DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Raised-bed Gardening on a Budget

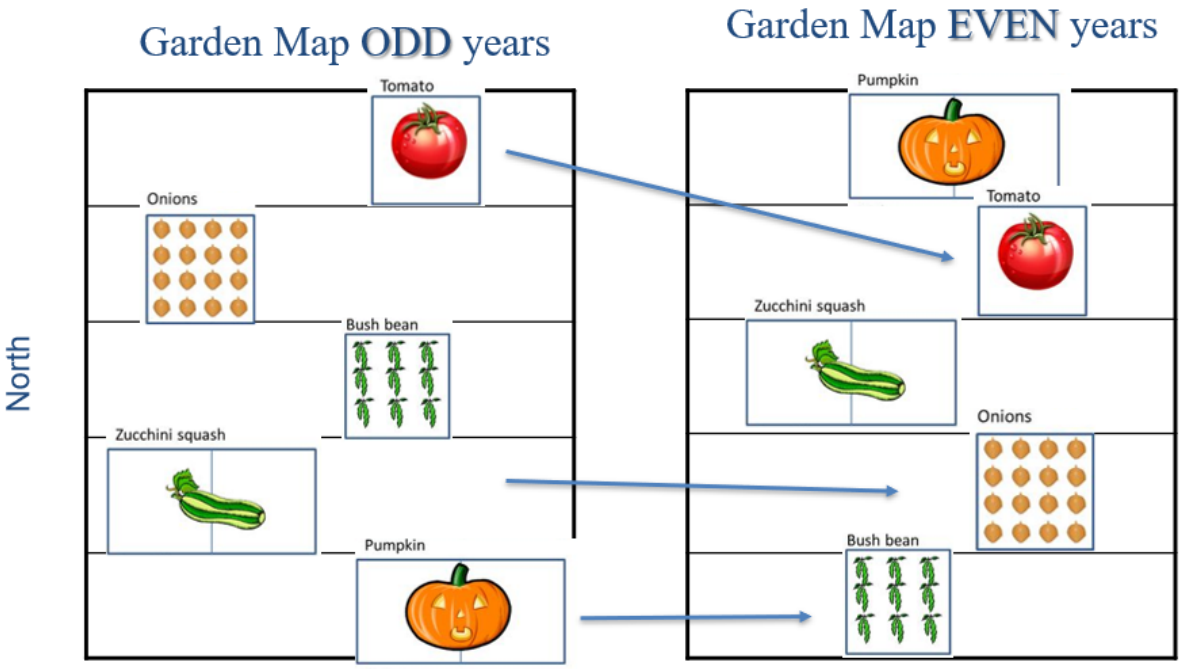
A raised-bed garden is a great alternative to grow healthy, delicious vegetables

Is your soil poorly drained or heavy clay? Not enough space for a full garden? Is bending or reaching an issue? A raised-bed garden may good a helpful solution to grow your favorite vegetables.

The benefits of raised beds are that they can be any shape or size to fit your needs, can be placed where your plants will get adequate sunlight, and can help you avoid soils with poor drainage, low organic matter, or heavy clay and rocks.

Furthermore, a series of raised beds allow gardeners to rotate crops annually to reduce disease buildup in soils. For example, growing tomatoes in the same location year after year may allow fungal or bacterial disease such as early or late blight to build up and infect new plants. Extension recommends trying to rotate plants and only return to the original growing location after the 3rd year.

Crop Rotation



If building a raised bed doesn't sound appealing, many vendors offer pre-made beds or kits that require minimal assembly.

As with anything, there are pro's and con's to having a raised bed.

1. Cost – you'll need to make an initial investment into lumber and fastening hardware, weed barriers, and soil
2. Water – locate your bed with access to a water supply. Raised beds dry out faster than in-ground gardens
3. Temperature – raised beds are more subject to changes in temperature. They may heat up or cool down more quickly than the ground
4. Size – small beds may not support large crops such as melons or pumpkins
5. Material – wood beds may degrade over time and have to be replaced

We constructed this simple raised-bed garden with a budget in mind, and minimal use of hand tools, and repurposed some materials like weed barriers to save on costs. The goal for this demo was to have the cost be under $100, to use all the lumber, and have less than ten cuts. We achieved this by making the dimensions of our bed match the length of the lumber as purchased. In this case, the lumber was 8-feet in length, so we avoided having to cut the boards that comprised the length of the bed.

What type of lumber to use

We chose cedar lumber. Cedar contains oils and tannins that make the lumber naturally rot resistant. Untreated lumber is less expensive and can be used, but it will degrade faster. Untreated lumber exposed to the elements may last 3 to 5 years, while a cedar bed may last well past 10 years. Generally, we don't want to use pressure-treated lumber, there may be some chemicals in there that could leach into the soil, though the regulations on those chemicals have changed in the past decade.

Since budget was a concern, this bed was made using 1-inch thick lumber. Using 2-inch thick lumber will add extra rigidity and strength to a raised-garden bed and possibly last even longer. Soil, especially when wet, can be quite heavy, and the lumber is going to have the tendency to bow outward or warp. Adding some bracing in the middle of the bed, especially beds longer than 4 feet is recommended. 2 x 4 lumber can be used to add or brace, or even a threaded stainless-steel rod. In our case, we cut our corner braces and middle braces a bit longer than the bottom of the bed so that they could be anchored in the soil, preventing the long edge from bowing out.

Planning your raised bed garden

Before any lumber is purchased or cutting begins, a plan should be sketched, and the site evaluated for levelness, sunlight, and access to a water source. Make sure you have double-checked your dimensions so you only have to make one trip to the lumber yard.

There are several tools that may be helpful to construct the bed.

1. Handsaw, circular saw, miter saw, or table saw
2. Drill or cordless screwdriver
3. Fastening hardware (will vary based on board thickness)
4. Measuring tape
5. Speed square (optional but very useful for angles, straight-line marking, and cut support)
6. Clamps

You don't want are weeds and grasses growing up through your raised bed. So you'll also need to determine how you will deter weeds either by lining the bed, removing existing weeds with a spade or shovel, or solarizing the soil for several months. It's the preference of the gardener, but many materials can be used to deter weeds in the bed such as cardboard, newspaper, landscape fabric, or even leaves or mulch. In our demonstration, we re-purposed yard waste bags cut and laid flat in the bed.

Dimensions of the garden

The dimension of this bed are 8-feet long by about 3-feet wide. A second board of the same dimension was stacked on the top to make the bed 12 inches deep (6 inch board width)
We purchased a 12-foot board that was cut to comprise the 3-foot width (4 cuts = four 3-foot sections). The corners were reinforced with a 2 x 4 that was ripped (cut longitudinally). For even more structure, brackets or 4 x 4 cedar posts can be used to anchor the corners and provide extra support. This demonstration only required 9 cuts for our final design. A larger or different shaped bed may require more sawing. When using power tools or saws, make sure you've got some dust protection, ear protection, and eye protection.

Once the structure is confirmed, you can begin to clamp the lumber into place and fasten with outdoor wood screws. You can make a simple template with a piece of paper or cardboard to ensure your fastening screws don't get drilled into each other. Space the location of your drilled holes to prevent intersecting screws. We used four screws per corner to establish a sound connection.

Once fully assembled and the site removed of existing weeds, the structure can be placed with the bottom of the bed flush with the soil level, and corner and middle supports buried approximately 4 to 6 inches and backfilled with soil.

Your lining material may need to be placed first, or you can work the lining into the bed to suit your needs. The only step left is to fill with a high-quality top soil mixed with organic matter

such as compost. Compost will help retain moisture, provide some nutrients, and will ensure your bed is well-drained. Once planted, you may also apply a layer of mulch two to three inches thick to retain moisture, suppress weeds, and protect plants from soil splashing onto the surface during rains, which may spread pathogens to your crops.

Make sure and keep in mind the mature size of what you are planting and give them plenty of space to grow and fertilize to meet their nutrition requirement. Check the soil moisture often and water accordingly.

This design took one afternoon to construct and another hour or two to place the bed, prep the site, and fill with the soil mix. The materials cost approximately for under $80 and another $20 or $30 for the soil mix.

For more yard and garden resources visit www.uaex.edu/yard-garden