

# Raised Bed Gardening

D. Hatch

Growing a garden is a challenge in many urban and rural areas because of soil conditions. Homes are not always built on soils with desirable agricultural characteristics, and many soils are modified adversely by home construction. Vegetable gardening is difficult at best under these conditions. Gardeners soon are discouraged by the difficulty of preparing an adequate seedbed because the soil dries so slowly in the spring. If the planting finally is made, crusting, clods, and collapse of plants during the summer prevent the bountiful harvest promised by seed catalogs.

For centuries, crops in many parts of the world have been produced on modified soils in elevated growing areas between walkways. This "raised bed" technique has been adapted to smaller areas and can be a viable solution to the problems of growing a garden at home.

Soil modification can be achieved by incorporating organic matter. Substantial quantities are required, so the organic matter should be readily available and

relatively inexpensive. Sawdust, ground bark, leaves, or chipped pruning materials meet these criteria to one degree or another. If the organic materials are composted, so much the better, but this is not a necessity.

Other satisfactory materials, although more expensive, include planting mixes and animal manures, either alone or mixed with some kind of bedding material.

Creating a raised bed usually includes a great deal of spading, possibly a multiyear process, but the following method permits good garden production in the first year after a relatively simple soil modification process.

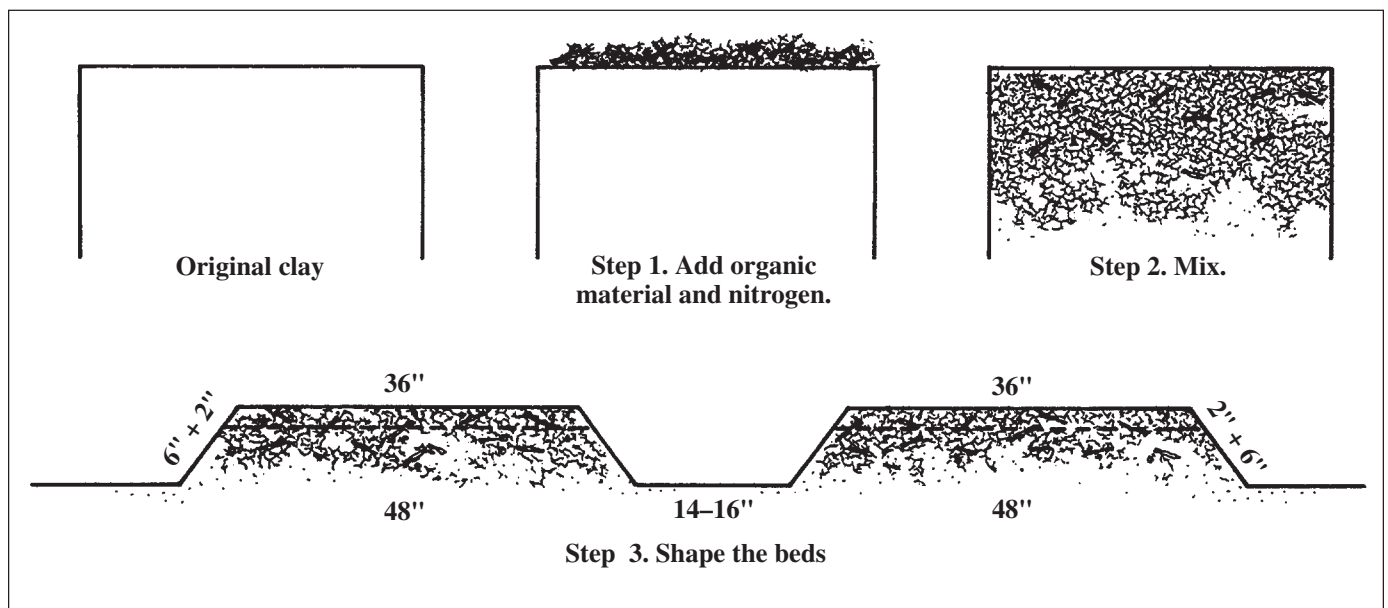
## Preparing raised beds

If the soil is compacted, an initial rototilling is helpful, even if only 2 or 3 inches deep. Do not rush this step; wait until the soil is dry enough to crumble easily and not turn up in large chunks.

*Step 1.* Spread a 2- to 3-inch layer of organic material over the soil surface (see illustration below). A cubic yard will cover 162 square feet 2 inches deep, so you will need 6 to 7 cubic yards per 1,000 square feet.

Unless you use a composted product, a mixture that contains manure, or a commercially fortified planting mix, you will need to supply nitrogen. Nitrogen is needed for organic matter breakdown. Broadcast one of the following uniformly over the layer of organic material.

| Product           | Pounds per<br>1,000 sq ft<br>(for 2 inches<br>of organic material) |
|-------------------|--|
| Ammonium sulfate  | 20   |
| Ammonium nitrate  | 12   |
| Urea              | 9  |
| Poultry droppings | 400–700  |



**OREGON STATE UNIVERSITY**  
**EXTENSION SERVICE**

*Duane Hatch, former Extension agent,  
Lane County, Oregon State University.*

*Step 2.* Rototill to a depth of about 6 inches to mix in the organic matter. Spading accomplishes the same objective, but using a tiller makes the job less backbreaking and the results more uniform, especially in heavy clay soil.

*Step 3.* Use a shovel and rake to shape beds about 48 inches wide. Shovel the walkway area (14 to 16 inches wide) to a depth of 6 inches. Add the excavated soil to the top of the beds. This creates a soil-organic mix about 8 inches deep, sufficient for adequate rooting of most vegetable plants.

When the elevated area is raked level, the natural slope of the soil will leave about 36 inches of flat planting space on top of the 48-inch-wide bed. Once the shaping is finished, keep traffic in the paths and do not compact your nicely prepared planting beds. Add sawdust or bark to the paths to prevent problems with mud.

The walkways between the raised beds may seem to be wasted space. However, you will be able to grow much more on the beds than you could in a standard garden without raised beds.

"Retaining walls" are not necessary unless you want to create special shapes or use narrower walkways to fit your garden space. Boards, blocks, or railroad ties will hold the soil in place, but they also create a place for slugs to hide and breed.

### **Planting and caring for plants**

Plant seeds or transplants. Application of fertilizer is important at this time because the nitrogen you added in Step 1 took care of only the 2-inch organic layer. Additional nutrients are needed for adequate nourishment of garden plants.

Whether you use organic or chemical fertilizer, keep in mind that vegetables need a lot of nutrients. They grow rapidly, producing an entire plant and crop for harvest in only 25 to 100 days. Be sure you apply enough nitrogen, phosphate, and potash to feed the plants properly. Pale green plants craving

nitrogen probably will appear more often in raised beds than in conventional gardens. Add the nitrogen as needed during the growing season.

Irrigate properly to keep plants growing. The mixture of soil and organic matter in raised beds dries faster than clay soil. On the other hand, the soil is loose, so it absorbs water faster. Soaker hoses or upside-down sprinkler hoses can be used to good advantage. With low pressure, they will apply water right where you want it along each row of plants.

Keep the walkways as dry as possible to help control weeds. Place stakes at the corners of the beds to prevent hose dragging from damaging plants.

### **Maintaining the beds**

Organic matter decomposes and disappears, so add more of it often. Use compost to provide nutrients during the summer. Cover the beds with 2 inches of leaves or other organic material each winter. This material will be pretty well decomposed by spring, and planting can proceed on schedule.

Fill the walkways with leaves when they are available. This will create a trench of composted material that you can rake up onto the beds later.

Once the beds have gone through the improvement process, rototilling should be unnecessary. Conditions may not be ideal yet in the first spring following bed construction, but light spading or forking will create a suitable seedbed.

As you keep adding more loosening material, you will be able to garden almost all year. Earlier planting will be possible because the improved drainage creates a better environment for plants. It also promotes faster warming of the soil and more rapid growth in the early season. At the end of the season, better drainage means healthier plants that will continue yielding longer. The walkways can provide better footing after rains begin. You are more likely to harvest cool-season crops with less mud to battle!

### **For more information**

*Cover Crops for Home Gardens*, FS 304 (revised September 1994, reprinted April 2001). No charge

*Eastern Oregon Vegetable Garden Guide*, EC 1491 (published December 1997, reprinted November 1998). \$1.50

*Fertilizing Your Garden: Vegetables, Fruits, and Ornamentals*, EC 1503 (published December 1998, reprinted April 2000). \$1.50

*Growing Your Own Vegetables*, GROW (revised April 2000). No charge

*Planning a Home or Farm Vegetable Garden*, EC 871 (revised March 1992, reprinted July 1993). 75¢

*Short Season Vegetable Gardening*, PNW 497 (published January 1997). \$2.00

*Soil Sampling for Home Gardens and Small Acreages*, EC 628 (revised June 1995, reprinted June 2000). No charge

*Sustainable Gardening: The Oregon-Washington Master Gardener Handbook*, EM 8742 (published October 1999, reprinted January 2002). \$22.00

To order copies of the above publications, or additional copies of FS 270, *Raised Bed Gardening*, send the title and series number, along with a check or money order for the amount listed (payable to Oregon State University) to:

Publication Orders  
Extension & Station Communications  
Oregon State University  
422 Kerr Administration  
Corvallis, OR 97331-2119  
Fax: 541-737-0817

You may order up to six no-charge publications without charge. If you request seven or more no-charge publications, include 25 cents for each publication beyond six.

### **World Wide Web**

You can access our Publications and Videos catalog, many of our publications, and additional gardening information through our Web site at [eesc.oregonstate.edu](http://eesc.oregonstate.edu)