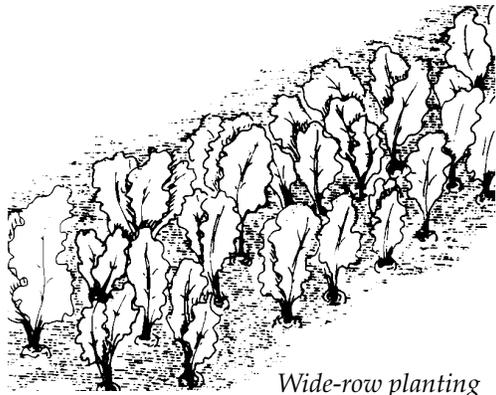


Specialized gardening techniques: *Wide-row planting, square-foot gardening, and raised beds*

Helen C. Harrison



Wide-row planting

Wide-row planting, square-foot gardening, and raised beds are specialized gardening techniques that are especially popular with urban gardeners since they allow intensive gardening in relatively small spaces. These techniques are similar in some respects, and you can use them individually or combine them to fit your gardening needs.

Wide-row planting

Wide-row planting is just what its name indicates—simply planting seeds in a band rather than a single row. Wide-row plantings do not have to be raised-bed plantings—in fact, they usually are not. But like raised beds, the width of the row should be such that you can easily reach the center of the bed from each side (about 3 feet).

Planting. For wide-row planting, prepare a seed bed just as you would with traditional row planting. Use string and stakes to ensure a straight band or bed by placing a taut string on either side of the 3-foot bed. Then scatter the seed over the bed and cover according to crop directions. If you don't like to thin seedlings, place one or two seeds in holes spaced equal distances in all directions.

Crops that grow quickly do best in wide-row plantings, forming a leaf canopy that effectively competes with weeds. Most leafy crops fall into this category including chard, kale, leaf lettuce, mustard, and spinach. Crops that are poor weed

competitors, such as carrots and onions, do not work well in wide rows since weeding is more difficult than in traditional row planting.

Square-foot gardening

Square-foot gardening is a form of intensive gardening where you block off squares of space for crops rather than planting them in rows. The name comes from partitioning off blocks of garden space that are 1 ft x 1 ft.

A common arrangement is to mark off squares that are 4 ft x 4 ft (16 square feet). This area is then divided into four parts 2 ft x 2 ft (or each 4 square feet) with walkways around each main 16 square foot section (figure 1).

Planting. Within each small 4 square foot block a different crop is planted. Although plant or seed count depends on crop size, it is usually greater than regular row gardening—increasing production per unit area. Each plant or seed is planted an equal distance from all other plants or seeds of that variety.

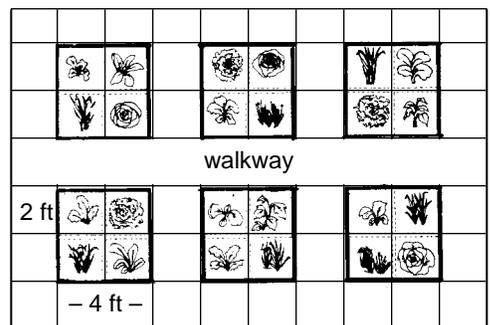


Figure 1. A common square-foot gardening arrangement.

Mulching usually is recommended for square-foot gardening since weed control can be tedious. Mulching also helps retain soil water which is important since crops need more fertilizer and water as the distance between plants decrease.

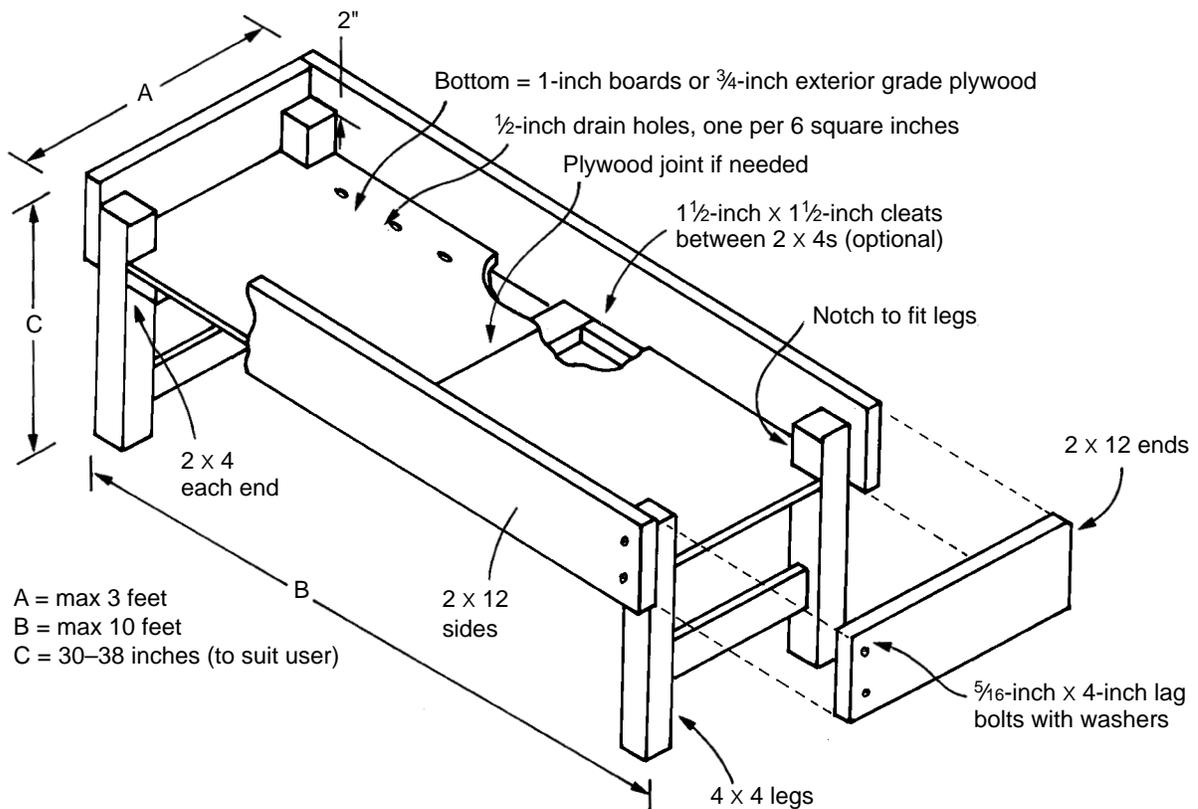
Raised beds

In raised-bed gardening the planting surface is elevated to a predetermined height. You can do this several ways. Perhaps the easiest method is to simply mound up garden soil (about 6 inches), allowing the sides to slope gently to the ground. These are **nonpermanent beds**, and as the growing season

progresses, they shrink as rain erodes and compacts the soil. Thus, this type of bed is ideal for annual plantings in the home garden since it does not interfere with fall or spring soil cultivation.

If you want to elevate a bed more than 6 inches or if the bed will be used to grow perennials, you'll need a more **permanent bed**. The most

Figure 2. Design for raised bed with wheelchair access.



A = max 3 feet
 B = max 10 feet
 C = 30–38 inches (to suit user)

MATERIALS
 (All wood treated)

4 x 4	12 feet	white pine
2 x 4	15 feet	white pine
2 x 2	12 feet	cedar
2 x 12	26 feet	cedar
3/4-inch exterior grade plywood—1 sheet (4 x 8 feet)		
5/16-inch x 4-inch lag bolts—16		

*Optional suggestion:
 Center brace on bed*

WIDE-ROW PLANTING, SQUARE-FOOT GARDENING, AND RAISED BEDS

common permanent raised bed is one that has four built sides (but no built top or bottom). Usually boards and railroad ties are used to build up the bed to the desired height, but layered rocks, cinder blocks or other strong materials also can be used.

Prepare the soil beneath the bed before placing side structures on the ground.

Another type of raised bed is a wheelchair-access bed—designed for gardeners in wheelchairs or those who can't bend over while gardening. It is basically a large rectangular open box on legs. A good size is 10 feet long, 3 feet wide, 1 foot deep, and 3 feet off the ground (figure 2). This size accommodates approximately eight persons in wheelchairs.

In all raised beds, the width should be such that you can easily reach the center from each side without damaging the bed (about 3 feet). If a raised bed will be against the house, garage or fence, then it needs to be half as wide as one that is accessible on both sides—about 1½ to 2 feet wide. Do not step or lean on your raised bed or soil compaction will occur.

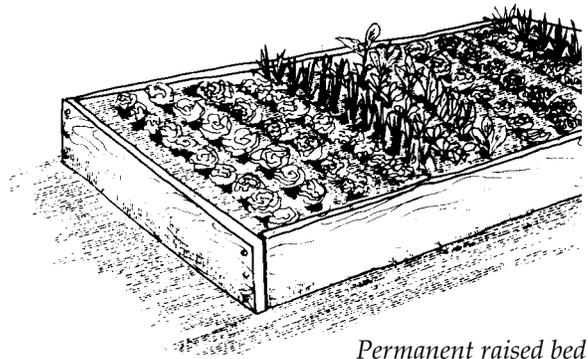
Soil. Soil in raised beds should be friable (crumble easily). A good soil mixture for raised beds is one part organic material (such as peat moss, compost, leaf mold, or dehydrated cow manure), two parts topsoil, and one part perlite, vermiculite, or sharp sand for drainage. You can use a water-soluble fertilizer such as Peters throughout the season or incorporate a slow-release fertilizer such as osmocote into the soil mix. Fertilizer rates should be determined by soil test results and what crops you grow.

Planting. You can plant raised beds in several ways. You may want to have one to three conventional rows of plants running parallel to the raised bed, depending on the width of the bed and size of the plants. Or, you can plant more intensively as with wide-row planting and square-foot gardening—that is, plant each seed or plant an equal distance from every other plant. All plants should be at least 6 inches from the side of the bed to prevent root drying and exposure. Plant large crops such as melons in one central row with each plant centered in the bed.

Treating wood used for raised beds. Wood used to build permanent types of raised beds should be treated with wood preservatives unless redwood or cedar is selected. Both are long lived under most weather conditions, but tend to be more expensive than other alternatives.

The simplest method is to purchase wood treated with chromated copper arsenate salts (CCA salts). This is the best type of preservative for wood that comes in contact with soil. CCA is applied to lumber under pressure and is so strongly bound to the wood that leaching is not a problem. In addition, CCA is rarely toxic to plants. The life of CCA-treated wood in soil contact is 40 years.

CCA is not available for homeowners but CCA-treated lumber is available at most local lumber yards. It has a slightly green cast to it and is sold for use as landscape timbers, fencing, and decks.



Permanent raised bed

Ask your dealer for the Consumer Information Sheet on CCA salts. This sheet instructs users on the proper precautions to take when handling, sawing, or disposing of CCA-treated wood.

Pentachlorophenol and creosote are also wood preservatives, but are not available to homeowners. Lumber treated with pentachlorophenol or creosote should not be used to build raised beds. Both preservatives cause skin and eye irritation and frequent contact with penta or creosote-treated wood can lead to skin disorders. In addition, some plants are sensitive to these compounds and fail to thrive or may even die when exposed to them.

Copper and zinc naphthenate are wood preservative compounds which you can buy and apply to wood yourself. You paint wood surfaces with these compounds, but the paint only penetrates about ⅛ inch. Thus, the life of wood treated with these products is much shorter than that of CCA-treated wood. Research results do not agree as to possible toxicity of copper and zinc naphthenate to plants, although there appears to be little damage to most species.

Weighing the advantages and disadvantages of raised beds.

Probably the biggest advantage of raised beds is improved soil drainage. Raised beds are particularly useful if you have a garden that doesn't drain well because of heavy clay soil or because it is in a low-lying area. In addition, in an extra damp area, plants that don't like having "wet feet"—such as okra, kale, and gourds—grow well in raised beds. Raised beds also benefit "root" crops grown on heavy soils, such as beets, carrots, onions, potatoes, radishes, rutabagas, and turnips.

Another advantage of raised beds is they allow you to plant under less than ideal conditions—such as around some trees (check species for tolerance). Tree roots can be a real obstacle to bed preparation, so raised beds let you plant your flowers without any trouble. Raised beds also can add an attractive touch to your landscape. Finally, they can offer gardening access to persons who otherwise would be unable to participate in this activity.

But raised beds have their disadvantages, too. Perhaps the biggest disadvantage of raised beds is their tendency to dry out. Beds may require more than twice as much water per week as conventional plantings, depending on the height of the beds and soil texture.

Raised beds are not recommended for sandy soils, because the soil dries out fast and beds wash away quickly unless they have permanent sides. However, proper mulching can help alleviate these droughty conditions. For more information see Extension publication *Mulches for Home Gardens and Plantings* (A3383).

Another disadvantage of raised beds is that they can be more work to prepare and maintain than conventional garden arrangements. Thus, you should carefully weigh the advantages and disadvantages of raised beds for your particular situation.

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