to plants in raised bed gardens. Supplemental irrigation may be needed in summer to avoid drought stressed plants.

Mulches can be applied after soils warm in late spring to retain moisture, regulate soil temperatures and control weeds. Good mulch choices are straw, pine needles, or wood chips. Apply 2-4 inch layer around young and emerged plants. Multiple thin layers of grass clippings can also be used as mulch. Clippings are easy to obtain and replenish but use clippings only 4 weeks after pesticide/herbicide application. Old newspapers under the mulch increase its efficiency. This recycles paper and the newspapers will biodegrade adding nutrients to the soil.

Step 7: Pests and Disease

The best thing to put in your garden is your shadow. Be alert to disease and pest problems when they are small issues. Call your Master Gardener Hotline at 816-833-TREE for support in treating problems.

Accessible Gardening for All

Many situations such as bad knees, bending limitations, walkers, or wheelchairs change the accessibility of gardening. The therapeutic joy and access to healthful vegetables does not change. Raised beds are invaluable tools for a lifetime of gardening joy.

Raised bed heights of 2-3 foot are good choices and 27 inches is considered ideal for wheelchair gardeners. Beds accessible from both sides can be 4-5 foot wide. Beds with front access only should be 2-3 foot. A sitting ledge on the raised bed helps every gardener avoid fatigue and ideally these should be 10-12 inches wide.

For more information and the resources used to prepare this guide on Raised Bed Gardening, see the Master Gardener of Greater Kansas City website, <http://www.mggkc.org>, under Publications/Other Publications.



Raising Gardening To New Heights



**An Informational Guide
To Raised Bed Gardening
In Kansas City**

Prepared By:

